



## Taxing the Internet: The Proposal for a Bit Tax

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It's a pleasure to be here this afternoon as a guest in the International Tax Programme. I am here today to try to bring a new perspective on one aspect of taxes in a global networked economy.

In my talk today I intend to convey the following ideas:

1. Tax revenues are falling because of downsizing, outsourcing, the rise of a temporary labour force.
2. Tax revenues are threatened as commercial transactions move to the Internet.
3. There is a case to be made for investigating the possibility of new taxes for a new economy.
4. I will suggest one such approach, a bit tax.

We all know that the development of a knowledge-based society with its underlying information technologies is bringing with it massive changes. By information technology I am referring to computers, microprocessors, telecommunications, satellites, the cable system, broadcast technologies, fibre optics, and all necessary software both for operation and interconnection. Taken together this represents the infrastructure of an information society.

With the development and growing implementation of these technologies, we are living through a profound social transformation. Information and communication technologies are transformative: they change our personal and professional lives; institutions are turned inside out.

The rapid introduction of information technologies is changing our lives. We see the change every time we enter a university library and notice the continual updates in technology, every time we bank by computer, every time we turn to CNN and watch --live, in real time--one political crisis or another brought to us in our living rooms or office. Each time we log on to the Internet. While change can be exhilarating for some--for many it threatens their political and economic foundations.

Too often we get caught up in the quickly evolving technical trends and lose sight of how information technology is changing the way we live, learn and govern society.

We have few reliable guides as to how information technologies are transforming our lives. We have few reliable guides on how to deal with these changes. Sound-bite journalism is not well-suited to the task. At the same time so many vested interests have so much riding on these technologies that the citizen is usually subjected (via TV or print) to the views and opinions of one vested interest or the other.

Governments too often are unable to act as reliable guides to the ways in which information technology are changing our lives. This is because government structures refer to an earlier age. An age of hardware. An age of smokestacks, freightcars, manufacturing. A time when things could be measured. Policies could be based on more of this or that. Most government departments are in place to deal with yesterday's issues. The issues posed by information technologies are rarely the responsibility of any one department. Usually they are seen to be important, but important to the other department ...not to ours. So most of the policy issues posed by information technologies fall between

departmental responsibilities.

My view is that information technology is like no other. It is energy saving, capital saving and labour saving. It is also distance insensitive. Put more bluntly information technology brings 'the death of distance.'

Information technology can replace people in a great number of functions. Remembering, deciding, judging, estimating, counting, etc., can all be done by information technologies, and can be done better, faster and cheaper than by people.

The growing use of information technologies marks the change from an economy that produces and consumes hardware to an economy that produces and consumes software. We are moving from an economy of tangibles to one of intangibles.

With global networks we are moving from many local economies to an integrated global economy. From local markets to global markets. From local commerce to global commerce.

Firms using information technologies can issue orders, manage inventories, buy resources, design products, do research just about anywhere in the world. Firms can bring together all factors of production to produce goods and services anywhere on earth: global information and communication technologies mean that corporations can have a virtual presence anywhere. With global brand names the final product is produced anywhere; the final product is sold anywhere.

The tools of the industrial age were motors and engines. Their power was measured in terms of horse power--because that is what they replaced. Computers are the new tools of the information age. They augment and replace human memory. So it is no accident that we measure the tools of the information age in terms of memory. The human abilities of ordering, deciding, remembering, choosing, evaluating, diagnosing can all be done by computers. Computer memory in combination with smart software and global networks is slowly but surely changing our labour force.

Much has been written about the computerization of the workplace. Computers replace workers and where workers remain, their numbers have usually dwindled and their skills have shifted--often they need fewer skills to do the job. When skills can be embedded in a machine, the pool of available labour automatically broadens. With de-skilling comes lower wages. With lower wages comes a lower tax rate.

But there is another reason why workers at all levels are competing with an ever expanding labour force: Globalization. The new labour force is one that is defined by our communications capability. Whether products are being made in Asia to meet the just-in-time demands of Walmart or whether the product consists of software written in India to meet the needs of Motorola, North American workers in particular and OECD countries in general are competing in a broader labour market.

Globalization has a tendency to keep a lid on wages in the developed countries. Labour loses its bargaining power if wage or benefit gains threaten to lead to production in another part of the world. So here too we find that with stagnant or declining wages, taxes paid are stagnant or in decline as well.

Parenthetically I would note that we seem to be witnessing a trend to downward harmonization in wages and benefits (and environmental standards and human rights too!!). In my view we ought to be aiming for upward harmonization--lifting wages, benefits and workplace conditions to the levels of the most advanced countries. But that is a topic for another talk.

