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SERVICES IN THE NEW ECONOMY: RESEARCH ISSUES

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1. INTRODUCTION

Globalization and the growth of the knowledge-based economy are perhaps the two key forces at work in the economy today. They are inducing changes in the economy and the nature of work that we do not yet fully understand. Although the effects of these changes are pervasive throughout the economy, there is a particularly pressing need to understand how the service sector is being affected.

The purpose of this paper is to stimulate discussion on research priorities on the interaction between globalization, the new economy and the economics of the service sector. It is important that policy debates and policy formulation be based on a good understanding of the issues and the underlying economic forces at work. Although research in this area has been increasing, there is still much that we need to learn.

The service sector encompasses a wide and varied range of economic activity, including banking, janitorial services, education, entertainment, transportation, health, and much more. Services are the dominant employer in developed economies. Any analysis of the effects of globalization and new information technologies on the economy must, therefore, unavoidably include the service sector.

The need to focus on the service sector goes beyond the simple fact of size, however. The global trade policy agenda has been shifting toward services, and we need to ensure that we have a good understanding of the economics of the sector before embarking on trade agreements in this area. As well, economic analysis of many aspects of the service sector sometimes has tended to lag behind that of the goods sector because of difficult issues of data and measurement that present significant challenges for researchers. The need for research with a focus on the service sector, therefore, arises from a combination of its central importance to the economy, the international policy agenda and the gaps in our knowledge about the sector, that have been caused, in part, by a lack of data.

Globalization is inextricably linked with services. Services both facilitate globalization and are subject to the pressures and benefits of globalization. The key linkages between countries occur via telecommunications and transport, both of which are services. Changes in technology, competition policy and trade policy in these industries have helped to lubricate the channels of global economic integration. Services are also becoming increasingly open to international trade. Although most world trade is still in goods, global international trade in services recently has been growing faster than trade in goods, and more than half of new direct foreign investment is in services. This creates new opportunities for consumers and producers of services; but it also creates new challenges.

Much of the public policy affecting the service sector has been considered an issue of domestic rather than trade policy. There are a couple of reasons for this. Historically, the bulk of international trade has been in goods; and so trade agreements have traditionally focussed on goods rather than services. As well, many services are provided by governments and so quite naturally are viewed as instruments of domestic policy.

In recent years, this has begun to change. International trade agreements are now being extended to cover trade and investment in services. Some regional trade and investment in services were covered by the North American Free Trade Agreement (NAFTA). As well, under the auspices of the World Trade Organization (WTO), member countries have committed to the General Agreement on Trade in Services (GATS), which is a framework for the development of a liberalized rules-based regime for international trade and investment in services. While previous rounds of trade liberalization that focussed on goods

were backed up by a wide array of studies of their potential effects, there is still very little known about the size or costs of current barriers to trade in services and the consequences of different approaches to trade liberalization.

New developments in information technology are also having a large impact on the service sector. The top five industries in terms of computer purchases are all services (Triplett and Bosworth, 2001). Telecommunication costs have plummeted and the quality and variety of services have increased dramatically over the last 15 years. These and other changes have altered the nature of work for many in the service sector, as the pace of change has required firms and their workers to adapt and innovate to remain competitive. The pace and importance of innovation in a world that is becoming more integrated creates significant challenges for policy. Regulation and policy need to evolve to reflect changes in technology and global markets, and this requires that we develop a better understanding of the underlying economics.

The last major research initiative in services in Canada took place about 15 years ago (Grubel and Walker, 1988). Given the major developments in information technology that have occurred since that time, and the ongoing international negotiations by the GATS members, it is a good time to consider research priorities in this area.

2. MEASUREMENT ISSUES

Perhaps the single most important impediment to high-quality research on services is the lack of good data. Measurement issues are a major challenge in studying the service trade: for example, see Diewert, Nakamura and Sharpe (1999) and Whichard (2001). Outputs of many types of services are difficult to measure (e.g., how do we measure outputs in business consulting services?) and are confounded by difficulties in measuring quality. This makes productivity measurement difficult and the construction of price indexes problematic.

The difficulties of measurement in this area are well-known. However, better measurement is critical to the success of fundamental work in this area. A high priority should be given first to developing a strategy to identify priorities for improvement in data collection and measurement in services and then to actually implementing the strategy.

Data collection is expensive and can be intrusive for those providing the data. Why then should it receive priority? First, as Erwin Diewert points out,[1] services represent two-thirds of the economy, but only about one-quarter of the available statistical data are on services. Resources are already expended on data collection and measurement, but as the economy has evolved, the focus of data collection and measurement has not always evolved with it. The notion that the government should be involved in collecting data for economic analysis is well-established; the issue here is simply that emphazing and allocating effort to data collection does not reflect the relative size of the service sector in the economy.

Second, there is a pressing need for better data and measurement so that we can make informed policy choices. For example, there is an extensive literature on productivity in Canada (see Diewert et al.) and much concern that productivity growth in Canada has lagged behind that in the United States. We need to know what lies behind this trend if we are to improve it. Productivity can be affected by technological change, competition policy, the mix of skills of workers in the labour force, the importance of the public sector in providing services and many other factors. We do not have a good understanding of what has been driving productivity changes in the service sector, in part because we do not have good measures of prices and quantity in many service industries. Without such an understanding, we cannot identify the strengths and weaknesses of policy.

The need to make decisions on trade liberalization in services is another reason for better measurement. Without price indexes, it is difficult to study the effects of trade because it is difficult to measure the terms of trade effects and predict where Canada's comparative advantage lies. As well, data on services are much less comprehensive at a disaggregated level than for goods. Without disaggregated data, it is hard to develop a good understanding of exactly what the trade flows are and how they will be affected by changes in policy.

The need for policy reform in the context of technological change and globalization is another reason for good measurement. In the financial services sector, there is pressure on the government to allow more consolidation and mergers. To make informed choices, we need to understand the trade-offs between the cost saving and anticompetitive aspects of mergers. In telecommunications, there has been rapid technological change, some of which renders old regulatory approaches obsolete. Good measurement is needed to ensure that policies keep pace with change.

The interconnectedness of the economy underscores yet another need for good measurement. A large component of services is the business services sector. This means that the effects of policy reform

on industries such as telecommunications and insurance cannot be assessed simply by looking at the telecommunication and insurance industries. Rather, the effects must be traced through to other producers who use these services. That is, policy changes can have ripple effects throughout the economy because of the flow of services between firms. This sort of analysis requires a detailed understanding of the flows of service trade within the economy. We have a fairly good understanding of the flow of intermediate goods but relatively little understanding of the flow of services. Good measurement is essential for analysis of this issue.

