National Library
of Canada

Bibliothèque nationale
du Canada

Canadian Theses Service

Service des thèses canadiennes

Ottawa, Canada
K1A 0N4

NOTICE

The quality of this microform is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

Reproduction in full or in part of this microform is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30, and subsequent amendments.

AVIS

La qualité de cette microforme dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

La reproduction, même partielle, de cette microforme est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30, et ses amendements subséquents.

Canada at the Uruguay Round:
Regulating the Information Economy

by

Valerie J. Howe B.A.

A thesis submitted to the Faculty of
Graduate Studies and Research in partial fulfillment
of the requirements for the degree of
Master of Arts
in Canadian Studies

Carleton University

OTTAWA, Ontario

Mar.22, 1991

c 1991, Valerie J. Howe

National Library
of Canada

Bibliothèque nationale
du Canada

Canadian Theses Service Service des thèses canadiennes

Ottawa, Canada
K1A 0N4

The author has granted an irrevocable non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of his/her thesis by any means and in any form or format, making this thesis available to interested persons.

The author retains ownership of the copyright in his/her thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without his/her permission.

L'auteur a accordé une licence irrévocable et non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de sa thèse de quelque manière et sous quelque forme que ce soit pour mettre des exemplaires de cette thèse à la disposition des personnes intéressées

L'auteur conserve la propriété du droit d'auteur qui protège sa thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

ISBN 0-315-68874-2

Canada

The undersigned recommend to the Faculty
of Graduate Studies and Research acceptance of the thesis

"Canada at the Uruguay Round:
Regulating the Information Economy"

submitted by Valerie Howe, Hons. B.A.
in partial fulfilment of the requirements for
the degree of Master of Arts

.....
Thesis Co-Supervisor

.....
Thesis Co-Supervisor

.....
Director
Institute of Canadian Studies

Carleton University

Ottawa, Ontario

May 1991

Abstract

At the Uruguay Round of the GATT the world first began to structure an international agreement on services, investment measures and intellectual property. Critical legal studies informs this detailed examination of the construction of legal meaning through international 'trade' negotiations. Of pivotal importance for the structure of the information economy, the regulatory regime which results will allocate rights and obligations in regard to international movements of capital, information and skilled workers. Canada has participated in these negotiations as a supporter of a program which intends to benefit the exporters of information technology even though it is a net importer. If enacted, the Canadian negotiating positions would provide private, foreign enterprises with preferred access to publicly-supported Canadian science, technology and information-moving infrastructures. Border-less information and capital networks are likely to establish Canada's position as a provisioner of raw information rather than an exporter of processed information.

Table of Contents

Abstract	i
Ch. I. Introduction and Conceptual Framework	1
Ch. II. The Transferor Side	20
Ch. III. The Transferee Side	67
Ch. IV. Canada as a Transferee with a Transferor Perspective	99
Ch. V. Conclusion	138
Acronyms	154
Glossary	155
Primary Sources	158
Secondary sources	164
Interviews	176

As the century and the millenium end, we have the rare opportunity to witness the construction of a new economic system. In the new economy, information is both the key input into production, the main source of value added and the most profitable product. We can not see the future but we can observe the plans which are being made. We can see the realignment of resources and benefits, the creation of new technology and the uses which are being sought for it, the movement of production, money and markets. And we can observe the construction of new international legal categories with which to allocate value, property and rights to the new factors of production.

Principal among these new legal categories are three subjects: investment measures, intellectual property and services. The contextual meaning and legal significance of these matters are the subject of negotiation and a subject of this thesis. I will, however, provide working definitions which minimize the value judgments these matters evoke on both sides of the debate. Investment measures are state policies and laws which affect investment. They may forbid investment in certain areas (closed sectors), require a degree of local equity, encourage investment or attempt to influence investment activity by placing conditions, either on investment entry or on access to subsidies or benefits. Intellectual property includes copyright, protection of an artist's interest in its work and industrial property, a monopoly grant to reward commercial inventions. Both have been extended to a variety of new processes, strategies and products made possible by technological advance. Services, once a residual category

including everything that was not a resource or a manufacture, has now become the focus of attention as the fastest growing element of the world economy. This category includes everything from telecommunications to payments for technology licencing to baby care. As will be seen, some services are of much greater significance to the negotiators than are others.

A primary institution in which the categorization and definition of these subjects will occur is the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) and related multilateral trade negotiations. Negotiating groups dealing with services, investment measures and intellectual property (the 'new issues') will establish international legal definitions of the issues and the framework for their international regulation. In this thesis I will demonstrate that these issues are three pillars of the new information based international economy. The determination of which domestic laws dealing with investment measures, intellectual property and services are legitimate and which illegitimate, will influence the nature of the new economy and its allocation of advantage. In this thesis I will argue that the usual categorization of these subjects as part of trade liberalization represents a strategic move on the part of the countries which export information technology. Also, the depiction of the contest as one between developed and developing countries misrepresents both the parties and the interests at stake.

I will argue that the contest is better understood in terms of the opposition of interests between the two sides involved in

technology transfer. I call these interests the transferor side and the transferee side. I use the term transferors for those countries which export more information-intensive technology than they import and the name transferees for those countries which buy more foreign high technology than they sell. (The former are said to have a positive technology trade balance and the latter a negative one.) This definition is easily measureable. The arguments which I have attached to each side, however, are 'ideal pure types' in the Weberian sense. Weber describes such categorizations as involving a high degree of logical integration such that they are unlikely to be found in their pure form in the real world. He adds,

The construction of a purely rational course of action... serves the sociologist as a type (ideal type) which has the merit of clear understandability and lack of ambiguity. By comparison with this it is possible to understand the ways in which actual action is influenced by irrational factors.¹

The transferor/ transferee dichotomization focuses on the difference between the interests on each side. It may be that no country will perfectly exemplify all of the attributed characteristics. I believe, however, that the categorization is sufficiently supported in this thesis to justify its use as one of many possible lenses with which to consider the issues at stake. I will use this conceptual model to test my hypothesis that Canada is a transferee with a transferor perspective.

The three new issues have been introduced into multilateral trade negotiations by the transferors in order to maximize and

¹ Max Weber, Economy and Society: An Outline of Interpretive Sociology Vol 1. New York: Bedminster, 1968, 6.

guarantee the profit potential of their technological advantage. The transferors promote a policy package which includes a conceptualization of the commodities, rights and values involved as well as legislative and policy actions which would, in their view, appropriately allocate rights and values between transferors and transferees. The two sides find themselves engaged in international negotiations because domestic legislation of the transferees impedes transferor objectives. Essentially, transferors or sellers want to achieve the maximum price with the minimum alienation of their assets. They want a definition of intellectual property which includes virtually every firm asset which is immaterial. They want assured access for their information and data flows to affiliates regardless of national borders and they want to remove domestic interference with their technology sourcing strategies. Thus, for them, domestic investment and service sector measures represent offensive and interventionist restrictions to their investment activity and national intellectual property regimes which differ from their own endanger their profits from firm assets. Technology transferees want to pay less and get more when they buy foreign technology and they want to protect, from predatory investment, developmentally important service sectors and national scientific capacity. They see the imputed policies and legislation as legitimate, defensive, development-related measures whose impact is primarily internal and whose objects include lessening the disadvantages they suffer from unregulated foreign investment including the terms attached to intellectual property licenses. On

the other hand, they are inclined to see the transferor package of proposals as illegitimate and offensive interference with domestic legislation. They challenge the transferors' argument that any sale of technology amounts to technology transfer; rather they believe that for technology to be truly transferred the transferee must be able to use the technology for its own purposes. As the terms I have used suggest, there is a heavy normative element to this struggle. There are also significant economic and legal differences between the two approaches.

I will show that the interests on each side are not compatible with traditional arguments as to the advantages or disadvantages of free trade but rather concern a new production logic, new firm strategies and new national strategies based on technological and scientific advantage. Much of the traditional economic logic concerning the basis of national productivity and competitiveness, the basis for corporate multinationalization and international economic relations no longer applies. The presentation of the new wine within the old bottles may derive in part from the natural tendency to see the new through the filter of old experiences. In part, however, it stems from a specific political strategy which seeks to take advantage of the institutional resources of the GATT-- whose authority is restricted to trade. On the basis of my understanding of the issues, I hypothesize that Canada's negotiating position on these issues is that of a transferor while its material location is that of a transferee. Envisioning the issue as one of trade liberalization and the contest as one between

developed and developing economies, Canada has come out on the side which it sees as representing gains from trade for developed countries but which actually seeks to consolidate the advantages of exporters of information and high technology services. Moreover, this platform does not offer mutual advantage and a level playing field but rather would drain open, transferee economies of their technology, their science and their science policy tools.

The interacting elements of our drama, then, are revolutionary technological change, the arena in which the ensuing values, products and properties will be defined and a small transferee country. But what are the relations among them? I have chosen to examine these issues from the perspective of critical legal theory because of its preoccupation with the construction of meaning through law. This preoccupation immediately commends it for this topic because the objective of the negotiations on the new issues was precisely one of definition. The fact that no bargains were concluded as to the allowable tariffs on computers or as to which service sectors can be protected from foreign investment, was not central. Those details could be worked out later. The immediate issue was whether or not these subjects could be defined as trade matters and consequently as appropriately regulated under the GATT. That was the threshold definitional battle; others flowed from it. Without appreciation of the validity of 'meaning building' as a foreign policy objective or of the real accomplishment which even unfinished categorizations constitute, one might conclude that 'nothing had happened' in the negotiations on the new issues.

An approach specific to law facilitates close observation of the construction of power and the allocation of resources through legal categories. A critical legal approach adds a specifically critical orientation and the contribution of certain heuristic techniques. In particular, this approach has contributed useful analysis of the relations between power and legal principles and rules.² I have organized the three central chapters of this thesis with the objective of shedding light on how underlying principles and institutional rules shape the discourses which describe these issues as trade-related or development-related.

Critical legal scholars have studied law's reliance on categorization. Law schools train legal scholars through an approach which sharply divides experience into different legal categories and further subdivides subjects according to legal subcategorizations. The solutions to social conflict are held to lie in the correct subcategorization. For example, a North American car manufacturer thought it had a valid claim against Asian car imports which were priced very low. Broadly this is a GATT trade matter, subcategory: dumping. Dumping, under GATT law, is selling goods in an export market for less than their normal, home market cost. According to GATT law, dumping violates the principle of mutually advantageous free trade, specifically, it may "have

² See Alan Hunt, "The Theory of Critical Legal Studies" 6 Oxford Journal of Legal Studies (1986): 1-45; Mark Tushnet "Critical Legal Studies: An Introduction to Its Origins and Underpinnings" 36 Journal of Legal Education (1986):505-517.

harmful effects for other contracting parties... and may hinder the achievement of the objectives of this Agreement".³ In light of this objective, it is compensable only when subsequent damages (such as loss of market share) are proven. Eventually, the Anti-Dumping Tribunal resolved the dispute by 'finding' that the Asian cars had been dumped but that the cause of the North American manufacturer's lost market share lay elsewhere. Legal analysis like this gives the appearance of being a logical, rational and neutral system. In this way, law has traditionally been presented as a scientific exercise. Value choices, political influence, and cultural norms have been explicitly denied.

Critics began to notice, however, that the categories, concepts and principles of law were not clearly indicated either by logic, rationality or neutrality. They noted that liberal legal principles and categorizations resounded with the need to balance the needs of individual and social interests. This, they concluded, was a fundamental contradiction. That is to say that the liberal project of balancing these interests within a neutral process by recourse to legal norms, was an impossible one. Beyond that, the principles established to balance interests were not logical, the process was not neutral nor were the decisions logically derivable from the principles. Rather, as Hunt argues:

Mediation between conflicting interests at best offers only a pragmatic response to social conflict which can achieve nothing other than a set of results which reflects the unequal

³ GATT Article XVI, B. 2.

distribution of power and resources while claiming to act in the name of a set of universal social values.⁴

A similar critique could be made of the principles, categorizations and rules of international economic law. Consider, for example, the above-noted GATT principle of the mutual advantages of increased trade liberalization. This legal principle derives from unmitigated acceptance and endorsement of the 'free market', a capitalist economic model. That model is no more neutral, necessary or inevitable than is the model of liberal political rights with which it corresponds. This is not to say that markets do not exist in experience. Rather it is the logic, justice and efficacy of the idealized model which might be challenged by critical legal theory. Also, its ultimate project of reconciliation may be untenable. Trade interests may be fundamentally contradictory, not compatible. Concerning the current issues, for example, the attempt to define 'appropriate' patent terms requires balancing the desire to adequately reward innovation with the need to avoid granting an excessive monopoly which inhibits other innovators or producers or does not lead to social access to the knowledge within a reasonable period. To date, there is little indication that the patent system effects any such balance or that it has a strategy for so doing.

In the first place then, critical legal theory leads me to approach the negotiations over the three new issues with an eye to the constitution of meaning and specifically to the constitution of

⁴ Hunt in Oxford Journal of Legal Studies, 6: 5.

a meaning which purports to balance the opposed interests of transferors and transferees. Resistance to the introduction of these issues into the GATT led to the constitution of a 'dual track' strategy whereby negotiations concerning intellectual property and investment measures were held at the same time within the same premises and framework but were not formally part of the GATT negotiations. The discussions on these issues, rather, were to determine how best to deal with them, to consider their trade related aspects and whether existing international institutions were adequate to regulate them. It will be interesting to see whether this conceptual distinction was maintained in practice or whether, 'once the camel's nose was in the tent the rest of the body soon followed'. Do the transferee practices which are being challenged by transferors come to be defined in the negotiated framework as primarily 'trade related' and therefore GATT matters, or development-related, as normal economic relations or as restrictions on normal economic relations, as legitimate or illegitimate?

In addition I would like to examine the derivation of new legal categories from traditional norms and principles such as the above presumptions about markets as well as those concerning the appropriate sphere of domestic control of foreign investors. Many of these background norms have already been institutionalized in GATT principles, some are being introduced with this package. As Mary Douglas argues, "...when society reaches a new level of

economic activity new forms of classification must be designed...."⁵ Yet classification rarely starts fresh: "[u]nfortunately, all the classifications that we have for thinking with are provided ready-made...."⁶ Douglas adds that the process of pouring new wine into old bottles may be so subtle as to obscure the extent of re-definition involved. "The high triumph of institutional thinking is to make the institutions completely invisible."⁷ In order to evaluate the extent of redefinition and the role of previous understandings in the new concepts it is necessary to pay attention to the old background models of trade and of the alternative development approach. The main chapters of this thesis will examine the transferor side, the transferee side and the Canadian position, respectively. In each case I will begin with the ready made concepts and classifications which shape that party's approach to the new issues. This will allow for consideration of the role which tradition plays in the constitution of these new issues.

To appreciate the extent of re-definition it is also necessary to compare and contrast the old definitions with the new phenomena. Thus, consideration of the scope of information-based innovation will also shape this thesis. I will argue that the extent of technological and social change currently underway is revolutionary. In this thesis the terms information technology,

⁵ Mary Douglas, How Institutions Think (Syracuse, 1986), 102.

⁶ Douglas, 99.

⁷ Douglas, 98.

high-tech, advanced technology, research-intensive technology and knowledge-intensive technology are used interchangeably to refer to any product, process or technique which uses a high component of advanced technological information. Information intensive technologies, therefore, include biotechnologies and advanced materials, for example, as well as technologies which directly produce, store or move data and images. In the information age, transfer is a much more accurate depiction of the movement of technology than the terms export/ import with their connotation of traded goods being shipped across borders in market transactions. As will be seen, knowledge-intensive products are now largely faxed between related enterprises in a primarily investment related activity. Most of the technology transactions at issue in these negotiations involve these knowledge-intensive technologies and take place in the form of non-market transfers between affiliated companies. The OECD Group of Experts on the Social Aspects of New Technologies equate the current transformation with the advent of electricity. They argue that the full ramifications will not become apparent for several decades.

Whereas incremental innovations do not give rise to major problems of structural adjustment, the introduction of a radically new technology system does. This is so because it requires a redesign and new configuration of the capital stock, a new skill profile in the labour force, new management structures and work organization, a new pattern of industrial relations, and a new framework of institutional regulation at both national and international levels.⁸

⁸ Organization for Economic Cooperation and Development, New Technologies in the 1990s: A Socio-economic Strategy (Paris, 1988), 46.

I will examine how the technological changes affect each of the parties and the overall balance of opportunities and costs among them. I will also consider the difference which the technological changes make to each party's pre-existing presumptions concerning markets, production and development.

While the technological innovations may 'require' new patterns of industrial relations and new regulations, as the OECD suggests, they do not dictate them. Contrary to much conventional and critical thinking, law is not merely a reflection of economic or technological imperatives. Law exists both outside of, and within economics. The institution of property and its adaptation over time exemplify the economic power of legal meanings. Through law, ownership, creation, possession and the legal right to deal with something, can be separated. C.B McPherson describes property as an institution which creates and maintains certain relations between people. But, he adds, it is a concept as well as an institution and, over time, the concept and the institution influence each other.

The meaning of property is not constant. The actual institution, and the way people see it, and hence the meaning they give to the word, all change over time.... The changes are related to changes in the purposes which society or the dominant classes in society expect the institution of property to serve.⁹

The legal capacity to create new forms of property and to stretch the old institution of property so as to accommodate the new is

⁹ C. B. McPherson "The Meaning of Property," in C.B. McPherson (ed.) Property: Mainstream and Critical Positions (Toronto, 1978), 1.

integral to the information economy. A great many forms of information which had not been considered property are being so defined. The consequences of this are many and problematic. Information is a social good. It comes from societies as well as individuals and from historical processes. To allocate property in information to one owner is to freeze that social process and, generally, to deny any contribution other than that of the owner. As Poulantzas has argued, the designation of an idea or technique as intellectual property has more to do with the monopolization of knowledge than with the intellectual character of the knowledge.¹⁰ In practice, the designation of some product or idea as intellectual property normally follows the appropriation of that idea by a corporate owner. Only knowledge which has already been appropriated is deemed to be scientific or mental knowledge regardless of whether that knowledge is valuable or is exclusive to the legally designated property-owner.

We could thus say that every form of work that takes the form of a knowledge from which the direct producers are excluded, falls on the mental labour side of the capitalist production process, irrespective of its empirical/ natural content, and this is so whether the direct producers actually do know how to perform this work but do not do so (again not by chance), or whether they in fact do not know how to perform it (since they are systematically kept away from it), or whether again there is quite simply nothing that needs to be known.¹¹

Thus, law is involved in the constitution of economic relations not merely by the allocation of rights and duties in relation to:

¹⁰ N. Poulantzas, Classes in Contemporary Capitalism (London, 1975), 237.

¹¹ Poulantzas, 238.

capital, factories, tools or end-products but also, and more germanely, by the allocation of property in knowledge and the allocation of value in accordance with that property. At the same time legal frameworks affect the subsequent balance of economic power. The legal regime which is being constituted will in turn condition the shape of the future technological system.

The final point which I wish to make about the opposition of interests between transferors and transferees is that these positions develop in interaction and change over time as a result of interaction. Critical legal scholars, borrowing from discourse scholarship, have observed that legal meanings are often constructed from opposition or difference. Law, like other forms of power, is increasingly seen to be rooted in interaction. Each interacting party experiences the contact differently and constitutes not only its own understanding of the interaction, but also that of the other and of the interaction as a whole. (eg. He made love to me; I had her.) The two meanings are mutually constituted but they may be constituted unevenly in that one party's experience may largely form the dominant meaning. It may even enter the public domain as the normal way to understand that form of interaction. (eg. Sexual activity consists in a man 'taking' a woman and/ or a woman giving herself to a man.) One perspective may be accepted almost as a universal or given. Even the party who is being acted upon may largely lose consciousness of their experience through the power of the norm.

A similar disparity of experience marks the contest over the

meaning of 'technology transfer' such as the across-border purchase of a computer program. For transferors, the difficulties experienced by national firms and enterprises in conducting international business, the requirements of international regulation and the restrictions imposed by foreign governments form part of their experience with technology transfer. On the other side of the coin, transferee positions have developed as a response to experienced difficulties in dealing with multinational corporations and the extraterritorial activities of their home states. 'The' meaning which will emerge will have been constituted from the ashes of the struggle between these opposed positions. The positions themselves are not merely arguments or points of view but 'perspectives' or 'slants'. That is to say the debate is not one between similar parties with opposed attitudes but rather, one between parties whose situations are fundamentally different. Just as the 'perspective' of women to the issue of sexual assault is mediated by their experience, so also does the understanding of the transfer of information technology depend upon whether the 'understander' is receiving or transmitting the technology. The difference is fundamental and pervasive. It affects the definition of information and of technology, the definition of transfer, the objectives, the role of law and of bargaining, and the experienced outcome.

Given all of the above I would expect transferors to experience and conceptualize the transfer of information technologies in substantially different ways than transferees and

I would expect each side to promote opposed negotiating platforms on the new issues which reflect those experiences. My hypothesis, however, is that Canada does not fit the model. In the fourth chapter I will present empirical indications of Canada's trade balance in high-technology as well as its technological capacity, and, in particular, its information technology capacity. These explorations, I submit, leave no doubt that Canada is overwhelmingly a technology transferee and that it will remain a transferee well into the information age. I will then examine the Canadian negotiating position on the new issues for indications of the relative weight of transferor logic and of awareness of Canada's interests as a transferee.

Official Canada tends to describe these negotiations as a debate between developed and developing countries. This obfuscates the policy dilemma presented to small open economies which primarily import information but which are developed industrial economies, such as Canada. In fact, most of the 101 member nations of GATT are in this position; only a handful of the countries in the world are information transferors. Those countries are the home bases of most of the world's multinationals. The rest are transferees: some are poor or underdeveloped, some are the newly industrialized (which are fast becoming post-industrial) and some are the older industrial economies such as Australia, Canada and most of Europe. The confusion created by the depiction of the opponents as developed and developing as well as that over the nature of the interaction may contribute to Canada's inclination to

associate its interests with those of the technology transferors.

The fifth chapter will summarize the two elements of the thesis, the construction of meaning and the construction of the regulatory regime for information, as they affect Canada. The relative success of each side of the contest will be indicated by the extent to which any agreed framework resembles the negotiating submissions of either transferors or transferees. The Canadian negotiating platform will be compared and contrasted with those of other countries and some suggestions will be proffered as to the apparently anomalous Canadian position.

To summarize, international relations and understandings about technology, production and trade are in flux. I agree with Giles Pacquet's analysis that:

Three thrusts of forces are at work in three interlocking sub-systems: An evolutionary technological system dominated by the logic of science and technique in the sense of Jacques Ellul; an evolving system of multinational enterprises covering the world with a number of managerial nets and internal trading systems; a mosaic of nation-states intent on designing policies maximizing benefits to nationals via subsidies and regulation of the forum.¹²

In this thesis I will examine one strategic point in the interaction of these three thrusts: the negotiations on the new issues at the eighth GATT Round. Because of the characteristics of the GATT, the issues are being presented as trade related: the negotiating rounds are called 'free trade in services', 'trade restricting investment measures' and 'trade related aspects of intellectual property'. Ten years ago those phrases had little, if

¹² Giles Pacquet "Science and Technology Policy Under Free Trade" Technology in Society 11 (1989): 221-234.

any, meaning content. It is my thesis that the meaning which will emerge will have been forged out of the interaction between transferors (those few countries which export more information-intensive technology than they import) and transferees (that majority of countries which imports more high-technology than they export). I will examine how Canada fits into this conjuncture in a material sense and how Canada understands this conjuncture conceptually. It is my hypothesis that Canada is a technology transferee but that it understands the issues largely as do the transferors.

II. The Transferor Side

In this chapter I will present the transferor side of the negotiations on the new issues. I will begin with the background assumptions which form a conceptual framework for that negotiating position. I will then show that changes in technology and production led to changes in the strategies pursued by the multinationals based in these countries. Consequently the home countries of multinationals came to reconceive of trade, first in terms of technology transfer and then in terms of trade in services. In the process both a linearity of logic and a flexibility of definition are revealed. The free trade logic is stretched, pulled and reshaped in order to accommodate practices which finally, in the information age, have very little to do with either trade or free markets. On a more material level, this chapter will show that the transferor negotiating positions explicitly reflect the priorities and concerns of multinationals which are preparing for a new economic order. It will also show that this pragmatic objective is shielded behind the evocation of normative, universal values based on faith in the market.

Market logic

The logic of the market was originally conceived roughly three hundred years ago in a world in which multinational corporations and international capital, technology and information flows, were unimagined. Theorists from John Locke to Adam Smith hypothesized the advantages of the transfer of goods, or money in their place,

between individuals. The 'laws' or logic of the market derive from a model and from assumptions which, in turn, rest upon a particular view of the world, of social values and goals and of human nature. This worldview underlies the discipline of classical market economics. As Jean-Luc Migué explains:

...[E]conomics provides us with a particular way of viewing the world, of classifying human behavior in a meaningful way, and of explaining choices involving the use of limited resources. To achieve its goals, traditional economic analysis adopts an approach referred to as methodological individualism. According to this view, social phenomena are to be explained as the consequences of rational decisions of individuals acting within social constraints. For the economist the constraints facing individuals are essentially expressed in terms of changes in relative prices and in incomes.¹

This is a worldview in which individual actors who are economically motivated relate through the medium of the market. The 'invisible hand' of the market allocates property and resources to the person best able to maximize their use. The individual who will pay the most is the individual best able to use the land or resources productively. Because of the advantages of trade, the division of labour (which leads to trade) is always more efficient than self sufficiency. In short, the presumptions which underlie the economists' models of the free market and of the gains from trade are normative and idealistic. The idealized market is presumed to promote the virtues of justice and utility and to optimally distribute social goods.

¹ Jean-Luc Migué Nationalist Policies in Canada: An Economic Approach (Ottawa, 1979), 1.

Justice is accorded, in market economics, by ensuring that each individual receives his² just rewards, the 'fruits of his industry'. This is the fundamental human right in the laissez-faire view of the world. As Locke³ expressed it: God gave the world to men in common but in common it remains uncultivated. Therefore, he gave it to the use of the industrious and the rational so that it would be improved by their labour. Those who have not improved nature's resources should have no right to the benefit of another's pains. Property, contract, industrial property rights, the right to capitalize on the labour of others and so on, are all held to flow from this basic right.

The principle of utility is a principle of social justice based on maximizing the distribution of goods. As Bentham explains: the purpose of civil law is social happiness; social happiness derives above all from security because only security can provide for the future, (by motivating men to productivity); therefore the central object of law is security. This objective is furthered by the law of property. "It is only through the protection of law that I am able to inclose a field, and to give myself up to its cultivation with the sure though distant hope of harvest."⁴ As an ideal encompassing a direction for action, a normativity, the

² Male individual persons are clearly intended in the logic.

³ John Locke. Two Treatises of Government: A Critical Edition with an Introduction and Apparatus Criticus Paragraph 34, Chapter V of the Second Treatise. London, rev. ed. 1964).

⁴ Bentham. Principles of the Civil Code, Chapter VI11 in The Theory of Legislation, originally 1930, ed. Ogden (London: 1931).

idealized market is also ideological. Economic literature is replete with parables in which economic actors either complied with the laws of the market and prospered or did not and failed. In story and metaphor, model and worldview, economics is less a science and more a morality play than is normally conceded.⁵

Economists deny the inclusion of values, morality, or slant in the discipline. In particular, classical economics has no tolerance for the intervention of cultural or nationalist objectives in the flow of the market. According to Migué, for example, nationalist policies which attempt to foster certain industries, which favour domestic over imported technology, or otherwise 'naively adhere to national theories of development' hurt taxpayers. Economic nationalism "substitutes costly diversification and self-sufficiency for the advantages of international specialization."⁶ As will be seen below, the insistence on non-intervention is honoured more in principle than in practice. Nonetheless, the dangers of government attempts to influence the market's natural balance remain a major concern of the classical economics which underlies trade theory.