Information technologies are also leading to radical changes in other areas of the workforce.

Managers have traditionally played a role of passing information down from above and passing the results back to senior management. In the old days a senior manager, like a general in the army gained power and prestige by increasing the number of people under their command. Today with sophisticated information systems the information relays are no longer needed. Information about all aspects of the firm can be accessed directly by senior management. Today senior management earns power, prestige, applause and bonuses by getting rid of the people who used to report

to them, by downsizing and outsourcing wherever possible.

Since the mid-1980s US corporations have responded to global competition and technological change by merging and consolidating, downsizing and de-layering. Along the way some 2 million middle-management positions have been permanently eliminated.

Many of the people who lost their permanent jobs have new jobs. Most came back into the labour force at lower salaries. With lower salaries they pay lower taxes. Those who couldn't find new jobs look to the government for support. They make demands on the system. So a double-impact on the tax system. Lower taxes being paid and increased demands for support of one sort or another.

Add to this that more and more services are the result of people interacting with computer-based interfaces including touch-tone phones connected to digital networks. As do it yourself banking, shopping, libraries, etc., take hold, the number of people displaced increases. Although this adds to the over-all productivity of the system, the workers who lose jobs no longer pay taxes, rather they too make demands on the system for income support of one kind or another.

In this fiscal squeeze budget deficits stay constant or rise. In a move to stay in office, to appear credible, governments at all levels cut expenditures still more. To provide jobs for those displaced and to 'kickstart the economy' governments often offer tax holidays to firms willing to settle in their jurisdiction! This makes things even worse!

Today in Canada we are wringing our hands at the shortage of tax revenues. Some of the tax concerns pre-date the 'new economy' and carry over from the recent past: tax breaks to small business; a growing underground economy based on cash; transnational companies who 'transfer price' in ways so that profits are declared in low tax areas of the world; the rise of tax havens. Some tax concerns are closely related to the New Economy.

Consider the potential for tax avoidance. Electronic commerce is beginning to grow as networks become more secure: --WWW sites such as "travelocity" are in place to support reserving of hotel rooms and rental cars to purchasing airline tickets.

--E\*Trade is an online investing site where investors can get information on stocks and actually complete a trade. It has no bricks and mortar presence. The computer is located in Palo Alto, California. Started in February, 1996, E\*Trade has 50,000 accounts and quarterly revenues of 17 million dollars.

--Amazon.com too only has an online presence. It is a comprehensive "book store" based on a powerful computer search engine that offers 1.1 million titles. They act as a broker. When you order from Amazon, they order and ship on your behalf. Amazon claims to have customers in 66 countries.

--PhotoDisc provides digitized stock photography over the Internet for use by design firms, publications and advertising agencies. The 30,000 customers can view, order and receive any of 50,000 images.

--Online Interactive offers computer software via the Net. The customer selects the software which is then delivered in an encrypted format. You then enter your credit card information, which is verified over a private network. After authorization, a key that unlocks the software is sent to the customer's computer.

--Ernst and Young is offering consulting services via the Net. For a yearly fee of 6,000 dollars, companies can obtain a password to visit the Web site, where they can search a database of information and monitor relevant news clippings. The heart of the site is a question and answer section. Subscribers can type queries, which are then routed to appropriate advisers from the firm's tax, accounting and management consulting divisions. The firm guarantees it will respond within two business days.

Add to this electronic commerce sites for CDs, autos, automated auctions, gambling, retailing and on-line information,etc.

## Digital Networks

Digital networks are distance insensitive. Digital data can be stored anywhere, sent anywhere, manipulated anywhere, sold anywhere. Payment can be from anywhere to anywhere on earth. With no cash and no receipts--no papertrail--what a job for the tax collector! How will local and national taxes be collected? Who will collect taxes? On whose

behalf will taxes be collected and where will they be sent?

Currently, most merchants and states are following state rules on mail-order purchases. As the Wall Street Journal noted in an article last November, what difference does it make whether the order came in from the Web or through a toll-free number?

But what happens when music isn't shipped on CDs, but is downloaded from the Internet instead. When that happens, is it still a CD for tax purposes? Or is it something else -- some sort of information service, perhaps, subject to a different tax? Or to no tax?