A two-pronged approach is needed if we are to move forward on measurement. First, we need more fundamental research directed at improving and devising new measurement techniques. For example, we need better ways of measuring the quality of various types of services and better measures of the output in industries that manage risk, and so on. This is long-term research, for which the payoff is sometimes uncertain, but it is essential for progress in the area.

Second, there are immediate practical measures that could be undertaken, such as the introduction of new surveys or the modification of existing surveys that would collect new data. Efforts in this area would, at a minimum, redress the imbalance of effort in the collection of data on goods in relation to services. To begin, the best approach is probably to commission a study to identify where the potential payoff from better measurement is highest. That is, for what types of research questions and public policies would better measurement generate the greatest net benefits?

3. THEORETICAL ISSUES

A good set of data is essential to good empirical work, but it is not enough. A good theoretical underpinning also is required. Theory both guides and disciplines empirical work. Theory helps us to know what to look for in the data and identify the right questions to ask, and it is essential in developing an understanding of the forces at work.

Standard economic theory applies to goods and services, and so there is no need to develop a fundamental new framework to deal with services. However, there are two areas where there is relatively little theoretical work available to serve as a basis for analysis of some important policy issues.

First, there is relatively little analysis of how regulation, barriers to trade and competition policy interact with each other in markets where networks are important. Many types of services require a network, so that the benefits to consumers of the service depend on how many other consumers have access to the network. Examples are telephones, the Internet, financial services, and transportation and shipping services. These types of services involve positive externalities, and there are often fixed costs of setting up the network delivery system. Because of the externalities and potential for market power, governments typically play an important regulatory role. If each country has its own network or networks, then linkages and integration of networks become important policy issues. There is a growing literature that studies the economics of networks (see Katz and Shapiro, 1985 for one of the seminal works and Shy, 2001 for an overview), but the interaction between networks and different policy regimes in an international context needs much more attention.

Second, in many types of services, information issues are important. Insurance and medical services are two examples. Buyers of insurance have better information about the riskiness of their behaviour than sellers. Doctors have better information about the implications of different courses of treatment than their patients. These are both examples of asymmetric information. It is well known that asymmetric information leads to market failures. This has three implications. First, markets with important information asymmetries work differently than those without these problems. Second, the information problems themselves can create a demand for services specifically aimed at helping businesses or consumers overcome the information problems. And finally, information problems provide an important motive for government regulation.

Markets with asymmetric information have been the subject of extensive analysis in the applied economics literature over the past 20 years. There is still relatively little analysis, however, of the interaction between government regulation and barriers to trade in models with asymmetric information. This is an issue that is likely to become very important because of the GATS negotiations on service trade liberalization. Many trade barriers in services arise from differences in regulation of services across countries. And in many cases these regulations are in place to deal with information problems. Consequently, an analysis of the interaction between various types of regulation in models with multiple jurisdictions will be very important in understanding the implications of different strategies for service trade liberalization.

4. THE NEW ECONOMY

Changes in Industrial Structure

There is a widespread perception that the economy is being fundamentally transformed via globalization, new technologies and a shift to more knowledge-intensive activities; hence the term "new economy." Is this perception correct, and what is the role of services in the transformation?

Gera and Mang (1997) classify Canadian industries by knowledge intensity and conclude that Canada's industrial structure is indeed becoming more knowledge-based and technology-intensive. This is true of both goods and services. They view this as supportive of the view that a new economy is emerging. However, they find this to be a gradual process, with its roots in the past, rather than something new.

In fact, there was a much larger change between 1971 and 1981 than between 1981 and 1991. High-knowledge industries accounted for 12.8 percent of output in 1971, and rose to 17.2 percent by 1981. But by 1991, the high-knowledge share had increased only slightly to 18.3 percent. (Their data do not go beyond 1991). Medium-knowledge industries maintained an almost constant share of between 58 to 60 percent during the 20 years from 1971 to 1991. Although some variation within sectors is masked by this aggregate data, the overall impression is not one of a dramatic shift in industrial structure.

The Organisation for Economic Co-operation and Development (OECD), in a cross-country study (OECD 1992), found similar results for Canada, but a much more significant shift to knowledge-intensive industries for other countries. The report expressed some concern that Canada was lagging behind.

One useful research project would be to take another look at changes in industrial structure to determine whether the relative slowdown in the shift to knowledge-intensive industries continued throughout the 1990s. As well, the trends for Canada should be compared to the experience of other countries with similar income levels, and explanations for differences in changes across countries should be investigated.

Organizational Change

As well as changing the shares of different types of industries in overall output, reductions in communication and trading costs create opportunities for firms to change the way they organize their production. That is, changes are also occurring within industries. One of the major changes that has been documented in the United States is in the vertical structure of productions. Feenstra (1998) reviews evidence indicating an increase in "outsourcing," both domestically and globally. Activities which previously were carried out within vertically integrated firms in one location are increasingly contracted out to specialized firms. Bresnahan, Brynjolfsson and Hitt (2001) present evidence that advances in information technology have changed workplace organization, particularly in the service sector. More decentralized decision making and broader job responsibilities are complementary with the adoption of new information technology. They argue that this has important implications for the demand for skilled workers and wage distribution. Brynjolfsson and Hitt (2000) and Autor (2000) have reviewed studies that document the ways in which information technology has led to changes in workforce organization, increases in contracting out, and changes in supplier relationships and the distribution of production.

Empirical work on this process needs to be undertaken for Canada. Is the vertical structure of firms changing in Canada? Are new service industries arising from this process? For which sectors is this important? Are there differences between Canada and the United States? Does Canada's relatively small market and the continuing presence of border friction limit some of the efficiencies that can be obtained from increased contracting out? How is this process affecting the nature of work, income distribution and the role of unions, and related factors?

New Economy and Labour Markets

In the labour market, one of the new economy hypotheses is that there has been a shift to more skill-intensive occupations. This has been the subject of a large and, as yet, not fully resolved debate. The new economy hypothesis is, essentially, that there has been an outward shift in the demand for high-skilled workers. Murphy, Riddell and Romer (1998) find that the wage premium for educated workers in Canada was roughly constant between 1981 and 1994. However, as there was also an increase in the supply of educated workers, this is consistent with an outward demand shift. Gera, Gu and Lin (1999) also infer an increase in the demand for skilled workers during this period. They also find that it is almost entirely a within-industry phenomenon. That is, all industries are subject to skill-upgrading; the change in labour demand has not been driven by a change in the composition of industries. This is consistent with the relatively slow shifts in industrial structure found by Gera and Mang and noted above.

Another intriguing piece of labour market evidence comes from the work of Beaudry and Green (2000), who find that the entire age-earnings profile in Canada has shifted down over time. Regardless of their education level, young men now earn less than their older cohorts did when they were young. If this is correct and the trend continues, it will require explanation.