In this logic, inter-state action is just like action between individuals and can be modeled in the same way.⁷ Internationally,

⁵ On metaphor and story in economics see Donald McCloskey. If You're so Smart: The Narrative of Economic Expertise (Chicago, 1990).

⁶ Migué, 72.

⁷ McCloskey, 25. He notes that economists frequently rely on statements to the effect that this actor or action is 'just like' another.

mutual gains from trade follow from each country producing what it can sell most cheaply and competitively and buying everything else in the international market. Mutual advantage derives from each country specializing in those economic endeavours in which it has a comparative advantage. Because of the advantages of specialization of labour, states should trade even if they produce everything more efficiently than their trading partner. Only by employing labour in the tasks at which they are most productive can the efficient state maximize its labour productivity.⁸ Again, as with the internal market mechanism, states should not intervene as they lack the wisdom of the market's invisible hand. Change, including the improvement of a nation's competitiveness, cannot be directed from above but must be pulled by market forces. As Charles Davenant argued in the late 1600s: "trade is in its nature free, finds its own channel, and best directs its own course." ⁹

Post-war economics, building on the earlier marginalists, posited that the efficiency advantages of foreign investment would bring mutual advantage for home and host country, the host country's advantage to consist of economic development. This development would accrue from the multinational's advantages at optimizing resources, transferring technology and managerial skills, supplying needed capital, satisfying consumer demands and training

⁸ On economic history see H. G. Spiegel, The Growth of Economic Thought (Englewood Cliffs, N.J., 1971).

⁹ Cited in Spiegel, 139.

workers.¹⁰ In return for the provision of technology and capital (development), the small economies (capital importers) were advised to refrain from using nationalist investment measures on the basis that investment would, 'in its nature', lead to technological transfer. International institutions established after the Second World War to promote openness in trade (GATT) and in investment (the International Monetary Fund) increasingly began to promote the advantages of openness to technology transfer.

When technology transferees expressed doubts about the possibility of developing indigenous technological capacity through foreign technology imports, economists argued that not all countries should strive to cross the technological threshold. Rather, many should be satisfied to import advanced production technology so that their products will be competitive. Importation, they argued, is the most efficient means for countries which do not have a comparative advantage in technology to acquire it.

The economic approach to technology transfer is also largely a corporate focus. In this approach, all technology, whether in the form of hardware, knowledge, information, scientifically produced life-forms, show-how, designs or whatever, has one fundamental characteristic: it is a saleable commodity. Innovation also is reduced to intellectual achievements which have become firm property. Most economics texts do not list innovation as even an indexed topic; those which do, define it as commercialized products

¹⁰ Lewis Solomon, Multinational Corporations and Emerging World Order (London, 1978), 4.

or processes whose value is ideally 'sorted out' by the market. Since they count only marketed technology, the pre-eminent innovator, producer, diffuser and transferer of knowledge is held to be the firm. Investment freedom and an unplanned approach to the development of productivity and innovativeness are, therefore, necessary spurs to innovation. Hence, Canada's Fraser Institute applauds the view that "innovation is a form of investment and when the economic and social climate is uncongenial to investment, it is naturally discouraging to innovation too."¹¹ Generally economics-based studies count, as innovation, any investment in technology including, for example, the purchase of a computer. On the other hand incremental improvements, such as those made by workers, which do not involve capital expenditures, are discounted. In marked contrast, Japanese workers are rewarded for incremental improvements to the quality of products or processes and these are considered a pivotal element of Japanese innovativeness. Finally, the corporate approach insists that technology has no nation or culture and adherents do not distinguish between the development of technology within an economy or its importation. Nor do they distinguish, generally, between market purchases of foreign technology and intra-firm or internal transfers between parent and subsidiary.

These assumptions lead to the conclusion that levels of innovation directly correspond with capital investment so that the

¹¹ K. Palda, Industrial Innovation: Its place in the Public Policy Agenda (Toronto, 1984), 13.

cost of capital and of technology become the key determinants of innovativeness. By this criterion, large multinational firms have the competitive advantage in creating and transferring technology. The resulting transfers are said to benefit the recipient country by making more goods available and thereby increasing utility, in the case of products or lowering the costs of production and thus increasing real incomes, in the case of process technology.¹²

Thus, the original argument that trade is in its nature free and provides for mutual advantage was joined by the twist that technology transfer is a natural function of multinational firms which either (a) equates with development or (b) is more efficient for small economies than the development of technological capacity. Many of the arguments which had developed to explain the advantages of goods trade were remolded so as to include the argument that openness to foreign investment, defined as technology transfer, would also benefit all. The natural role of multinationals in this process would, it was argued, only be impeded by host government interventions aimed at rebalancing the bargaining power of purchasers and sellers.

As will be seen below, every element of this logic bears challenging. Historical evidence indicates that free trade, i.e. freedom from domestic regulation which impedes foreign businesses, has been favoured at each stage of technological growth by the economy which can thereby consolidate its technological advantage.

¹² J. Frank, Assessing Trends in Canada's Competitive Position (Ottawa, 1977); D. Daly, Technology Transfer and Canada's Competitive Performance (London, 1985).

The freedom advocated by corporate economists is not freedom for all economic activity from all government activity. Intellectual property rights are a prime example of a government intervention which they constantly seek to expand. Investment incentives are another. Nor does it necessarily involve free trade to, or investment in, the home base economy. On the contrary economic advisors from Adam Smith to Chris Hill, of the Center for Policy Alternatives of the Massachusetts Institute of Technology,¹³ call for protection of the national technology base at the same time that they seek access to that of others. The above understanding of innovation, technology and development will also be challenged below. Historical and contextual evidence of the actual strategies used by countries which quickly developed their productive capacity indicate that innovation, technology transfer and investment are not synonymous.

Even if the above analysis is accepted as developed, it is challenged by the new stage of multinationalization in which firm strategies are largely technology based. I will now argue that contemporary firm strategies involve new internationalized production processes, extensive reliance on investment and information flows and extensive use of transfer pricing. In short, they resemble the global managerial nets and internal trading systems to which Pacquet refers. If the free trade logic is to survive it must be substantially re-formed. On the other hand if

¹³ Chris Hill. "National Technology Strategies Under Free Trade" Technology in Society 11 (1989): 161-180.

the third stage of globalization is characterized by substantially different international economic relations, then domestic strategies based on obsolete understandings of those relations may be fatally flawed.

Firm Strategies

During this century, foreign investment became an increasingly important component of international economic relations. By the mid-twentieth century, the engine of economic growth had become the transnational corporation and economic power increasingly lay in the movement of capital and technological skill for transnational production, rather than in the exchange of national goods. Foreign investment was first pursued primarily in order to penetrate or defend regional markets. Later, it became part of an enterprise's strategy for global competitiveness.

Early transnationalization allowed firms to maintain control of their competitive advantages while they overcame tariff barriers and dispersed costs. Miniature models or branch plant subsidiaries were established overseas to replicate, within an expanded market, the production system of the parent firm.¹⁴ The parent firms were overwhelmingly fordist. That is to say, they relied on the strategies of specialization of labour and production, economies of scale, centralized and hierarchical administration and large markets. Consequently, the subsidiaries were tightly controlled

¹⁴ Charles-Albert Michalet Le Capitalism Mondial (Vendome, 1976), 150.

both so as to prevent them from competing with the parent and so as to maintain the scale and efficiency advantages of the parent firm. In this case the character of the foreign market is a primary determinant of location, although transportation and communication are important factors.

As technology became both more expensive and more crucial to competitiveness, technology strategy joined market strategies. Vernon's product cycle model was based on studies of American multinationals which, between 1900 and the 1960s, developed technology for the American market and then moved it overseas to extend its life and postpone obsolescence. By the 1970s, Vernon acknowledged, this approach had been superceded by truly global strategies.¹⁵ A 1977 OECD study, Transfer of Technology by Multinational Corporations,¹⁶ reported that the product cycle theory was no longer a valid explanation of foreign technological strategy. We can think of this stage as transnational in that firms crossed national borders but did not maintain integrated markets or production.

Political as well as economic and technological developments contributed to more truly global strategies in which firms sought foreign inputs as well as markets. Bi-polarity and the cold war began to give way to greater East-West economic linkages. Colonies and previously isolated countries became integrated into the global

¹⁵ R. Vernon, Sovereignty at Bay: The Multinational Spread of U.S. Enterprises (New York, 1971).

¹⁶ D. Germidis (ed.) Transfer of Technology by Multinational Corporations Vol. 1 (Paris, 1977), 32.

economy. The post-war economic regime, which encompassed the International Monetary Fund, the World Bank and the GATT, increased the scope and range of international economic activity. These institutions, and international law generally, made it possible for firms to invest with lower risk in most foreign nations. Also, the GATT succeeded in reducing international tariffs around the world. By the 1970s these developments had opened up the possibilities for international economic relations with countries which had small 'effective' markets but large supplies of production inputs. Coupled with these new opportunities were new pressures for cost reduction, in view of global economic downturn. In the decade following 1973, growth in world gross net product declined from an average increase of 6% a year to one of less than 3% per year.¹⁷

Hence, lowering the cost of production became a primary objective of foreign direct investment. Labour and resources were 'sourced' from around the globe as inputs into products which would eventually be finished, usually in the enterprise's home country, and then marketed globally. Subsidiaries acted as international 'sub-contractors or 'relocated workshops' in which only part of the final product was worked. Frobel, Heinrichs and Kreye add that modern transportation and communication as well as the tendency to fragment production tasks, increased the accessibility and efficacy

¹⁷ OECD Committee for Science and Technology Policy. OECD Ministers Talk About Science and Technology for Economic Growth and Social Development. Paris: OECD discussion paper, 1988.

of the new international division of labour.¹⁴ We can think of these as multinational or more nearly international strategies in that more countries were integrated into what was becoming a world economy and firms sought inputs, including labour, as well as markets. The world was moving toward global production and internationally assembled products.

Both of these strategies retain some significance but are of declining importance as more information-based strategies supercede them. Recent developments, for example, are leading to a reintegration of production.¹⁵ We are moving into a process of globalization in which large and small enterprises, governments, universities and scientists are linked into interdependent production systems but in which multinational enterprises play a central role. The infrastructural information links between firms and nations are becoming a key staple of production upon which competitiveness rests. As the Information Technology Association of Canada summarizes:

In the nineteenth and early twentieth century, competitive advantage existed mainly at the level of finished products.... The advent of the multinational enterprise after World War II, shifted the basis of competitive advantage from finished products to components of products. The vertical integration of international production now allowed countries and regions

¹⁴ F. Frobel, J. Heinrichs and O Kreye, "The World Market for Labour and the World Market for Industrial Sites" Journal of Economic Issues 12.4 (December, 1978), 843-58.

¹⁵ Kurt Hoffman, "Clothing, Chips and Competitive Advantage: The Impact of Microelectronics on Trade and Production in the Garment Industry" World Development 13.3 (March, 1985), 371; Raphael Kaplinsky "Electronics-based Automation Technologies and the Onset of Systemofacture: Implications for Third World Industrialization" World Development 13.3 (March, 1985), 423.

to specialize in inputs rather than outputs. Thus a car could have a chassis designed in Italy, French tires, a fuel injection system made in Germany and could be assembled in Brazil for export to the United States. This was the second stage of globalization.

With the development of information technology in the last fifteen years, competitive advantages has shifted ... to productive processes. This is the current third stage of globalization. What this means is that from a competitive viewpoint, there are no longer weak and strong sectors but weak and strong processes within those sectors.... The Japanese return to textiles after a decade long absence is a case in point. With laser-cutters and computer assisted manufacturing they can outcompete even inexpensive Taiwanese and Hong Kong workers.²⁰

In the assessment of many, including P. MacKinnon of Cognos, the current pace of scientific and technological advance is unprecedented in history. Profound industrial changes are:

characterized by the fact that products based on mechanical, electrical and chemical technologies, the very underpinning engines of economic growth in this century, are being either replaced or supplemented by information, biological and new materials technologies, all of which are highly knowledge intensive.²¹

As suggested in the introduction and as argued by these and other scientists and science policy advisors, the scale of technological change can truly be described as revolutionary. It is already changing and will increasingly change the way firms do business. The new technological paradigm will, of course, affect much more than firm strategy but my objective at this point is to update multinational investment strategy. A brief introduction

²⁰ Information Technology Association of Canada. The Enabling Effect: An ITAC Report on Using Information Technology for Strategic Advantage (Toronto, 1989), 5.

²¹ Peter MacKinnon, "Acquiring Technologies Through Strategic Partnerships: Guidelines for Success Under Free Trade," Technology in Society 11 (1989): 196-197.

will give some indication of the extent to which these innovations require reconsideration of national investment and industrial strategies.

The new technologies are often called frontier, core, or enabling technologies. Primary among these are the new materials, biotechnology and computer related information movement technologies. "Recent advances in the understanding of the structure of matter, in computer-based modelling and simulation techniques, and in processing technology have made it possible", the Science Council of Canada reports, "to develop a material atom by atom to fill a specified need."²² The new materials include: ceramics, plastics, composites, alloys, semiconductors and optical fibres.²³ The capacity of these materials, in combination and when enhanced by information technology, are revolutionary. The biological technologies, similarly, are beginning to allow humans to engineer life-forms to perform industrial and commercial tasks. This is done by similar manipulation of more minute matter than was previously accessible to human control-- especially genetic and cellular matter. Scientists can split, clone and rearrange genes to create plants and animals with capacities not given to them by nature or to rapidly reproduce a variety from one progenitor.²⁴

²² Science Council of Canada, Enabling Technologies, (Ottawa: 1989), 13.

²³ Tom Forrester, "New Materials," Science and Public Policy 15.4 (Aug. 1988), 271.

²⁴ For details see W. D. Beversdorf "Biotechnology and Other Emerging Technologies" Agriculture Canada Plant Gene Patenting Workshop, Ottawa, March 22-25, 1987.

For example, Abitibi Corporation has patented a bio-organism which eats pulp and paper waste products. Now billions of plants can be reproduced from just one plant. Bio-engineers are working on substitutes for, or cell propagation of, many natural foods.²⁵ The industries affected to date include: health care, chemicals, food processing, pharmaceuticals, pulp and paper, mining, equipment and instruments, agriculture, forestry, waste and pollutant processing.²⁶

The combination of computer and telecommunications technology provides unprecedented capacity for the collection, transmission and manipulation of information, including voice, text, and images. Integrated circuits, miniaturized electronic circuits on a chip of semi-conductor material such as silicon, have been mass produced with ever-enhanced capacity. Software, instructions to direct circuit operations, has become the more technology-intensive, requiring labour-intensive, craft- production methods.²⁷ The products and processes commercialized from this scientific progress include: fax machines, computer-aided design (CAD), computer-aided manufacturing (CAM), fibre-optics and telematics.

All manufacturing stands to be transformed because of the simplification of products and automation of design. Products are simplified by virtue of the replacement of mechanical parts (such

²⁵ Henk Hobbeline. "Our Common Genetic Resources." ICDA News, Sept. 1987: 6.

²⁶ Science Council of Canada, Enabling Technologies, 12.

²⁷ Science Council of Canada, Enabling Technologies, 12.

as springs and gears) by microelectronic circuitry. Microprocessors have replaced 350 parts in a sewing machine and over 900 in a teleprinter.²⁸ The production process is itself automated through the application of CAD/CAM, robots, computer-controlled machine tools, and automated techniques for handling materials.²⁹ In Japan, the fusion of mechanics and electronics has allowed the creation of 'smart buildings', with an electronic component of up to 30 per cent, and with them the potential to drastically increase the technology intensity of the construction industry.³⁰ CAD allows for computer drafting, design and simulated testing, thereby bypassing much of the expense of prototype creation and modification.³¹ Computer assisted manufacturing includes the info-tech processing of scheduling, inventory (just-in-time systems), and process control systems. Linked CAD/CAM, known as flexible manufacturing, greatly shortens the time between design and production. The fact that different products can be made by a mere change of program, facilitates design changes, custom production, and short production runs.

At the firm level, flexible manufacturing, according to the Canadian Chamber of Commerce, has "changed the economies of

²⁸ Arthur Cordell, The Uneasy Eighties: The Transition to an Information Society, Science Council of Canada, (Ottawa, 1985), 26.

²⁹ Cordell, 26.

³⁰ OECD, New Technologies, 56.

³¹ Cordell, 29.

manufacturing from 'scale' to 'scope'".³² (Economies of scale are savings acquired through increases in quantities produced. Economies of scope are those acquired through simultaneous production of many different products.) It also changes the traditional trade-off between volume and variety, between costs and flexibility.³³ The Information Technology Association of Canada adds that product life-cycles are increasingly shorter and time-to-market has become a much more important success factor than cost-to-market.³⁴ Flexibility, variety and quick responses are not qualities which can be ensured by the purchase of machinery. Successful firms have come to see skill, education and information as essential components of productivity. Firms are now increasingly seen as organisms engaged in collecting, processing and transmitting information rather than materials.³⁵

Multinational corporations are particularly adept at capitalizing on the benefits of the new technology. Both the scope of multinationalization and the competitiveness of MNEs has been enhanced by technological advance.³⁶ The contemporary

³² The Canadian Chamber of Commerce. Focus 2000: Report of the Task Force on Technology and Canadian Business. Ottawa, 1989: 10.

³³ Focus 2000, 10.

³⁴ The Enabling Effect, 7.

³⁵ D. Conklin and F. St. Hilaire, Canadian High-Tech in a New World Economy: A Case Study of Information Technology (Halifax, 1988), 64.

³⁶ United Nations Conference on Trade and Development, Production and Trade in Services: Policies and their Underlying Factors Bearing Upon International Service Transactions (New York, 1985).

multinational is distinguished, above all, by its combination of intangible assets, such as patented technology, linkages with suppliers and marketers, advertising skill, trade names and trade marks, managerial system or any asset of the firm which is not material. These assets are also known as invisibles or services. Foreign direct investment (FDI) allows such firms to maximize the profit potential of their intangible, firm specific assets. In Intra-firm Service Trade by the Multinational Enterprise, James Markusen explains, "Informational assets are much like public goods within the firm in that they can be costlessly supplied to additional plants."³⁷ Therefore, he notes, FDI and trade in producer services become conceptually very similar. Foreign investment allows MNEs to diffuse the cost of extensive research and development, to increase the profits from technological monopoly and, increasingly, to access the technological resources of other countries. Consequently, technology is now largely transferred between associated firms linked by equity holdings.

Thus, one important element of the new information technology, from the point of view of firm strategy, is the increasing orientation to internal transfers in order to exploit informational advantages. According to internalization theory contemporary multinationals integrate foreign markets into their internal market in order to avoid any dissipation of firm-specific knowledge. Rather than selecting internal transfers as a result of their

³⁷ James Markusen, Intra-firm Service Trade by the Multinational Enterprise (Ottawa, 1986), abstract.

previous decision to engage in foreign investment, they choose foreign investment over trade when internal technology transfers are most advantageous. Brian Levy reports:

The relative profitability of internal over market transfer-- and thus... of direct investment over licensing-- is especially likely for transactions involving the transfer of specialized technological information.... Because the technology suppliers can capture these rents if they restrict the technology to their own network of international subsidiaries.³⁸

Firms internalize technology when there are good possibilities for market and knowledge control i.e. when the information is most valuable and secret. This, Levy continues, explains the disproportionate role of multinational subsidiaries in technology intensive sectors. Conversely, then, technology may be rented externally if it does not have high knowledge value. Second, a firm will prefer internal transfer if there is high profit potential due to the existence of a concentrated market. Absence or relative absence of competition increases the price at which a product can be sold and thus the profit potential.³⁹ Conversely, a firm will be more likely to rent its technology, or advantages, on the market if there is high risk, high competition or lower profit potential, for example when the product is relatively obsolete or inferior.

A third factor in the firm's decision is organizational. It can reap greater benefits from internal transfer if it is in a situation to benefit from what is known as transfer pricing.

³⁸ Brian Levy, "The State-Owned Enterprise as an Entrepreneurial Substitute in Developing Countries: The Case of Nitrogen Fertilizer" World Development 16.10, (1988): 1200.

³⁹ Levy, 1203.

Internal transfers allow the enterprise to allocate intra-firm costs, expenses and financial profits so as to maximize global firm profit. Any 'price' can be allocated to components, business services, designs, licensed technology or whatever is transferred within the firm. The dollar figure chosen has no effect on the resources available to either party because, in practice, no money need trade hands. This capital moving function of transfer pricing can facilitate firm strategies for market control or price control. Transfer pricing may be used to reduce competition by selling at temporarily reduced prices. This anti-competitive practice is called predatory pricing. Transfer pricing can also allow the firm to move profits and capital at will for internal or external reasons.⁴⁰

Transfer pricing is used to circumvent domestic investment controls. A 1978 UNCTAD study refers to three reasons which fall into this 'response' category: minimizing taxes and other payments to governments, sometimes through the use of tax havens; circumventing exchange, repatriation of profits or other controls; and lessening the impact of price controls.⁴¹ Other factors which have been noted are the avoidance of investment measures, such as equity requirements, the manipulation of subsidy requirements (by inflating the value of transferred research and development), and

⁴⁰ J. Castel, A. de Mestral and W. Graham, International Business Transactions and Economic Relations: Cases, Notes and Materials on the Law as it Applies to Canada (Toronto, 1986), 391-2.

⁴¹ United Nations Conference on Trade and Development, Dominant Positions of Market Power of Transnational Corporations: Use of the Transfer Pricing Mechanism (New York, 1978), 6.

avoidance of tariff payments.⁴² According to Rugman, firms are obliged to circumvent national investment measures in the interest of efficiency.

The reasons for the MNE setting a transfer price different from the market price are all government induced: taxes, tariffs, and controls. The transfer pricing mechanism, then, is an efficient response in which the MNE attempts to minimize its losses from exposure to exogenous market imperfections.⁴³

Finally, in addition to internalization (investment) and a focus on informational or intellectual property advantages, global firm strategies utilize information based scientific and technological strategies. These include the new production strategies, such as flexible manufacturing, the use of scope economies deriving therefrom, and the need to draw upon national subsidies and international research arteries to supplement the high and rising costs of research. Strategic Partnerships (SPs) are collaboration agreements between firms, often with a public sector component, in which the strategic objective is shared research and development. As the authors of the OECD 1988 Science and Technology Policy Outlook observe, "[t]he profusion of these co-operative agreements in the 1980s has created a dense network of research relationships on virtually a global scale."⁴⁴ These risk-sharing arrangements

⁴² Dominant Positions, 14.

⁴³ Alan Rugman, D. Lecraw and L. Booth, International Business: Firm and Environment (New York: 1985), 289. See also James Hanson, "Transfer Pricing in the Multinational Corporation: A Critical Appraisal" World Development 3 (1975): 862.

⁴⁴ OECD, Science and Technology Policy Outlook 1988, 32.

take place largely among large conglomerates and information transferor countries.⁴⁵

Thus, the new enabling technologies together with their impact on production and innovation possibilities substantially reshape multinational investment strategies for the information age. Firms increasingly multinationalize in order to access foreign technology and information (as do Japanese firms in the United States for example). This presents, as a priority for transferors, access to foreign high-technology firms, many of which are in service sectors such as telecommunications. Conversely, it raises the spectre, for transferees, of serving as sources of technology and data rather than as sources of raw materials or labour. Internalization theory and other elements of the technology strategies of high-technology firms challenge the postulate that multinational investment will provide a host/ transferee economy with advanced technology. On the contrary, as Levy and others argue, multinationals will not diffuse beyond their internal market any technology which has significant market or knowledge value. Thus, the only way in which multinationals can be said to diffuse enabling technologies is if the term 'diffusion' is applied to the internal transfer of technology from a parent to its subsidiary. This, indeed, is the way the advocates of multinational technology transfer interpret diffusion. They also credit as diffusion any payment made by

⁴⁵ Lynn Mytelka, The Political Economy of Strategic Partnering, Investment Canada (Ottawa, 1987). See also Victor Bradley "National Strategies for Technology Trade: A Response to Chris Hill" Technology in Society 11.2 (1989).

subsidiaries to parents for an immaterial commodity, such as a trademark or accountancy service, even though the 'innovation' may be obsolete, of little real value and/ or is being transferred to take advantage of transfer pricing opportunities rather than because the item is needed by the subsidiary. Thus, statistics which credit multinational subsidiaries with high rates of innovation have to be examined with a critical eye. Also, in regard to the technological role of multinationals, it is clear that many of the ostensible scale and price advantages of having technology produced in technology centres and then exported are diminished by the new technological paradigm. Firm assets are increasingly seen to involve process technologies such as flexible manufacturing and economies of scope rather than lower cost products and economies of scale. Finally, as will be seen below, the new firm strategies, as understood by state managers in the United States, call for international legal change which would render illegal much of the science and technology policy used by transferees. Such policy would be declared restrictive if it differentiates between domestic technological innovation and internal multinational technology transfer. As will be demonstrated in the following chapter, this would have very serious repercussions for transferees. I will next show, however, that the international legal changes proposed by the transferors make perfect sense from the slant of transferors. In fact, the three new GATT issues are specifically designed to facilitate these information based transferor strategies. I will illustrate how specific multinational firm strategies became of

concern to the American administration and were subsequently translated into the negotiating platforms on services, investment measures and intellectual property. In the process each issue came to be defined as 'trade related' and selected GATT articles were re-configured in order to accommodate these conceptions.

Trade in Services

During the 1980s world services trade grew twice as fast as trade in goods.⁴⁶ Multinational service transferors are headquartered in capital-exporting countries, notably the U.S. and Japan, in which 44 of the 75 largest service MNEs are registered. All multinationals sell services though, whatever their primary product, because all multinationals use licenses, patents, trademarks or other 'technology services', also known as intellectual property. Also, all multinationals rely upon the facilities of international services, particularly transportation, communication and telecommunication. All multinationals and many firms also increasingly use business services and producer or production services. Services have become ubiquitous and essential to modern production and internationalization. The United States is the world's largest international seller of services. In 1976 an interagency task force of the United States government reported that the sale of services and intellectual property (information technology) by the overseas affiliates of United States firms was the fastest growth sector in the economy, the best hope for US

⁴⁶ Economist 312, #7622 Sept. 30, 1989.

balance of payments difficulties and the most important future source of foreign exchange.⁴⁷ In 1984, the United States Congress introduced aggressive new trade and tariff legislation which targeted impediments to this sector, the act known as Super 301, and induced the GATT to form a committee to look at the new service economy.⁴⁸

What are services? Actually, the term service is more obfuscating than helpful. For transferors, some services are much more significant than others, both in terms of the dollars they earn and in terms of their role in productivity and competitiveness. The only services which count in this perspective are those which are owned by an economic actor and which are commercialized or involved in production. Traditional service sector jobs: pumping gas, serving hamburgers, doing laundry, etc., although major sources of employment have little to do with the new information-based productivity or with the associated economic benefits. Profitable and crucial service enterprises are engaged in information intensive, high technology fields. They either make high technology service products such as computers and telecommunications equipment or provide high technology or medium technology services which are crucial to the information-based

⁴⁷ United States Trade Representative, United States Service Industries in World Markets: Current Problems and Future Policy Development. (Washington, 1983).

