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CONSUMPTION TAXATION IN A DIGITAL WORLD: A PRIMER

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Consumption Taxation in a Digital World: A Primer*

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Abstract

The paper reviews the economic and administrative issues that arise in the taxation of electronic commerce; addresses how best to meet the criteria of an ideal tax system; and examines recent policy developments. It is argued that destination-based taxation—as is presently the norm for goods taxation—is technically more complex for digital products and intangible services sold over the Internet, reflecting the difficulty of determining the location of the buyer and seller. Most of the potential solutions to this problem require a great deal of administrative cooperation between national tax authorities. Case studies of several countries show that policy responses to electronic commerce have differed, with the European Union taking the lead on implementing a system of destination-based registration.

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1 Introduction

Most consumption taxes in use around the world were designed at a time when local merchants mainly sold manufactured products to consumers who lived nearby. Today, rapid advances in network technology and declining transaction costs to consumers have led to an explosive growth in Internet commerce. In the United States, for example, Internet sales are estimated to grow on average by almost 70 percent a year between 1999 and 2004.¹ The Internet potentially enables a consumer to buy virtually any product from any seller anywhere in the

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¹Estimated by Forrester Research. See Goolsbee and Zittrain (1999) for further details.

world. This cross-border electronic commerce² makes it difficult for revenue administrators to tax consumer goods and services and leads to the erosion of consumption-tax revenue.

The debate on the taxation of electronic commerce was initially focused on the sale of tangible products to businesses and consumers; these transactions still account for the largest percentage of Internet sales. The sale of a tangible product does not raise any fundamental taxation issues, because the proper destination-based consumption tax can be levied once the consignment passes through customs. However, if both the product and payment method are digitized, for example, downloaded software paid for with electronic cash,³ complicated enforcement issues arise because the origin and the destination of the transactions are obscured.

Can digitized transactions be taxed? Should they be taxed? To answer these questions, it is necessary to weight the efficiency and revenue gains from taxes on digitized transactions against the compliance costs to consumers and the administrative costs to tax authorities. This paper reviews: (i) the economic and administrative issues involved in taxing electronic commerce; (ii) how best to tax electronic transactions to meet the criteria of a good tax system, such as efficiency, administrative simplicity, and a fair sharing of the tax base; (iii) tax-collection proposals, ranging from the traditional vendor collection method to models employing third parties;⁴ and (iv) recent policy developments in the European Union, the United States, and Canada.

The remainder of the paper is organized as follows. Section 2 studies the nature of electronic commerce and discusses the challenges that electronic commerce poses to tax administrators who rely upon traditional taxation principles. Section 3 discusses the pros and cons of the taxation of electronic commerce. Section 4 deals with models to tax electronic commerce, ranging from the traditional vendor collection model to new approaches employing third parties. Section 5 outlines recent policy developments in the taxation of electronic commerce in the European Union, the United States, and Canada. Section 6 concludes.

2 The Nature of Electronic Commerce

This section studies how traditional commerce and electronic commerce differ. For purposes of discussion, electronic commerce is broken down into transactions in tangibles and transactions in intangibles. First, common practices in the assignment of jurisdictional taxation rights in

²In the rest of the paper electronic commerce is narrowly defined to mean sales of goods and services across boundaries both domestic and international. Conventional definitions of electronic commerce typically cover all sales over the Internet (including local transactions), with or without online payment (OECD, 2001a).

³Electronic cash is defined as various self-authenticating digital payment systems other than conventional credit cards.

⁴Initially, most of the discussion about the taxation of electronic commerce took place in the political arena; recently, however, academics have participated in the debate and developed a number of proposals and models.

traditional commerce are reviewed. A distinction is drawn between interjurisdictional sales within a federation and cross-border sales between sovereign states.

2.1 Traditional Cross-Border Commerce

With respect to the taxation of trade in goods among sovereign nations, a distinction can be drawn between the destination principle and the origin principle of taxation. Under the destination principle, exports are exempt from consumption tax—for example, a value-added tax (VAT) or a sales tax—and are subsequently taxed at the rate levied by the importing country, resulting in taxation at the place of consumption.⁵ Tax revenue accrues to the country, in which the final sale occurs. In a world of perfect competition, the destination principle implies that all firms receive the same tax-exclusive price from selling in any location irrespective of their country of residence. This leads to production efficiency in the sense of Diamond and Mirrlees (1971) because producers equate their marginal costs to a common producer price. The destination principle is considered to generate a fair distribution of the tax burden: the private consumption base is viewed as a much better proxy for the benefits of public goods than other tax bases, such as production.