Although much of the emphasis in this literature is on how changes in technology affect the demand for labour, there is also a possibility that the skill set of workers in the economy affects both the structure of industry and the pace of innovation. That is, the supply of labour may determine the production pattern. Standard models of open economies (such as the Heckscher-Ohlin model) predict that differences in the supply of skilled labour across countries will not affect relative wages but will affect instead the mix of goods and services produced in the economy. That is, a shortage of skilled workers will not result in high wages for skilled workers in the long run, but will result in an economy that produces fewer skill-intensive goods and services. Some support for this view is found in Card (1990), who found that a large increase in the supply of labour in Miami had little effect on wages, and in Hanson and Slaughter (2002), who find that economies tend to adjust to changes in factor endowments via changes in the pattern of production. If this is an important adjustment mechanism, then it suggests that factors such as education and immigration policy can have a profound effect on the evolution of the economy. Consequently, as well as investigating how changes in technology have affected the demand for labour, it is also important to investigate how policies affecting the supply and skill attributes of labour have affected changes in the pattern of production.

Another major issue is how changes in information technology affect the nature and quality of work. How is the new communications technology affecting job attributes? Is there more telecommuting? Are there more independent contractors? What types of jobs and people are affected? Does telecommuting increase job satisfaction and happiness? Do net hours of work increase or decrease? Have the new telecommunications technologies increased worker productivity?

Finally, some models suggest that changes in technology could have a significant impact on income distribution. Rosen (1981), in a famous paper on the economics of superstars, explained how the most talented individuals could earn a huge premium over those who may be only slightly less talented. Frank and Cook (1995) and others have suggested that the increased tradeability of services and development of technologies such as the Internet may allow unusually talented individuals to dominate more markets. For example, rather than many professors each teaching a class of 100 students, one dynamic and talented professor could reach thousands of students with the aid of new technologies. Is there any evidence of these types of developments in the Canadian labour market?

Overall, we need to increase our understanding of how changes in information technology and the induced changes in the organization of firms are affecting the labour market, as well as how changes in labour supply are affecting the pattern of production.

Network Economies

As noted above, network externalities are of fundamental importance to services. In sectors as diverse as transportation, shipping, communications and banking, the efficiency, quality and value of the service provided depend on access to a network of other consumers or producers. This raises a number of issues in both competition and trade policy. For example, how do we reconcile the trade-off between the concentration of power in sectors such as banking and air travel, and the efficiencies that arise from having a large integrated network? How have the developments in information technology affected the operation of networks in different sectors of the economy? Are barriers to entry increasing or decreasing?

The issues involving network externalities are particularly important for Canada, as it is a relatively small market next to the very large U.S. market. The presence of the border means that networks are subject to different regulatory systems. How does the border affect the organization of networks? Do relatively small border frictions have large impacts on the organization and efficiency of networks? Are different networks affected differently? Given that many producer services (like transportation, communications and finance) are organized as networks, the presence of border-induced frictions in networks may have important spillover effects throughout the economy.

This suggests the need for careful studies of sectors of the economy where networks are important, such as telecommunications, financial markets and transportation. Cross-country comparisons of productivity, and pricing and quality of services should be undertaken. If there are differences between Canada and other countries, the role of policy differences, border frictions and other factors in determining outcomes should be investigated.

E-commerce

The development of e-commerce is still in its early stages, and it is not yet known how important it will become. It could have a variety of important effects on the economy. Traditional distribution networks may be altered. In some markets, it is now much easier for consumers to avoid middlemen and deal directly with producers. In other cases, Internet distributors may be able to reap scale economies and squeeze out local suppliers. As well, e-commerce may have an important role to play in matching specialized consumers and producers. Small, specialized suppliers that previously faced barriers to entry because of difficulties in gaining access to distribution networks may be able to use the Internet to gain access to specialized customers and carve out niche markets.

Research is needed to determine how e-commerce is changing distribution networks and how this varies across sectors, as well as the various factors that determine its market penetration. The role of public policy in affecting e-commerce also should be investigated. Are border frictions and tax issues impeding e-commerce? Are government policies that affect distribution networks impeding or stimulating e-commerce? Are there significant differences between the Canadian and U.S. experiences, and if so, can they be explained?

5. INTERNATIONAL TRADE AND INVESTMENT

What Drives Trade?

One of the key features of the new economy is the role of globalization. To address these issues we need a much better understanding of what drives trade and investment in services and how new technologies interact with globalization forces to determine outcomes in Canada. This will require both empirical and conceptual work.

There are several explanations for trade in services. One is that trade is based on comparative advantage. In this view, increased liberalization will lead countries to specialize more in the sectors where they have a comparative advantage. If this view is correct, it is important to know what sectors Canada has a comparative advantage or disadvantage in, as this will help to identify sectors where trade liberalization will provide a stimulus and those in which there will be adjustment problems. We also need to know which other countries also have a comparative advantage in the same sectors as Canada, as these countries will be competitors with Canada in foreign markets.

In this context, it is also important to understand the role of some types of services as intermediate inputs into production. Even if Canada has a comparative disadvantage in some important services, increased access to foreign services can enhance productivity in goods. We need a better understanding of these linkages and the way in which productivity changes in producer services have had an impact on productivity in goods as well as other services.

An alternative view is that trade is driven by product differentiation and a taste for variety. In this view, trade will create opportunities for firms to carve out their own market niche. Trade generates benefits for domestic service consumers by increasing the variety of services available to consumers, as well as generating cost reductions via economies of scale and increased competition. In this view, the adjustment costs associated with trade liberalization are likely to be lower than in the comparative advantage view. Trade liberalization creates both import and export opportunities within the same sector.

There are also other motives for trade arising from the different fundamental types of services discussed earlier. Gains from trade arise from access to larger networks. Examples are telephone, Internet, and shipping and transportation networks, where consumption benefits increase as the number of other consumers with access to the same network increases. Gains from trade may also arise from opportunities to diversify risks across countries; this is particularly important in the financial sector.

And finally, in some cases there may be strong incentives for agglomeration, or concentration of industry in a relatively small number of locations. Agglomeration itself is a source of trade, as those outside the “centre” must import services. In this case, increased openness to trade may lead to increased concentration of production. In any given sector, this concentration may or may not occur in our country. In this view, trade liberalization may lead to a significant delocation of some service industries. While this may lead to significant adjustment costs, it need not be harmful in the long run, if agglomeration yields production efficiencies or greater product variety, and if domestic consumers have reliable and low-cost access to services from the service centres.