Note that the design of the Internet makes it impossible to determine with certainty where someone making an electronic purchase is located. With a typical mail-order purchase, the product is shipped somewhere. But if the information is downloaded on the Internet, the seller may have no idea of its destination. And where does the merchant reside? Where he or she actually sits? Where the computer server is? And consider what happens when payment is not via a charge card such as Visa or Mastercard, rather payment is via digital cash. An anonymous payment from one person to another without a third party intervention. Here the underground economy has truly 'gone digital.'

With computer software, music, movies, magazines, business services and books all potentially headed for electronic distribution, governments could find themselves subject to porous borders. Notes an international tax partner at KPMG (quoted in the WSJ (November 21/96) story.) "Global trade is on the way, and there are major sums of money at stake."

In the move to an economy of intangibles it becomes nearly impossible to measure the transactions to be taxed since they occur on networks, a series of electronic impulses. A stream of digital information. Trillions of ones and zeros. The Information Society Project Office of the European Commission asks the question, 'How will governments be able to continue to raise funds in an increasingly information-based world in which value is generated through systems and global networks, rather than through clearly identifiable material production and exchange.?' With global electronic commerce expected to reach over 600 billion dollars by the year 2000, this is a pressing question. One that becomes more urgent each day!

If we truly believe all the rhetoric about the information highway, if we truly believe that we are going into a new economy then we have to pay some attention to new tools to manage the new economy. New ways to approach old problems. Needed: new taxes for a new economy.

The fiscal problem is compounded by the following:

- Development of robust encryption to protect and keep secret commercial transactions. The technology can also be used to keep secret the transaction itself and so keep notice of it away from government tax authorities.
- Trans-national companies who make products anywhere, sell products anywhere, declare taxes anywhere-- usually in the lowest tax jurisdiction.
- The trend to decreased staffing of agencies and departments of governments and thus a growing inability to regulate, coerce or otherwise levy and collect taxes.
- The declining legitimacy of the nation state leading to tax avoidance as an almost acceptable activity by otherwise ordinary and law-abiding citizens. Less moral pressure to play by the rules.

I realize that I have painted a sombre picture of fiscal crisis. It is a situation you must be considering, especially in your everyday work. It is a fiscal squeeze that seems to be leading to a society where with falling tax dollars, the physical infrastructure is in decline, the educational and social infrastructure is allowed to run down. It is a society where many of the hard-won benefits of economic development are being allowed to slip away. More and more governments tell people that 'they are on their own.' The idea of universality itself, is being questioned. Universality in health, education, access to clean water--to telephone service itself is being questioned as government tax revenues decline, as the budget deficit takes centre stage.

The combination of unemployment, downsizing, tax avoidance, globalization--all linked to the emergence of global networks raises the following question: How does government find the revenues to maintain the social and physical

infrastructure? What happens to the displaced workers? Where will the new tax base be found?

The picture is sombre only because we are viewing events and opportunities with the filters and mindset of an industrial society.

Over two hundred years ago Adam Smith wrote his famous and classic book-- the Wealth of Nations. He concluded that wealth was based on the division of labour and the extent of the market. Today we can add something else to society's production function: knowledge, information and communications.

The new wealth of nations is to be found in the trillions of digital bits of information pulsing through global networks. These are the physical/electronic manifestation of the many transactions, conversations, voice and video messages and programs that, taken together record the process of production, distribution and consumption in the new economy.

In this new wealth, in this new productivity is a new source of revenues for governments.

I believe that the digital information that is providing so much of the new wealth also provides a way for us, through our governments, to get at some of the productive potential of the emerging knowledge-based economy.

What happens to the productivity gains created by global digital networks? Some gains show up in profits, some show up in lowered prices, some goes to domestic labour and some to domestic capital--some is 'lost' in the networks. In some cases off-shore capital benefits from productivity advances.

While part of the increased productivity may show up in earnings to firms adopting the technology, to banks, to telecom firms or other network operators, it appears that some of the productivity gains just disappear. It is either a non-monetary item (eg., time saved in using ATMs for banking) or the productivity is diffused over so many domestic and foreign players that it is not appropriated effectively, if at all.

The challenge is to access the new productivity. There is a strong case to be made that government has not yet accessed the new wealth. That government has not yet realized where and how wealth creation is taking place. That government has not yet figured out a way to tax and re-distribute some of the new wealth created by global digital networks. That government has not figured out a way to stop the tax haemorrhaging taking place as more and more transactions take place on global networks, as more and more wealth is created on global networks.

It is important that the new wealth, the new productivity be accessible by governments, so that government can perform its traditional functions. So that the advanced countries can maintain hard-won standards of living. So that the less- developed countries can advance and grow as well.

