International Trade Law and Innovation

Rambod Behboodi
Canadian Trade Mission to the EU, Brussels
The author can be contacted by e-mail at rambod.behboodi@dfait-maeci.gc.ca

There is no single law that can guarantee technological innovation; it requires a web of cultural, political, economic and legal structures and attitudes.

When I began thinking about the subject, I was not sure what I could say about the importance of trade and trade liberalization to innovation that Adam Smith had not said well over two hundred years ago. And, of course, Francis Funkuyama had already declared Adam Smith winner of the big intellectual war of the last two centuries. We were at the end of history, he assured us. Accordingly, much of what I propose to tell you about trade and innovation might well be considered utterly superfluous.

Faced with and apparently unassailable conventional wisdom – how do you prove that history is *not* at an end? – the only thing left for me to do here was to set out the basic proposition and pose a number of questions. Theses are questions about the social and political considerations that seem to have been left out of the debate altogether, as well as-and I might appear somewhat heretical on this point-about the basic economic proposition that now shapes the law of international trade. I should note my indebtedness to David Landes' recent book, *The Wealth and Poverty of Nations*, in inspiring some of the themes of this article, even though I did not necessarily agree with some of his analyses and conclusions.

Trade and innovation

Let me first, and very briefly, turn to the theoretical underpinnings of the international trading order, at least insofar as they relate to technological innovation. I do so not only to highlight why international trade law is important to innovation, but also to underline what is missing from much of the analysis-ie the question of 'balance of interests'.

The impact of trade on innovation can be assessed from at least three perspectives. The first is the Smith-Ricardo paradigm: open up the markets, and the forces of competition will encourage increasing productivity and better products. The stronger the competition, not just against domestic producers, but also producers form other countries, the more the innovation one can expect.

Second, secure access to export markets will create its own incentives for innovation and technological progress. As competition in the domestic market drives efficiency and innovation, so does the availability of other – potentially larger, possibly more competitive – markets. The more secure the access is to those markets, and the more 'rational' the terms of access, the more we can expect exporting industries to invest in newer and better products. That is to say, in a world where barriers to trade are zero (and

are expected to remain that way, through properly implemented and enforced trade law), the entire global market can be considered as one market-with all the attendant benefits of competition, mentioned above, on a global scale. International trade law, in its most basic form, aims at no less than realizing this 'global' market.

Third, as Michael Mussa, Director of Research at the IMF, observed recently,[1] trade creates its own imperatives for technological innovation independently of its competitive benefits.

Possibilities of trade drive revolutions in transportation and communications technology. The taste for trade, for economic integration, makes investment in innovations and improvements in transportation and communications technology profitable. And, of course, these improvements and innovations in the *means and modalities* of trade in themselves drive closer integration, thus multiplying innovation across other sectors.

The simple elegance of Smith's invisible hand of the market and its refinements hide a number of profound, and indeed empirically verifiable, truths at the heart of market-based theory. It is not enough that products compete, for they must first be manufactured. The mass manufacture of products, whether for the domestic or the global marketplace, requires investment in capital goods, the ownership of which must be protected if investment is to made. Products must be allowed to be developed in the first place. This requires a political and economic environment conducive to creativity – security of the person, transparency of information and free exchange of ideas being only the most obvious aspects. (The single most important blow to Spanish ascendancy in the 16th century was not the sinking of the Armada but the Inquisition. The expulsion of Huguenots did more long-term harm to the French economy than all of Louis XIV's wars.) And, once a product is developed through long and hard investment, the fruits of the investment in time and creative energy needed to develop it must be safeguarded against copying – theft by others. And so on.

There is no single law or legal regime that can guarantee technological innovation; this requires a web of cultural, political, economic and legal structures and attitudes, the absence of which could stifle even the most creative of spirits and societies.