It is very likely the motives for trade vary across different types of services. And the motives will interact with each other. We need to develop a better understanding of the forces driving trade in different

types of services and how they interact with the goods trade. There has been much work in attempting to explain patterns of trade in goods but relatively little in services. In part, this is because of data problems; but it also reflects the focus of the policy agenda. There is room for both industry-level and general equilibrium work here.

Interaction between Modes of Supply

Services differ from goods in that delivery must often rely on different modes of supply, beyond simple cross-border trade. Many services require direct contact between the customer and the client. The literature on the service trade has emphasized that there are four different ways (or modes) in which services can be traded: 1. In standard cross-border trade, a service provider in one country sells a service across the border to a customer in another country. 2. In the commercial presence mode, a service provider sets up a branch in a foreign country to service customers in that country. 3. For some types of services, the customer travels to the service provider. Foreign travel is an example of this mode. 4. The service provider temporarily travels to the customer's country to provide the service.

For some types of services, the different modes are substitutes. For example, a patient could come to a surgeon's country, or the surgeon could come to the patient's country. For other types of services, the different modes may be complementary. The efficiency of a foreign branch office may be enhanced if personnel can move between the domestic and foreign office or gain experience working in offices in several different markets.

The importance of these different modes of supply raises a number of important research issues. Access to domestic markets via different modes will have different efficiency effects depending, in part, on the degree to which different modes are substitutes or complements. As well, access via different modes can have different effects on income distribution. Different modes of supply are likely to be very different for different types of firms. Very large firms engage in direct foreign investment, but this option is unlikely to be viable for very small service firms with only a few employees. Small firms might rely instead on temporary movement of personnel to provide services to foreign clients.[2] This suggests that the modes of supply covered by trade agreements in services may have very different impacts on industrial structure. A liberalization strategy dominated by access via direct foreign investment may favour larger firms; and this also may have effects on innovation (if some innovation comes from smaller firms) as well as the long-run competitiveness of industries.

Consequently, it is important to know how the different modes interact and the degree to which they are substitutes or complements in different industries. At present, we know almost nothing about the interaction between the different modes. This will be a crucial issue in attempting to understand the impact of different proposals for service trade liberalization. It is highly likely that the interaction between the modes differs significantly across sectors, and some countries would benefit more than others from some modes of liberalization.

One approach to understanding the interaction between different modes of supply may be to undertake studies at the industry level within a single country. Investigating the way in which firms use different modes of supply across provinces within Canada or across states within the United States may be one way of gaining insight into how the different modes would interact in a liberalized international trading environment.

Direct Foreign Investment

Direct trade and direct foreign investment are the two most important modes of supply (Karsenty, 2000). Because of its importance, we need to develop a better understanding of the forces driving direct foreign investment in services in Canada. The study of direct foreign investment has been an active area of research recently, at both the conceptual and empirical level (see Markusen and Maskus, 2001) for a recent survey of general equilibrium approaches). As with trade, there are competing theories as to what drives foreign investment. In the *market access* view, foreign investment arises so that the service provider can have a facility close to customers. In this view, if services are differentiated products, one would expect to see a lot of direct foreign investment between similar countries and that it would be complementary to intraindustry trade in that sector. In the *comparative advantage* view, firms set up branch plants in other countries to take advantage of differences in factor prices across countries. We need to know what is driving direct foreign investment in the different parts of services in Canada and how changes in policy and technology are affecting these flows of investment.

As noted earlier, there have been some interesting trends in direct foreign investment in Canada over the past decade. Canada's share of inward direct foreign investment in North America declined from 21.3 percent to 13.6 percent from 1990 to 1998. As well, Globerman and Shapiro (forthcoming) find that the NAFTA and the Canada-U.S. Free Trade Agreement (FTA) have caused an increase in outward direct foreign investment by Canadians but have not generated an increase in foreign investment in Canada. This is despite the NAFTA provisions on investment. We need to understand what has caused these trends in investment.

There are a number of explicit barriers to direct foreign investment in services. An example of these is the restriction on foreign ownership in the financial and airline sectors. There are likely many other barriers to foreign investment that are less transparent. How big are these barriers and do they act as a deterrent? Or are there more fundamental economic forces at work?

Labour Mobility

In addition to direct foreign investment, the movement of service providers between countries is an important potential mode of delivering services between countries. There are provisions in the NAFTA for temporary movement of some types of workers across borders. As well, movement of workers occurs between Canada and non-NAFTA countries.

One of the issues in upcoming WTO negotiations on services is to what extent these provisions for temporary movement of service providers should be expanded. To help assess this, we need first to develop an understanding of what types of personnel are providing services across borders and how this movement interacts with cross-border trade and investment. The effects of such movement on local labour markets should also be investigated.

Next, empirical models should be used to assess the implications of an increase in labour mobility. Currently, some types of workers can move but others cannot. How significant is this as a barrier to trade and investment? What would be the effects of allowing more mobility? Who would gain, and who would lose?

Computable General Equilibrium Models

Computable general equilibrium (CGE) models are one of the major tools for understanding the general equilibrium effects of changes in the economy. Given that so many services provide intermediate inputs to other productive activity, a general equilibrium approach is crucial to understanding the full impact on the economy of changes in some of the service trade.

Many CGE models are based on similar approaches used in the study of the goods trade — they tend to use some combination of comparative advantage-based trade and differentiated products with imperfect competition. These types of models tend to predict small gains from service trade liberalization. Brown, Deardorff and Stern (1996) find that Canada's gross domestic product would rise by about 0.7 percent from a 25 percent reduction in service trade barriers; Chadha, Brown, Deardorff and Stern (2000) simulate the effects of a multilateral 33 percent reduction in service trade barriers and find that Canada's welfare measure rises by 2.8 percent; and Benjamin and Diao (2000) find welfare gains of 1.35 percent for Canada from multilateral service trade liberalization. These results tend to vary with the assumptions used, and the predicted gains tend to be rather small. But the qualitative results tend to be similar to those obtained from the study of goods trade liberalization using similar models.

There are only a few CGE studies that allow the supply of services via more than one mode, usually direct investment and trade. It is striking that two of the most recent examples of this approach have found qualitatively different results for service and goods trade liberalization. Dee and Hanslow (2000) find that while service trade liberalization raises overall world income, both Canada and United States, as well as some other countries, experience small welfare *losses* from service trade liberalization. Their model allows for the liberalization of restrictions on direct foreign investment and trade. Welfare losses for Canada appear to be driven primarily by terms of trade losses. Negative terms of trade effects for trade liberalization in Canada have appeared in previous studies, but they appear to be magnified by the endogenous foreign investment in the model. As well, trade barriers in the service sector are modelled as entry restrictions. These entry barriers create rents for countries which are important sources of foreign direct investment. Removal of these entry barriers eliminates these rents, and this appears to be one of the sources of loss that is important for the United States. Service trade liberalization also has adverse effects on capital accumulation in some countries, as capital is diverted to newly liberalized markets.