## **The Bit Tax**

A new tax base is important if we are to avoid the insolvency of democratic governments--especially in a time of growing needs. The new productivity must be captured by governments if we are to widely share in the bounty of a knowledge society.

A new tax base is to be found in that myriad of transactions, images, voice, text, data--all carried over global telecommunication, cable and satellite networks. Just as the old economy could be found in railroad freight cars and in 18-wheeler trucks, so too can the new wealth be found 'riding' the flow of digital information pulsing through the networks, 24 hours a day, every day. Just as some of the old tax base came from taxes on goods and excise taxes on transportation vehicles moving on the nation's rail lines and highways, so too can the new tax be found in the new distribution system of the new economy: the networks of the new economy. The much talked about Information Highway.

While there are few kudos for proposing a new tax, the time is ripe to suggest positive and constructive ways of dealing with serious fiscal realities. The move to a new economy should be matched by consideration of a new tax

base. A tax base that is growing. A tax base that is at the heart of the new economy. A tax base that can be easily identified, one where collection is in few hands. A tax that is difficult to avoid.

How do we do this? Well if the new wealth of nations is to be found in networks then we have to imagine a turnover tax on digital traffic. This would be similar to a gasoline tax or paying a toll on a bridge or toll road or having a license plate on a car. These current excise and indirect taxes apply by weight of truck, by amount of gas used, not on the value of the commodity carried by the truck. So why not examine a possible tax on the digital traffic on the Information Highway? Why not tax each digital bit of information?

So let's imagine a 'bit tax.' I am proposing that we tax each digital bit of information flowing in global networks. And with convergence, all information--data, voice, images--will be in digital form.

Proposed is an easily administered tax on each digital bit of information. A 'bit tax.' Whether the digital bit is part of a foreign exchange transaction, a business teleconference, an Internet e-mail or file transfer, electronic check clearance or an ATM transaction, each bit is a physical manifestation of the new economy at work. Whether the tax is levied on the traffic carried by a fibre optic cable or on micro-wave or whether the tax is levied on interactive satellite traffic, the bit tax presents a way of accessing the new wealth being created by the New Economy.

Say the tax is .000001 cents per bit. Automatically collected it will cause fewer collection problems than most other direct or indirect taxes. Collected by the telecom carriers, satellite networks and cable systems the revenues would flow directly to the national revenue service of the respective country.

The bit tax would be applied to value added interactive digital transactions. Interactivity makes the transaction valuable. A broadcast message may or may not add value, that is if it is heard. An interactive transaction: a conversation, data search, accessing an ATM--is an activity you choose to do because it does something for you. You get something for doing it, you get something out of doing it: otherwise you wouldn't be doing it. It is this new value, this new productivity that is creating so much new wealth in networks.

All interactive digital information would be subject to the new tax. Thus digital broadcast and digital radio (all 'one to many' broadcasts) would be exempted from the tax. Digital broadcasts of one to few eg., TV broadcast to a few stations for later rebroadcast, or newspaper transmission by satellite to remote printing plants are interactive (because they are 'addressable') and would be subject to the bit tax.

The implementation of the tax would fit into three broad categories:

1. Long-distance lines (general public), a tax directly proportional to digital flows between major long-distance nodes in the country.
2. Leased lines (private lines), a fixed rate dependent on the bit-carrying capacity of the line. So if a company leases a private line, say a 1-800 line or something for carrying on transactions--something like the credit card companies currently do, then the bit tax would be at, say, 70 percent of the carrying capacity. Since there are no built-in meters in these lines and since the traffic in these lines fluctuates, then easier to settle on a fixed percentage of capacity.
3. Local Traffic, a variable rate based on a statistical average of gross information flows captured at each local switch using software already in place.

The bit tax would not be a user pay tax. Increased use within the measured region would however result in higher bit taxes. So without getting into too complex a discussion, one could imagine that at the local level an average of digital traffic would be measured by designated region (this could be by area code, metro area, province or state, or nation). This statistical average would provide the basis for the bit tax rate at the designated local level. Leased lines would pay some percentage of the carrying capacity of the line while long distance public lines would be metered by usage patterns.

Note the advantage of local measurement by area code or other measured region. If transactions greatly increase in one region to a large extent it is conceivable that incremental network investments and operations could take place in another region. In an area characterized by low transaction rates and hence by a lower bit tax rate.

Research has to be done on the burden or incidence of this new tax. Is it progressive or regressive? Will it be absorbed

by the carriers or passed on to consumers? Should lower rates apply to some heavy traffic items such as digital movies downloaded to the home?