To borrow form Tolstoy: all technologically successful societies are the same; each unsuccessful state forfeits success in its own unique way

The historical experience of China is particularly instructive in this respect. Permit me to quote a passage that, in my view, sets out quite clearly what I mean by this 'web' of structures and attitudes:

'The ingenuity and inventiveness of the Chinese, which have given so much to mankind-silk, tea, porcelain, paper, printing, and more-[all, I might add, a thousand years ago] would no doubt have enriched China further and probably brought it to the threshold of modern industry, had it not been for this stifling state control. It is the state that kills technological progress in China. Not only in the sense that it nips in the bud anything that

goes against or seems to go against its interests, but also by the customs implanted inexorably by the *raison d'État'*.[2]

Thus, a society may plant many trees of innovation but they will not bear fruit unless protected an nurtured. Freedom to think, to build and to trade; the right to enjoy the products of one's labour and imagination; the secure environment that makes all this possible-these are the conditions *necessary* for a dynamic and innovative industry and, ultimately, society.

International trade law: creating a secure and predictable environment for trade

The WTO Agreement is, in many respects, a codification in progress into international law of these conditions. In discussing the importance, indeed the relevance, of the specific disciplines of the WTO Agreement for innovation, I propose to use a case study.

Browsing though the net, researching for this article, I stumbled upon a product that, I am sure you will agree with me, neatly captures the essence of many of the points I wish to raise here today. The manufacture, based in Liechtenstein, is called Mousetraps International Inc. You can visit the website at www.mousetrapsrus.li This company has come up with a brand new, and highly technologically advanced – ie *better*-mousetrap. It is made of titanium alloy-stealth technology, so the mice cannot see it-with a computer chip that allows it to tell the difference between a mouse and your average inquisitive child's finger; and it can be connected to the internet, to order more cheese when the bait goes off, or to call in the mouse undertaker when it, well, makes a hit.

For Mousetraps International Inc to make money – indeed, to be motivated to make the initial investment, which is going to be huge, in building a factory to make the better mousetrap-it needs a bigger market than Liechtenstein and its small, though wealthy, population of tax-evading mice and tennis-playing rats. And so it looks across the border, to the EU, examines EU regulations, tariff lines, and so on, and figures it can easily sell its innovative product into that huge market.

In the absence of the disciplines of the WTO Agreement, the EU's traditional mousetrap producers might well be tempted to pressure the Commission to pass a regulation prohibiting the importation of titanium-based mousetraps as environmentally unfriendly, or perhaps unusually cruel to European mice (the mice are not given a fair fighting chance). They might persuade the EU to increase tariffs; failing that they might launch anti-dumping challenges, which amounts to the same thing, only sounds better. They might fiddle with mousetrap standards. They might argue that the appellation 'mousetrap' is a traditional expression reserved for rodent-killing instruments constructed in accordance with instructions set out in Agatha Christie's eponymous play, and propose instead the name 'Residential Pest Rodent Extermination Unit'. They might, in collaboration with Greenpeace, propose a 'Hamster Preservation Regulation', requiring the use of Hamster Avoidance Devices (which are manufactured only in the EU) for all mousetraps before they are certified.

The possibilities are endless. Down each road, of curse, is an end to the better mousetrap-to innovation-both in Liechtenstein and in the EU. However, because of the WTO, we can expect the EU to withstand these pressures and thus to provide the sort of stable, rational market that would make Mousetrap International Inc's investment in its innovate product worthwhile. Of course, by doing so, the EU would benefit as well, as its mousetrap manufacturers would be forced to modernize and innovate.

What are the disciplines of the WTO Agreement?

Freedom to think, build and trade

At least since the Second World War, the world trading order has rested on four basic pillars-four Articles of the GATT that, collectively, establish the most important obligations in the GATT and, at the same time, ensure the 'freedom to trade' that lies at the heart of a legal order governing world trade.

These are:

- Article I, which requires that concessions granted to each member of the club are granted to all members of the club;

- Article II, which limits tariffs imposed on imported goods to those negotiated and set out in each country's schedule;

- Article III, which provides that important products must be treated in the same way as similar domestic products in respect of regulations and domestic taxes; and

- Article XI, which prohibits import restrictive measures.