Brown and Stern (2000) incorporate an explicit treatment of direct foreign investment and adapt some of the production structure from Markusen, Rutherford and Tarr (2000), who focus on the role of differentiated producer services as intermediate inputs. Brown and Stern report six different simulations, each with various different assumptions on capital mobility or demand. Canada loses from a multilateral reduction in service trade barriers in each of these scenarios, with the changes in welfare ranging from −0.71 percent to −7.56 percent.[3] Countries such as Japan and Hong Kong experience large gains, while the United States gains in some scenarios but loses in others.

These studies also generate predictions about the effect of service trade liberalization on various sectors of the economy. However, it is clear that if they are to be useful for policy analysis, much work remains to be done, because the results of these studies are so much at variance. It is somewhat surprising that some of these studies also predict losses for the United States, given that some of the impetus for liberalization in this sector has come from there. It is also of some concern that they predict losses from standard economic channels — none of them addresses the issues relating to the conflict between domestic policy regulation and freer trade that concern many antiglobalization trade advocates.

These studies seem to be works in progress. We do not know what the general equilibrium effects of liberalization will be, and more work needs to be done. Work in this area suffers from a number of problems. The measurement problems discussed earlier are very important here — good cross-country disaggregated data sets and measures of barriers to trade in services are needed. Also, the models are only beginning to try to incorporate some of the complexities of the heterogeneity of market structures in various parts of the service sector (such as network externalities and multiple modes of supply). It is possible that we are asking too much of the CGE approach at this point in time. Efforts put into better data collection and micro-studies at the industry level would provide a useful foundation for future work on CGE models.

Some economists are skeptical of the value of large-scale CGE models for policy purposes. One way to investigate their usefulness might be to take advantage of the many CGE studies that predicted the effects of the Canada-U.S. FTA and the NAFTA, and compare their predictions with the actual experience of liberalization. Many of these models tended to focus on the goods trade. But an evaluation of their reliability in dealing with the somewhat more straightforward issues of the goods trade may give a good indication of the relative merits of a large-scale effort to develop better treatment for the service trade.

What is Driving Trends in the Service Trade?

So far, we have discussed issues of modelling and data, in an attempt to increase our understanding of the fundamental forces generated by freer trade and investment. In the end, however, such work will give us better tools, which can be used to interpret what is happening in the world. A key research question remains: What has been driving observed trends in trade, employment and investment in services?

There are four principal explanations for the growth in service trade and investment: technological change, changes in trade policy, changes in domestic policy ("deregulation") and more mundane demand and supply effects, such as increases in the demand for services due to increases in real income or the average education level. It is likely that different explanations are more relevant in some sectors than others. As well, there are likely important general equilibrium effects: for example, trade liberalization in goods can increase the demand for services to facilitate such trade.

It would be very useful to be able to identify the importance of these different factors in explaining service trade and investment trends. In the absence of solid evidence on the size of trade barriers, an understanding of the relative importance of policy changes in affecting the service trade could be a useful guide to whether or not we should place more emphasis on policy reform and which types of policies we should target.

This type of work is best done at a sectoral level, with some allowances for linkages across sectors. There are a number of studies available that investigate the effects of deregulation on services. As well, an interesting study by Fink, Mattoo and Neagu (2002) on maritime shipping seeks to isolate the role of private non-competitive practices arising from exemptions from competition policy in explaining the pricing structure in that sector. Studies of this type, addressing other service sectors, would be illuminating.

Endogenous Policy Changes

It is quite striking that much of the liberalization in the service trade, particularly in direct foreign investment, has occurred despite the relative lack of attention accorded to services in the past under the General Agreement on Tariffs and Trade (GATT). It would be useful to exploit some of the more recent work in political economy to try to understand what has driven policy changes in the service sectors. We can think of demand and supply. On the demand side, technological change, liberalization of the goods trade, increases in income and other factors could lead to increased pressure on governments to change regulations unilaterally to allow increased access to foreign supplied services. On the supply side, changes in the balance of political power could weaken the hands of protectionists and lead to more liberalization. Again, we would expect different types of changes in different sectors, depending on market structure and whether the services are primarily targetted to producers or final consumers.

An understanding of this process would be useful because it can help generate a better understanding of the benefits and costs of binding rules versus reliance on internal political processes and ad hoc agreements between governments outside the WTO process. Many in the trade policy community argue that it is important that the WTO process bind existing liberalization to ensure that governments do not succumb to the temptation to re-erect protectionist barriers. However, liberalization in some service sectors is not without cost — a new level of international bureaucracy is needed to police agreements, firms may have the right to sue if they do not obtain benefits they expect and domestic policy flexibility is reduced. These costs must be compared with the benefits. And it is difficult to understand the benefits fully without an understanding of what would happen in the absence of an agreement.

Regulation

One of the major differences between liberalization of trade in services and in goods is that barriers to trade in services are difficult to measure, identify and separate from legitimate domestic regulatory practice. Rarely do trade restrictions in services take the form of taxes on cross-border trade. Rather, there are quantitative restrictions on market access that target either the buyer or the seller and regulatory practices that increase the costs of dealing across borders. Many of these regulatory practices also raise the costs of purely domestic transactions as well, and so we have no clear understanding of the levels of trade barriers affecting many services.

Regulation relevant to international trade is also more complex. In the case of the goods trade, much of the complexity arising from regulatory differences can be avoided by distinguishing between process and product standards. A process standard affects the way a good is produced (such as an emissions standard for pulp mills). A product standard affects the characteristics of the product once it is in the hands of consumers (such as an emissions standard for automobiles). Trade agreements such as the GATT and the NAFTA tend to allow countries to impose whatever (reasonable) product standards they want, provided a national treatment principle was applied — the standard imposed on foreign products should be no more stringent than that on domestic products. Countries are not allowed, however, to apply process standards on goods imported from other countries. That is, Canada cannot make its imports of foreign paper contingent on the emission intensity of the plants producing the paper in the foreign country. This system does not fully eliminate protection, because even uniformly applied standards can discriminate effectively. But it is a useful compromise in allowing countries autonomy over their own regulatory policy, while at the same time going a long way toward allowing a free flow of goods.

Such a distinction is not possible for most services. The reason is that services are in fact a process, rather than a product. If I contract with a foreign provider for a service, such as heart surgery or insurance, it is difficult to regulate the final product without regulating the process. We regulate the qualifications of the heart surgeon and perhaps the conditions under which the surgery occurs. Similarly, insurance companies are regulated to make sure they are solvent and in an attempt to deal with market failures arising from asymmetric information.