⁴⁸ Margaret Sims and Richard Rivers, The International Trade in Services Agenda: Origins, Evolution and Agenda (Ottawa, 1987), 17.

multinational production. The latter can be termed producer services. Three types of producer services are particularly important. These are infrastructural (transportation, communication and telecommunication); production process or technology oriented (patents, blueprints, software); and business services (finance, accounting, advertising, consulting). Producer services have become the fastest growing sector of the world economy.⁴⁹ Fifty-one per cent of United States service dollars earned overseas were payments for technological services, payments for licenses, patent rights, royalties, etc. Forty-seven per cent came from two other sectors, transportation and communication.⁵⁰ Telecommunications is one of the strongest areas with sales approaching those of the automobile industry.⁵¹ Today's international production and sourcing leads multinationals to promote an international economic regime which will facilitate the movement of service components, technology and capital.⁵²

These transfers take place overwhelmingly internally, i.e. within the multinational enterprise. According to Brenda Siegel, "In 1982, in the U.S., the value of services sold through foreign

⁴⁹ GATT Focus 58 No Dec. 1988; R. Brainard, "Technology and Jobs" STI Review 1 (Autumn 1986), 29.

⁵⁰ S. Lall, "The Third World and Comparative Advantage in Trade in Services" in S. Lall and F. Stewart Theory and Reality in Development (New York, 1986), 123.

⁵¹ Michael Adams, "Information Exchange," South (December 1988), 70.

⁵² H. Nau "Domestic Trade Policies and the Uruguay Round: An Overview" in H. Nau (ed.), Domestic Trade Politics and the Uruguay Round (Columbia, 1988), 13.

affiliates in the U.S. was \$125 billion while imports were \$33 billion."⁵³ Five service dollars were earned by affiliates (investment) for every one earned by market sale (trade).⁵⁴

The American task force concluded that the international problems of most service industries are almost completely concerned, in fact, with investment matters.⁵⁵ Private sector information also showed that:

U.S. based multinationals especially stand to gain from further opening of trade and investment opportunities in the information services. Especially from larger but more integrated capital markets, and well-established working relationships with the overseas affiliates of the accounting firms, advertising agencies, insurance companies and law firms that they deal with at home-- all tied together through ...communications networks.... [Sometimes] the result may be intra-firm trade in data-processing services.⁵⁶

The leading transferors (the United States, Japan and some European countries, especially Switzerland) are being joined by new competitors. As of the beginning of the 1980s, the United States retained its dominance with eleven per cent of world exports,⁵⁷ but

⁵³ Brenda Siegel, The Internationalization of Service Transactions: The Role of Foreign Direct Investment in International Trade in Services (Ottawa, 1987), 2-3.

⁵⁴ United Nations Council on Transnational Corporations, "Foreign Direct Investment, the service sector and international banking" (New York, 1987).

⁵⁵ United States Inter-Agency Task Force on Services, Service Industries in World Markets: Current Problems and Future Policy Development (Washington, 1976).

⁵⁶ C. Brown, "The Globalization of Information Technologies," The Washington Quarterly Winter 1988, 96.

⁵⁷ Economist 312, #7622 Sept. 30 1989.

was losing market share to international competitors.⁵⁸ American leadership in proprietary rights and other business services (roughly half of its services income) had been lost to Europe. The United States was particularly upset by the increased market shares of France, the East Asian NICs, Brazil and Mexico. Korea jumped from twenty-seventh to fifteenth place with Eight Billion Dollars worth of service exports in 1987.⁵⁹ Hong Kong and Singapore were also nurturing developing service industries and businesses. The American administration determined to promote and facilitate its service income earners, to ensure that they paid their taxes and repatriated their profits to America, and to impede the competition.

Once a focus was placed on this sector and the income-earning firms, surveys were conducted of those firms. These reported that the investment measures and regulations of other governments inhibited their income earning and income repatriation. Specifically, the multinationals named as obstacles: inadequate protection for their intellectual property rights; and restrictions on capital movement (taxation, exchange, profit repatriation) or investment (establishment, ownership, nationality, restrictions on the employment of personnel.)⁶⁰ The use of foreign

⁵⁸ M. Sims and R. Rivers, The International Trade in Services Agenda: Origins, Evolution and Agenda (Montreal, 1987), 11.

⁵⁹ Economist 312 # 7622, Sept. 30, 1989.

⁶⁰ T. Berg, "Trade in Services: Toward a 'Development Round' of GATT Negotiations Benefitting both Developing and Industrialized States," Harvard International Law Journal 28.1 (1987): 9.

personnel is integral to investment in the information age. A software or engineering consultancy can not easily internationalize by employing local staff.⁶¹

Multinationals seek the right to transfer products, processes and business services internally either by establishing a foreign office or without establishing a foreign office (through telecommunication links), depending on which is more advantageous from the firm's standpoint. As has been noted, transfer pricing is an important component of this decision. These desires have become known as the right of establishment and the right of non-establishment or (in tandem) the right to market access. The investment impediments refer to national strategies in which foreign investment is either prohibited (such as telecommunications) or restricted (by requirements for national equity or local training) or in which national firms are favoured (for subsidies). A right of market access by establishment or non-establishment would illegitimate all of these investment measures. The Department of Commerce began to catalogue investment measures, transfer pricing regulation and transfer of technology regulations (which influence intellectual property licencing) as 'restrictions on trade in services'.⁶²

⁶¹ T. Hill, "On Goods and Services" Review of Income and Wealth 23.4 (December, 1977), notes that services can be distinguished from goods on the basis that services generally must be consumed as they are produced. Even where this is not true, service sales generally depend upon close seller/ purchaser communication.

⁶² Berg, 9.

The American private sector began to mobilize, first with the Services Policy Advisory Committee (SPAC) and then the Coalition of Service Industries, (CSI) both led by American Express Company members. The CSI also had prominent representatives from accounting, management, and financial service companies. Placing the services package (services, investment measures and intellectual property) on the GATT agenda was a top priority for the coalition. In fact, according to the United States Trade Representative (USTR), the "services negotiations are the result of lobbying by the business community in favor of the negotiation of a GATT type of agreement for trade in services."⁶³ The Reagan administration developed a services program which emphasized:

improving access to foreign markets through the Uruguay Round and such bi-lateral channels as the ... U.S.-Canada Free Trade negotiations...;

vigorous protection of intellectual property;

liberalization of anti-trust guidelines;

international consensus building on regulatory aspects of information services; and

fostering research and development activity in the United States.⁶⁴

The main attributes of the GATT, for the transferors, are: its extensive membership (101 countries as of 1991); the fact that GATT

⁶³ Geza Feketekuty "Negotiation a General Agreement on Trade in Services in the Uruguay Round" in R. Baldwin and J. D. Richardson (eds.), Issues in the Uruguay Round (Washington, 1988), 3. See also Sims and Rivers.

⁶⁴ Clarence Brown, 100.

rules and procedures allow for extensive and significant liberalization and regulatory control; and its allowance for effective enforcement by several means, including retaliation. All of the capitalist industrialized countries belong to the GATT but so also do most developing and NIC countries, the particular target of the services package. On the basis of the firm surveys referred to above, the USTR compiled a list of the countries which had the greatest number of restrictions or impediments to American service transferors.⁶⁵ In order, by the number of impediments, those countries were: Brazil, South Korea, Venezuela, Mexico, Taiwan, India, Japan, Spain, France, Canada and Italy. All belong to GATT.

Consequently it became a priority of the United States government to conceptualize what were primarily internal multinational transactions as trade so that national technology legislation could be categorized as a restraint on trade or trade restricting measure. According to Gibbs and Mashayekhi:

To support its position, the United States sought to establish an 'international consensus' about negotiations on services, for example by supporting academic research and high level seminars, and by initiating a work program in the OECD. In these various activities service issues were invariably presented in a trade context, using terminology and concepts borrowed from GATT and other trade agreements, aimed at providing an 'intellectual legitimacy' for addressing services under GATT auspices.⁶⁶

Both the Organization for Economic Cooperation and Development (OECD) and the Canada-U.S. free trade agreement (the FTA) served to

⁶⁵ Berg, 9.

⁶⁶ M Gibbs and M. Mashayekhi "Services: Cooperation for Development," Journal of World Trade [Dec. 1988] 82.

further the task of consensus building. The threshold conceptualization supported was the designation of these issues as trade distorting. After that the discursive task was to reinterpret GATT principles so that they would be helpful to transferor objectives for the services package, to overcome the GATT rule against dealing with investment measures and intellectual property, and to downplay the role of the extant international institutions whose jurisdiction they were.

A key reconceptualization concerned the fact that the principle of the sovereignty of states has always been held to mean that no state is obliged to trade with any other or to permit investment. Conversely neither trade nor investment access are rights. The obligation to provide national treatment, in the GATT and in international investment law, is only an agreement not to discriminate against those foreigners who have been admitted, except at the border. Even then there are numerous exceptions (government procurement, national security, cultural protection, etc.) National treatment refers to the obligation not to discriminate against already established foreign firms. It does not imply the right of establishment and does not deter countries from designating sectors as confined to national investment. Nonetheless, during the late 1970s and early 1980s various annexes to OECD codes, amendments and new codes moved that institution closer to an acceptance of a right to set up foreign service operations.⁶⁷ The Canada-United States Free Trade Agreement was particularly

⁶⁷ Everard, 38-41.

important for the purpose of redefining trade concepts so that they become applicable to services. The FTA allowed the United States to reaffirm the perception that service transactions should be thought of as trade as well as their market access redefinition of national treatment and the inclusion of investment measures and intellectual property in a services package. It even allowed specificity as to exactly how they intended to apply trade rules. As Harry Freeman, Executive Vice President of American Express Company explained, the FTA set precedents as to exactly what the United States wanted to achieve in the GATT in relation to services, investment and intellectual property.⁶⁸

There are also possible elements of a general agreement on services which the United States wishes to avoid. They are increasingly concerned about incoming foreign investment and want to protect certain sectors such as transportation, especially shipping, and the media, and maintain their current investment restrictions and discriminatory protections. Given their negotiating strength they clearly feel that they will be better able to protect these if they are allowed to bargain over specific regulations rather than through the passage of general rules. They want to maintain some discretion to protect sectors or regulations on the basis of national security. They definitely want to avoid significant liberalization in labour mobility, which many countries have argued is a logically consistent mode of service provision.

⁶⁸ Address to the Brookings Institute, February, 1987 cited in FTA Dossier # 17, 5.

Transferors generally want to limit employment and immigration openness to the movement of experts.

Also, the United States has no intention of allowing the so-called 'cornerstone of the GATT', the most favoured nation clause, to be applied to services. Article 1 of the GATT obliges each member country to extend unconditional non-discriminating MFN treatment in matters of tariff and other trade policy and rates to all contracting parties. If more favourable treatment is granted to any country it must immediately be extended to all members. The United States not only has no intention of equalizing the benefits of its negotiations but it also does not wait for multinational negotiations before bringing pressure upon other countries. Moreover, it exchanges, for compliance with its demands, not comparable concessions but only agreement not to extend new American import restrictions or retaliatory measures.

United States representatives have stressed the importance to them of: targetting specific government regulations which inhibit American service multinationals based on the effect of the regulation and not on whether or not its intent is trade distorting; defining national treatment in such a way that countries are obliged to permit access to multinationals; targetting public monopolies and state controlled enterprises and other government direction such as limits on licencing; obtaining a broad right of establishment (investment) and non-establishment so that firms can sell or transfer services in whatever mode suits

them; and eliminating restrictions on the movement of foreign exchange.

Geza Feketekuty, of the Office of the U.S. Trade Representative (USTR) proposes that, procedurally, exporting countries could identify the measures which created impediments to trade and then importing countries can demonstrate the extent to which such measures are essential for domestic regulatory purposes. Any regulatory measure not applied on a national treatment basis could be defined as a barrier to trade in services. A country could then commit itself to providing national treatment with respect to all policy instruments other than those which have been excepted in negotiations. Furthermore, consistent with market principles, they should be the 'least-trade-distorting' measure possible and should provide 'effective-market-access'. Domestic monopolies can be treated as just another restrictive domestic regulatory regime. Monopolies are trade distorting because the enterprise which has the monopoly sometimes also competes with private firms in producing services outside the scope of the monopoly. The USTR position is that a General Agreement on Trade in Services should apply on the basis of 'conditional MFN'-- essentially the basis that concessions be only granted to those who respond in kind, i.e. reciprocity. The agreement could not establish commitments on the flow of information, money or people but only establish the principle that governments provide as much freedom of movement for these as is consistent with the achievement of national objectives. However, an agreement covering monetary transfers could commit

subscriber countries to avoid restrictions on foreign exchange transactions. Finally, every sectoral agreement would need to include provisions on foreign investment (the right of establishment) and with the right of non-establishment-- the right to sell services into a country without investing or having a resident establishment.

In the next section, I will trace the transferor's construction of the argument that investment measures are trade restrictions. Once again the combined concerns of maintaining home technology and accessing foreign technology are apparent. The negotiating proposals which emerged, once again, skillfully redraft GATT principles so as to include the expressly prohibited subject of investment.

Trade Restricting Investment Measures (TRIMS)

Openness to investment is largely dealt with in the negotiating group on services under the rubric of national treatment. The negotiating group on investment measures targets those measures which attempt to direct investment so as to increase the benefit to the host or transferee-- particularly performance standards. Performance standards target the particular problems which host countries experience with subsidiaries. If subsidiaries tend to import most of their technology, the state may give them a local content quota. For similar reasons, host governments may ask the subsidiary to perform local training, sell locally (in the case of assembly operations) or retain capital. World Product Mandates

(WPMs) are similar negotiated arrangements in which a multinational agrees, normally as a result of bargaining for R & D subsidies with a host government, to develop a subsidiary as a relatively autonomous enterprise which can develop, produce and market a new product line. Although these standards may be imposed on entry they are generally used as a condition for more favourable treatment, such as access to subsidies. These conditions are minimally enforceable, are generally negotiated on a case by case basis, often not disclosed, and are only applied to foreign firms. Hence the proposal that all investment measures be transparent and operate on the basis of national treatment would mean a prohibition on performance requirements.

As mentioned, the American administration wishes to avoid any blanket prohibitions of distorting investment practices since they are world leaders in providing their firms with inducements and rewards. Since they prefer that only other countries' investor controls be threatened, it is necessary to target specific investment measures rather than all measures which are trade distorting. Proposals to prohibit specific measures have been submitted by each of the three major capital exporters, Japan, the United States and Switzerland. The Japanese proposal creates two baskets. Those TRIMS which are binding and enforceable should be prohibited. Japan names seven of these: requirements of local content, export performance, trade balancing, domestic sales, technology transfer, manufacturing and product mandating. Government incentives, since they are not binding, should be allowed but subject to the

principles of non-discrimination and transparency.⁶⁹

The American proposal also distinguishes between measures which should be prohibited and those which should be negotiable. Their prohibited list is even longer and includes: local content; technology transfer or licencing regulations; export performance incentives; product mandates; remittance restrictions; manufacturing and local equity requirements linked to reduced exports. It is notable that, in view of their increasing concern as hosts, Japan suggests no restriction on local equity requirements and the United States proposes only a limited control on this measure.

Also omitted are most of the measures which capital rich countries use to subsidize their own technological development such as subsidized credit, input subsidies and defence contracts. The pursuit of technological power implies both international sourcing, and hence openness, but also subsidization for research and development in the home country, and hence relative protection. European countries as well as the United States and Japan use subsidized credit as a selective inducement to investors. A large part of America's federal R & D expenditure of Forty Seven Billion Dollars, is channelled through Defence. The payment of inflated prices to domestic high-tech industry for defence, military, or space contracts provides the firm with excess profits which it can then direct to its commercial ventures. America also specializes in state-funded research institutions. As an example, the research

⁶⁹ GATT Focus, 66 November 1989, 6.

budget of one such institution, the Massachusetts Institute of Technology, equals the entire research budget of France.⁷⁰ The subsidization of industrial inputs is not uncommon, whether through the use of underpriced energy, as in Canada's case, or underpriced land leases, as is common in the United States. Again, protection of these measures is best achieved, for a powerful bargainer, by negotiation rather than general rule formation.

Finally, the desire to maintain technological advantage has increased technological protectionism within home states. As Longo reports,

... the major industrial powers have now begun to jealously guard their own technological developments in a way they never did before. Various means have been used to restrict access to new technology such as restrictions on attendance at conferences, licensing and export restrictions and the formation of technology cartels.⁷¹

The United States recently has become the world's largest host to foreign investment as countries establish a presence as part of their technology strategy. Congressman Wright expressed a growing national sentiment in a letter to the Wall Street Journal:

We ought to be exporting computers, not shares of IBM.
We should seek to sell more, not sell out.
To accept the de-industrialization of [our nation] while
exalting in the growth of foreign ownership and influence

⁷⁰ H. Shutt, The Myth of Free Trade: Patterns of Protectionism Since 1945, (Oxford, 1985), 75.

⁷¹ F. Longo, "Technology, Trade and International Economic Policy" in Technology in Society 11 (1989), 265. See also articles by Thomas Wudwud, Chris Hill in this special issue on Science and Technology Policy Under Free Trade.

in our domestic institutions could be an unwitting prescription for slowly becoming an economic colony again.⁷²

Thus, concerns about 'technology stripping' and buy-outs are now shared by transferors and transferees. Transferors wish to continue and even extend the protection of strategically important technology and firms under defence and national security categories and export controls such as the pervasively used American Military Critical Technologies List.⁷³

Trade Related Aspects of Intellectual Property (TRIPS)

While FTIS and TRIMS rest, in theory, upon the laissez-faire postulate that governments should not interfere with markets, TRIPS calls for increased governmental intervention. The multinational corporation is now the typical patent holder. Nonetheless, transferor model supporters treat corporate industrial property as conceptually just like individual intellectual property and internal transfers as just like market transfers. They rely on the above referenced arguments of utility and justice in arguing that innovativeness depends upon the innovator's belief that he will be able to 'inclose his field'.

The logic for including intellectual property regulation, which is explicitly excluded from its mandate, within the GATT, is

⁷² Cited in J. Bhagwati, "Trade in Services and the Multilateral Trade Negotiations," World Bank Economic Review 1.4 (Sept. 1987): 557.

⁷³ According to Bradley in Technology in Society, 186, it is the Canadian view that the overriding if unstated objective of the MCTL is to restrict international competition.

that countries deliberately provide 'inadequate' protection with the intent of allowing counterfeiters/intellectual 'pirates' to sell 'fakes' which 'steal' the business of legitimate businesses and thereby distort trade.⁷⁴ (Counterfeiting is a primary concern of the American business community and therefore one of America's highest priorities at the GATT.) Mutual benefits are reduced because countries which condone counterfeiting, by providing less extensive industrial property protection than others, rob others of their inventiveness and, ultimately deprive the whole globe of the possibilities of technological advance. In this perspective 'diffusion of technology' is understood as 'subsequent adoption'. Hence internal technology transfers represent diffusion to the host nation; hence all nations benefit equally from the development and transfer/ diffusion of innovation.

Intellectual property has been broken down into two primary categories, that covered by industrial property law and directed to mass produced commercial products or processes such as patents and trademarks and that directed primarily at the literary and artistic creations of authors and artists, primarily copyright and neighbouring rights. Transferors have traditionally only been concerned with industrial property. The traditional concerns have revolved around the failure of some transferee countries to adequately defend industrial property and, beyond that, the practice of interfering with industrial property negotiations

⁷⁴ This is the pejorative terminology favoured by authors such as Richard Tachuk, "Pirating Intellectual Property" in Canadian Business Review 14.2.

through the intervention of transfer of technology legislation or policies which required domestic firms, including subsidiaries, to insist upon certain patent conditions. A 1989 OECD survey of licensors indicates that they often required limits on exports, limits on the field of use or of sale, exclusivity of sourcing, and grant-backs of the benefit of any adaptation to the original owner.⁷⁵ Licensor firms objected to transfer of technology legislation including: compulsory licensing, limits on foreign exchange remission, and value-added taxes as well as any attempt to induce subsidiaries to export, to source locally or to adapt or reverse engineer.

The new technological and productive realities, however, have significantly changed the issue. Transferors wish to expand the scope of industrial property so as to appropriate rights in a variety of products and processes made possible by new technological developments. These include computer programs, integrated circuits or chip topography, the animal and plant products of genetic engineering, and human genes. Copyright is the most contentious intellectual property in the information age as it protects the written expression of ideas, not ideas embodied in material. The latter are not intended to encourage investment and disclosure and so tend to have much longer terms, often 75 years. There is no requirement that the material be novel or inventive as there is in patent law. As the closest thing to a property right in

⁷⁵ OECD, "Survey of International Technology Licensing" STI Review.

information this concept is being stretched to the breaking point so as to allow it to encompass a range of new technologies and to be reconceived as a site of trade-restrictive practices. Some transferors purport to protect, as copyright or quasi-copyright, property in computer programs, satellite retransmissions, chip topography and products produced from another's blueprint or other technical drawing. The last two items are protected as copyright in the United Kingdom and the first two in the United States and some other countries. Although copyright protection for computer software is increasingly accepted, countries vary widely as to the extent of that protection. In the United States virtually every element of the program is protected including what is known as the 'look and feel' of it--menus, screens etc.⁷⁶ National legal systems differ on these contentious new issues, even among the proponents. An example is the American and Japanese tolerance for copying with adaptations (reverse engineering) of chips as opposed to the European Commission's lack of tolerance for this practice and its products.

Some countries, even transferors, have complained that the pressure for standardization actually amounts to pressure for harmonization with the practices of the demandor, the United States. Every deviation from the American variation of intellectual property law tends to be challenged, bi-laterally, as a trade

⁷⁶ Apple Computer successfully sued in American courts for protection of its 'windows' concept.

restricting practice."⁷⁷ On April 7 1986, the USTR released an Administration Statement on the Protection of U.S. Intellectual Property Rights Abroad, stating that the Administration would seek to extend existing legal standards or to develop new ones to cover frontier technologies such as computer software, satellite retransmissions, biotechnology and semiconductor chip topography. At the Uruguay Round the United States is proposing that the standards for intellectual property law be developed "drawing on international conventions or, if necessary national laws"⁷⁸ (my emphasis). The proponents wish to apply the GATT principles of national treatment and transparency 'adapted to intellectual property' and reciprocity.

This, then, is the negotiating platform of the transferors on the three new issues. It can be seen that considerable effort has been expended to build a consensus to the effect that closed service sectors or domestic service monopolies (such as Bell Canada or Hydro Quebec), measures which seek to promote indigenous technology by favouring domestic technology or through performance standards, and national intellectual property laws which are less expansive than those of transferors, are all best understood as trade restrictions. Nonetheless, I submit, there is ample evidence that these national policies are being attacked not because they reduce or distort trade but rather because they impede

⁷⁷ This demand for conformity was a particularly galling practice to many Canadian officials.

⁷⁸ GATT Focus, 58, November/December, 1988.

multinational information and capital flows. The economic activity which is being curtailed is multinational investment and multinational globalization. I have also indicated that the firm and national strategies which have formed the transferor proposals include a considerable threat not only to the policy-making ability of transferees but also to their ability to contain and maintain their existing technological resources. These suggestions will be explained in greater detail in the next chapter which presents the other side of the story.

Conceptually, the above story reveals a linear retention of favoured concepts, especially of the logic of the market, notwithstanding a great deal of divergence from the idealized market activity. In spite of the numerous exceptions to openness favoured by the transferors, in spite of the selectivity and intervention promoted by them at home, the package is promoted as one based on the advantages of the free market. The 'mutual advantage' argument is well phrased by a former chair of the United States' Presidents Committee on Science and Technology:

International trade has been developing in two contrasting and contesting ways: One is a kind of one-world, or free-trade, concept in which ideas, products, raw materials, money and even people move across borders freely. This approach always has the potential of producing economic advantage for everyone, each segment of the world doing what it does best as a contribution and then partaking of what the others have to offer in return. Competing with this one-free-world idea is the protectionist, isolationist, nationalist approach. Here, each entity, dominated by its domestic social-economic-

political problems, makes an effort to beat the system, trying to control international flow and reap some advantages from that control.⁷⁹

⁷⁹ Simon Ramo "The Foreign Dimension of National Technological Policy" in Anne Keatley, (ed.), Technological Frontiers and Foreign Relations (Washington, 1985), 12-20, 13.

III. The Transferee Side

This chapter presents the other side of the transfer process and the alternative understanding of the function of investment measures, services and intellectual property rights. I will follow the same organization as that in the previous chapter. That is to say that the ready-made categories favoured by the transferee are presented first, followed by a discussion of the impact of multinational practices and the changing technological and production paradigm and finally by the presentation of the transferee platform on the three new issues. Instead of seeing these issues through the filter of faith in the logic of the market and the advantages of trade, transferees are more inclined to see them through the lens of dependency theory and literature concerning the development of technological or productive capacity. Before proceeding to describe the transferees experience of, and response to, multinational technology transfer, I would like to further explain what I mean by the term transferee and to elaborate on the difference between the transferor and transferee worldview. It will be seen that these worldview and experiential differences are reflected in the different negotiating positions held by the two sides.

A Transferee is not necessarily a Developing Country

As mentioned before, the obvious transferee is a developing country and many people see this issue as one which opposes the interests of developed and developing countries. However, the vast

majority of the countries in the world are transferees and many of them are developed industrial economies. A key distinction between the notion of transferees developing their productive capacity and development theory, lies in the lack of presumption that a transferor will always remain a transferor or that a transferee will ever become a transferor. Nor is there any suggestion that the path to success used by one country or in one period is necessarily generalizable to other periods or countries. We saw in the preceding chapter that the United States objects to the regulations of many countries including France, Italy, Canada, Mexico and Taiwan. Many are what are known as 'newly-industrializing' countries which are rapidly expanding their services and technology sales. Others are older industrial economies such as Canada, Australia and most of Europe. As will be seen, some of these are expanding their technological base while others are not. Because of the distinction between developing or poor countries and transferees I will not discuss dependency theory or the specific difficulties of poor countries except as these are broadly generalizable to transferees. Thus, the conceptual background to this chapter is similar to arguments which have been made by scholars in countries from Mexico to Spain. It is based on the need of a technological follower to develop its productive capacity. It presents arguments which have been made historically, often by economists from transferee countries, and upon which policies within transferee countries have been based. These policies include

those investment measures, restrictions on intellectual property licencing and closed service sectors.

I do not have documentation as to the degree to which each transferee uses these transferee strategies. I do know that they are common and much debated in the literature dealing with technology transfer and foreign direct investment. I also have the list of the countries which are the most intense users of these measures as compiled by the United States Trade Representative and reproduced in Chapter 2. These included Brazil, South Korea, Mexico, Taiwan, Japan, Spain, France, Canada and Italy. Many of these countries have produced an extensive literature on the nature of technology as a system, on technological imperialism and the difficulties of achieving benefits from investment in foreign technology transfer. Some of these studies will be referred to in this chapter and some will appear in the following chapter. Also, many of these countries have presented negotiating positions which challenge components of the transferor package. The fit between those who have constructed an alternative approach to technology transfer, those who use the imputed measures and those who have opposed the transferor position at the Uruguay Round is not perfect. For one thing, the transferors also use these measures. Japan is on the United States' target list and there is wide agreement that the United States is one of the most protectionist countries in the world. This is not surprising. As seen in the previous chapter, transferors want to maintain and further their technological advantage while extending into other countries.

Factors such as vulnerability to United States tariff pressures, the desire to achieve other Uruguay Round objectives and thus to 'trade' concession on these issues, domestic public sentiment, and the weight of traditional GATT values, influence the transferees' steadfastness on this issue. As will be shown, however, transferees' experience and perception have contributed to positions on the new issues which diverge significantly from those of transferors.