The rest of the WTO Agreement flows from these basic obligations. That is to say, many of the other agreements are there to give substance to these basic requirements or, alternatively, they create a regime in which other instruments are not used to undermine these basic rights and obligations. For example:

(1) similar provisions exist in the General Agreement on Trade in Services;

(2) the Agreement on Technical Barriers to Trade is, in many resects, an elaboration of the disciplines set out in Article III of the GATT;

(3) the Agreement on Sanitary and Phytosanitary Measures gives precision and enhances the provisions of Article XX, the environmental and health exception of the GATT

(4) the Agreement on Subsidies and Countervailing Measures imposes disciplines on subsidies, which had the potential to distort trade patterns as well as investment decisions; and

(5) the Agreement on Subsidies as well as the Agreement on Antidumping Measures set out the rules for the imposition of countervailing duties and anti-dumping duties, which could foster grater competition of resources if not applied properly.

Also so on. The objective of these disciplines is, collectively, to provide a rational framework in which goods and services are traded more or less freely internationally.

The importance of these basic disciplines cannot, in my view, be overstated. The competitive benefits of free trade are negated if domestic interests can interrupt the flow of imports through discriminatory measures, or if exporters have no security in their access to foreign markets. And the importance of that security increases as does the research input or lead tome for the development of products. Whether it is pharmaceuticals or aircraft, generically modified organisms or stealth mousetraps, profitability and therefore the very incentive to invest depend on security of access to export markets, while, given the high barriers to entry, there would be no incentive to innovate if access to the import market could be disrupted at will.

In this sense, the legal framework that trade agreements put in place to prevent discriminatory practices and to give some rationality to trade policy, and thus to provide certainly for markets, is essential for investment and innovation.

Right to enjoy the products of one's labour and imagination

The freedom to trade is, a I suggested, a *necessary* though not a sufficient condition for innovation.

There would be little point in Mousetrap International investing millions in developing a titanium-alloy contraption if the thing could be legally copied by other manufactures, produced and sold as soon as it entered into the other markets. The situation would be all the more troubling in respect of products that require not only considerable investment in research and development, but also regulatory approvals that could delay entry into the market for many years. It is therefore not surprising that, as barriers to trade fall and as goods move more freely between markets, intellectual property becomes an increasingly integral part of international trade law. This brings me to what I would consider one of the most interesting *legal* innovations in the Uruguay Round-the Agreement on Trade Related aspects of Intellectual Property, or the TRIPs Agreement.

The Agreement's statement of its objectives is particularly apt for this article:

"The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.'

I would venture to guess that there is not a book on intellectual property that does not set out this basic principle as the most fundamental justification for the protection of patents domestically. And as markets expand to encompass the world, so must disciplines, to encourage innovation on a global scale.

It is not necessary to go into too much detail about this Agreement. There is little there that IP lawyers would not be familiar with; that is to say, much of what is in the TRIPs Agreement is inspired by domestic intellectual property regimes and existing international agreements such as the Bern and Paris Conventions.

There are, it would seem to me, two fundamental differences-not as to substance, but as to form.

First, the TRIPs Agreement puts into as a trade agreement-one enforced by a judicial dispute settlement mechanism and backed by the threat of trade sanctions across unrelated sectors-elements of intellectual property protection already agreed to in various international conventions. Secondly, and more significantly, the TRIPs Agreement is part of the Single Undertaking ie all members of the WTO had to subscribe to it to benefit from the rest of the Agreement. Though special provision was made for developing countries, the obligations were to apply to all at the end of a transition period. This, as I will note in the concluding section, has proved to be a particularly difficult feature of international intellectual property protection.

The TRIPs Agreement covers a wide range of disciplines-from copyrights to patents to geographical designations. For our purposes the most important of these are set out in Articles 27-39 of the Agreement, covering:

(1) 'patentable subject matter', rights of patent holders (including conditions and exceptions), and patent terms of protection;

(2) protection of lay-out designs of integrated circuits; and

(3) protection of undisclosed information.

The Agreement has already proved quite far reaching in protecting in protecting the interests and intellectual property rights of private sector interests. (And, as with many other areas of international trade law, by losing one case and half-winning another, Canada has done its bit towards giving precision to these disciplines.) There is no question-no longer any question-that these disciplines are meaningful.