This means that if countries want to regulate services, they are typically forced to regulate the process rather than the product. The product/process standard distinction used in the goods trade is not applicable here. This significantly complicates the liberalization problem. Even if some form of national treatment principle is agreed to, countries may be able to subvert the intent of the liberalization by manipulating the rules on process in such a way that they have the effect of favouring domestic suppliers.

Several different types of policy responses have been used to deal with these regulatory issues. The *national treatment* rule was discussed above and is one of the cornerstones of the WTO. However, national treatment does not always guarantee market access, and regulations are not immune to manipulation. In the goods trade, the beef hormone case is a good example of this. Banning beef from cattle treated with growth hormones satisfies national treatment but denies market access and may favour local producers, if they have not adopted this technology. Another approach is *mutual recognition*, where each country agrees to recognize the other's regulatory approval process. For example, tourists with a valid Canadian driver's licence can drive legally in the United States without having to obtain a U.S. licence. Under this regime, each country can have different rules, but each agrees to accept services from foreign residents who meet foreign standards. *Harmonization* is a third alternative, where countries agree on common standards and mutually enforce them. The advantage of this approach is that the rules are negotiated, and this reduces the possibility of strategic manipulation (although strategic interaction will occur at the negotiation stage). The disadvantage of this approach, is that it is more rigid — it reduces the flexibility countries might have to adjust standards to reflect technological or other changes.

Much work needs to be done in this area. We need to know some basic facts, such as how differences in standards affect trade, labour mobility and direct foreign investment. Are different standards across countries a significant barrier? What characteristics of the economic activity make it more or less likely that heterogeneity in standards inhibits economic interaction? It would be particularly useful if this research was directed at services, perhaps drawing on trade, investment and labour mobility between different jurisdictions within a single country (because of data availability). But there is also relatively little known about the effects of different standards on the goods trade. Moenius (1999) is a very useful beginning for this type of work.

We need to know, as well, how the different regulatory approaches (national treatment, mutual recognition, harmonization) have worked in different circumstances. Is the regulatory objective achieved? Is the regime successful in ensuring the smooth function of trade and investment? What are the costs of the regulatory process? The characteristics of the market, the motive for regulation and other factors will play a role in determining the outcome and the desirability of different regimes.

We also need to isolate the trade-restricting aspects of regulations from their legitimate regulatory functions. Regulation in services arises primarily from five sources: 1) externalities, 2) asymmetric information, 3) market power, 4) social justice and equity concerns and 5) the need to protect incumbent business interests within the relevant sector. In many cases, one of the first four may have led originally

to the introduction of regulation, but in some cases, an important aspect of the regulation is simply to protect incumbents. Disentangling the effects of regulation would help not only to provide better estimates of trade barriers but also to identify cases where unilateral regulatory reform could enhance productivity in services. One example of this is in passenger air travel. Do restrictions on foreign investment and competition on domestic flights serve a useful domestic policy objective or do they just protect incumbents? Are there better ways to achieve the policy objectives?

Finally, we need to develop better estimates of service trade barriers and determine how costly they are in inhibiting trade.[4] This has to be done in the context of a model where firms have different means of serving foreign markets. If trade is restricted, but direct foreign investment is allowed, the cost of the trade barrier may be mitigated.

6. IS THE IMPORTANCE OF DISTANCE DECREASING?

A common view of the new economy is that reductions in the costs of transportation and communications, combined with changes in government policy, are leading to a "death of distance." That is, the world economy is becoming more integrated, and individuals and firms can reap the benefits and feel the pressures of global competition. Moreover, if distance diminishes in economic importance, then we might also expect wages and other prices to converge, as predicted by the factor price equalization theorems of international trade.[5]

This view has two components: first, the stylized fact that the economic importance of distance is being reduced dramatically; and second, an hypothesis about the effects of this change on the economy. It is not at all clear if either component of this view is correct, so this is an important area for research.

There is considerable evidence that distance continues to matter a great deal for economic interaction both within and across countries.[6] Redding and Venables (2000) find that distance from economic centres has a large and significant effect on real wages — countries in the global periphery suffer a large wage penalty just because they are far from economic centres. Distance also has a significant effect on the dissemination of research results, as indicated by patent data (Keller, 2002). This indicates that the flow of knowledge, as well as goods, is still affected by distance.

Another set of studies, stimulated by the McCallum (1995) paper on the importance of border effects, also has found that international borders continue to have a large influence on trade in goods, despite relatively low taxes on trade. Helliwell (1999, 2000) gives evidence that this also holds for services (where border effects are much larger) and capital flows. Given the experience with the goods trade, this work suggests that even if there were a concerted effort to liberalize the service trade, borders would continue to play an important role in affecting trade patterns.

This is still an area of active research. Some, such as Anderson and van Wincoop (2000), have questioned the methodology and argue that when measured properly, the border effects may actually be much smaller. Others have begun to try to explain the role of distance and borders in inhibiting trade.

Hummels (1999) argues that transportation costs did fall early in the last century but have levelled off in real terms more recently. Transportation costs are just one component of trading costs, but this work suggests that for the goods trade, they cannot be ignored and continue to play a role in affecting trade and incomes. In services, the measure of trading costs is more difficult. The costs of travel and communications are much more important than transportation costs. Communications costs have fallen quite rapidly during the past decades. In some cases, the Internet has pushed the cost of transmitting some services to near zero. Large amounts of information now can be instantly and almost costlessly moved between locations. In this sense, if transportation costs are the main source of distance effects on trade and wages, we can expect that in some service sectors, distance effects may indeed be eliminated with globalization.

Even if transportation costs fall, however, this need not imply that distance does not matter. If we accept that trading costs are falling but not being eliminated, the relevant question is whether a decrease in transportation and communication costs leads to a decline in the importance of distance in affecting things such as income differentials, access to product variety, etc. The "new economic geography" suggests that this need not be the case. Krugman and Venables (1995) present a model where countries are identical when transportation costs are high. Consumers and firms benefit from access to a variety of differentiated goods or services; for firms, there is a tension between the benefits of locating close to suppliers and being close to customers. When transportation costs start to fall, the benefits of being close

to suppliers of intermediate goods and services win out, and the world spontaneously reorganizes into a core and periphery. Those in the core have higher levels of well-being than those in the periphery. If this view is correct, then it suggests that reductions in the costs of trading services via trade liberalization and technological changes need not necessarily lead to a convergence of wages but could instead exacerbate differences, as the payoff to locating in the core may well increase.