In the mid-1800s the United States, Canada, Germany and many other countries were primarily importers of industrial products while they exported primary products. During that time they did not rely on openness as the primary strategy with which to develop their productive capacity. For example, many United States' economists of the late colonial period favoured government intervention in trade in order to nurture infant industries (especially textiles and steel) and protect employment.¹ Within seventy-five years the United States and Germany had developed their productive capacity to become exporters of the most advanced technology in a new era of transnational production. Between 1950 and 1975, Japan developed its productive capacity to become primarily an exporter in an economic period in which information and productive processes are the key component of productivity. In sum, a transferee is not necessarily developing, newly industrializing or developed. It is any of the multitude of

¹ G. Spiegel, The Growth of Economic Thought (Englewood Cliffs, N.J., 1971), 362.

countries which are primarily on the receiving end of the transfer of technology.

The Transferee Worldview

The transferees' perspective, experience, understanding and interests in regard to technology and information transfers are, to a significant extent, the inverse of those of the transferors. Instead of the transferor's chosen paradigm of individuals interacting in a self-regulating market, transferees tend to see societies shepherded by weak governments within an unequal and constraining global economic system. They focus on strategies designed to decrease their dependence and enhance the development of their productive capacity. Transferees have different approaches to economics, to economic history, to production and to technology. I say that transferees have different approaches because this side of the struggle/ debate is less theoretically and ideologically rigid than its opponent's. While the transferor's models, stories and programs emphasize sameness, those of the transferees emphasize distinctions. While the first worldview privileges normalcy and conformity, the second observes specificity.

The transferor's approach to economic development, for example, tends to presume that the lessons to be learned from one country's or region's experience can be applied effectively to another. Modernisation theory saw the model of industrialization used by Europe and America as potentially applicable to all countries at all times. It was a common or general standard. This

dominant view of development assumed evolutionary progress, a teleology, and generalizability.² In contrast, and in opposition to these stories, economists and scholars from countries which had not yet developed their productive capacity to the point of becoming industrial or capital exporters have been unwilling to rely upon the power of a progressive trajectory along which all countries would be drawn. In searching for the roots of the distinction between more and less advanced economies, they relied, in part, on case studies of individual countries.

Alternative approaches to economic growth and productivity attend to non-economic factors more than does the dominant approach. Mainstream economic models produce predictions and diagnoses of economic consequences based on the presumption that political, social and cultural elements can be factored out. On the basis that 'everything else remains constant', they calculate the results of a given economic strategy. Alternative perspectives tend to challenge and to counter this approach by taking account of the difference which these factors make. The state of a country's productive capacity, the nature of its political or social structure or of its technological capacity can greatly affect the results of introducing particular economic strategies, such as openness to investment or to technology transfers. Beyond country specificity are the more generalizable differences which are attributable to a country's position on one or the other side of

²V. Randall and R. Theobald, Political Change and Underdevelopment: A Critical Introduction to Third World Politics, (London, 1985), 21.

the transfer process. Similarly, we noted above that classical trade theory subsumes much under a few categorizations and generalizations so that, for example, trade between individuals is seen as 'just like' corporate trade or international trade; or trade in services is 'just like' trade in goods. Again, alternative voices have challenged these imputed isomorphisms and noted the difference made by overmighty corporate actors, state particularities and each state's relation to the global economy.

In 1841 the German, Liszt, argued that classical economics neglected the development of a country's productive powers, assuming that this goal had already been achieved. He argued that since neither the United States nor Germany had yet developed their productive powers adequately they should use protection in the interim.³ Liszt's criticism of the parochialism of classical international trade theory was picked up a century later by the Swede, Gunnar Myrdal, and the Argentinian, Raul Prebisch. Myrdal argued that the gains-from-trade logic did not apply to commercial relations between economies which had and economies which had not developed their productive capacities. Myrdal also maintained that governments which proclaimed the virtues of a free economy at the same time sponsored and administered state intervention. Also in the 1930's, Prebisch developed the thesis that the world consisted of a core of industrial countries and a periphery of exporters of primary products. Countering the presumptions of mutual advantage

³ F. Liszt, The National System of Political Economy, trans. S. Lloyd, (London, 1904).

and inexorable progress, he argued that trade would increase the gap between their average incomes and worsen the primary producers' terms of trade. He therefore supported the use of national strategies to secure productive development.

In the age of the transnational, the ideas of Liszt, Gunnar Myrdal and especially Raol Prebisch were developed by the Latin American dependency school of writers. Dependistas, and writers from Canada to Australia who shared their concerns, produced many empirical studies of corporate practices such as transfer pricing, predatory (anti-competitive) pricing, the use of patents as market control mechanisms and capital repatriation. Conceptually, they countered 'development through investment' theory with underdevelopment and dependency theory, arguing that the developed countries achieved and maintained their status by extracting raw materials from poor countries and refusing their end-product exports so that they were forced to rely upon commodity and labour exports.⁴ They therefore countered the transferors' premise of mutual advantage with a presumption that foreign investment meant disadvantage for transferees.

The Impact of Multinationals on Technological Development

As we have seen, by the end of World War II the United States had unequivocally become the world economic leader. Its key

⁴ See for example, C. Furtado, Economic Development in Latin America: A Survey from Colonial Times to the Cuban Revolution (Cambridge, 1970); A. G. Frank Capitalism and Underdevelopment in Latin America (New York, 1967).

economic resource was the transnational and its central economic policy, openness to investment. These policies were supported by neo-classical economics which, as Dudley Seers argues, served both England and later the United States, during their periods of leadership.⁵ Classical economics maintained that multinationals contributed to development by: optimizing resources, transferring technology and managerial skills, supplying needed capital, satisfying consumer demand and training workers." International economic organizations emphasized the errors of governmental interference with the market while international law ensured the rights of investors and intellectual property owners but not of hosts or transferees.⁷

Critical economists and legal scholars questioned the extension of free trade logic to modern corporate entities. They argued that multinationals increasingly reconstruct markets rather than abide by them. Factors such as long term contracts, lack of independence between the parties, complex interrelations which diminish the salience of price, and lack of competition are some of the factors which detract from 'marketness'." Moreover, these

⁵ Dudley Seers, The Political Economy of Nationalism, (Oxford, 1983), 9.

⁶ Lewis Solomon Multinational Corporations and the Emerging World Order (London, 1978), 4.

⁷ J. Kuusi, The Host State and the Transnational Corporation: An Analysis of Legal Relationships. (Westmead, 1979), 10.

⁸ Fred Block, "Contradictions of Self-Regulating Markets," Paper presented at the Second International Karl Polanyi Conference (Montreal, 1988), 8.

behemoths often present an overmighty subject to the host nation. John Kenneth Galbraith emphasized the discordance between contemporary economic theory of the firm and the fact of mega-corporations, as well as that between the concept of a market system and the reality of a 'planning system' composed of developed market economies and the thousand or so largest firms.⁹ Studies of the relationship between powerful corporate groups and host country governments have emphasized: the exertion of extra-territorial control by the home office or home government; the high degree of autonomous planning exercised by the MNC and the host nation's inability to exercise 'governance' over them.¹⁰ The corporate capacity to move goods and services and, through transfer pricing, to allocate costs and prices increasingly defies state control.¹¹ In light of all of the above, the operation of the laws of the market becomes extremely problematic conceptually, even without the empirical evidence of market control and lack of technological diffusion which will be provided below.

In response to the criticisms of the capital importers, the concept of development through foreign investment became recon-

⁹ J. Galbraith, The New Industrial State (New York, 1967).

¹⁰ Ted Schrecker, Corporate Power: The Challenge to Legal and Political Theory (Ottawa, 1985), 7.

¹¹ On the tremendous difficulty which states experience in attempting to control transfer pricing, see Robin Murray (ed.) Multinationals Beyond the Market: Intra-Firm Trade and the Control of Transfer Pricing (New York, 1981); and Sanjaya Lall, "Transfer Pricing and Developing Countries: Some Problems of Investigation" World Development 7. 1 (January, 1979): 56-72.

stituted around the issue of technology transfer. Modernisation theory, with its argument that, through foreign investment, the benefits of modernisation would trickle down throughout the host economy, gave way to the postulate that, at least, importation is the most efficient means for countries which lack technology to acquire it. The lack of common perspective quickly became obvious. Transferees differed with the transferors' assumption that the transfer of intellectual property or investment in technology automatically equate with technology transfer.

Development Related Investment Measures and Services and Development Restricting Intellectual Property Rights

Many authors question the equation technology with a saleable commodity. Transferees' experiences with ineffective technology purchases incline them to see technology as a social system in which selection, design, production, adaptation and re-design are inherently linked. They have focused on issues such as making the right technology choice, the appropriateness of the technology, development priorities such as achieving 'spin-off' benefits to the economy as a whole and the need to appropriate transferred technology so that they can bend it to their service. Also, transferee economists have noticed that technology involves skill and not all skill is owned by a firm; it can include the incremental improvements made by workers or the adaptations of peasants. On the other hand the mere movement of technology is virtually irrelevant to a nation's scientific and technological

development. As we have seen, intra-firm transfer is favoured precisely when the objective is to maintain the secrecy of the information, thus preventing spin-off benefits to the host. For transferees investment is not synonymous with innovation. Transferees, therefore, are inclined to favour investment measures which close some sectors to investment or which try to induce multinationals to increase their contribution to indigenous technological capacity through practices such as buying supplies within the local economy or training local people.

Many authors have become increasingly critical of 'traditional' economic analysis of innovation and technical change.¹² Reassessments of the industrial revolution and other technological achievements criticized much of the accepted wisdom about the development of productive capacity. The stories which told that the benefits of industrialization were overwhelmingly investment dependent improvements in the area of 'big science' have been countered. For example, a study of a Brazilian steel plant found that the plant was able to far exceed its rated output without additional investment mainly through technical improvements introduced by the workforce.¹³ Similar achievements are common in Japan. Closer study revealed the importance of the incremental improvements in the technical skill of workers. The equation of

¹² See for example, G. Dosi, C. Freeman, R. Nelson, G. Silberberg and L. Soete (eds.), Technical Change and Economic Theory, (London, 1988).

¹³ P. Maxwell and M. Teubal, "Capacity Stretching Technical Change: Some Empirical and Theoretical Aspects" IDB/ECLA Working Paper, 1980.

great technological progress with 'free trade' and free capital flows was re-examined. It was found that great technological jumps in Britain in the 18th century, the United States and Germany in the late 19th century, Japan in the mid-20th and most recently the newly-industrializing countries (NICs) benefitted from strategies which controlled either trade or investment and which directed firm activity under the aegis of a strategy to achieve national technological mastery.

Japan and, increasingly, the Asian NICs (Hong Kong, Singapore, Taiwan, South Korea) and some South American countries, used tight restrictions on foreign investment and pro-active technology policies to develop their productive capacity. These 'governed economies' became competitors in the world market in medium and high technology products, the information based industries on which productivity now depends. Within the last forty years they moved from being transferees to being transferors or are clearly moving in that direction.

Japanese and Asian productivity has climbed at phenomenal rates and is expected to account for half of world productivity by the year 2000.¹⁴ This was achieved in defiance of the rules of Western economics as to the route to productivity. Their approach to production was not fordist. Above all they rejected, with difficulty and with fortitude, pressures to open their economies before they had developed their productive capacity to become exporters of medium tech manufactures. The governed economies

¹⁴ IT News Release No. 42.

restricted, controlled and directed both foreign and domestic investment. In Japan, direct foreign control was vigorously discouraged and Japanese investors were not allowed to export capital overseas so that they were obliged to invest in Japan. This restriction has been lifted now that Japan has excess capital but Japanese banks remain a powerful development tool. They are not free to respond to market priorities but rather are directed to serve as a development tool by promoting research and supporting high technology firms. Finance, like communications, transportation and energy are services particularly crucial to national technology development as well as to other national strategies. In Korea, all sectors were closed to foreign investment unless performance requirements were met.¹⁵ Performance standards reward firms with government benefits if they accommodate national technology objectives by such measures as increasing local sourcing, export quotas, local research or training. Korea, like Brazil and other governed economies, also used crown or state controlled enterprises to secure strategically necessary technology.¹⁶ State enterprises, public monopolies or industrial direction are important components in all of the governed economies.

The transferee approach to the intellectual property system reflects the difficulties inherent in attempting to achieve the

¹⁵ R. Leudde-Neureth, "State Intervention and Foreign Direct Investment in South Korea: (1984) IDS Bulletin 15.2, 36.

¹⁶ J. Enos, "Government Intervention in the transfer of technology: the case of South Korea," IDS Bulletin 15.2 (1984): 26-34.

development of productive or technological capacity through multinational technology transfer. In evaluating the bargain made between government and industry whereby a monopoly is exchanged for the disclosure of technological information, Katz observed that transferees pay higher costs and receive fewer benefits than those in the hypothetical model.¹⁷ The costs of monopoly are felt more sharply in the importing country than in the patentee's country. Often patents are not exploited or 'worked' but are satisfied by the mere importation of the products of the patented process. Hence, they may function as a means of market entry and market maintenance. They are used to block the development of substitute products and may prevent investment by others.¹⁸

Because intellectual technology transfers often entail extensive provisions as to what can be done with the technology, transferees may be prevented from achieving most of the ostensible benefits. Patent holders often insist on tie-in agreements as to the sourcing of parts, servicing, capital, etc. The agreements also commonly require that the user not adapt the equipment for local use or make any changes to it. Yet such adaptation is a key means by which countries use importation to develop technological capacity. According to Amitav Rath of the International Development Research Centre, "...it is the process of assimilating,

¹⁷ J. Katz, "Patents, the Paris Convention and Less Developed Countries" (Yale, mimeo, nd.).

¹⁸ C. Vaitsos, "Patents Revisited: Their Function in Developing Countries" in C. Cooper, ed. Science, Technology and Development: The Political Economy of Technological Dependence in Underdeveloped Countries. (London, 1973), 76-83.

adapting and developing technology ... that is critical in providing benefits to the users." ¹⁹ If improvements are made, rights and profits to these are 'granted back' to the original patentee. The export of the good produced with the technology is usually prohibited so that the renter cannot subsequently become a competitor. Finally, the benefits of technology diffusion and disclosure are often not achieved overseas. Even where the technology is not secreted internally, the purchaser will rarely be able to access foreign patent records and will frequently be prohibited from learning the technology by the process of reverse engineering. Transferees, therefore do not equate the transfer of intellectual property rights with technology diffusion. They reserve the term diffusion for the process whereby technological skill is actually dispersed within a country-- or at least beyond one subsidiary.

Transferees, therefore, often enact patent protection which is less advantageous to patent holders than that used in transferor countries. Some have enacted transfer of technology legislation which restricts the use of grant-backs and export restrictions or other standard patent conditions and, often, legislates compulsory licencing-- the removal of monopoly rights after a fixed period if the patent-holder is not working the patent.

While they were developing their technological capacity, the governed economies paid scant heed to the transferors' intellectual

¹⁹ Amitav Rath, Science and Technology Policy in IDRC: A Review (Ottawa: IDRC, Jan. 9, 1989), 12.

property system. In Japan,

the terms on which technologies were transferred were controlled so as to allow local engineers to learn from them-- sometimes by 'reverse engineering' (stripping down newly imported plant and machinery so as to learn how it works, and, in some cases, to copy it.).... In general there appears to have been an explicit objective of using foreign technology as a basis for the development of local technical capability, rather than a substitute for it.²⁰

Korean and South American transfer of technology legislation intervened in contracting for the transfer of intellectual property. State departments either required or bargained for: provision of export markets, training to the level of effective technology appropriation; no grant-backs; and a limited period for fee payment for technology services.

Thus the transferee approach to investment measures and to the use of service firms for national advantage and to domestic intellectual property rights which differ from those of transferors are all based on the perception that foreign investment is, at best, of qualified technological benefit to transferees. They feel that the multinational and the home countries of multinationals use trade restrictive measures (such as capital repatriation measures and home sourcing) which are at least as much of an international problem as are the defensive measures used by transferees.

Before continuing to relate how these concerns have been translated into negotiating platforms I must deviate to explain

²⁰ Charles Cooper "Science, Technology and Production in the Underdeveloped Countries: An Introduction," 1-18, in Charles Cooper (ed.), Science, Technology and Development: The Political Economy of Technical Advance in Under-Developed Countries. (London, 1973), 7.

that, while most of the transferee countries have experienced these difficulties, and have been influenced to some extent by this worldview and have attempted to use at least some of the above mentioned measures, there is no perfect correspondence between these orientations and final negotiating positions at the GATT. Over the five or six year period during which the transferors pushed their agenda many transferees moderated their resistance to transferor demands. In spite of the fact that much OECD evidence and studies from countries such as Spain have argued that European transferees have good reason to fear the transferor package, Europe as a bargaining unit has moved from initial resistance to basic acceptance of the transferor package. This may be at least partly attributable to the influence of Germany, a primary European transferor. Other developed transferees, including Canada and Australia, also moved closer to acceptance of the transferor position during the period of 'consensus building'. Some of the factors which appear to have affected Canada's eventual position will be examined in the next chapter. Finally, many of the NICs, such as Korea and Singapore, were particular targets of unilateral United States pressures for conformity. Most transferees, in the end, sought only incremental changes in the transferor position. They focussed on the positive, exporter advantages which they could pursue and allowed the transferor conceptualization to largely dominate so that the issue was effectively constructed in trade terms. Their objectives therefore, became increasingly export focussed. They sought equivalent access and concessions for their

service exports, no matter how few. On the other hand, they sought to influence the definition of concepts such as national treatment, market access, the effect or objective of investment regulations, etc. in such a way as to lessen the harmful impact on some of their particularly favoured technology promoting strategies. Only a few developing country transferees remained staunch opponents of every element of the transferor package.

In 1982, under extensive American pressure, the GATT Ministers asked every member to submit a study of its service sector. From an alternative perspective, UNCTAD and other United Nations institutions conducted studies of the importance of the service sector for future economic development.²¹ They expressed their view that any requirement to remove restrictions or standards for investment in key service sectors would signal a loss of autonomy over development policies.²² Studies by UNCTAD and emanating from scholars from developing transferee nations focussed on issues such as the market interventions of multinationals²³, the problems of regulating transfer pricing, and inclusion of labour mobility in the definition of services. Authors from other transferee

²¹ See, for example, United Nations Conference on Trade and Development (UNCTAD hereafter), Services and the Development Process (New York, 1984); UNCTAD, Production and Trade in Services: Policies and their Underlying Factors Bearing Upon International Service Transactions. (New York, 1985).

²² Andrew Cornford, "Some notes on proposed new international regimes for foreign investment and services" Unctad Review 1.1 (1989): 17-26.

²³ United Nations Centre on Transnational Corporations (UNCTC) "Foreign Direct Investment, the service sector and international banking," (New York, 1987).

countries produced reports which highlighted concerns about unilateralism, about pressures to 'harmonize' i.e. to force transferees to adopt the same laws as transferors, about the national importance of service sectors such as transportation and finance and, above all, about the new technology sourcing strategies of multinationals.

All countries eventually submitted their service sector studies. The United States then insisted that services constituted an important new area of trade to be placed on the GATT agenda. Some developing countries said that they would not participate in the Round if services, investment measures and intellectual property were to be on the agenda. These countries were each threatened with unilateral tariff pressures from the United States. The United States threatened to illegally raise its tariffs on the goods from those countries unless they participated in the Round.²⁴ In the end, opponents submitted, one by one, until only a group of ten 'hard line' transferees continued to resist. This group is led by India and Brazil²⁵. They too, eventually signed the Punta del Este Declaration which opened the Round. They were only able to secure the cosmetic agreement that TRIPs and TRIMs would be negotiated in a legally distinct set of negotiations, the so-called dual track negotiations. In practice this has had no consequence

²⁴ T. Berg, "Trade in Services: toward a 'development' round' of GATT negotiations benefitting both developing and industrialized states," Harvard International Law Journal 28.1 (1987): 20.

²⁵ The others are: Argentina, Cuba, Egypt, Nigeria, Peru, Tanzania, Vietnam and Yugoslavia.

a. the opponents were not able to prevent compliance on these issues from being linked to concessions (or lack of retaliation) against their goods exports or to maintain the notion these were not trade matters.

Transferee Negotiating Positions

A central remaining distinction maintained by most transferees is their rejection of the transferors' attempts to re-write the central GATT articles dealing with multilateralism, non-discrimination and national treatment. The General Agreement consists of thirty-eight articles, divided into four Parts. Part One contains the two basic Articles which can only be amended by unanimous agreement of all members. The unconditional Most Favoured Nation (MFN) clause requires that any trade or tariff concession (lowering) must be 'multilateralized' immediately and without condition to all members. Article II requires all such trade and tariff rates to be recorded in a schedule to ensure multilateral extension and also to bind them so that they cannot subsequently be raised. Article III is the national treatment article. It requires that once a product has been imported, it must be treated no less favourably than like products of national origin. There is, in the original article, no suggestion that all foreign goods have to be admitted or that all categories of goods have to be treated equally, as if they were 'just like' every other. Article XVI limits the use of government subsidies which affect trade. Products which have benefitted from a subsidy may be subject to an equal or

lesser countervailing duty by an importer. Rules limit the use of countervailing duties to cases in which a subsidized product harms an established industry or inhibits the establishment of a domestic industry. Although it has no police force, the GATT self-regulates by allocating to parties the right to withdraw trade and tariff privileges from non-complying parties. In practice enforcement is an exact expression of global economic power relations.

From the negotiating positions of transferee nations and from scholarly work written from a transferee perspective, I have compiled the following composite transferee platform on what some transferees have referred to as a General Agreement on Services (GAS). The first and cornerstone GATT article, the unconditional MFN should remain first and integral. James Everard notes that the GATT permits contracting parties to protect domestic producers of goods. Tariffs are the legal means for so doing. Therefore a GAS should develop some tariff or fee analog for services.²⁶

In regard to the suggestion that discriminatory practices be catalogued by exporters preparing a list of measures which they don't like and then importers proving that these are necessary, transferees have made three observations. In the first place only governmental restrictions on trade are targeted (and only some of those). Transferees have illustrated numerous trade restricting corporate practices, including those facilitated by intellectual property regimes and transfer pricing. The Singapore submission on

²⁶ J. Everard, "Trade and Investment in Services: OECD Agreements and the GATT." (Victoria, 1988): 27.

services suggests a safeguard provision against detrimental corporate practices of external service providers.²⁷ Transferee and UNCTAD country studies noted that transfer pricing abuse and predatory pricing would be virtually impossible to control for services since they often have no comparable market value. Transfer pricing is particularly difficult to regulate or control where the transferring enterprise is a large, computerized firm transferring firm-specific products, such as software, trademarks or accounting. Uncontrollable transfer pricing, in turn, would allow multinationals considerable leverage in avoiding national regulations and avoiding market pressures. Extraterritorial transferor controls requiring firms to repatriate their tax payments and their foreign exchange or to comply with export controls should be considered trade distortions.

Authors have also objected that given the sovereign right of states to regulate non-nationals within their borders, the burden of proof that a regulation is unfair should rest with the complainant. According to G. R. Pipe, the GATT progressive liberalization principle includes a balancing respect for national policy objectives.²⁸ It should not be interpreted as an overriding

²⁷ GATT Focus 67 (Dec. 1989), 7.

²⁸ G. Pipe, "Telecommunications Services: Considerations for Developing Countries in Uruguay Round Negotiations," UNCTAD Review 1.1 (1989): 92.

imperative without regard to the reasons behind the measures. Others have focussed on the fact that it should be the intent not the effect of the regulation which determines whether or not it is primarily (in its pith and substance) trade distorting or development enhancing. Transferees see these measures as necessary amelioratives to corporate trade distortions. Their function could be seen as corrective and, hence, trade enhancing. Finally, the procedure proposed amounts to private bargaining rather than the use of legal rules.

Transferees reject the suggestion that the national treatment principle necessitates market access. Nor is the concept of national treatment as equal treatment for foreign and domestic firms ideal. Many services are provided almost exclusively by either foreign or domestic firms: technology services (intellectual property) shipping, tourism or telecommunications, for example. There is also little question of regulating domestic and foreign providers equally if 95% or 100% of the target group is, in fact, foreign, as is often the case with intellectual property and with performance requirements. Remember, the primary service exports from the perspective of transferors are technology services, transportation and communication. For transferees the first is largely a foreign enterprise and the last two are often public monopolies.

What one is really talking about, then, is not equal treatment but rather market access, i.e. the elimination of regulation of foreign multinational activity, whether that activity is in the

form of investment, intellectual property or the movement of information, personnel, data or capital. For transferees this would significantly reduce the entire scope of economic government. To treat public monopolies as 'just another restrictive domestic regulatory regime' which should be negotiable, when added to the above, indicates that market access in services would amount to the virtual elimination of national policy in favour of an unimpeded web of multinational arteries.

A sector which the transferors are particularly anxious to target and which transferees are particularly anxious to protect is telecommunications. MNCs have emphasized their desire for 'access to and use of distribution systems, including telecommunications networks'.²⁹ This seems to put an obligation on countries to provide services to foreign suppliers which may not be offered to domestic suppliers.

If market access were interpreted as synonymous with network access, this could be interpreted to entitle foreign service providers or users to interconnect with private and public networks, ensure availability of leased circuits, and allow resale and sharing of such circuits. It could also exempt foreign suppliers from national obligations and impose technical obligations on networks for the convenience of foreign suppliers. A right of non-establishment would allow offshore businesses a licence to plug into national telecom networks to provide teleshopping, banking, insurance, travel and an array of personal and professional services without investing in the local economy, employing workers or, perhaps, even paying taxes.³⁰

²⁹ United States Coalition of Service Industries, "A Mutual Agreement on Trade in Services," (Washington D.C. April 21 1988).

³⁰ Pipe in UNCTAD Review, 95.

Transferees were unenthusiastic about introducing intellectual property into the GATT. Developing countries fought to prevent the Uruguay Round Objectives on TRIPs from referring to negotiations on substantive standards for the protection of TRIPs and they have emphasized that fact in their official proposals. As the Round began, however, only the most vigorous transferees maintained a negative stand. India, the developing country voice on TRIPs, has proposed that only restrictive or anti-competitive practices of the owners of intellectual property rights that distorted or impeded international trade should be the subjects of GATT negotiations.³¹ India has also proposed that GATT measures are not applicable because they regulate the measures which a state may legally impose at the border while intellectual property legislation is an internal, domestic matter rather than a border measure. Other transferees have resisted the trade and development inhibiting character of intellectual property enforcement and the extensive resources required to comply with transferor proposals which place the onus or responsibility for regulating counterfeiting on states.³² India, alternatively, has argued that any GATT agreement on TRIPs should grant transferees the freedom to adapt their legislation to their economic development and to their other public and technological requirements and interests.³³ Most transferees feel more comfortable with the less coercive existing institutions,

³¹ GATT Focus 64 (Aug-Sept. 1989).

³² GATT Focus 64 (Aug-Sept. 1989).

³³ GATT Focus 64 (Aug. Sept. 1989).

the World Intellectual Property Organization, (WIPO) and the Paris and Berne Conventions. Conceding the impossibility of avoiding TRIPs, they have proposed that any negotiations not affect in any way the competence of international organizations such as WIPO for establishing norms in this area.³⁴

More moderate transferees have conceded the dominance of the transferor position and sought to ameliorate it in specific ways. These transferees have proposed that the GATT work with other international organizations dealing with intellectual property, that it adopt general standards rather than specific requirements, that it acknowledge the distinctiveness of different national legal systems, that harmonization not be required, and that enforcement not be part of the TRIPs agreement, or at least, that enforcement be treated separately. Specifically, the New Zealand proposal, for example, suggested that there be no requirement for harmonization and that GATT rules establish minimum standards no more detailed or complex than is necessary to address the major causes of trade distortion based on standards already in the Paris and Berne Conventions.³⁵

Transferees are generally nervous about the proposed enforcement against counterfeiters and reluctant to see the issue of counterfeiting extended to include goods infringing, not only trademarks, but also copyright and geographical indications.