The 20-year patent requirement, as one recent panel found (it is now subject to appeal) means that, and not 'roughly' 20 years.[3] Generic pharmaceutical companies may start testing generic drugs before the patent runs out, but may *not* produce and stockpile such drugs before the end of the patent period-and of course this particular finding would apply to stockpiling in general.[4]

Secure environment

The tow elements I discussed above relate to the substantive rules of the game. The third condition necessary for investment and innovation that I should like to discuss is somewhat less tangible. For lack of a better word, I refer to this simply as 'security'. This expression is meant to contain considerably more than the psychological condition it implies; rather, I refer to a set of systemic arrangements and attitudes without which no investment, and certainly no innovation of any kind, would be possible. Security can be viewed from at least three perspectives.

The first, and the most basic, of course, is simply the international legal order itself. I discussed earlier the substantive rules that govern trade among nations. But rules (laws) do not in themselves do anything. In the absence of an international police force, laws simply establish certain psychological parameters within which states must be persuaded to operate. That is, when Mousetraps International Inc sets out to make an investment or embark upon innovations that can be justified only in the context of a truly global market, it is not simply the substantive rules of that international marketplace that give it confidence, but the knowledge, more certain in respect of some countries than others, that those rules, that international law, will be respected. And let me stress it is not just us, government lawyers, who are responsible for keeping states on a straight and narrow path and ensuring respect for the law. The private Bar of each state also bears an enormous responsibility, in how it advises its clients and tries to persuade its own government.

Secondly, all the goodwill in trying to abide by international law will come to nought if the substantive laws governing international trade are not properly transposed or implemented into the domestic legal regime. For laws to exists and to operate effectively, functioning and stable legal orders are required.[5] Without these, there cannot be a secure and predictable domestic environment for trade, investment and innovation. Specifically, I refer to the provisions relating to transparency of laws and regulations, the adoption of regulatory measures based on science (and not passing political imperatives), and those governing trade-related investment measures. These seek to create a predictable and secure trading environment-one in which not just the consumer but also investors, researchers, developers and marketers make decisions on the basis of full information; decisions that, in theory at least, lead to an efficient and rational allocation of resources internationally.

And, thirdly, ensuring (to the extent possible) the integrity of the legal order internationally, and its proper implementation domestically, requires credible enforcement. The dispute settlement mechanism of the WTO, for all its limitations, is a remarkable achievement and has worked amazingly well-better than anyone could have hoped in 1994-in establishing the rule of law in trading relations between states.

Free trade, innovation and other interests

It would apper that international trade law is in principle calibrated to avoid precisely the type of problem identified above with respect to China's inability to benefit in the long-

term form its innovations and inventions, at least as much as the West was to do (using Chinese inventions as the base for its achievements). However, and here I wish to raise a number of points to provoke debate, do these conventional and long-standing assumptions about the relationship between innovation and *raison d'État* stand up to scrutiny? And, perhaps more important, even assuming that sometimes *raison d'État* and technological innovation and progress come into conflict, what is wrong in allowing the *raison d'État* to prevail?

Let me expand the scope of the enquiry from *raison d'État* to all other social and cultural interests (all non-economic or extra-economic interests) that may be opposed to free, trade, to innovation, to technological progress. Are we not in danger of casting a golden casting a golden calf out of such 'progress' and, by necessary extension, the paraphernalia of liberalized trade, to the exclusion of other social and political commandments?

These questions are addressed briefly below, so as to set, or least suggest, some parameters for further discussion.

Liberalization or protection?

Examined strictly form the perspective of progress and technological innovation, one might credibly argue-as I did, at the beginning of this article – that liberal markets policies (free trade, disciplines on other market distorting practices, etc) have been instrumental in the massive technological transformations that we see around us today. We are at the end of history; Adam Smith has won the debate. Or has he?