Other work lends some support to this view. Glaeser and Kahn (2001) note that service industries tend to be concentrated in urban cores. It is striking that in the United States, the ten most centralized industries (including business services, commercial banks, medical services, eating and drinking establishments) are all in the service sector. Conversely, nine of the ten least centralized industries (including pipelines, chemicals and fertilizers, minerals, iron ore, etc.) are outside the service sector (Glaeser and Kahn, Table 3). Industries in which workers are more skilled and use computers are also more likely to locate in a city centre. This suggests that services have a strong tendency to agglomerate, and reductions in transportation and communications costs will not necessarily lead to decentralization and convergence of incomes.

Gaspar and Glaeser (1998) confront this issue directly by asking whether we should expect new information technologies to reduce the need for face-to-face contact and therefore lead to more decentralization. They develop a simple model in which communications technology may be either a substitute or a complement for face-to-face contact. In their model, improvements in communications lead to more initiated contacts between business people. However, increased contacts also increase the demand for face-to-face contact, because of its higher intensity and productivity. In support of the complementarity between telecommunications and face-to-face contact, they point to evidence from Japan and the United States that the coefficient of a regression of telephone calls on distance is strongly negative. People who live and work close together phone each other much more than people who live and work far apart. As well, there is some evidence that business travel increases during a time of falling communications costs.

This work suggests that the effects of trade liberalization and technical changes affecting services may be quite complex. We do not have a clear understanding yet of the effect that falling transportation and communications costs have on the agglomeration tendencies of different types of services. In one view, low communications costs mean that firms from all over the world could carve out a niche and provide a service. The development of the software industry in India is an example of this. Here, globalization presents opportunities for both producers and consumers. New opportunities are created and people can work in the industry without having to relocate to the core. What other types of industries fit this profile? What are the characteristics of industries like this?

Another view is that reductions in trading costs will lead to further agglomeration or possibly the development of a small number of new centres in emerging markets. This is consistent with the evidence on the importance of cities and the benefits of face-to-face contact. In this view, productivity is enhanced by agglomeration, and reductions in communications costs make it easier to deliver services from far away, and so liberalization leads to further agglomeration. In service industries like this, producers in the core will gain as further agglomeration occurs. Producers outside the core will lose as they become less competitive with the expanding core. Consumers of services (including producers in other industries) will gain in the core and may or may not gain in the periphery — the fall in trade barriers and/or communications costs means that services are traded at lower cost, but if services have migrated to the core, the lower trading costs have to be balanced against the increased distance over which they have to be transmitted and the loss of the benefits of face-to-face contact. In the Krugman-Venables framework, trade liberalization that generates increased agglomeration does not guarantee gains to all countries. We need to know what types of industries fit this profile, and if this is a relevant scenario, we need to know

whether Canada is part of the core or the periphery. That is, if trade liberalization leads to the increased centralization of certain types of services in the United States, Canada's position may be in the periphery, according to these models.

Although cross-country data in this area are not always readily available, much can be learned about the spatial organization of service industries by looking at trade within a single country, such as Canada or the United States. By studying the effects of cost changes in travel and communications on the tendency for agglomeration within a country, we may be able to gain some insight into how declines in trade barriers affect agglomeration tendencies across countries.

7. GLOBALIZATION AND LABOUR MARKETS

The effect of globalization on earnings has been the subject of much research in the last decade. Nevertheless, we still do not have a clear understanding of how globalization is affecting the distribution of earnings. Gaston and Trefler (1997) found that the Canada-U.S. FTA had no measurable effect on wages. Townsend (2001) uses micro-data and finds evidence that workers in high-tariff sectors did appear to experience a drop in wages when the tariffs were eliminated. More work using micro-data is made to investigate how increased trade and investment in services will affect the distribution of earnings.

Theory suggests that liberalizing rules on trade and investment may have very different effects on wages. If a foreign firm services the local market via direct foreign investment, the demand for labour in the relevant sector will increase, putting upward pressure on the relevant returns to human capital. However, if local customers are serviced via trade or foreign personnel, domestic service providers face increased competition from foreigners and there may be downward pressure on wages. Is there any evidence for this? If so, public policy decisions about the allowable modes of service delivery by foreigners may have implications for income distribution.

The work on labour markets also needs to be informed by the work on agglomeration discussed above. If globalization and technical changes lead to increasing agglomeration, there may be increased incentives for a “brain drain” as skilled workers move to the centres of economic activity. If, however, globalization leads to more decentralization, freer trade may increase opportunities for those who stay at home.

Micro-data from the labour market may prove fruitful in investigating whether the effects of distance on wages has been changing with the development of new technologies and increased trade. Redding and Venables found that distance from centres of economic activity leads to lower wages. Is there such a relationship within Canada, and if so, how has it been changing over time and why?

8. INFRASTRUCTURE AND CITIES

One of the themes of the research on agglomeration discussed above is the importance of cities to the service industries. This suggests that some research should be directed towards the role that cities will play in the adjustment to the new economy.

How have Canadian cities been changing in response to changes in information technology and globalization? Do some cities have comparative advantages in certain service industries, and if so, why? Are there signs of change in agglomeration patterns as a result of changes in technology or trade?

If agglomeration is important in some sectors, we must understand the characteristics that make cities successful as "centres" for various types of service activities. Do investments in infrastructure matter, and if so, what types? Are other policies, such as subsidies, important? The emergence of the film industry in Vancouver is one example of a service industry that appears to have some agglomeration tendencies. What was the role of public policy in facilitating this development?

The effects of globalization and the new technologies may create very different types of benefits and opportunities for those in larger and smaller cities. Is there evidence that large and small cities are affected differently? Are the appropriate types of infrastructure investments different for large and small cities?

9. STRATEGIES FOR LIBERALIZATION

In the context of goods trade liberalization, there was a clear focal point — complete tariff and quota elimination. There were some exceptions, and non-tariff barriers create significant complications, but the main issue was the pace at which this target of zero tariffs and no quotas was approached.

Things are not so clear in the case of services. This is partly because of the importance of the different modes of supply, but the most significant complicating factor is the interaction between domestic regulation and barriers to trade. Because of these complications, liberalization in the service trade is likely to proceed in a much more piecemeal fashion than in the goods trade. There is no obvious analogy to an across-the-board reduction in tariffs, and there is no simple way to convert barriers to service trade into tariff equivalents.

If service trade liberalization occurs piecemeal, with coverage extending to some sectors but not others, governments will have to decide which sectors to include and which to exclude. What criteria should be used to make these determinations? It is well-known that piecemeal reform does not always improve welfare and may indeed lower it. What are the potential side effects of liberalizing some sectors and not others?