³⁴ Keesings Record of World Events 35.2 36509.

³⁵ GATT Focus 67 (Dec. 1989).

Of course, transferees are concerned about unilateralism and pressure for harmonization and have emphasized the applicability of the MFN and that required standards for intellectual property not be specified so minutely as to require nations to reproduce the required language in their national law. Many transferee nations have complained during the TRIPs negotiations of the U.S. practice of placing countries on a 'black list' for failing to comply with U.S. standards on intellectual property law.

The new information technology aggravates all of the problems experienced by importing firms and transferee countries as advanced technology is increasingly internalized, increasingly differentiated, and increasingly protected. Shortened product life cycles have led many scientists and researchers to challenge the current intellectual property periods which exceed, in many cases, the expected life span of the product. Now that information is the primary value-added technology, and now that IT is overwhelmingly transferred internally and subject to transfer pricing, intellectual property movement must be primarily understood by transferees as serving a capital moving rather than an information moving function.

We saw above that transferors, in their TRIMs proposals, seek the deregulation of transferee investment and the privatization of services. Specifically, the proposals target performance standards, including: requirements of local content (local sourcing); export performance (where transferee firms are only producing for the domestic market); domestic sales (where transferee firms are merely

assembling for export); requirements for some local manufacturing (where firms are merely extractive, e.g. fishing) and so on. Some transferors seek to prohibit even inducements. Transferors want to proceed by targeting specific named and defined practices so as to protect their own investment controlling strategies. In these areas the transferee position must be, to the extent deemed politic, direct opposition to this platform. Transferees would like to maintain all of these performance measures. They would like to conceive of them as standards rather than requirements and would particularly resist having non-binding measures declared illegal. They would prefer an approach which targeted all trade affecting discriminatory measures so that they can put on the table transferor practices such as military export controls. Transferors would like to protect their 'big pocket' advantage in using subsidies as an inducement to information intensive R & D. Transferees would like to target these trade distorting measures. Included transferee targets are the defence/national security exceptions; the cross-subsidization of commercial research by means of overly generous military research grants; input subsidization; the Military Critical Technologies List; extra-territorial tax measures (especially in regard to transfer pricing tax displacement); and technological protectionism.

There is, finally, a more broadly based and pro-active concern expressed by many transferees and by much science-policy literature dealing with the requirements of productive capacity for the information age. Internalization and restriction of information

flows threatens the possibilities for those countries which hope to further develop their productive capacities. Transferor strategies of global technological sourcing, the use of research networks and generous subsidization also contribute to what some authors are calling the 'small country squeeze.' This point will be elaborated in the next chapter in relation to Canada. UNCTAD has referred to information flows as the life-blood of the modern global firm. I like to think of the paths through which this life-blood flows as private information arteries. The strength of this metaphor lies in its suggestion that information only flows through these arteries. If the inter-firm links are arteries through which related and increased services can flow at minimal cost, it is not surprising that information businesses such as producer and business services, tend to piggy-back on already existing corporate links. This, as the economists say, presents entry barriers to new service businesses. Beyond these private arteries are the broader Strategic Partnerships which contribute to concentration, cartelization, patent pooling and market segmentation agreements among firms.³⁶ Current global restructuring includes a new wave of takeovers and mergers as small technology-rich firms are absorbed.³⁷ While the small firm may accept its fate as an incubator of technology, the accumulated effect of a number of technology buyouts, or of dependent and isolated or defunct firms,

³⁶ Lynn Mytelka, The Political Economy of Strategic Partnering (Ottawa, 1987).

³⁷ Mytelka, 1987, 22.

has very severe implications for the small country.

In sum, those nations on the receiving end of the transfer of information hope that this process will further the objective of national technological development. But they do not presume that such a result will necessarily occur. These movements are investment not trade, they argue, and they increase, rather than decrease, existing international disparities. Many question the presumption of mutual advantage from unregulated multinational technology transfers. They do so, in part, along the line of Liszt's argument, that the economic models which hypothesize the gains which flow from free 'trade' (movement) in services do not consider its developmental impact. The countries which have most successfully developed their informational resources have done so through an explicit technology strategy which included all of the disputed measures. Their success puts the lie to the argument that unimpeded multinational information transfers best promote development.

Many authors have argued that multinational enterprises are the parties whose development is promoted by these primarily intra-firm technology transfers. From this perspective the package called 'free trade in services' means free multinational access to public service infrastructures such as telecommunications and energy which have been built with national funds and form national objectives. It also means the elimination of regulations and policies which attempt to control the transfer pricing and other fraudulent practices associated with technology service transfers.

'Trade restricting investment measures' means an attempt to target development enhancing investment measures which compensate for the weak technological role of multinational subsidiaries. 'Trade related aspects of intellectual property' is seen as an attempt to coerce all countries to harmonize their national intellectual property legislation with the ever-expanding scope, extent and range of the intellectual property legislation favoured by the transferors. Finally, transferees have argued, the transferor platform requires substantively re-writing the GATT principles dealing with non-discrimination, national treatment and multilateralism to which transferees are devoted.

IV. Canada as a Transferee with a Transferor Perspective

In this chapter I will discuss Canada's position in the transferor-transferee process and debate. Again I will begin with the background value system or political culture as it applies to the principles of free markets versus planned development. There is considerable allegiance to both principles within Canada and official Canada often states that we are a 'middle power' which advocates a 'golden mean' between positions held by the most powerful and the weakest countries. In fact, Canada's position on the new issues has been described in this way. I will show, however, that in terms of effective actions we have adopted positions which have not strayed far from our dominant southern neighbour.

The second section of this chapter documents the relationship between Canada's technology sales abroad and its payments for foreign technology (technology trade balance). It uses a variety of measurements including comparisons between Canadian exports and imports, Canada's market share of intellectual property, its payments versus receipts for technology services and the number of advanced technology industries which export more than they import. I will argue that Canada's position as a transferee is unequivocal.

The next section will discuss the debate within Canada over the current stage of globalization, the enhanced pressure for competitiveness and the updated debate over openness as opposed to the use of services, investment measures and intellectual property

restraints for developmental purposes. As in the previous chapters I will end with the negotiating positions on the three new issues.

In this chapter I will illustrate that a virtual 'miniature replica' of the international debate between transferors and transferees has been conducted within Canada. Some Canadians perceive the country within the framework of the 'one free world, mutual advantage' worldview and believe that benefits will flow to Canada from openness to services and information flows. Others are more cynical and critical of multinational practices and the technological contribution made by subsidiaries. The former tend to refer to the achievements of our few technology transferors, especially Northern Telecom, while the latter tend to dismiss as naive the suggestion that we would get access in transferor markets equal to that which we would have to concede if openness to service transfers were to become an international obligation. Thus the international debate is largely replicated within Canada.

Historical Policy Tendencies

As a colony, Canada, like the United States, was concerned to develop its productive capacity rather than serve merely as a source of raw materials for the imperial economy. Canada's first Prime Minister espoused a program of developing productive capacity behind tariff walls in terms with which Liszt or the dependistas could relate: he did not want Canadians to remain mere 'hewers of wood and drawers of water'. Over the years several service sectors were closed to foreign investment including: banking,

transportation, finance, utilities and communications, and media. Nonetheless, early Canadian economic policy was not, by any account, a coherent strategy of economic government. The National Policy tariffs did not inhibit foreign investment from setting up branch plants to serve the local market nor did it significantly control branch plant activities. The 1872 Patent Act adopted extensive patent protection thereby preventing use of the adaptive strategies so successfully used by the governed economies. The government determined to rely upon the extraction of wealth from Canada's primary resources rather than to pursue an aggressive technological development strategy.

In this century, Canada initially adopted an unequivocal economic liberalism, embracing the transnational corporation. Foreign capital inflows to Canada became overwhelmingly direct (thus controlled from abroad), corporate and American. From foreign investment of \$8.7 billion in 1950 we became host to \$68.9 Billion in foreign direct investment by 1975.¹ As early as 1957 the Gordon Royal Commission addressed the problems of foreign direct investment. A number of Canadian authors wrote impassioned denunciations of the extent of foreign control of Canadian resources, capital outflows, technological dependence, foreign sourcing and other problems.²

¹ Statistics Canada, Canada's Balance of Internal Indebtedness, 1976, Ottawa, 1977.

² Kari Levitt, Silent Surrender: The Multinational Corporation in Canada (Toronto, 1970).

In 1963 concern about industrial development led to the creation of the Department of Industry and the advisory Economic Council of Canada. The Science Council of Canada, instituted in 1966 to advise the government on Science Policy, began to highlight the importance of technological development--in works such as Towards a Science Policy for Canada. Further institutional indications of the increasing awareness of the need to focus on science and technological innovation are the creation of the Science Secretariat of the Privy Council Office in 1964, the 1969 Senate Special Committee on Science Policy (Lamontaigne) and the 1971 creation of the advisory Ministry of State for Science and Technology.

The 1968 Watkins Report on Foreign Ownership was spurred by United States' guidelines intended to induce their subsidiaries to repatriate earnings so as to ease United States' balance of payments difficulties.³ Canadians were also irritated by the extra-territorial application of American law, especially the Trading With the Enemy Act, which ordered American subsidiaries to comply with American export restrictions. The Watkins Report, accordingly, focussed on sovereignty and Canadianization issues.

In the 1970's, Canada, like the rest of the world, increasingly came to see the transnational investment issue in terms of the impact of transnationals on technological capacity. Unlike the Watkins Report, the 1972 Grey Report emphasized the technology

³ Ingrid Bryan, Economic Policies in Canada 2nd. ed. (Toronto, 1986), 119.

transfer and technological development consequences of foreign investment.

Access to foreign technology was seen to be the major benefit of foreign investment. However, it was pointed out that much of this benefit never accrued to Canada as most of the technology used by U.S.-owned subsidiaries had been developed in the United States. Subsidiaries, therefore, did not perform the full range of enterprise they were expected to perform-- they were truncated, to the detriment of Canadian research and development capabilities.⁴

Both the Grey Report and the Foreign Investment Review Agency (FIRA) were inspired, in part, by the above-mentioned writers who, like the dependistas, had highlighted multinationalization's cumulative inhibition of indigenous technological innovation.⁵ In the 1970s Canada legislated the sale of generic (without trademark) pharmaceuticals and shortened the patent term on pharmaceuticals. The 1976 Working Paper on Patent Law Review noted in particular the negative effects of the terms attached to intra-firm transfers and patent-holder's export restrictions.

As global investment intervention was peaking in the early 1970s, Canada, briefly, adopted regulatory control over foreign investment through the Foreign Investment Review Agency. All new foreign investment, whether by takeover or establishment, was screened. FIRA negotiators bargained with applicants to reduce costs and increase benefits to Canadians. They attempted to gain voluntary compliance with performance standards. Thus these

⁴ Bryan, 120.

⁵ Claire Sjolander's interviews confirmed the influence of Kari Levitt's work on FIRA. See Sjolander, "Foreign Investment Policy-Making: The Canadian State in the Global Economy," (Ottawa, 1989), 286.

negotiations were not transparent as they provided MNCs with no clear information as to what was expected of them. In July 1983, a GATT panel, in response to an American complaint, ruled that FIRA had violated the national treatment article, by requiring some foreign firms to restrict imports and increase local sourcing. FIRA reworded the offending section of the Act but did not necessarily change the negotiated terms.

FIRA's success was limited. The proportion of exports of Canadian subsidiaries which went to parents or other affiliates was 71.9% in 1971, but by 1981 these internal transfers had risen to 81%. Also the proportion of sourcing abroad increased during this period as did the extent of integration with the parent firm." FIRA was somewhat more successful in increasing the number of affiliates required to employ local personnel. That figure increased from 1% of all affiliates to 3%.⁷ New investment during this period was particularly active in the service sector, especially banking, retail and business services.⁸ Thus, Sjolander argues, the 1984 Liberal defeat and the Conservative government's subsequent replacement of FIRA with The Investment Canada Agency was a less marked change than is often thought.⁹ The latter Agency, which promised to welcome investment, and the new Prime Minister, who announced that 'Canada was open for business' had little

⁶ Sjolander, 409.

⁷ Sjolander, 407- 408.

⁸ Sjolander, 433- 436.

⁹ Sjolander, 316.

difficulty in dismantling a decade-old but minimally effective investment regulator.

Thus, Canada has used all of the imputed transferee strategies of closing some sectors to foreign investment, using public service monopolies such as Bell Canada and Canada Post to create service infrastructures, legislating compulsory licencing in the case of pharmaceutical patents which were non-working, and the use of non-transparent investment measures which encouraged local sourcing and employment. Nonetheless, we pursued each of these development strategies with much less enthusiasm than did countries such as Japan, South Korea or Brazil. In each case the results were also less than those achieved by other countries using the same strategies. In general any inclination towards economic governance as a stimulant to the development of productive capacity has remained much debated but inchoate. Compared to the concentrated national effort shown by the Newly Industrializing Countries or Japan, for example, the Canadian efforts to develop indigenous technological capacity in the age of the multinational seem very modest and often confused. Commentators have referred to the dichotomous advice provided by the two advisory bodies. The Economic Council of Canada, drawing on traditional economics and the logic of the market argued against the interference with the market proposed by the Science Council and others. In fact the two engaged in a protracted debate and often continue to counter each other. According to Doern, the Science Council faced obstacles which the Economic Council did not in that:

economists had been a part of the central policy machinery since the Second World War, primarily in the Department of Finance and the Bank of Canada, scientists had never really been a part of such machinery....Therefore, added to the conceptual problems of determining what a science policy was, the council also had to establish its legitimacy in the eyes of the internal bureaucracy....¹⁰

The Department of Trade and Commerce had developed an allegiance to the staples sectors and to the continental market. Departmental divisions and the coordinating role of the Department of Finance were equally important in inhibiting activist policies.

Even if ITC had been committed... it is unlikely that it would have had much success in dislodging the Department of Finance as the government's primary articulator of economic policy. Finance has resisted the development of economic expertise elsewhere in the government and has successfully promoted the economically orthodox attitude of non-intervention in the economy.¹¹

There is very wide consensus among Canadian policy analysts, that the general tenor of the Canadian approach to technology transfer in the age of the multinational was ambivalent. Abonyi and Atkinson conclude that all but the most innocuous and indirect efforts to adopt a strategic approach have been thwarted; the Ontario Premier's Council refers to an ad hoc, short-term orientation, indiscriminate focus, mixed objectives and inadequate policy linkage;¹² and French refers to an incremental and reactive

¹⁰ B. Doern, "The Role of Central Advisory Councils: The Science Council of Canada," in B. Doern and P. Aucoin (eds.), The Structures of Policy-Making in Canada. (Toronto, 1971), 248.

¹¹ A. Abonyi and M. Atkinson, "Technological Innovation and Industrial Policy: Canada in an International Context," in M. Atkinson and M. Chandler, The Politics of Canadian Public Policy (Toronto, 1983), 115.

¹² Ontario. Premier's Council, Competing in the New Global Economy Vol. 111 (Toronto: Ontario Queen's Printer), 10-12.

stand divided between the free market and structuralist (approximately transferee) positions.¹³ In an interview with the author, the President of the Canadian Advanced Technology Association quipped 'they have no policy, everything is separate and incompatible.' It seems that Canada does not know which side of the fence to stand on. However, a long-established set of economic assumptions, Departmental hierarchies and bureaucratic differences have resulted in a minimalist approach, which inherently equates with non-interventionism, i.e. a transferor stand. The validity of such a position depends on whether or not Canada is a transferor.

Canada's Productive Capacity for the Information Age

Whether a country is a technology transferor or transferee is a relatively straightforward empirical question. I will look first at the most obviously relevant indicators, such as the relationship between our exports and imports of high-tech products, our receipts and payments for technology services and the trend in our relative trade in low-tech, medium-tech and high-tech products. The statistics used are primarily those of the OECD, Statistics Canada, the Bank of Canada and some high-technology or public policy institutions such as the Canadian Institute for Advanced Research (CIAR), the Economic Council of Canada, the Information Technology Association of Canada (ITAC), and the Advanced Technology

¹³ R. D. French How Ottawa Decides: Planning and Industrial Policy Making 1968-1984. (Toronto, 1984).

Association of Canada (ATAC). Next, comparative trends will be considered. It will be shown that Canada's technology position is in an unmistakable deficit and is seriously deteriorating in relationship to our competitors. The final issue to be addressed concerns the role of multinationals in Canadian technology trade statistics.

The most explicit indicator of a country's position on the transferor-transferee scale is the relationship between imports and exports of technology, the technology trade balance. Looking just at exports, the world's technology transferors are, overwhelmingly, the United States, the European Community and Japan. Canada is not in the running with under a 3% share of world exports of high technology products.¹⁴ When we consider the relationship between exports and imports a consistent technology trade deficit is revealed which has grown from a deficit of \$4.6 Billion in 1980 to a deficit of \$7.2 Billion in 1989.¹⁵ Eighty per cent of the deficit is comprised of trade with the United States. Our overall technology trade deficit increased at an average rate of 6% annually between 1979 and 1987.¹⁶ Two product groups, computers and related equipment and electronic equipment accounted for over

¹⁴ Statistics Canada, World Trade Data Bank cited in Magun and Rao, "The Competitive Position of Canada in High- Technology Trade" unpublished paper presented at the Canadian Economic Association Meetings, Quebec City, June 1989.

¹⁵ Statistics Canada, "Statistical Events: Canada's International Transactions in Services 1988 and 1989," Canadian Economic Observer 1990, 2.3.

¹⁶ Statistics Canada, International Trade Division, 1988.

58% of the deficit with the United States in 1987. Telecommunications is the only high technology sector which has shown a positive trade balance trend, while aerospace is reducing the amount of its deficit. We have, then, only one high-technology sector which has a positive trade balance and one with some promise of achieving one. The fact that our declining high technology sectors greatly outweigh our emerging high tech sectors is indicated by the approximate doubling of our deficit during the decade.

If we use an alternative to the sector approach and divide technology products according to their research or knowledge intensity the picture is no less gloomy. Figure 1 indicates the decreasing role of manufactured end products in total Canadian commodity trade. Canada's commodity exports and imports are broken down into 4 categories: agricultural products; crude raw materials; fabricated materials such as lumber, newsprint; and manufactured end products such as equipment. Trade in end products as a proportion of all trade has manifestly plummeted. Figure 2 examines Canada's total trade in manufactured goods (fabricated materials and end products) in terms of their technological intensity. Trade in manufactures with high technological intensity manifests an increasing deficit. Fabricated materials' gains can be attributed largely to gains in automobile sales, by far our largest merchandise export and one which is increasingly vulnerable in the current global economy. The vulnerability foreseen for this

Figure 1
Canada's Commodity Trade Balance

Source: Statistics Canada, Summary of External Trade, cat. #65-001 and 65-201, various years. Reproduced from R. Voyer and M. Murphy Global 2000: Canada: A view of Canadian Economic Development Prospects, Resources and the Environment. Toronto: Pergamon, 1984, p. 29.

Figure 2
Canada's Trade Balance in Manufactured Products by Research Intensity

Source: Industry, Trade and Commerce, Manufacturing Trade and Measures, 1966-1982. Reproduced from Global 2000: Canada, p. 31

industry has recently been confirmed by drastic cut-backs due to low sales.¹⁷

Focusing on particular high-tech industries, the Economic Council found that many more are losing than gaining from the trade liberalization of the last two decades.¹⁸ Statistics Canada's new World Trade Data Base, revealed more industrial high-tech losers contributing to what they term a 'widely spread' decline.¹⁹

Focusing on market share and competitiveness, one finds that Canada's relative global position is seriously deteriorating, especially as compared with new competitors such as the Asian NICs. Their superior market share has been increasing steadily since the 1970s.²⁰ Magun and Rao report that:

In 1971 Canada showed a strong performance in ADP machines (including computers), radioactive and associated materials, non-electric engines and motors, telecommunication equipment, and aircraft and associated equipment. Each sector's share in the world high-tech market was over 5 per cent. Today Canada has lost ground in all of these high-tech sectors.... [As for ADP-- automatic data processing-- machines]...Canada's share in this information technology sector declined from nearly 17 per cent in 1971 to under 4 per cent in 1986.²¹

Our share of the United States' market in high-technology has shown particularly marked decline. Between 1971 and 1986 our share of

¹⁷ "Car industry slowdowns lead to on-off work pattern" Globe & Mail Jan. 17, B1.

¹⁸ Roy Mathews, Structural Change and Industrial Policy: The Redeployment of Canadian Manufacturing, 1960-1980 (Ottawa, 1985).

¹⁹ S. Magun and S. Rao, "The Competitive Position of Canada in High-Technology Trade," unpublished paper presented at the Canadian Economic Association Meetings, Quebec City, June 1989, 13.

²⁰ S. Magun and S. Rao, 22-23.

²¹ Magun and Rao, 14-16.

that market fell from over 20% to less than 10% at the same time that U.S. imports from the world increased eighteen fold.²²

In regard to intellectual property, Canada accounts for only 0.3% of the world's patents.²³ It only accounts for 1.7 per cent of global technology service receipts and 5.6 per cent of payments.²⁴ Our payments for technology services, therefore, are three times our receipts indicating that our weakness in this area is even greater than that in technology goods. Our technology services deficit in 1986 was \$1.743 billion.²⁵

It is informative to situate these trade statistics within a more general picture of the nation's technological capacity, and more importantly, indications of its potential for the future. In 1989 the OECD compared the performance of its 24 members on a list of 54 Science and Technology Indicators for the period 1982-86. Small size did not prevent Sweden, Switzerland and the Netherlands from placing among the OECD countries with considerable advanced technology capacity, whereas Canada, Belgium, Norway, Finland and Austria evinced a weaker science and technology base, according to the OECD's 1988 Science and Technology Indicators. In 1988, the Canadian Institute for Advanced Research assessed Canada's

²² Magun and Rao, 17.

²³ D. Conklin and F. St. Hilaire, Canadian High-Tech in a New World Economy: A Case Study of Information Technology (Halifax, 1988), xviii.

²⁴ Conklin and St. Hilaire, 152.

²⁵ T. Wudwud, "Technology Development and Canada-US Free Trade," Technology in Society 11 (1989), 251.

potential for economic development through technological innovation.²⁶ They found a level of Research and Development spending among the lowest in the 24-member OECD and industrial spending on research and development which has consistently remained between 1% and 1.4% of Gross Net Product, a record among the worst in the OECD. This level has been recognized to be disastrously low since the early 70's when the Senate Special Committee on Science Policy called for a target of 2.5% R&D/GNP. The ratio has not increased, however, and the proportion of the government budget spent on scientific activities has decreased steadily since that time.²⁷ The CIAR also found our position in all of the following indicators to be low relative to other OECD countries: funding of higher education research; number of students in science and engineering; number of scientists and engineers as proportion of labour force (2.7/1000); research intensity of sales; proportion of R & D devoted to product development vis-a-vis long-term research; the innovativeness and effectiveness of government support for industrial R & D; and the funding of basic research. The latter, according to the National Advisory Board on Science and Technology (NABST) has been declining and is 4 or 5 times less than that of

²⁶ Canadian Institute for Advanced Research (CIAR hereafter), Innovation and Canada's Prosperity: The Transforming Power of Science, Engineering and Technology (Toronto, 1988).

²⁷ See D. G. McFetridge, "Research and Development Expenditures," in G. B. Doern (ed.), How Ottawa Spends Your Tax Dollars (Toronto, 1981), 287-94.

some of our competitors.²⁸ Howard McCurdy notes that only 2% of Canadian companies invest in R & D at all and 7% of these account for 2/3 of all R & D.²⁹ Only two non-crown corporations spend over 100 million annually.³⁰ Those two corporations are American subsidiaries, IBM and Pratt and Whitney. Indeed, except for communications, well over half of Canada's high-tech industry is controlled by large mostly US- based multinationals.³¹

The Debate Within Canada

The debate over openness within Canada, is similar to, but distinctive from, the international conceptual contest between transferors and transferees. Although dominated by market allegiance, with some consideration of the need to develop productive capacity before complying with the market dictates of openness, it is also informed by peculiarly Canadian factors.

Many Canadian economists and many Canadian institutions, such as the C.D Howe Institute, the Fraser Institute, the Niagara Institute, the National Council on Business Issues, the Conference Board of Canada, and, most influentially, the Economic Council of Canada, have traditionally accepted the logic of openness as Canada's best economic policy. This logic is normally expressed as

²⁸ Canada. National Advisory Board on Science and Technology (NABST hereafter), University Report (Ottawa, 1989).

²⁹ H. McCurdy and D. Lenihan, "Research and Development and the Free-Trade Agreement" Technology in Society, 11 (1989), 216.

³⁰ CIAR, 40.

³¹ Conklin and St. Hilaire, 89.

an economic policy or an investment policy rather than as a technology, industrial or science policy.

We have seen that in the 1970s, Canada, like most host nations, became increasingly interested in issues of indigenous technological development. The arguments that openness increased consumer choice, lowered prices or, even, that it provided employment, were no longer seen as good enough. The advocates of openness within Canada, as in the international arena, were obliged to re-defend their position on the basis that openness contributed to the development of technological capacity. The Economic Council of Canada responded with a significant research effort.³² Their study of Canadian firms played a central role in diverting government policy from concern about the technological role of subsidiaries. The authors found that 48% of the innovations of subsidiaries and 59% of the innovations of indigenous firms were new. The source of information for foreign subsidiaries was their parent firms while Canadian firms got their ideas for innovations from customers or suppliers. The authors concluded that subsidiaries were moving towards technological maturity, 'something akin to product mandates though not to supply a world market' since they innovated here and that indigenous firms had great difficulty in finding out about and accessing technology. These studies have been extensively cited as proof that 'foreign ownership reduces

³² D. De Melto, K. McMullen and R. Wills, Preliminary Report: Innovation and Technological Change in Five Canadian Industries (Ottawa, 1980).

technology diffusion lags'.³³ This study, subsequent analyses of specific elements of it, and a 1985 ECC study, diffused concern over the technological role of multinationals by providing statistical indication that MNCs are an important source of technology and that they acquire technology more quickly than non-subsidiaries.

More recently, this discourse increasingly talks about competitiveness and about free trade. Daly³⁴, for example, argues that Canada's technology problems are due to slow adoption and implementation. These, in turn, are attributable to a lack of competition within Canada. The solutions he proposes are: free trade and free trade in banking; no non-tariff barriers or bailouts for unprofitable corporations and government-funded management studies to help small firms. The argument that Canadian firms are unproductive, pampered and should be shaken up by an influx of foreign competition became a central argument in the Conservative administration's adoption of free trade as a strategy to improve competitiveness. Added to the traditional view that openness would allow Canadian firms to benefit from scale economies is a new harshness which accepts unequivocally a rationalization in which many Canadian firms may well not adjust and dismisses these with a 'good riddance'. As the Task Force on Federal Policies and Programs for Technological Development of the Ministry of State for

³³ In Conklin and St. Hilaire, 40 and in the MacDonald report, for example.

³⁴ D. Daly. Weak Links in the Weakest Link (Ottawa, 1984).

Science and Technology explains, Canada has mistakenly attempted to pull innovation through government assistance; instead it must be demand driven by the push of the market. The fate of the losers in this process is immaterial since "there is no such thing as technological sovereignty."³⁵

The newest argument in favour of openness, the technology cost argument, has been espoused by the American research community, the OECD, and many Canadian state managers. Very simply, the argument posits that

technology based industries are generally characterized by high development costs, high risk and short product life cycles. As a consequence, their products need rapid and wide market access in order to provide an adequate return on investment.³⁶

Use of flexible manufacturing, just-in-time inventories, very high standards of quality control and the very short product life of technology necessitates access to speedy, very high quality inputs. Rather than relying on extensive vertical and horizontal integration, many high tech leaders form looser affiliations with high technology 'niche' suppliers. Canada already has achieved some success as a niche supplier through indigenous firms and through a handful of multinational subsidiaries which have achieved Product Mandates. In Aerospace and Defence, for example, Pratt and Whitney in Canada used to produce in Canada with largely imported

³⁵ Canada. Ministry of State for Science and Technology, Task Force on Federal Policies and Programs for Technological Development (Ottawa, 1988), 4.