In 1993, in a tightly argued article in *The Atlantic Monthly,* Fallows[6] challenged conventional assumptions about the importance of liberal markets for technological and economic progress. This was not so much a theoretical as an empirical challenge; the greatest American industries had grown strong only under the protection of prohibitive tariffs or massive subsidies.[7] Take the US aerospace industry-the wildly successful Boeing 707 would not have been developed had it not been for the ready market of the US military (which bought close to two-thirds of the production) and $600 toilet seats.[8] The relationship between technological innovation and 'liberal markets' was not so evident to Friedrich List, an influential Continental economist of the 19th Century who observed, 60 years after *Wealth of Nations* was published, that Britain's strength in woollens was due almost entirely to the highly protectionist policies of Edward III and Elizabeth's expansion of the merchant marine.[9] Fine for Adam Smith to extol the virtues of the free trade, when the English textiles industry had already established a dominant positions because of two centuries of protectionism. What about the rest? [10]

This frank recognition that innovation can be smothered by competition just as surely as it can be spurred it is, apparently, no longer valid currency. In the *Periodicals*[11] case between Canada and the United States, one of the principal justifications for Canada's measures at issue was the fact that some 90 per cent of 'cultural content' in Canada originated from the United States. Canadian editorial content simply did not have room in

which to breathe. That is, the dominance of US editorial content – however varied in itself-nevertheless reduced diversity in Canada. An unabashedly liberal market, as required by the Panel, did and would do little to encourage diversity in Canada. An unabashedly liberal market, as required by the Panel, did and would do little to encourage diversity and *cultural* innovation.

To the extent, then that current trading rules-whether within the traditional domain of the GATT or the more invasive disciplines of the subsidies Agreement-propose to do away to do away with the panoply of governmental instruments that have, in the past, helped to nurture and spur on technological development, is there not some danger that an over liberalized economy might suffer from less, rather than more, innovation?

Of course, it behoves market liberalisers-those who wish to diminish the intervention of governments in the marketplace-to acknowledge that their denigration of government intervention in the economy is, at best, inconsistent. As noted above, patent protection is considered a necessary element of innovation, and yet patent protection is little more than state-sanctioned and enforced monopoly.

Balancing interests

The second point I wish to register-and the final one-is this: are there not other interests worth maintaining and advancing than technological innovation? The Chinese had paper and the printing press but did not use these to educate the masses.
The Chinese had discovered gunpowder long before Europe but did not develop guns and cannonry. The decisions made in the 11th century to forego further technological innovation led to China's 'technological gap' with the West and its eventual collapse-after 800 *years*. During the same period, the more technologically advanced Europe experienced the 100 years' war, the 30 years' war, the Austrian and the Spanish Succession wars, the Crimean War, the Franco-Prussian war, and Marlborough and Frederick the Great and Louis XIV and Charles Gustav XII and Napoleon, etc, in and for all of which, gunpowder and the printing press had, if not a starring role, at leas a walk-on cameo. Taking China as an example, if the choice were between innovation and other interests, even with the hindsight of 800 years, the other would not be self-evident.

So it is, increasingly, with respect to a range of national policy and political choices and their interaction with the rules of liberalized trade.

Let us take the two pharmaceuticals cases in which Canada was defending its patent regime. In one, the case brought by the EU, the issue was whether Canadian generic drugs manufacturers could start the testing and approvals processes in advance of the expiration of the patents at issue and, having obtained such approvals, whether they could 'stockpile' cheaper generic drugs in the run-up to the expiration date of the patent.[12] The Panel sided with Canada on the first issue and found for the EU on the second; both sides claimed victory and the matter was not appealed. The second case, brought by the United States, dealt with a 17-year patent term, as opposed to the required 20, for a class of drugs. Canada lost the case and is appealing.[13] Both cases arose out of changes made to

Canada's drug regime in the late 1980s-to spur research and development while at the same time preserving the public's access to cheap medicine.

I do not wish to go into the legal merits of the two case, or to debate the research versus cheap medicine issue, only to note that there was and there is a debate, and it is a debate that is as much about innovation, creation, and research and development of new drugs as it is about core social values, such as the integrity of Canada's universal public health care programme. We can talk about innovation; but what about access?

The issue becomes even more difficult to resolve when you are talking about access, not just in rich countries, but also in developing countries-for instance, access to medicine one course of treatment of which would exceed the *per capita* GDP of nearly half the members of the WTO. This is a point that is increasingly at the center of demands for changes to the TRIPs Agreement.[14] As one commentator puts it:

'Given that the health and lives of millions of people are at stake, should the drug companies be allowed to exercise their monopoly? Shouldn't patent rights of companies be made secondary to the right to medicines, to health and to life of people across the world?[15]

Heretical questions, these. Nevertheless, there is some validity to them.