Can one nation bring in a bit tax or does it require international collaboration? Perhaps through the OECD or the G-7 group of nations. Or perhaps we should be launching one or a number of pilot projects. A number of pilot bit tax projects run by smaller countries or parts of countries to determine any pitfalls or problems. It has been suggested that the State of California, or the eleven Western States of the United States might serve as a possible pilot project.

And what about the tax rate itself? Is it too high or not high enough? If the tax of .000001 cents per bit yields too much revenue, then it can always be adjusted. As network-based commerce expands the number bits will increase as well. During peak periods in North America 1 trillion bits per second are transferred on telephone networks. In the future, with fibre optic networks the capacity will be expanded to a peta bit per second. This is a very large number. A 1 followed by 18 zeros! So the bit tax rate will have to be adjusted for changing times.

Experts tell me that the proposed bit tax can be implemented in a relatively simple way. Automatic collection of taxes, distributed automatically to the appropriate government--all put in place by building on the software already being operated by the carriers. A well-defined tax base, one that is growing. A tax that can be collected cheaply and simply. A system that will have built in security and auditing--safeguards to ensure system integrity.

But there are those who oppose the tax arguing that imposing a tax on this new area of economic activity runs the risk of slowing its introduction. My answer is: Did the imposition of the gasoline tax slow the development of the automobile industry? We might note, in passing, that gasoline taxes in North America were first introduced at the state or provincial level. In the US, Oregon imposed the first gas tax; within 10 years the rest of the states imposed their own gas tax. Federal gas taxes were introduced in 1932. Seven local regions (metro areas, cities) impose their own gas tax.

If early imposition of gas taxes was local, at the state level then maybe the bit tax could be applied at a local level as well--say in one state or in a number of states--say the eleven western states of the US.

Those who argue most strongly against the bit tax are those who would like to lessen the powers of the state. They would like to 'wrestle the state to the ground.' They see the bit tax as a sort of stealth tax. To this group I can only offer the quote of US Supreme Court Justice Oliver Wendell Holmes, Jr., who wrote in a decision in 1904 that 'Taxes are what we pay for civilized society.'

There is an important side issue that I just want to touch on in passing. It is an important issue, one that goes beyond the question of taxes to broader issues of macro-economic management of the economy.

Earlier I suggested that not all the productivity created by information technologies is appropriated. So like an externality of some sort the productivity takes place but not all of it is privately or publicly appropriated. Some of the productivity doesn't get registered in national income accounts. It doesn't get counted in national economic statistics.

This suggests that a bit tax can lead to the monetization of some of the unappropriated productivity. One result: economic growth numbers will more accurately reflect the productivity advances brought by information technologies. With monetization will come higher growth figures, more money in circulation. Some economists conclude that growth rates would be as much as a full percentage point higher, if all productivity gains were accurately reflected in our national accounts.

And this new growth is likely to be non-inflationary since so much productivity has been unaccounted for.

A standard line by academics is that 'more research is needed.' Looking at how the bit tax will monetize productivity and measuring the wide range of implications and impacts is clearly a very large project on which much, much more research is needed.

The thorny issues of income, jobs and taxation are all part of the major changes underway as we move to a New Economy or Information Economy or Knowledge Economy. Call it what you will. By whatever name, it is clear that

we are facing a major change in our economies. The change will not be easy or smooth. An orderly transition to the new economy will take discussion, dialogue, good-will and new ways of measuring and understanding economic activities.

So the bit tax itself is just a modest beginning. But as a modest beginning, the bit tax can help provide the new fiscal framework to distribute the productivity of the new economy. How the new revenues might be spent is, of course, to be determined by the government of the day. But in my view new sources of revenues can be used for schools, parks, and health care. New revenues can re-train some for new jobs and, for those who can not be retrained the revenue can provide a continuing flow of income that allows displaced workers to maintain their dignity-- and their purchasing power--in the new economy. One way to maintain effective demand in our economies, one way to avoid economic collapse is to capture some of the productive capacity and re-direct it back to consumers.

However governments decide to use the new revenues, it is clear that the bit tax offers one way for the productive power of information technology to bring with it a New Wealth of Nations.

I know that I may not have convinced all of you of the concept of a bit tax. To those who are sceptical of the bit tax, I hope that I have least convinced you of the need to begin a discussion on the need for new taxes that are appropriate for a new economy, a global knowledge-based economy based on digital networks.

Thank-you for your attention. I look forward to your questions, comments and discussion.