³⁶ J. Bell and G. Vickery, "International Perspectives on Technology and Free Trade," Technology and Society 11 (1989), 149.

technology from the U.S. parent. However, skills were developed here and a World Product Mandate was won. Now the Canadian plant sends as much value added technology to the US as it receives. The Canadian plant produces small thrust engines and the US plant the larger engines. One Canadian state manager described to me his view of the niche opportunities opened up by the movement to flexible manufacturing and just-in-time inventory in this way:

The truck backs up once a week or more to the production line and unloads the parts right onto the assembly line as needed. Boeing, for example, will cancel a supplier who is late 3% of the time or whose products are less than 98% perfect. This implies incredible quality control. It also implies very fast and dependable transportation-- contiguous transportation. Have you noticed the quantity of transport tractors on the 401 and how, if there is a breakdown or closure of the 401 it never lasts for more than 3 hours. That artery is crucial. The threshold distance is considered to be 500 miles -- that's one day's transportation. An exception is parts produced in Edmonton and trucked to Seattle -- that run only goes once a week. Generally however if you have a production facility you can draw a line around it of a 500 mile radius and that's where all your suppliers will be found. That is for intermediate goods -- unless you transport by plane.

What that means is that this production model has serious implications for regional development. You can see the implications. This is very centralizing.

Thus, state science policy managers understand the information age as a time of opportunity for the successful niche suppliers with which they work-- they see market access as everything. When I asked this state manager 'what about those firms that are not ready for market access?', I was told that "They're all ready unless they are not competitive." The only other potential blocks to innovation which these state managers were willing to concede were the cost of capital, lack of management skills among the science based firms, and a need for technological advice.

The Royal Commission on the Economic Union and Development Prospects for Canada and, in particular, the contributions of Richard Harris have been tremendously influential in bringing together expertise on the global economic changes, the specificity of Canada's continental and global status and the movement for openness and market access. McFetridge and Corvari, in their submission, reiterated the view that the technology diffusion lag is much shorter within intra-corporate transfers so that multinational subsidiaries are faster adopters of technology than are indigenous firms.³⁷ Using an extensive micro-economic model Harris calculated gains from bi-lateral free trade at 9% and gains from multilateral free trade at 8.6%.

As the small country in the arrangement, Canada will tend to benefit proportionately more by the diversion of U.S. imports from other countries to Canada than the United States will benefit from the diversion of Canadian imports from other countries. As Canadian industries are assumed to have unexploited scale economies, the increase in market size ... will allow Canadian manufacturers to lower their production costs.³⁸

According to this model, the "major beneficiary from industrial free trade is the Canadian labour force" ³⁹ by virtue of increased wages, these, in turn, will force some existing firms to shut down thereby further increasing the scale and hence the productivity of

³⁷ D. McFetridge and R. Corvari, "Technological Diffusion: A Survey of Canadian Evidence and Public Policy Issues,.." in D. McFetridge, research coordinator, Technological Change in Canadian Industry (Toronto, 1985), 45.

³⁸ R. Harris, "Summary of a Project on the General Equilibrium Evaluation of Canadian Trade Policy," (Toronto, 1985), 172.

³⁹ Harris, "Summary", 174.

the remaining firms.⁴⁰ Harris ties these arguments together arguing that small countries especially gain from free trade, in light of the nature of high technology costs, because their firms are too small to be able to participate in high technology on their own and because they can benefit from technology spillovers.⁴¹ "Canada's proximity to the United States, and substantial trade and investment flows assure a degree of integration in which the public good aspect of information transfer works in Canada's favour."⁴² Canada should encourage multinationals, open its borders and subsidize indigenous research and development. In its list of recommendations the Royal Commission Report recommended that Canada negotiate bi-lateral free trade with the United States and support multilateral free trade efforts.

Within Canada the transferee position is less well represented although it is quite clearly presented. Although there is no comparable institutional representation of the argument that Canada cannot benefit from openness unless and until it has a more fully integrated and developed high tech base which it can maintain in the face of foreign technology sourcing strategies, there are a considerable number of academics, policy advisers, parliamentarians and state managers of this view. The Science Council of Canada is the underfunded and under utilized opponent of the ECC. Its work is

⁴⁰ Harris "Summary",175.

⁴¹ R. Harris, "Trade, Industrial Policy and International Competition," (Toronto, 1985) especially pages 105-110.

⁴² Harris, "Trade",109.

less widely appreciated by the government, however. The MacDonald Commission, for example, virtually ignored the importance of science and technology development for the information age, as the Science Council wryly notes.⁴³ The SCC's recommendations to the trade negotiators met the same fate.

The Science Council has consistently noted the poor research achievements of subsidiaries in Canada, their transfer pricing abuses and, generally, their weak contribution to the development of productive capacity. The National Advisory Board on Science and Technology, Industry Report, agrees that Canadian controlled firms in research intensive industries perform much more research and devote a much higher percentage of sales to R & D. When they do invest in innovation, foreign controlled firms tend to focus on adaptive development rather than research and their exports are likely to be second best technology.⁴⁴ Not surprisingly, the Canadian Institute for Advanced Research notes:

Small countries that have their own indigenous, science-based multinationals tend to have a much higher expenditure on research and development than other countries (eg. Switzerland, Holland, Sweden, vs. Canada, Belgium, Italy) and thus such firms have an overall impact on the indigenous research and development capability.⁴⁵

Canadian subsidiaries have little interaction with the local economy, receiving their management, production and marketing

⁴³ Science Council of Canada, Placing Technology Up Front: Advising the Bilateral Trade Negotiators (Ottawa, 1986), 8.

⁴⁴ Wudwud in Technology in Society, 254.

⁴⁵ CIAR, 33.

strategies from the parent.⁴⁶ They have four times the imports-to-sales ratio of indigenous firms.⁴⁷ They do little local sourcing or training.

Subsidiary capital movement and transfer pricing provide a direct drain on national fiscal health. Between 1976 and 1980 there was an accumulated net outflow of funds from Canadian affiliates to US parents of approximately one and a half billion dollars.⁴⁸ About 115% of Canada's technology services deficit was attributable to payments of US subsidiaries to their affiliates. (The subsidiaries ran up a deficit of \$2.082 billion while a positive balance on behalf of indigenous firms reduced this to \$1.743 Billion.⁴⁹ U.S. controlled firms accounted for 136% of the Canadian trade deficit.⁵⁰ Voyer and Murphy recommend that Canada encourage the development of Canadian-owned enterprises to reduce the deficit on the service account.⁵¹

The so-called World Product Mandates do not negate all of the drawbacks associated with multinationals. In practice no subsidiary within Canada has a full WPM; rather they have, at best, partial

⁴⁶ See Wudwud in Technology in Society. See also D. Ondrach, Foreign Ownership and Technological Innovation in Canada: a study of the industrial machinery sector of industry (Ottawa, 1975).

⁴⁷ Conklin and St.-Hilaire, 92.

⁴⁸ U.S. Department of Commerce cited in Voyer and Murphy Global 2000: Canada: A view of Canadian Economic Development Prospects, Resources and the Environment. (Toronto, 1984) Table 5-3 p. 48.

⁴⁹ Wudwud in Technology in Society, 251.

⁵⁰ Wudwud, 251.

⁵¹ Voyer and Murphy, ix.

mandate status. The Pratt & Whitney mandate, for example has only brought high tech exports equal with imports and the exports go only to its parent firm. Its range of activity and marketing is still determined from abroad and its role limited to supplying one piece of a high tech product to the parent. Also, these WPMs have been won at high cost. In addition to subsidies, tax and customs benefits, the mandated subsidiary may be accorded 'Canadian controlled' status for the purpose of government procurement contracts, as was IBM. Nor are mandates likely to increase in number and scope. Many Canadian authors suggest that the government may be overly enthusiastic about this technique.⁵²

As mentioned, the ECC credited the subsidiaries studied with higher technology diffusion than indigenous firms which, they felt, suffered from diffusion lags. According to the OECD, however, there is little evidence to suggest that the lack of information on commercially utilized technology is slowing the rate of diffusion even though much of the [Canadian] Government effort is directed to this end.⁵³ My own interviews confirmed this finding. On the other hand, customer and supplier input into technological decisions contributes to technological responsiveness and firm competitiveness. Hence the subsidiaries' relative lack of this input could be seen as a detriment. The impact of ownership on productive capacity

⁵² B. M. Wolf "World Product Mandates and Freer Canada- United States Trade in A. M. Rugman (ed.) Multinationals and Technology Transfer: The Canadian Experience (New York, 1983); N. G. Popadopoulos Canada and the European Community: An Uncomfortable Partnership? (Montreal, 1986).

⁵³ OECD, Science and Technology Policy Outlook, 1988, 69.

is best illustrated by the previously cited balance of trade, and comparative market share statistics, which illustrate the rapid relative decline in Canadian manufacturing and especially in high-technology, the areas in which foreign firms predominate. As Abonyi and Atkinson conclude, "[i]f the adaptive strategy is working, it does not appear to be doing so in the context of manufacturing exports."⁵⁴ Thus, effective investment controls, of all three varieties, combined with protection for some indigenous industries and technology and discriminatory treatment in favour of indigenous SMEs, are indicated.

The price and scale arguments used by Canadian free trade supporters have also been countered and categorized as appropriate to a previous industrial period. Scale economies are now being replaced by scope economies. As part of the process of discarding inappropriate modes of production, many large firms are decentralizing and sponsoring innovative 'spin-off' firms. In the United States, new plant size has declined from an average of 644 employees in 1970 to 21 in 1980.⁵⁵ Short production runs and customization are no longer necessarily inefficient, and even may be preferable if they correlate with variety and flexibility.⁵⁶ Even price, both of products and of labour, is a less important factor in competitiveness. Laser optics, genetic techniques, software, accountants, process technology, and data management are

⁵⁴ Abonyi and Atkinson, 101.

⁵⁵ Canadian Chamber of Commerce, Focus 2000, 8.

⁵⁶ Conklin and St. Hilaire, 65.

not primarily marketed on the basis of price. Quality, reliability, specificity and flexibility have become key determinants of the value of end products and key components of value added. A competitive strategy based on price is more appropriate to a country which has no aspirations to advanced technological capacity. A country with high level skills, science, infra-structural capacity and proximity to knowledge centres might better focus on improving its scope and quality economies. These are capacities much more likely to be fostered by public investment in education and science, with accompanying strategies to maintain that investment within Canada, than by the vagaries of the market.⁵⁷

Canada is a typical 'small country' by the OECD definition, and typically, is reliant on indigenous small and medium size enterprises, SMEs, for its advanced technological capacity. In the information age these are both more precious and more vulnerable than ever before. New economic and technological realities necessitate innovative management, organization and flexibility, qualities which are more likely to be found in dynamic SMEs. These are more likely to have 'dynamic' efficiency, i.e. that brought about by a firm's capacity to innovate or benefit from technological change.⁵⁸ Canada's multinational-led business community has been much

⁵⁷ See parliamentary debate relating to a Liberal Motion that Parliament condemn the government for its cutbacks on research and science spending. Hansard, Mar. 14, 1991.

⁵⁸ R. Khemani, D. Shapiro, W. Stanbury "Introduction and Executive Summary" Khemani et al. (eds.) Mergers, Corporate Concentration and Power in Canada (Halifax, 1988) 3 note 15.

disparaged as: 'conservative', 'risk averse', 'reluctant'⁵⁹ and 'resistant'. Indigenous SMEs, on the other hand, have been often praised as the exception to this norm.⁶⁰ Ondrach found the personnel in Canadian firms to be 'much more innovative'.⁶¹ Chesnais observes that the above-noted advantages of being plugged into the primary technology arteries and networks, allows less-progressive firms to absorb smaller, innovative firms along with their inventions, know-how and scientific and technical potential.⁶² Thus, we may expect the concentration of core technologies within the subsidiaries of MNEs to be inversely related to the distribution of those technologies within Canada, to the health and independence of high-tech SMEs, and to the retention of internalized technology within the country.

The information age also significantly changes the transferee's costs and benefits from intellectual property as many Canadian academics and a few policy advisors have observed. Pam Cooper of Agriculture Canada has described the location and ownership of patented research as the major issue at the heart of the controversy over patent legislation in Canada.⁶³ She is

⁵⁹ World Economic Forum 1986 Report on Competitiveness cited in Canadian Chamber of Commerce, 3-4.

⁶⁰ See for example Mytelka; Wudwud in Technology in Society.

⁶¹ Ondrach, 5.

⁶² F. Chesnais, "Science, Technology and Competitiveness," STI Review 1 (Autumn 1986) 116.

⁶³ Pam Cooper, Plant Breeders' Rights: Some Economic Considerations (Ottawa, 1988), 131.

referring to the imbalance of costs and benefits between transferors and transferees referred to above. According to Yehuda Kotowitz, a national perspective on intellectual property makes it clear, that, for Canada, no patent protection is optimal.⁶⁴ Berkowitz and Kotowitz add that

When account is taken of the tendency of foreign corporations to transfer patent ownership and profits to parents or to lower tax jurisdictions, it is clear that shorter patent protection to foreign corporations is desirable.⁶⁵.... [Moreover] The insistence on the performance of research in local subsidiaries of foreign companies is misguided, unless governments can insure that patent rights (and appropriate royalties) reside in the local subsidiary.⁶⁶

Again, contemporary technology sourcing strategies render the mere subsidization of industrial research a wholly inadequate technology policy without a strategy to control technology exit. Moreover, the new productive processes indicate that being first to market is a much more important reward for innovativeness than an overly long monopoly right. According to Cooper, the patent system's stimulus to innovation makes sense when it is not otherwise possible to appropriate the return on an innovation-- specifically when the advantages of being first to market are relatively small or when the profit potential of the innovation is small.⁶⁷ Neither of these features characterize the new technology. On the contrary, their

⁶⁴ Y. Kotowitz, "Intellectual Property--A National Perspective" (Toronto, 1988), 16.

⁶⁵ M. Berkowitz and Y. Kotowitz, "Patent Policy in an Open Economy," Canadian Journal of Economics 15.1, 17.

⁶⁶ Berkowitz and Kotowitz, 14.

⁶⁷ Cooper, 44.

short life cycles belie the need for a 20, 40 or 75 year monopoly right.

Finally, a developmental Canadian approach to intellectual property emphasizes its restriction on true technological diffusion and, given the new emphasis on advanced information strategies, the crucial difference between scientific discovery and commercialized technology. As Victor Bradley argues, the appropriation of scientific advance, such as genetic knowledge, runs counter to the intended objectives of intellectual property rights.⁶⁸ Indeed Canadian firms have argued against the extension of patent rights to plant varieties or seeds precisely because it would inhibit their scientific research. Especially in regard to the frontier technologies, Canadians have argued that overly broad intellectual property licenses are being awarded which inhibit research.

For Canadians of a transferee slant, then, the interests of large firms and the leading economies are directly opposed to the interests of a small SME-reliant transferee such as Canada. The current technology transferors would benefit from an extension of intellectual property rights to all new forms of information or technology and a strengthening of global enforcement. They would also benefit from a reduction of impediments to investment especially in fields such as telecommunications. As the current leaders, they also would benefit from any restriction on the development of competitors. On the other hand, Canada has many

⁶⁸ V. Bradley, "National Strategies for Technology Trade: A Response to Chris Hill," Technology in Society 11.2 (1989).

incentives to ignore the intellectual property system with its capital and technology repatriation potential, inhibition of research, import promotion and restrictions on adaptation and diffusion of technology. Small countries, some argue, need to foster, not prevent, technology diffusion. They have good reason to attempt to restrict transfer pricing abuse and corporate concentration. Above all, they need to nurture and protect indigenous technology firms and limit foreign acquisition of firms and technology critical to the country's technology base.

The Science Council Statement recommended four policy principles to the bi-lateral trade negotiators.⁶⁹ The SCC first noted the unprecedented magnitude of technological change leading to potentials for new industries and the "fragile nature of such budding ventures". It therefore asked that any free trade agreement protect and favour infant industries. Second, in regard to government procurement, it argued that national treatment must either truly extend both ways or be equally permissive of different national approaches to preferential treatment. Third, it argued, in light of the pervasive use of American subsidies and research promotion, that "Canada must be permitted to exercise a proportionately equivalent amount of preferential treatment, via Canadian nontariff barriers, in areas of its own choosing." Fourth, it concluded, in light of American practices of technological protection, "both countries should provide equal and mutually

⁶⁹ Placing Technology Up Front.

advantageous access to briefings and to government- sponsored scientific and technical information ... packages..."

Canada at the Uruguay Round

Canada's stance in the negotiating groups on services, investment measures and intellectual property has been overwhelmingly that of a transferor. Our position is similar to that of the European Community in that it maintains a small but significant area of divergence from that of the United States, the central 'demander' in these rounds. Canada has been harmonizing its policies with those of the transferors on all of these issues over the last five to ten years. Intellectual property changes have been ongoing together with a process of national divestment of government service monopolies and other crown corporations, many of which were research intensive. As indicated, notwithstanding the acrimony over FIRA, it never approached the kind of serious controls on investment used in some countries and its passing returned Canada to its normal relative openness to investment. Nonetheless its border investment measures were different and more apparent than those of the United States. Beyond this, as of the middle of the 1980s, the primary differences between Canada and the leading transferor consisted of, a few isolated areas in which its intellectual property regime was less generous or extensive, the monopoly position of the telecommunications infrastructure and of a national broadcasting, satellite and some other communications enterprises, a measure of protection for certain cultural /

communications sectors, more state ownership and regulation of the transportation sector.

Many of these distinctively Canadian features were unilaterally removed by the Canadian government. Some others, especially the investment measures and telecommunications infrastructure were partly harmonized as part of the Canada-US FTA. Canada substantially deregulated its airlines unilaterally and agreed, in the FTA, to permit access to its level one telecommunications network. "Besides giving firms the right to the network, the agreement allows the leasing, sharing and reselling of the telecom transport service and the attachment of special equipment to the network."⁷⁶ The FTA also includes an undertaking to promote national treatment for services at the GATT. By the early 1980s, Canada had largely brought its intellectual property legislation into line.⁷⁷ Virtually the only American complaints were with Canada's level of protection related to pharmaceutical patents, non-payment for American television transmitted over the border by satellite and lack of patent-like protection for plant varieties. Canadian legislation on pharmaceutical patents was unilaterally brought into line except that Canada refused to remove compulsory licenses for pharmaceutical patents which are not worked within four years. Subsequent to the FTA negotiations the Canadian

⁷⁶ "Briefing Paper for Secretary Baker and Ambassador Yeutter," cited in Free Trade Dossier 6,

⁷⁷ For details of the new patent and copyright legislation, see W. Hayhurst, "Intellectual Property" Ottawa Law Review 19.1 (1987): 138-191.

government brought in plant breeders' rights legislation in line with those of the exporters' organization, the Union for the Protection of Plant Varieties. Canada also amended its legislation to provide compensation for the retransmitted satellite signals. Moreover, Canada agreed to cooperate to advance intellectual property issues in the Uruguay Round.

In the FTA, Canada exempted all direct American investment from performance measures, restricted its use of performance measures or product mandates to all countries, and removed screening measures for American investments valuing less than \$150 million. Product mandates and performance requirements were clearly the most contentious investment issue between the parties. This is indicated by the fact that in spite of the prohibition of performance requirements within Article 1603, the preamble to the investment chapter contains the Canadian assertion that "[t]he negotiation of product mandate, research and development, and technology transfer requirements with investors, however, will not be precluded." This is clearly only the statement of a Canadian intention rather than a statement of a bi-lateral agreement. Preferential access to energy supplies or preferred prices cannot be offered to indigenous firms on terms more favourable than those for United States' firms.

By the end of the Uruguay Round it is unlikely if any of these features will remain protected. Moreover much of our liberty to subsidize and promote indigenous technology or to prevent its purchase will have been lost. While it is possible that the

Canadian administration may have had little choice in these decisions, its enthusiastic divestment is striking in view of its transferee status. Many state managers seem to agree with the statement of Canada's former ambassador to GATT, that, "[i]n a globalizing world competition in sophisticated products and services also becomes competition among systems. A globalizing world has a low tolerance for system divergence."⁷⁸

Canadian trade negotiators express satisfaction with the achievement, in the FTA of: a standstill with respect to trade restrictive measures, national treatment, principles and rules, annexes for specific sectors, as well as provisions on temporary business entry, investment and dispute settlement. Expressed objectives for the Uruguay Round negotiations on services include⁷⁹: acceptance of the MFN, market access and free movement of information and payment (right of non-establishment and establishment); temporary movement of business personnel; transparency, broad principles of liberalization with negotiated bindings and inclusion of financial services.

Canadian state managers see the services negotiations as contributing to Canadian trade and growth by ensuring access to world-competitive inputs, securing and advancing access for our

⁷⁸ Sylvia Ostey, "The Impact of Globalization: Convergence or Conflict?" Unpublished paper, Institute for Research into Public Policy, 1989.

⁷⁹ G. A. Denis, "GATT 1990: The Atlantic Rim in the Global Trading Environment" The Financial Post Conference Halifax, Oct. 11, 1989; G. A. Denis, "The Pacific in the Uruguay Round: A Canadian Perspective" IRPP Conference, Vancouver, June 28- 29, 1989; Canadian Statement: TRIMS June 14, 1988; and interviews.

exports and establishing a framework of rules. They seek to target, as impediments: local supply requirements, discriminatory regulations on the operation of business and monopolies. They hope to gain access to distribution channels to government procurement and flexibility for firms in choosing the most appropriate forms of commercial presence (market access). They express particular concern about buy national policies and government procurement restrictions.

Again within a position which is essentially transferor there are small concessions to Canadian specificity. The Canadian "Working Hypothesis on Services" has little to say on protections for the national infrastructure, for technology development or culture. National treatment is first mentioned as a principle within which distinction should be made between the purpose and the effect of the regulation. Then, it continues, negotiations can take place concerning the trade-inhibiting effects, while recognizing the distinction. It is not necessary to examine all regulations in vacuo. The "working hypothesis" refers to the targeted measures, not as having the effect of trade inhibition or discrimination but as those which are used to inhibit trade in services. The Canadian position makes reference to the distinction between liberalization and harmonization or deregulation and to genuine public policy purposes of regulation. It also asks that there be no broad loopholes for exceptions such as security or culture through which the rest of the agreement could be circumvented.

At the Uruguay Round, as one of Canada's trade negotiators on TRIPs told me, Canada is pretty much a by-stander watching as the United States attempts to force developing countries to comply with its regime. We are not active because we already "pretty much comply."

We support tighter regulations on copyright, piracy, and fraudulent copies. Even the technology importers want to be assured of the rules and know where they stand. We thought there would be a conflict within industry over this issue but as it turned out there was not. The importers are generally buying process technology in a package with a machinery/equipment purchase and they would rather pay the fees than have problems down the road. They are not generally the same companies that export tech. The importers ... want to be sure of access. If we don't protect IPR then they have access problems. We are already in the IPR system. If we are importing technology from the US there is little difference in legislation. We have already complied so we say let's get everybody else into the system.

Indeed the Canadian submission on intellectual property rights pursued this objective aggressively. It proposes stiffer penalties to protect property rights, including fines, the seizure and destruction of copied goods and criminal remedies including imprisonment.

The detailed submission begins with the proposition that inadequate property protection means that when "... the legitimate intellectual property owner exports his goods or services under such conditions, the intellectual property component may be copied, expropriated, or stolen...." It recommends a 20 year patent term, 50 year terms for computer programs and other copyright, no government control of voluntary licensing, and patent availability for all products and processes in all fields of technology, with six specific exceptions such as methods of medical treatment for

humans. It also supports extension of GATT negotiations on TRIPS to all eight subject matters proposed by the US: patents, trade marks, geographical indications, copyright, neighbouring rights, integrated circuits, industrial designs and trade secrets. Virtually the only restraints on official Canada's enthusiasm for the transferor program are: an expressed concern about protecting the 'look and feel' of computer programs; endorsement of the MFN; acceptance of a limited right to impose compulsory licensing; and the consideration that excessive protection might inhibit access to innovation by the public and for research. The Canadian position is explained, in part, by the following statement by the Deputy Minister:

The FTA negotiation... has shown that the key issues are not so much a matter of bilateralism or multilateralism but rather a matter of how much international discipline can be put on unilateral trade restrictive actions. We view the reform and the expansion of the GATT system to new areas like TIS, TRIPS and IMs as a condition for defusing tensions ... which has accompanied the ... growth of Asian economies. A successful GATT negotiation is necessary to defuse the time-bomb which is the Super 301 Section of the USA Trade and Competitiveness legislation.⁸⁰

In the end, then, Canada's negotiating stance on the new issues reflects only slightly its position as a SME-reliant transferee, subject to the small-country squeeze, which hopes to use technology transfer to develop indigenous technological capacity. It more nearly reflects an export-oriented philosophy, faith in the market and the advantages of free trade with which these issues have been associated in the internal public debate.

⁸⁰ G. A. Denis, "The Pacific in the Uruguay Round: A Canadian Perspective" IRPP Conference, Vancouver June 28-29, 1989.

Indeed, the debate on these issues within Canada was largely dominated by the 'Free-Trade' debate which surrounded the Canada-U.S. Free Trade Agreement. The very name of that agreement, as well as its inclusion of the three new issues and its specific provisions, reflects the United States' success at consensus building within the continent.

Unlike countries such as Brazil, Japan, Korea and some European countries, Canada has not effectively linked its approach to trade and its stated science and technology policies. At the same time that the federal government has signed the first Federal-Provincial statement of science policy, established a National Advisory Boards on Science and Technology (NABST) and launched a science and technology policy termed Innovaction, it has also, apparently unreflectively, exposed Canada's science and technology to international technology sourcing. In return we have received market access for a small number of technology exporters, some of whom have since left the country. Our tax subsidies for research, investment incentives and research subsidies will have minimal effect if there is no strategy for preventing the resultant technology from flowing, through multinational and international networks and arteries, to the tax haven or head office where they can best become protected firm assets. As Pam Cooper adds, there is also no benefit in requiring local patenting if we have no means of ensuring that technology payments will not flow, via transfer pricing, to the tax haven where they can best enhance firm assets. In short, without a method of controlling technology egress, and

with a newly opened, publicly-supported informational infrastructure we offer national socially-supported services and information for foreign, private benefit.

Both free trade and the desire to develop our technological capacity are underlying principles promoted within Canada although our use of the disputed technology policies has been sporadic and rather timid. Parliamentarians, science policy advisors and many state managers have decried our loss of high-technology competitiveness but they have tended to focus on increasing the support for science and technology rather than on the use of controlling mechanisms. Relevant factors appear to be an underlying faith in market mechanisms, an abiding fear of U.S. unilateralism and an acceptance, as inevitable, of the global 'rationalization' of Canadian industry.