One solution, of course, is to pursue policies recently proposed by the United States in respect of HIV/Aids treatment drugs. But unilateral foregoing of trade disputes underlines the principal difficulties and does not address them head-on. The issue, of course, is not whether the United States would, out of charity or self-interest, forgo trade disputes, but whether the issue should ever be the subject of a trade dispute.

From pharmaceuticals I turn briefly to cultural sovereignty-not just to content but to means of distribution of the content-another matter of great interest and political sensitivity for Canada. Some argue that we should let the market-the consumer-decide what he or she wishes to see. But, frankly, it is not that simple. Sometimes, because of certain economic realties, or the way distribution networks function, that choice is simply denied to the consumer. Vast areas of Canada do not have the *choice* of seeing any Canadian movies, simply because the distributors refuse to distribute them. It is to avoid a repetition of this that there are Canadian content requirements for radio and television. Admittedly, there is a cost, either in the quality of the programming or, indeed, in technological innovation. And yet, the question has to be asked, are these other considerations not worth balancing?

In this respect, one might recall how the Roman Emperor Claudius ordered the destruction of a new weaving loom, asking: 'What am I to do with the thousands of weavers this invention would displace?'

It took 1,500 years before another society was willing to accept those displacement cost. After all, even Edward III, as he protected the nascent wool industry in England, discouraged technological innovation for the same reason.

I do not, of course, propose that the solution lies in dismantling our 21st century versions of Claudius's modern looms. I hope, however, to have drawn your attention to a number of conceptual difficulties in the current conventional wisdom on the relationship between trade law and innovation.

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[*] BA, LLB, LLM (University of Toronto); Barrister and Solicitor. The author is Trade Commissioner and Legal Adviser at the Mission of Canada to the European Union. The views expressed in this article are the author's own and do not necessarily reflect the position of the Government of Canada.

[1] 'Factors Driving Global Economic Integration', *Global Opportunities and Challenges*, symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, 25 April 2000.

[2] Lanes at p 57.

[3] *Canada-Term of Patent Protection.*

[4] *Canada-Patent Protection of Pharmaceutical Products.*

[5] All countries must establish a *sound legal basis* for the protection of patents and the granting of exclusive marketing rights. *India-Patent Protection for Pharmaceutical and Agricultural Chemical Products.*

[6] James Fallows, 'How the World Works' (December 1993), *The Atlantic Monthly,* 60.

[7] *Ibid* at 79.

[8] Rambod Behboodi, *Industrial Subsidies and Friction in World Trade: Trade policy or trade politics?* (Routledge, London, 1994), pp 31-32.

[9] Quoted in Fallows, n 6 *supra*, at 66.

[10] Fallows states:
'… while American industry was developing, the country had no time for *laissez-faire*. After it had grown strong, the United States began preaching *laissez-faire* to the rest of the world-and began to kid itself about its own history.'
See no 6 *supra* at 79.
Landes argues:
'[The later record of British commitment to free trade (more or less mid-nineteenth century to 1930) has tended to obscure the earlier and much longer practice of economic

nationalism, whether by tariff protection or discriminatory shipping rules (navigations acts)…
[H]istory's strongest advocates of free trade-Victorian Britain, post-World War II United States-were strongly protectionist during their own growing stage. Don't do as I did; do as I can afford to do now. The advice does not always sit well.'
Op cit, at p 266. He later points out that this fact did not escape the notice of the Japanese on a fact-finding mission to Britain, p 375.

[11] *Canad-Measures Affecting the Export of Civilian Aircraft* (WT/DS70), Reports of the Article 21.5 Panel and Appellate Body adopted on 4 August 2000.

[12] *Canada-Patent Protection of Pharmaceutical Products* (WT/DS114/1), Report of the Panel adopted on 7 April 2000.

[13] *Canada-Patent Protection Term (WT/DS170/1),* Report of the Panel circulated on 5 May 2000.

[14] 'The issue of patents versus the poor' s access to essential medicines has shaped up as a key battle in recent years.' Khor, Martin, 'Health First and Pay Later', *Bangkok Post, 27 August 2000,* at 4.

[15] *Ibid*.