One way of expanding trade is to coordinate regulatory strategies across countries, because differences in regulation restrict trade, investment and the movement of people. This is something that is likely much easier to achieve on a regional rather than a global basis. That is, some types of service trade and investment liberalization might be achieved best through the NAFTA rather than the WTO. Can we say anything systematic about this?

Finally, some types of services may be excluded from liberalization altogether. In Canada, services such as health and education are provided primarily through the public sector. As Helliwell (2000) points out, these and other types of public services contribute to what is loosely called “social capital,” and there are studies which suggest that social capital has an important influence on happiness — people are willing to trade reductions in income for more social capital. This suggests that careful consideration has to be given to the rules under which service trade is liberalized and their implications beyond simple income effects.

10. CONCLUSION

This paper is intended to identify a number of priorities for research into the implications of technological changes and globalization and their interaction with the service trade.

There are two ways to think of organizing research on services. One approach is implicit in much of what is discussed in this paper: that is, to consider broad issues that have implications across many different service sectors. Issues of organizational change, network externalities and labour market changes are examples of this.

A second approach is to identify and focus on a few key sectors and study them in depth. Examples might include health, banking, transportation, communications and higher education. Several issues are best studied at the sectoral level. Government regulation plays a major role in many services, and in many cases governments are major providers of services. An assessment of the cost-effectiveness and efficacy of regulations in light of new information technologies is best carried out at the sectoral level. As well, many of the measurement issues are best addressed at a sectoral level.

There is a need, however, for both sectoral and issue-oriented studies. Issues such as e-commerce, labour markets, and trade and investment have broad, cross-sectoral implications and, therefore, are suited naturally to issue-oriented studies. But these should be supplemented with sectoral studies focussing on the issues of regulation, policy, measurement and other factors that are subject to a great deal of heterogeneity across sectors.

The principal recommendations for research may be summarized as follows:

1. Update the analyses of structural change in the labour market and the industrial structure in Canada. Is there a shift to a knowledge-based economy? How does Canada's experience compare with that of other countries, and can we explain any differences?

2. Develop a two-pronged strategy to address the fundamental data and measure needs in services. Fundamental research directed at developing new measurement techniques is needed. Also, the imbalance between goods and services in resources allocated to data collection must be addressed. A study should be commissioned to identify priorities for improvement in data collection in specific sectors.

3. Develop new analytical models of the service trade in the context of international trade and investment, taking into account the specific attributes of different types of services (such as networks and information asymmetries).

4. Undertake empirical work to investigate the effects of the development of new information technologies on organizational change in Canadian firms. Is there a trend toward more contracting out? Are firms becoming less hierarchical? If so, in which sectors? Is the Canadian experience different from that of the United States?

5. How are network economies changing in response to new technologies and globalization? What role do border frictions play in the efficiency of networks in Canada? Are barriers to entry increasing or decreasing? How are policies affecting network economies?

6. How is e-commerce changing distribution networks? How is it affecting product variety and price dispersion? What is the role of public policy in affecting e-commerce? Are border frictions impeding the development of e-commerce? Are the Canadian and United States experiences different, and if so, why?

7. Undertake sectoral studies to focus on issues of regulation and the role of public versus private provision of services in the context of new technologies.

8. Study the forces driving trade in services and their interaction with the goods trade. What determines the pattern of trade for different types of services?

9. In what types of services does Canada have a comparative advantage? Where are the export markets for these services? What countries are competitors?

10. Study the interaction between different modes of supply for services. Are the different modes substitutes or complements, and how does this vary across sectors? Do different-sized firms systematically favour one mode over another? Consider studies at the industry level within a single country that has multiple jurisdictions.

11. What drives direct foreign investment in services? What are the barriers to direct foreign investment in services in Canada, and how important are they in deterring investment? What explains the decline in Canada's share of North American inward direct investment?

12. What types of workers are now temporarily crossing borders to provide services? Do current restrictions act as a barrier to trade and investment, and if so, how significant is this? What would be the implications of allowing more labour mobility across borders?

13. Can new CGE models be developed that capture more of the richness of the market for services? Have previous CGE models been reliable in predicting the effects of goods trade liberalization?

14. What is driving trends in the service trade and investment? How important are technical change, and trade and competition policy changes, as well as other factors, such as income growth? Studies should be carried out at the sectoral level where possible.

15. Can empirical political economy models explain endogenous policy changes, especially toward direct foreign investment?

16. How important are differences in standards and regulations in deterring trade in services? What characteristics of the economic activity make it more or less likely that heterogeneity in standards inhibits economic interaction?

17. How have the different regulatory approaches (national treatment, mutual recognition, harmonization) worked in different circumstances? Was the regulatory objective achieved? Was the regime successful in ensuring the smooth function of trade and investment? What were the costs of the regulatory process?

18. In specific service sectors, can we isolate the trade-restricting aspects of regulations from their legitimate regulatory functions?

19. Can we develop estimates of the size and effectiveness of barriers to trade in the service sector?

20. What are the effects of falling transportation and communications costs and trade liberalization on the agglomeration tendencies of different types of services? What types of industries are likely to become more dispersed? What types will agglomerate? A fruitful way to approach this issue would be to look at trade within a single country, such as Canada or the United States.

21. How have Canadian cities been changing in response to changes in information technology and globalization? Do some cities have comparative advantages in certain service industries, and if so, why? Do investments in infrastructure of cities matter, and if so, what types? Are other policies, such as subsidies, important? The effects of globalization and the new technologies may create very different types of benefits and opportunities for those in larger and smaller cities. Is there evidence that large and small cities are affected differently? Are the appropriate types of infrastructure investment different for large and small cities?

22. How are new information technologies changing job attributes? Is there more telecommuting, and who is taking advantage of it? Are new technologies affecting hours of work and job satisfaction? Are they changing the structure of the employment relationship — are there more independent contractors?

23. What are the implications of service trade and investment liberalization and new technologies on wages?

24. How are wages in Canada affected by distance from economic centres, and is this relationship changing because of new technologies or globalization?

25. Strategies for liberalization should be investigated. Are some services better dealt with under regional trade agreements than under the WTO? What are the implications of piecemeal liberalization? What criteria should be used to decide which service sectors to liberalize via trade agreements and which to exclude?

NOTES

1 Remarks at Industry Canada's Expert Roundtable on the New Economy and Services, February 26, 2002.

2 This was a point emphasized by Dorothy Riddle at the Expert Roundtable on the New Economy and Services.

3 In his presentation at the Expert Roundtable on the New Economy and Services, Stern indicated that some more recent simulations have suggested gains for Canada.

4 For reviews of the literature on measuring barriers to trade in services, see Chen and Schembri (2002) and OECD (2000).

5 See Autor (2000) for a discussion of this view.

6 See Venables (2001) for an interesting review.

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