V. Conclusion

In the previous three chapters I began with the background concepts and principles held by transferors, transferees and Canada, respectively, and then traced how these had been reshaped in light of recent technological and competitive changes and finally how these were distilled down to shape opposed positions as to the rules and principles which should be used to regulate investment measures, services and intellectual property. In this summary I will reverse that procedure for services. The derivation of specific rules from broader principles and underlying opposed and interaction-based worldviews will be traced. This exercise provides a further indication of the tenacity of pre-existing categorizations in shaping the debate and also reaffirms Canada's support for the transferor position. This exercise will be followed by a discussion of the definitional successes of the Round with reference to its constitution of 'normal' and 'deviant' economic relations in regard to these issues. The debate on the new issues involves new extensions of old approaches and these old approaches appear to be a considerable constraint on the ability of official Canada to see the new issues clearly. I conclude that this conceptual context provides a partial explanation of Canada's apparent reconstruction of its experience in light of its ideas. The newness of the wine, and its sourness, appears to be clouded by the associations evoked by the old bottles. Other factors relevant to Canada's position on the new issues which surfaced in the course of my research are listed. I end with a short statement of one very

serious consequence of Canada's policy on these issues, the oozing of our informational 'blood' through newly opened arteries.

At the level of particular rules the transferors would like to see general commitments to liberalization rather than specific rules requiring the free flow of information, money or people. The U.S. wants to target specific domestic regulations, including public monopolies, as restrictive if their effect rather than their intent interferes with the flow of transferor information, money or people. They interpret the GATT national treatment rule as requiring that all regulations be applied equally to foreign and domestic firms. Any regulations which do not would be considered discriminatory and a contravention of that principle unless it had been excepted in negotiations, not by general rules. They also want national treatment to be interpreted as requiring effective market access including a right of establishment and of non-establishment. In addition to this general framework of rules which would put all investment restrictions potentially at risk in negotiations, they want to establish sectoral agreements on specific trade sectors of particular importance to them, such as telecommunications and professional services, which also specify provisions requiring a right of establishment and non-establishment. The U.S. has submitted a proposal for a negotiation of a general agreement on services to come into effect by 1992 with further negotiations to increase the services covered and reduce reservations within three years.

At a less specific level they want to have a General Agreement on Trade in Services which incorporates the GATT principles of national treatment, as reconstituted, progressive liberalization and transparency but which does so more on the basis of negotiation than rule-making and which does not include the foundational MFN principle which would require all concessions granted to any member country to be multilateralized to all others.

Conceptually, transferors link these interpretations to the background norms of the market and of free trade. They refer to the imputed regulations as trade-restricting rather than investment restricting and argue that services are so interconnected with trade as to be appropriately integrated into the GATT. They reject the attempted de-linking whereby concessions in services could not be linked to concessions (or, in practice, non-retaliation) in goods trade. In discussions carried on in this negotiating group transferors have argued that any development aspect of services should not be considered as requiring investment regulation because,

the liberalization of trade in services can itself contribute to ... development.... the establishment of foreign firms is a means of ensuring transfers of technology and know-how on less costly terms; furthermore, it enables local firms to improve their capabilities and competitiveness.¹

This, of course, is the transferor logic in regard to technology transfer which has been discussed at length above. Also explained above are the many points on which transferees have disputed this

¹ GATT, "Trade in Services (II)" GATT Focus 60 (Geneva, April 1989), 6.

argument from their perspective as the recipients of technology transfer.

Within the negotiating group on services, transferees have argued that any rules dealing with restrictions on services trade should include the trade restrictive practices of external service providers rather than focusing only on domestic regulations. Some have argued that transfer pricing abuse and predatory pricing would be virtually impossible to control for services since there is often no market value which can serve as a basis for the allocation of value. In response to specific time targets for the conclusion of an agreement on services, Austria and South Korea are among the countries which have proposed more cautious, staged progress.

Some transferees have objected to the transferors' selection of which sectors should be included and which omitted from multi-lateral principles. In particular they have argued that transportation regulation, which the United States would like to except from deregulation on the basis of safety and national security, presents users with unnecessarily high transport costs. On the other hand, some have argued that services such as finance and insurance serve overriding developmental objectives and should be excluded. Of particular importance for national policy objectives are those services which I have called infrastructural. Moreover, as argued above, free market access to those services for private, foreign interests would help the latter at the expense of national taxpayers as well as national policy objectives. In chapter three I referred to the argument of an UNCTAD official to the effect that

if market access is interpreted as implying a right of network access to national infrastructures such as telecommunications networks then countries might be obliged to provide services to foreign service providers which are not available to domestic suppliers. Moreover, the transferee country might receive no national benefit, possibly not even the payment of taxes. As we have seen above, such access could consolidate the market advantages of multinationals and the concomitant small country squeeze which inhibits market entry for small firms from small countries.

Transferees have particularly objected to the transferors' reinterpretation of GATT principles, especially the substitution of reciprocity in place of the MFN and the suggestion that national treatment, in the case of services, requires effective market access. They have argued that the principle of progressive liberalization should not be interpreted as requiring deregulation. That principle should include a balancing respect for national policy objectives. Consequently domestic services regulation should not be illegitimate unless adequately defended but rather should be a domestic issue unless its intent is trade-restricting. Some transferees have argued that the national treatment principle should not be interpreted as requiring market access for multinationals to national services. For transferees, national service monopolies in areas such as communications or insurance as well as stipulations such as those requiring national licensing of professionals are development-related rather than trade-related.

South Korea has argued that any framework should include provisions on subsidies and countervailing measures.

In regard to the overall approach to services, transferees see many services as playing a crucial developmental role and some have argued that the application of the principles of progressive liberalization and market access would virtually prohibit national strategies to develop indigenous technological capacity as well as draining transferees of information, money and professional and scientific people. In contradiction to the transferors' premise of the development-enhancing effects of multinational investment in services they refer back to the long-standing argument that the advantages of mutual exchange depend upon the assumption that both parties to the exchange have already developed their productive capacity. Echoing Liszt and Myrdal, developing transferees have argued in the negotiations,

liberalization does not necessarily encourage the development of domestic service industries; they need time to establish viable service industries before exposing those industries to international market forces.²

Thus tracing the logics as they occur in the negotiations confirms the appropriateness of defining the contest as one which is formed out of the opposed experiences of the transmitters and the receivers of technology transfer. A line of thought can be traced from the specific rules, through the applicability and interpretation of trade principles, to the opposed underlying logics of development and trade. Technology transferees, as I had

² "Trade in Services" in GATT Focus 60,6.

submitted, have attempted to protect their developmentally important service sectors and national technology strategies and to lessen the capital and information flows which the multinational arteries facilitate. They reject the arguments in favour of the developmental impact of technology transfer through foreign firms and maintain that the transferor proposals represent interference with legitimate development measures. Transferors, on the other side, seek to have the same measures categorized as illegitimate and illegal trade restrictions and they maintain that multinational corporate practices represent the benefits of the free market's allocation of technological and investment resources. Transferors present their application of GATT principles, as adapted, as rational and neutral while transferees see the political manipulation of 'ready-made' concepts. Transferees tend to argue that any trade-restrictive effects of domestic service protections are incidental to the impugned policies' primary function as part of a strategy for technological development. They also argue that any trade distortions so caused serve only as a counter-balance to the structured benefit in trade patterns accruing to early technological development. As the previous chapters have shown, the same opposed logics and similar interpretations of the pre-existing GATT principles mark each side's understanding of intellectual property and investment measures.

No final agreement was achieved on any of the three new issues. No negotiations have been undertaken, no decision has been taken as to which sectors should be dealt with first and no

schedule has been agreed upon for progress towards a General Agreement on Services. Nonetheless, the transferors have made significant definitional achievements. The three new issues have been thoroughly integrated into the Uruguay negotiations. In spite of continued resistance there remains little doubt that negotiations will proceed on each of these issues and binding commitments will eventually result. In the process they are already being constituted as primarily trade-related effects with developmental objectives which are of secondary importance. Developmental considerations are being referred to as temporary safeguards or as concessions which may be allowed to countries which are not developed but which will not be accepted as generally available, normal elements of economic relations. Increasingly, developed transferees and, to a lesser extent, the newly developed, are accepting the transferor designations of these issues as the norm and are resisting only through arguments for slower, less comprehensive and less one-sided applications of the GATT principles. The developmental understanding is clearly discernable but is becoming a resistant, alternative voice rather than an equal one. Given the GATT's previous interpretation of development objectives in regard to trade in goods, it may be that this side of the debate will be reduced to the status of being an exception to the normal economic relations of free trade notwithstanding that in this case the majority of states are 'abnormal' in that they are not on the earning side of the technology transfer process.

The effects of the pre-existing debate are multiple, powerful and, in my view, insidious. One effect is a misrepresentation of the size of each party. It is as if a large and a small child were on opposite sides of a see-saw and then an extra weight were added to the second to re-balance the distribution of weight in favour of the smaller party. The pre-existing, institutionalized categories provide extra weight to the minority party. This re-configuration of the number of units within each party builds on the 'normal' opposition between developed and developing countries which is common to most international organizations. Instead of the opposition being framed as one between an overbearing minority and a substantial majority, it appears either as a balance between equivalent forces or as a contest between the normal and the deviant. The GATT's own newsletter, for example, carefully refers to the two sides as if they were evenly balanced. On the other hand, reports from the United States, in particular, tend to present the contest as one between reason and misguidedness, between universal values and self-interest and between the norm and the exception. This re-balancing seems to have been internalized, to some extent, by Canadian delegates and state managers. That is to say that they seem to regard the transferor position on these issues as the majority or normal view.

A similar but distinctive effect is the representation of the opposition as one between different levels of wealth or maturity. As Tarullo has argued, developing countries are integrated into the GATT framework as 'junior members,' as immature countries who must

dispense with the concessions granted on the basis of their 'developing' status when they graduate to full international responsibility.³ This is part of the logic of modernisation theory which shapes the approach to development within most international organisations. Within Canada it appears to have contributed to the association of investment and other technology legislation with poverty and immaturity. While there is some validity to this association in that countries normally use such measures while they are developing their productive capacity, it does not follow that they are measures to be ashamed of or which indicate a country's unwillingness to join the universe of nations or that removing them establishes a country's status as competitive. Some such associations seem, however, to be a subliminal effect of the transfer of technology debate as understood within Canada. The following quote from a publication of the Economic Council of Canada expresses the obfuscation which is an effect of the traditional categorizations.

Conventional standard-technology production is shifting from advanced countries to other areas of the world where labour costs are lower.... The corollary of this has been termed the 'post-industrial' economy. This means an economy in which the main emphasis is increasingly on the production of intangibles rather than on the output of goods.

A country in the post-industrial phase of development is one where basic scientific research is carried out, where technology is applied to new product ideas, where management and information systems for worldwide corporations are centred, and where major financial and other international service facilities are to be found.... Countries with ample supplies of highly educated labour have a potential compara-

³ D. Tarullo, "Logic, Myth, and the International Economic Order," Harvard International Law Journal 26 (1985): 545.

tive advantage in the more technical and specialized activities characterizing the post-industrial economy, countries without supplies of highly educated labour have a potential comparative advantage in more conventional industrial undertakings.

Clearly, Canada is a nation in the former category.⁴

The problem, of course, is that Canada is not a nation in the post-industrial, transferor category. Rather, as the fourth chapter of this thesis argues, "Canada's deteriorating competitive position in knowledge intensive industries poses a clear threat to its economic future and its status as an industrialized nation."⁵

As the issue of information or service technology, its transfer and cost have come to dominate the international agenda, however, Canada has consistently adopted the position of a transferor as if it had this comparative advantage in technical and specialized activities. Canada's position in the negotiating round, as I had hypothesized, largely resembled that of the transferors. In comparison with many European countries or with New Zealand or Singapore, for example, Canada has been a much more aggressive supporter of the transferor positions than an exemplar of a 'golden mean'. Its position as a transferee is indicated more by the espousal of principles such as multilateralism and opposition to harmonization and deregulation than by opposition to any specific rules or the defence of specific measures such as product mandating, performance standards or restrictions on intellectual

⁴ Cited in Laxer, 1981, 86-7.

⁵ Science Council of Canada. Winning in a World Economy: University-Industry Interaction and Economic Renewal in Canada. (Ottawa, 1988), 3.

property. In view of the surrender of most performance requirements and investment screening in the FTA, federal departments dealing with industrial incentives hope only to protect their few remaining incentive programs but they fear that the U.S. may well target these through the 'back door' of the GATT negotiations.

Notwithstanding that Canada has traditionally used a number of public service providers or that its service infrastructure has been fostered at considerable public expense and for national policy objectives, Canada did not resist the inclusion of public service monopolies among the category of trade-restricting regulations. We had already offered a right of network access to our telecommunications network to U.S. multinationals in the FTA. While the negotiations were ongoing Canada has continued the process of privatizing and selling public sector monopolies such as Telesat Canada, railways and airlines. Notwithstanding the fact that only one third of one percent of the world's patent payments are paid to Canadians we enthusiastically supported the expansion and extension of commodities for which these payments will be made and recommended criminal sanctions for offenders.

The possible factors inducing Canada to adopt these anomalous positions are many and diverse. In this conclusion I will only list some of the factors which came to light in the course of my research. Many state managers are employed in support of Canada's few technology exporting firms while incipient informational capacity is less well represented within the state. The advisory councils and bodies which have the attention of state managers are

more amenable to arguments from classical economics than to science policy approaches. The same can be said of the many non-governmental organizations which represent business interests. One of Canada's negotiators reported continual activism from pressure groups who resisted his argument that support for liberalization historically follows the development of export capacity rather than the inverse. The distribution of power and authority among state departments is such that departments with an economics perspective and an export orientation far outweigh those with a science policy or developmental perspective. All of these segments of the Canadian state and society weighed upon the formation of actual negotiating strategies within the state management. The negotiating groups were formed from managers seconded from various departments as well as those from External Affairs. These, in turn, met regularly with departmental advisors in formal strategy-forming sessions, and they were advised by the newly instituted Small Advisory Groups on International Trade composed of business representatives, as well as the independently operating pressure groups. In addition to these pressures was the deeply ingrained dread of U.S. unilateralism in the form of countervailing duties. The significance of this factor cannot be underestimated. In addition to all of these is the pervasive though less estimable influence of the above-referenced designation of the transferor position as one which represents free trade and the interests of the developed countries. Interviews revealed that the U.S. slant is insinuated into Canada's perspective through

instruction on science policy at seminars held in the U.S. As mentioned in Chapter Four the other side of the discourse is less well presented within Canadian society as well as within the state. The opposition parties, union representatives and other advocates who opposed the Canada-U.S. Free Trade Agreement, for example, tended to focus on the issues of social policy, employment and consumption rather than on the effect of openness on Canada's productive ability, competitiveness or science policy options. No doubt there are many other factors involved; these are the ones which came to light in the course of the research for this thesis.

I would like to end with a brief summary of the one concern with the Canadian position which prompted me to undertake this study. My research has only increased my dismay at the ongoing leakage of Canada's national informational resources. The opposition to openness/ free trade in Canada is often dismissed as 'protectionist' and this position is often associated, as in the televised Turner-Mulroney debate, with an underestimation of Canada's scientists, technologists and firms. Nothing could be further from my meaning. Canadians have won an extremely impressive three Nobel prizes in physics in the last decade! Unfortunately, each of those prize winners is now researching elsewhere because there are not sufficiently advanced research facilities for them in Canada. Canada has also nurtured, usually at considerable social expense, impressive capacity in high-tech areas such as space, telecommunications, biotechnology and lasers, engineering consultancy and computer software. In the course of my research,

state managers often supported further opening Canada's borders to services and information on the basis that we had world-leaders in these fields who needed greater market access. Northern Telecom is the example most often given. The problem with that approach, as I see it, is that (a) we have only a few of these firms, their income earning potential cannot possibly change our increasing negative trade balance, and this negative trade balance is much more likely to increase than decrease in the information age; (b) most of these firms developed under the stimulus of extensive subsidization, protection and, often, a public monopoly, so that removal of those instruments renders an increase in their numbers problematic; and (c) we are losing these scientific leaders at an alarming pace as a result of the new technology sourcing strategies of multinationals. In 1988 an officer with Ontario's Ministry of Trade and Technology wrote,

[t]he international laser industry, in which several Canadian firms are vigorous participants, seems poised to take off. That means there will be fantastic opportunities--but also rapid technological change and tough rationalization. One major Ontario player, Lumonics, now faces the kind of serious competitive challenges that are common to threshold Canadian technology firms.⁶

In 1989 then Ontario Premier Peterson asked:

Look at the recent takeovers of some of Canada's leading high technology firms: Mitel, Leigh Instruments, Lumonics and maybe soon Connaught.... What should be our national response if and

⁶ D. Tully, "Provincial Perspectives on Technology and free Trade," Technology and Society 11 (1989), 193.

when Northern Telecom or Spar Aerospace, for example, are faced with a takeover?⁷

As I implied in Chapter 3, serving as a public incubator for science and technology which will later be purchased by private, foreign interests may be an acceptable firm strategy but it is surely not a good national strategy for effectively joining the information economy.

⁷ David Peterson, "Competing Together: A National Science and Technology Strategy for Canada" Presented to the National Forum of Science and Technology Advisory Councils (Halifax, 1989), 30.

ACRONYMS

FTA	Canada-US Free Trade Agreement
FTIS	free trade in services
GATT	General Agreement on Tariffs and Trade
MFN	Article 1 of GATT, most-favoured nation (equal) treatment must be extended to all members
MNC, MNE	multinational corporation or enterprise
OECD	Organization for Economic Cooperation and Development
SME	small and medium sized enterprises (especially technologically advanced ones)
TRIMs	trade related investment measures
TRIPs	trade related aspects of intellectual property
UNCTAD	United Nations Conference on Trade and Development
Uruguay Round	14th Round of GATT Multilateral Trade Negotiations (MTNs)

GLOSSARY

Enabling technologies (also known as: Information technologies, frontier technologies, research-intensive technologies, advanced technologies, information-based technologies, strategic technologies)	include biotechnologies, advanced materials computer/telecommunication (information technology)
Flexible Manufacturing	new production processes based on computer-assisted design (CAD) computer-assisted manufacturing (CAM) and computer managed inventory (CMI or just-in-time) these allow quick and easy production changes and adaptations and high quality control
Economies of Scope	savings acquired by producing different products with the same technology through the use of flexible manufacturing
Economies of Scale	savings from producing large quantities
Level of research intensity	high: business machines, communications, computer, scientific equipment, aircraft and parts, electrical, software pharmaceuticals, medium: rubber and plastic products, non-ferrous metals, other machinery, petroleum, other chemical products
Intellectual property	industrial property (and associated government monopolies (patents) and copyright on artistic works (and associated government restrictions on reproduction)

Technology services	payments for the licensing of intellectual property rights or other firm assets such as trade secrets, trademarks, designs,
Patent terms, licensing terms transfer of technology terms	terms frequently required of licensees include: <u>grant-backs</u> (any improvements are the property of the patent-holder), <u>sourcing</u> (must be from parent), <u>territory of export</u> (to parent or to a limited geographic area).
non-working	to satisfy a patent by importing the patented product instead of producing locally
transfer of technology agreements	the terms of licensing agreements
transfer of technology legislation	domestic laws and policies which require that transfer of technology agreements comply with certain conditions (such as a measure of local sourcing or 'working')
compulsory licensing	domestic legislation which requires that a patent be forfeited if it is not 'worked' within a specified period
reverse engineering	taking technology apart to study it, maybe to learn how to reproduce it, normally contrary to transfer of technology agreements
patent blocking	use of a patent to prevent a competitor from patenting a similar innovation
patent pooling	filing of multiple patents all around an idea to prevent competitors from patenting similar innovations

adaptation, adaptive strategy	changing technology to suit local needs or improve it (often prohibited by patent legislation or transfer of technology agreements)
Intra-firm or internal transfers	movement of goods, capital and services within a multinational enterprise but across borders
Producer services	infrastructural (transportation, telecommunication, etc.) production services (technology services, designs, software, blueprints) and business services (accounting, advertising, legal, finance, etc.)
Countervailing duties	Additional duties imposed by an importing country to offset government subsidies in an exporting country which may injure a domestic industry in the importing country

Primary Sources

Adams, M. et al. "Telecommunications, Special Report." South
December 1988: 55-69.

Boyd, A. and A. Wilson. Technology Transfer in Construction.
Ottawa: Science Council of Canada Background Study No. 32,
1975.

Brown, C. "The Globalization of Information Technologies." The
Washington Quarterly. Winter 1988: 89-100.

Canada. Department of External Affairs. Canadian Trade Negotiat
ions: Introduction, Selected Documents, Further Reading.
Ottawa: Queen's Printer, 1986.

_____, Canada and the Uruguay
Round of Multilateral Trade Negotiations: Background Material.
(1988)

_____, The World Our Market:
Canada, GATT and the Uruguay Round. Ottawa: Queen's Printer,
1988.

_____, OMTN "Negotiation of a
Multilateral Agreement on Trade in Services: A Working
Hypothesis." May 10 1988.

_____, OMTN "The Uruguay Round of
Multilateral Trade Negotiations: A Situation Report" April,
1989.

_____, OMTN "Standards for Trade-
Related Intellectual Property Rights: Submission from Canada."
n.d. (1989)

_____, OMTN "Canadian Statement:
TRIMS." June 14, 1988.

_____, OMTN "The Uruguay Round of
Multilateral Trade Negotiations: A Situation Report." August
1989.

Canada. Environment Canada. "Proceedings: Technology Transfer
Conference." Toronto, Nov. 28 and 29 1988.

Canada. Task Force on Trade in Services. Background Report.
Ottawa: Queen's Printer, 1982.

Canada. Department of Regional and Industrial Expansion. Supplying
or Acquiring Technology: A Canadian Business Guide to

Structuring and Negotiating Technology Transfer Agreements.
Ottawa: Ministry of Supply and Services, 1988.

Canada. Minister of State for Science and Technology Annual Report. Ottawa: Queen's Printer, 1987 and 1988.

_____, Task Force on Federal Policies and Programs for Technological Development.
Ottawa: Queen's Printer, 1988.

Canada. Industry Science and Technology. Science and Technology in Canada. Ottawa: Queen's Printer, n.d.

_____, "Meeting the Challenge: Industry, Science and Technology in Canada." Ottawa, consultation document, n. d. (1987).

Canada. National Advisory Board on Science and Technology, Report. Ottawa: Committee on the Department of Industry, Science and Technology, Feb. 1988.

Canada. Statistics Canada. Canada's Balance of Internal Indebtedness, 1976. Ottawa, 1977.

_____, "Statistical Events: Canada's International Transactions in Services 1988 and 1989" Canadian Economic Observer. Ottawa: Queen's Printer, 1990.

Canada. Senate Special Committee on Science Policy. Report Vol. 4. Ottawa: Queen's Printer, 1970.

Canadian Chamber of Commerce. Focus 2000: Report of the Task Force on Technology and Canadian Business. Ottawa: Canadian Chamber of Commerce, 1989.

Conference Board of Canada. Global Outlook 1988: An Analysis of World Economic Trends and Their Implications for Canada. Ottawa, Report 29-88, 1988.

De Melto, D., K. McMullen and R. Wills. "Preliminary Report: Innovation and Technological Change in Five Canadian Industries." Ottawa: Economic Council of Canada Discussion Paper No. 176, 1980.

Denis, G. A. "GATT 1990: The Atlantic Rim in the Global Trading Environment" Notes for Presentation by the Assistant Deputy Minister, OMTN, Financial Post Conference, Halifax October 11, 1989.

_____, "The Pacific in the Uruguay Round: A Canadian Perspective" Notes for Presentation before the Institute for Research on Public Policy, Vancouver June 28-29 1989.

Economic Council of Canada. Making Technology Work: A Statement of the Economic Council of Canada. Ottawa: 1987.

_____, The Bottom Line: Technology, Trade, and Income Growth. Ottawa: Supply and Services Canada, 1983._

Facts on File

Free Trade Action Dossier. various Toronto: GATT-FLY.

GATT. "Ministerial Declaration on the Uruguay Round" 20 Sept. 1986

_____, GATT Activities 1988

_____, Chairman's Texts on Trade-Related Aspects of Intellectual Property Rights Agreed in Geneva April 8 1989.

_____, Mid Term Meeting April 21 1989.

GATT Focus weekly, 1988, 1989, 1990.

GATT Focus Newsletter occasional 1988, 1989, 1990.

Germidis, D. (ed.) Transfer of Technology by Multinational Corporations. Vol. 1 Paris: OECD Development Centre, 1977.

Gualtieri, R. "Interview" Precis: The Newsletter of ISTC May 1989.

Information Technology Association of Canada. The Enabling Effect: An ITAC Report on Using Information Technology for Strategic Advantage. Ottawa: ITAC, 1989.

International Development Research Centre. "Absorption and Diffusion of Imported Technology: proceedings of a workshop held in Singapore, 26-30 Jan 1981. Ottawa: IDRC, 1983.

Keesings Record of World Events

Kruus, P. (ed.) Technology and Society: Innovation. Ottawa: Carleton University, Technology Society and Environment Studies, 1984.

Lee, P. D. "Canada and the Pacific in the Uruguay Round: Negotiating Services" Notes for Presentation before the Institute for Research on Public Policy. Vancouver June 28-29 1989.

Liberal Party of Canada, National Liberal Caucus Task Force on Trade. "Expanding Choices: the Liberal Alternative to the Mulroney Trade Deal." Ottawa, June 13, 1988.

Magun, S. and S. Rao. "The Competitive Position of Canada in High-Technology Trade." Paper Presented at the Canadian Economic Association Meetings, Universite Laval, Quebec City June 2-4 1989.

Mathews, R. "Structural Change and Industrial Policy: The Redeployment of Canadian Manufacturing 1960-1980." Study for the Economic Council of Canada. Ottawa: Supply and Services, 1985.

McInnes, D. "Technology Transfer and the Canadian Business Enterprise." Statements and Speeches. Ottawa: Department of External Affairs 84/2 Dec. 1 1984.

Noyelle, T. and A. Dutka. "Business Professional Services: Accounting, Advertising, Law and Managment Consulting." Paper presented at a Conference on "Trade in Services, Open Markets and the Uruguay Round Negotiations" sponsered by the American Enterprise Institute at the Mayflower Hotel Nov. 18, 1987.

Ontario. Ministry of Industry and Trade. "Technology Transfer Mechanisms: an International Perspective." Toronto: Innovation and Technology Division Background Research Report, n.d. (1987).

Ontario. Premier's Council. Competing in the New Global Economy 3 vols. Toronto: Queen's Printer for Ontario, 1989.

Ostey, S. "The Impact of Globalization: Convergence or Conflict?" Unpublished Paper. Ottawa, Institute for Research on Public Policy, 1989.

Organization for Economic Cooperation and Development. "Elements of a Conceptual Framework for Trade in Services." Paris, March 1987.

_____, Main Science and Technology Indicators. 1989.

_____, Science and Technology Policy Outlook. 1988, 1989.

_____, "Survey of International Technology Licensing" STI Review.

_____, "OECD Ministers Talk About Science and Technology for Economic Growth and Social Development." Paris: OECD, 1989.

_____, Group of Experts on the Social Aspects of New Technologies, New Technologies in the 1990s: A Socio-economic Strategy Paris: OECD, 1988.

- _____, Committee for Science and Technology Policy, OECD Ministers Talk About Science and Technology for Economic Growth and Social Development. Paris: OECD discussion paper. 1988.
- Peterson, D. "Competing Together: A National Science and Technology Strategy for Canada." Presented to the National Forum of Science and Technology Advisory Councils. Halifax, June 19, 1989.
- Pro-Canada Dossier. various. Ottawa: Pro-Canada Network.
- Pro-Canada Network. Briefing Notes: the final text of the Mulroney-Reagan Pact. Ottawa: Dec. 14, 1987.
- Science Council of Canada. Regulating the Regulators: Science, Values and Decisions. Ottawa, 1982.
- _____, The National Science and Technology Policy Forum. Winnipeg, Manitoba 8, 9, 10 June 1986.
- _____, Gearing Up for Global Markets: From Industry Challenge to Industry Commitment. Ottawa, 1988.
- _____, Placing Technology Up Front: Advising the Bilateral Trade Negotiators. Ottawa, 1986.
- _____, Winning in a World Economy: University--Industry Interaction and Economic Renewal in Canada. Ottawa, 1988.
- Steed, G. and S. Tiffin. A National Consultation on Emerging Technology. Ottawa: Science Council of Canada Discussion Paper, 1986.
- Steed, G. Threshold Firms: Backing Canada's Winners Ottawa: Science Council of Canada Background Study 48, July 1982.
- United Nations Conference on Trade and Development. Dominant Positions of Market Power of Transnational Corporations: Use of the Transfer Pricing Mechanism. New York: United Nations, 1978.
- _____, Implementation of Transfer of Technology Regulations: A Preliminary Analysis of the Experience of Latin America, India and the Philippines. New York: United Nations, 1980.
- _____, Examination of the Economic, Commercial and Development Aspects of Industrial Property in the Transfer

of Technology to Developing Countries. New York: United Nations, 1981.

Services and the Development Process. New York: United Nations, 1984.

Production and Trade in Services: Policies and their Underlying Factors Bearing Upon International Service Transactions. New York: United Nations, 1985.

United Nations Council on Transnational Corporations. "Foreign Direct Investment, the Service Sector and International Banking." New York, 1987.

United States Coalition of Service Industries. "A Mutual Agreement on Trade in Services." Washington, April 21, 1988.

United States Inter-Agency Task Force on Services. Service Industries in World Markets: Current Problems and Future Policy Development. Washington, 1976.

United States Internal Revenue Service. "Multinational Companies' Tax Avoidance and/ or Evasion Schemes and Available Methods to Curb Abuse" In R. Murray (ed.), Multinationals Beyond the Market: Intra-Firm Trade and the Control of Transfer Pricing. New York: Wiley, 1981: 245-277.

United States Trade Representative. United States Service Industries in World Markets: Current Problems and Future Policy Development. Washington, 1983.

Woodbridge, R. "The Free Trade Agreement and its Implications for the Conduct of R & D in Canada." Presentation to the Insight Conference on Biotechnology. Toronto, Nov. 13 1989.

World Bank. The Uruguay Round: A Handbook on the MTNs. Washington, 1987.

Secondary Sources

- Abonyi, A. and M. Atkinson. "Technological Innovation and Industrial Policy: Canada in an International Context." In M. Atkinson and M. Chandler (eds.), The Politics of Canadian Public Policy. Toronto: U of Toronto P, 1983: 93-125.
- Balassa, B. and C. Michalopolous. "Liberalizing Trade Between Developed and Developing Countries." Journal of World Trade Law 20. (1986): 3-28.
- Bar, F., M. Borrus, S. Cohen and J. Zysman. "The Evolution and Growth Potential of Electronics-Based Technologies" STI Review 5 (April 1989): 7-56.
- Beaulnes, A. "Science Policy and STI in Canada" paper presented to the Canadian Association for Information Science, Montebello, May 15, 1973.
- Bell, J. and G. Vickery. "International Perspectives on Technology and Free Trade." Technology and Society 11 (1989): 145-160.
- Bentham, J. "Principles of the Civil Code, Chapter VIII in The Theory of Legislation. (C. Ogden, ed.) London: Kegan Paul, 1931.
- Berg, T. "Trade in Services: Toward a 'Development Round' of GATT Negotiations Benefitting both Developing and Industrialized States." Harvard International Law Journal 28.1 (1987): 1-30.
- Berkowitz, M. and Y. Kotowitz. "Patent Policy in an Open Economy" Canadian Journal of Economics 15.1: 1-17.
- Berversdorf, W. "Biotechnology and Other Emerging Technologies" in Plant Gene Patenting Workshop. Ottawa: Agriculture Canada, 1987.
- Bhagwati, J. "Trade in Services and the Multilateral Trade Negotiations." World Bank Economic Review 1.4 (Sept. 1987): 549-569.
- Biggs, M. "The Developing Countries in the International Trading System." In J. Whalley (ed.), Canada and the Multilateral Trading System. Toronto: U of Toronto P, 1985.
- Block, F. "The Contradictions of Self-Regulating Markets." Paper presented at the second International Karl Polanyi Conference Montreal, 1988.
- Blumberg, P. The Law of Corporate Groups. Boston: Little Brown, 1987.

- Bradley, V. "National Strategies for Technology Trade: A Response to Chris Hill." Technology and Society 11 (1989): 181-88.
- Brainard, R. "Technology and Jobs." STI Review 1, (1986): 9-42.
- Bowinder, B. and T. Miyake. "Measuring Innovativeness of an Industry: An Analysis of the Electronics Industry in India, Japan and Korea." Science and Public Policy 15.5 (Oct. 1988): 279-303.
- Brown, L. Innovation Diffusion: A New Perspective. London: Methuen, 1981.
- Castel, J., A. de Mestral and W. Graham. International Business Transactions and Economic Relations: Cases, Notes and Materials on Law as it Applies to Canada. Toronto: Emond Montgomery, 1986.
- Canadian Institute for Advanced Research Innovation and Canada's Prosperity: The Transformative Power of Science, Engineering and Technology. Toronto, 1988.
- Chesnais, F. "Science, Technology and Competitiveness." STI Review 1 (Autumn 1986): 85-124.
- _____, "Technical Co-operation Agreements Between Firms." STI Review : 51-114.
- Clark, M. GATT Uruguay Round Negotiations Relating to Services. Victoria: Institute for Research on Public Policy, 1988.
- Cohen, M. "Free Trade in Services: An Issue of Concern to Women." Ottawa: Background Paper, Canadian Advisory Council on the Status of Women, 1988.
- Conklin, D and F. St. Hilaire. Canadian High-Tech in a New World Economy: A Case Study of Information Technology. Halifax: Institute for Research on Public Policy.
- Copeland, B. "Of Mice and Elephants: The Canada-US Free Trade Agreement." Vancouver: University of British Columbia Dept. of Economics Working Paper 88-16, 1988.
- Cooper, C. (ed.) Science, Technology and Development: The Political Economy of Technical Advance in Under-Developed Countries. London: Cass, 1973.
- Cooper, Pam. Plant Breeders' Rights: Some Economic Considerations. Ottawa: Agriculture Canada Working Paper, 1984.
- Cooper, R. and A. Hollick. "International Relations in a Technologically Advanced Future." In A. Keatley (ed.), Technological

Frontiers and Foreign Relations Washington: National Academy Press, 1985: 227-65.

Cordell, A. J. The Uneasy Eighties: The Transition to an Information Society. Ottawa: Science Council of Canada Background Study 53, 1985.

Cornford, A. "Some Notes on Proposed new International Regimes for Foreign Investment and Services" UNCTAD Review 1.1 (1989): 17-26.

Dalfen, D. "Trade in Communications Services" Communications and Information: International Legal Aspects. Ottawa: Canadian Conference on International Law, 1982.

Dalpre, R. "Innovation and Technology Policy in a Small Open Economy: The Canadian Case." In C. Freeman and B. Lundvall (eds.), Small Countries Facing the Technological Revolution. London: Pinter, 1988.

Daly, D. J. Technology Transfer and Canada's Competitive Performance. London: University of Western Ontario Centre for the Study of International Economic Relations Working Paper 844, 1985.

_____, Weak Links in the Weakest Link. Ottawa: The Fraser Institute, 1984.

De Bresson, C. "Beyond the Myth of the Technological Dynamo." Montreal: Concordia University Working Paper No. 38. 1986.

De Bresson, C. et al. Work and New Technologies: Other Perspectives. Socialist Studies 3. Toronto: Between the Lines, 1987.

De Grey, R. C. "The Elements of a General Agreement on Information Transfer/ Trade (GAIT)." Ottawa: Atwater Institute, 1986.

De Rivero, B. New Economic Order and International Development Law. Oxford: Pergamon, 1980.

Dobell, R., J. McRae and M. Desbois. The Service Sector in The Canadian Economy: Government Policies for Future Development. Montreal: Institute for Research on Public Policy, 1984.

Doern, B. "The Role of Central Advisory Councils: The Science Council of Canada." In B. Doern and P. Aucoin (eds.), The Structures of Policy-Making in Canada. Toronto: MacMillan, 1971: 246-266.

- Dosi, C. Freeman, R. Nelson, G. Silberberg and L. Soete (eds.), Technical Change and Economic Theory. London: Pinter Publishers, 1988).
- Douglas, M. How Institutions Think. Syracuse: Syracuse U.P., 1986.
- Drache, D. and D. Cameron (eds.) The Other Macdonald Report: The Consensus on Canada's Future that the Macdonald Commission Left Out. Toronto: Lorimer, 1985.
- Dufour, P. and Y. Gingras. "National Policy Making in a Federal State: The Development of Canadian Science and Technology Policy." Montreal: U of Quebec a Montreal, Centre de recherche en developpement industriel et technologique, 1988.
- Economist "The Pitfalls of Patents." May 9 1987: 82-3.
- _____, "Patently Outdated." July 18 1987: 17-18.
- Ellul, J. The Technological Society. New York: Knopf, 1967.
- Enos, J. "Government Intervention in the Transfer of Technology: the Case of South Korea." IDS Bulletin. 15.2 (1984): 26-34.
- Evans, P. "State, Capital and the Transformation of Dependence: The Brazilian Computer Case." World Development 14.7 (July 1986): 791-808.
- Everard, J. "Trade and Investment in Services: OECD Agreements and the GATT." Victoria: Institute for Research on Public Policy Working Paper, 1988.
- Feketekuty, G. "Negotiating a General Agreement on Trade in Services in the Uruguay Round." in R. Baldwin and J. D. Richardson (eds.). Issues in the Uruguay Round: National Bureau of Economic Research Conference Report, 1988.
- Fitzpatrick, P. "Two Legal Models in the Control of Transfer Pricing." In R. Murray (ed.), Multinationals Beyond the Market: Intra-Firm Trade and the Control of Transfer Pricing. New York: Wiley, 1981: 197-206.
- Forrester, T. "New Materials." Science and Public Policy 15.4 (Aug. 1988): 271-2.
- Freeman, C. "The Challenge of New Technologies." In OECD. Interdependence and Co-operation in Tomorrow's World. Paris: OECD, 1987: 123-156.
- French, R. D. How Ottawa Decides: Planning and Industrial Policy Making 1968-1984. Toronto: Lorimer, 1984.

- Frank, A. G. Capitalism and Underdevelopment in Latin America. New York: Monthly Review Press, 1969.
- Frobel, F., J. Heinrichs and O. Kreye. "The World Market for Labour and the World Market for Industrial Sites." Journal of Economic Issues. 12.4 (December, 1978): 843-58.
- Furtado, C. Economic Development in Latin America: A Survey from Colonial Times to the Cuban Revolution. Cambridge: Cambridge U P, 1970.
- Galbraith, J. The New Industrial State New York: Signet, 1967.
- Gibbs, M. "Continuing the International Debate on Services." Journal of World Trade Law 19 (1985): 203-225.
- Gibbs, M and M. Mashayekhi. "Services: Cooperation for Development." Journal of World Trade December 1988: 82-107.
- Girvan, N. Technology Policies for Small Developing Economies: A Study of the Caribbean. Mona: Jamaica, Institute of Social and Economic Research, 1983.
- Goulet, D. The Uncertain Promise: Value Conflicts in Technology Transfer. New York: International Documentation, 1976.
- Gramp, W. Economic Liberalism: Volume II the Classical View. New York: Random House, 1965.
- Hall, S. "Culture, the media and the 'Ideological Effect.'" In J. Curran et al. (eds.), Mass Communications and Society. London: Edward Arnold, 1977: 315-348.
- Hanson, J. "Transfer Pricing in the Multinational Corporation: A Critical Appraisal." 1975 World Development 3: 860-874.
- Harris, R. "Trade, Industrial Policy and International Competition." Toronto: U of Toronto P, 1985.
- _____, "Summary of a Project on the General Equilibrium Evaluation of Canadian Trade Policy." Toronto: U of Toronto P, 1985: 157-178.
- Hayhurst, W. "Intellectual Property." Ottawa Law Review 19 (1987): 138-191.
- Heilbroner, R. The Worldly Philosophers: The Lives, Times and Ideas of the Great Economic Thinkers. (4th ed.) New York: Simon and Shuster, 1972.
- Helleiner, G. "Intra-Firm Trade and the Developing Countries: an Assessment of the Data." In R. Murray (ed.), Multinationals

Beyond the Market: Intra-Firm Trade and the Control of Transfer Pricing. New York: Wiley, 1981: 31-60.

Herrara, A. "Social Determinants of Science in Latin America: Explicit Science Policy and Implicit Science Policy" In C. Cooper (ed.) Science, Technology and Development: The Political Economy of Technical Advance in Under-Developed Countries. London: Cass, 1973: 19-37.

Hill, C. "National Technology Strategies Under Free Trade: Some Implications of the US-Canada Free-Trade Agreement." Technology and Society 11 (1989): 161-180.

Hill, S. "From dark to light: seeing development strategies through the eyes of Science and Technology indicators." Science and Public Policy 5 (Oct. 1986): 275-284.

Hill, T. "On Goods and Services." Review of Income and Wealth 23.4 (December, 1977): 315-38.

Hobbelink, H. "Our Common Genetic Resources." ICDA News Sept. 1987: 6.

Hoffman, K. "Clothing, Chips and Competitive Advantage: The Impact of Microelectronics on Trade and Production in the Garment Industry" World Development 13.3 (March 1985): 371-92.

Hunt, A. "The Theory of Critical Legal Studies." Oxford Journal of Legal Studies. 6 (1986): 1-51.

Islam, S. "High Noon in Montreal." South December 1988.

I.T. News Release. No. 42.

Jarrell, R. A. "Government, Technology and Industry: The Emergence of a Canadian Pattern." Atkinson Review of Canadian Studies 2.2 (Spring, 1985): 26-32.

Johnson, C. "What's at Stake in the Multilateral Trade Negotiations?" Ottawa: Conference Board of Canada 1.1, Dec. 1988.

Joseph, R. "The Politics of Defining High Technology in Australia." Science and Public Policy Oct. 1988: 343-347.

Kaplinsky, R. "Electronics-based Automation Technologies and the Onset of Systemofacture: Implications for Third World Industrialization." World Development 13.3 (March 1985): 423-39.

Katz, J. "Patents, the Paris Convention and Less Developed Countries." Yale University Economic Growth Centre, mimeo,

1973 available at Norman Patterson School of International Affairs, Carleton University, Ottawa.

Khemani, R., D. Shapiro, W. Stanbury (eds.). Mergers, Corporate Concentration and Power in Canada. Halifax, Institute for Research on Public Policy, 1988.

Kotowitz, Y. "Intellectual Property: A National Perspective." Institute for Policy Analysis Toronto: University of Toronto, 1988.

Kuusi, J. The Host State and the Transnational Corporation: An Analysis of Legal Relationships. Westmead: Saxon House, 1979.

Lall, S. "Transfer Pricing by Multinational Manufacturing Firms." Oxford Bulletin of Economics and Statistics 35.3 (1973): 173-196.

_____, "Transfer Pricing and Developing Countries: Some Problems of Investigation." World Development 7.1 (1979): 56-72.

_____, "The Third World and Comparative Advantage in Trade in Services." in S. Lall and F. Stewart. Theory and Reality in Development. New York: St. Martins, 1986: 123-34.

Laxer, G. Rethinking the Economy: the Laxer Report on Canadian Economic Problems and Policies. Toronto: New Canada Publications, 1983.

_____, "The Political Economy of Aborted Development" in Robert Bryn, (ed.) The Structure of the Canadian Capitalist Class. Toronto: Garamond, 1985.

_____, Open for Business: The Roots of Foreign Ownership in Canada. Toronto: Oxford University Press, 1989.

Leudde-Neureth, R. "State Intervention and Foreign Direct Investment in South Korea." IDS Bulletin 15.2: 18-25.

Levy, B. "The State-Owned Enterprise as an Entrepreneurial Substitute in Developing Countries: The Case of Nitrogen Fertilizer." World Development 16.10 (1988): 1199-1201.

Liszt, F. The National System of Political Economy London, trans. S. Lloyd, New York: Longmans, 1904.

Locke, J. Two Treatises of Government: A Critical Edition with and Introduction and Apparatus Criticus. Paragraph 34, Chapter V of the Second Treatise. (rev. ed. Peter Laslett ed.) Cambridge: Cambridge U P, 1964.

- Longo, F. "Technology Development and Canada-US Free Trade." Technology and Society 11 (1989): 261-66.
- Mark, J. and G. Helleiner. "Trade in Services: The Negotiating Concerns of the Developing Countries." Victoria: Institute for Research on Public Policy, Discussion Paper, 1987.
- Markusen, J. Intra-firm Service Trade by the Multinational Enterprise. Ottawa: Institute for Research on Public Policy, 1986.
- Maxwell, P. and M. Teubal. "Capacity-Stretching Technical Change: Some Empirical and Theoretical Aspects." New York: United Nations Economic Council on Latin America Working Paper No. 36, 1980.
- McCloskey, D. If You're So Smart: The Narrative of Economic Expertise. Chicago: U of Chicago P, 1990.
- McCurdy, H. and D. Lenihan. "Research and Development and the Free-Trade Agreement." Technology and Society 11 (1989): 215-220.
- McFetridge, D. "Research and Development Expenditures." In G. Doern (ed.), How Ottawa Spends Your Tax Dollars. Toronto: Lorimer, 1981: 287-94.
- _____, Technological Change in Canadian Industry. Toronto: U of Toronto P, 1985.
- McFetridge, D. and R. Corvari. "Technological Diffusion: A Survey of Canadian Evidence and Public Policy Issues." In D. McFetridge, research coordinator, Technological Change in Canadian Industry. Toronto: U of Toronto P, 1985.
- McKinnon, P. "Acquiring Technologies Through Strategic Partnerships: Guidelines for Success Under Free Trade." Technology and Society 11 (1989): 195- 202.
- McPherson, C. B. "The Meaning of Property" in C. B. McPherson (ed.), Property: Mainstream and Critical Positions. Toronto: U of Toronto P, 1978.
- Michalet, C. Le Capitalism Mondial. Vendome: Presses Universitaires de France, 1976.
- Migue, J. Nationalist Policies in Canada: An Economic Approach. Ottawa. 1979.
- Morici, P. "U.S.- Canadian Trade Relations in the 1980s." American Review of Canadian Studies 17.2 (1987): 159-180.

- Murray, R. (ed.) Multinationals Beyond the Market: Intra-Firm Trade and the Control of Transfer Pricing. New York: Wiley, 1981.
- Myers, G. History of Canadian Wealth. Chicago: Kerr, 1914.
- Mytelka, L. The Political Economy of Strategic Partnering. Ottawa: Investment Canada, 1987.
- Nanyenya-Takirambudde, P. Technology Transfer and International Law. New York: Praeger, 1980.
- Nau, H. "Domestic Trade Policies and the Uruguay Round: An Overview." in H. Nau (ed.) Domestic Trade Politics and the Uruguay Round. New York: U of Columbia P, 1989.
- Nayaar, D. "Some Reflections on the Uruguay Round and Trade in Services." Journal of World Trade 28.5 (1988): 35-47.
- _____, "The Political Economy of International Trade in Services." Cambridge Journal of Economics 12 (1988): 280-294.
- Ondrack, D. "Foreign Ownership and Technological Innovation in Canada: a Study of the Industrial Machinery Sector of Industry." Ottawa: Industry, Trade and Commerce, 1975.
- Pacquet, G. "Science and Technology Policy Under Free Trade." Technology and Society 11 (1989): 221-234.
- Palda, K. Industrial Innovation: Its Place in the Public Policy Agenda. Toronto: The Fraser Institute, 1984.
- Pipe, G. "Telecommunications Services: Considerations for Developing Countries in Uruguay Round Negotiations." UNCTAD Review, 49-109.
- Poulantzas, N. Classes in Contemporary Capitalism. London: New Left Books, 1975.
- Ramo, S. "The Foreign Dimension of National Technology Policy." In A. Keatley (ed.), Technological Frontiers and Foreign Relations Washington: National Academy Press, 1985: 12-21.
- Randall, V. and R. Theobald. Political Change and Underdevelopment: A Critical Introduction to Third World Politics London: Anchor Brendon, 1985.
- Rath, A. Science and Technology Policy in IDRC: A Review. Ottawa: International Development Research Centre, Jan 9 1989.
- Robinson, C. "Technological Advances--Their Impact on U.S. Foreign Policy Relative to Developing Nations." In A. Keatley (ed.),

Technological Frontiers and Foreign Relations Washington: National Academy Press, 1985: 266-284.

Rosner, P. "What is Scientific Progress in Economics." Paper presented at the Second International Karl Polanyi Conference Montreal, 1988.

Rowley, R. "On Economic Methodology." Paper presented at the Second International Karl Polanyi Conference Montreal, 1988.

Rugman, A. D. Lecraw and L. Booth. International Business: Firm and Environment. New York: McGraw-Hill, 1985.

Rugman, A. and S. Douglas. "The Strategic Management of Multinationals and World Product Mandating" Canadian Public Policy. 12.2 (1986): 320-328.

Sagasti, F. "Underdevelopment, Science and Technology: The Point of View of the Underdeveloped Countries." Science Studies 3 (1973).

Sanchez, P. "Technology Exports by Spanish Companies." STI Review 2 (Sept. 1987): 167-189.

Schrecker, T. "Corporate Power: The Challenge to Legal and Political Theory." Ottawa: Paper presented to the Jurisprudence Centre, Carleton University, 1985.

Seers, Dudley. The Political Economy of Nationalism. Oxford: Oxford University Press, 1983.

Sharif, M. "Basis for Techno-economic Policy Analysis" Science and Public Policy. 15.4 (1988): 217-229.

Shepherd, J. The Transition to Reality: Directions for Canadian Industrial Strategy. Ottawa: Canadian Institute for Economic Policy, 1980.

Shutt, H. The Myth of Free Trade: Patterns of Protectionism Since 1945. Oxford: Basil Blackwell, 1985.

Siegel, B. The Internationalization of Service Transactions: The Role of Foreign Direct Investment in International Trade in Services. Victoria: Institute for Research on Public Policy, 1987.

Sims, M and R. Rivers. The International Trade in Services Agenda: Origins, Evolution and Agenda. Ottawa: Institute for Research on Public Policy, 1987.

- Sjolander, C. "Foreign Investment Policy-Making: The Canadian State in the Global Economy" Ottawa: Carleton University Phd. thesis, 1989.
- Solomon, L. Multinational Corporations and Emerging World Order. London: Kennikat Press, 1978.
- Spiegel, H. The Growth of Economic Thought. Englewood Cliffs: Prentice-Hall, 1971.
- Steed, G. "The Canada-US Free-Trade Agreement: A Canadian Science and Technology Viewpoint." Technology and Society 11 (1989): 235-46.
- Stoever, W. "Gradations of Legal Terms in Joint-Venture Agreements in Least Developed Compared to More Advanced LDCs." Canadian Journal of Development Studies 8.1 (1987): 27-47.
- Talchuk, R. "Pirating Intellectual Property." Canadian Business Review 14.2: 16-17.
- Tarullo, D. "Logic, Myth, and the International Economic Order." Harvard International Law Journal 26: 533-549.
- Tully, D. B. "Provincial Perspectives on Technology and Free Trade." Technology and Society 11 (1989): 189-94.
- Tushnet, M. "Critical Legal Studies: An Introduction to Its Origins and Underpinnings" Journal of Legal Education 36 (1986): 505-517.
- Vaitsos, C. "Patents Revisited: Their Function in Developing Countries." in C. Cooper (ed.). Science, Technology and Development: the Political Economy of Technological Dependence in Underdeveloped Countries. London: Cass, 1973: 71-97.
- Vernon, R. Sovereignty at Bay: The Multinational Spread of U.S. Enterprises. New York: Basic Books, 1971.
- Vickery, G. "International Flows of Technology-- Recent Trends and Developments." OCED STI Review. 1 (Autumn 1986): 47-82.
- Voyer, R. and M. Murphy. Global 2000: Canada: A view of Canadian Economic Development Prospects, Resources and the Environment. Toronto: Pergamon, 1984.
- Walsh, V. "Technology, Competitiveness and the Special Problems of Small Countries." STI Review (2 Sept. 1987): 81- 100.
- Weber, M. Economy and Society: An Outline of Interpretive Sociology. Vol 1. (G. Ropth and C. Wittich eds.) New York: Bedminster Press, 1968.

Whalley, J. and C. Hamilton and R. Hill "Canadian Trade Policies and the World Economy" Toronto: U of Toronto P, 1985.

Wilson, A. "Canadian and U.S. Science and Technology Policy Under Free Trade" Science and Public Policy 16.2 (April, 1989): 119-125.

Wiley, R. "International Service Carriers" Ottawa: Canadian Council on International Law, 1982.

Wudwud, T. "Technology Development and Canada-US Free Trade." Technology and Society 11 (1989): 247-60.

Interviews

Unstructured interviews were conducted with the following. During the interviews I noted the conceptual apparatus used by the interviewee and his or her views as to the reasons for Canadian policy and the influences affecting it. These observations accompanied the collection of more straightforward information as to policy details and the policy maker's or advisor's information about Canadian firms, economic, scientific and trade factors. Asterisks indicate phone interviews.

Interviews with State Managers

Alan Martel, Manager, Aerospace and Defence Sector Analysis Division, Industry Science and Technology Canada (ISTC), October 26 1989

Terry Ford, Special Advisor on Trade, Industrial and Trade Policy, Policy and Evaluations, ISTC, Oct. 25 1989

* Ashley Longford, Investment Policy, Ontario Ministry of Industry, Trade and Technology, Oct. 25 1989

Ozzie Silverman, Director, Strategic Technologies Planning, Technology Policy Branch, ISTC, Nov. 2 1989.

Douglas MacEwen, Manager, Industry Structure Analysis, Telecommunications Policy Branch, Communications Canada, Nov. 2 1989

Peter McGuire, Principal Negotiator, Office of Multilateral Trade Negotiations (OMTN), Department of External Affairs and Trade (DEA), Oct. 17 1989

David Lee, Senior Coordinator, Multilateral Trade Negotiations, OMTN, DEA, Oct. 20 1989

Earl Stewart, Director of GATT Policy, OMTN, DEA, Nov. 7 1989

John Curtis, Negotiator, OMTN, DEA, Nov. 7 1989

Tela Burstyn, Manager, Space Industry, ISTC, Nov. 1 1989

Pierre-Paul Perron, Director, Technology Transfer, Programming and Planning, Industrial Cooperation Division, Canadian Institute for Development Assistance (CIDA), Oct. 10 1989

John de la Mothe, Science and Technology Advisor, Investment Canada, Dec. 5 1989

Lynn Mytelka, advisor on technology and strategic partnerships to Investment Canada, Oct. 20 1989

Interviews with Advisors and Experts

Roy Woodridge, Director, Canadian Institute of Advanced Technology,
Dec. 4 1989

William Sheridan, Political and Social Affairs Division, Research
Branch, Library of Parliament, Oct. 3 1989

Peter Fitzpatrick, Professor of Law, Kent University, author and
advisor on transfer pricing and corporate strategies, Nov. 1988

Melvin Clarke, advisor on trade policy to the federal Liberal
party, Nov. 13 1989

Frank Stone, Director, Institute for Research on Public Policy,
author of Canada, the GATT and the International Trade System, Nov.
2 1989.

Ian Lee, Professor of Business, author of "Business-Government
Strategic Partnerships in the Aerospace and Defence Electronics
Industry in Canada" Sept. 20 1989