Under the origin principle, consumption tax is collected at source—that is, at the place where the goods are produced or exported. Imported commodities are exempted to avoid double taxation. The origin principle implies that consumer prices (or tax-inclusive prices), adjusted for transportation costs, are equated across countries. Origin-based taxation induces firms to locate in low-tax countries, which it is feared will give rise to a “race to the bottom” in taxes, undermining countries’ ability to raise revenue. The OECD (1998) speaks of “harmful tax competition.” Some authors, among others, Wilson (1999), have challenged this notion; tax competition may also have the beneficial effect of reducing a country’s incentives to expand an already inefficiently large government. Moreover, tax competition may induce government officials to offer public-good packages that are more in line with the preferences of voters.⁶

Destination-based taxation is the international norm and is supported by the OECD, the European Union, and the World Trade Organization (WTO). The origin principle is rarely applied in practice to trade, except for trade among the former members of the Soviet Union. Theoretically, as Lockwood (2001) argues, the case for preferring destination-based taxation over origin-based taxation on efficiency grounds is strong but not absolute. Only under two very restrictive assumptions—which typically are not met in practice—are the two principles equal. First, within each country the consumption tax rate should be the same for all commodities, although that uniform rate may differ across countries. Uniformity implies that relative producer prices are equated to relative consumer prices in each country; thus, equating one set of relative prices across countries—for example, relative producer prices

⁵To ensure that only final consumption is taxed, tax levied at previous stages of production and distribution must be fully credited against output tax.

⁶See Wilson (1999) and Wildasin and Wilson (2004) for an overview of theories of tax competition.

under the destination principle—would also equate the other. Second, bilateral goods trade between countries should be balanced (Whalley, 1979), so that a change from taxing imports to taxing exports would not have a significant effect on revenue.

2.2 Traditional Commerce Within a Federation

How is the destination principle implemented in a federal system like that of the United States? The states have no physical borders, so the necessary border adjustments to tax cannot be made to tax at the place of consumption. This problem is partly solved by legally requiring the buyer to pay a so-called use tax on out-of-state purchases—allowing for a credit for any retail sales tax⁷ possibly paid—to the buyer’s state of residence. Such a system of “reverse charging” or self-assessment would be feasible for easily traced business-to-business sales,⁸ but it is more cumbersome to apply in the case of business-to-consumer sales. It amounts to a tax on honesty. Indeed, consumers’ compliance with use taxes is extremely low, unless they are required to register durable goods, such as cars or boats.⁹ Accordingly, traditional interjurisdictional sales to consumers are typically taxed on an origin basis.

A natural solution to the compliance problem in business-to-consumer sales is to involve remote vendors (that is, those located outside the taxing jurisdiction) in the collecting and remitting of use taxes on big-ticket items. In the United States, however, the Supreme Court in 1967¹⁰ and 1992¹¹ held that mail-order suppliers are not required to collect and remit use taxes on out-of-state sales unless the enterprise has a “nexus” within the state’s borders. A nexus exists when the supplier has a physical presence in the state in the form of a store, warehouse, or stationed personnel. The rationale is that without a nexus, it would be hard to impose tax; with approximately 7,600 jurisdictions involved¹²—each employing different tax rates and differing definitions of the tax base—it would be administratively costly for mail-order merchants to collect and remit use taxes for which they would typically receive no compensation.¹³

⁷Forty-five US states and the District of Columbia levy a single-stage sales tax at the retail level. European countries, however, levy a VAT, which applies tax in principle to all levels of the production-distribution chain up to and including the retail stage.

⁸Under both sales tax systems and VAT systems, business-to-business sales are subject to periodic compliance review, unlike most business-to-consumer sales. In a VAT system, businesses would have a clear incentive to comply because they have to report their VAT liabilities on sales in order to secure VAT refunds on inputs purchased.

⁹See Murray (1997) on voluntary compliance with use taxes in the United States.

¹⁰National Bellas Hess Corporation versus the Department of Revenue for the State of Illinois.

¹¹Quill Corporation versus the State of North Dakota. Quill, which involved a major mail-order house, is discussed in Hellerstein (1992). The US Congress could enact legislation to overrule Quill without requiring a change in the constitution; see Hellerstein (1997).

¹²Included are 45 states plus the District of Columbia and many local governments that impose their own sales taxes. Typically, the local sales tax bases follow roughly the outlines of the state tax bases, particularly in states that administer the local sales taxes.

¹³Cline and Neubig (1999) produce estimates of compliance costs ranging from 1 percent of tax revenue for

In a customs union like the European Union, a remote seller of a member state has a nexus if it has a substantially large economic presence that can affect local businesses.¹⁴ The European Commission has set a VAT registration threshold of euro 100,000 a year for distance sales of tangible products to consumers and unregistered traders within the European Union;¹⁵ thus, very small mail-order firms do not have to register for and pay VAT. If sales exceed the threshold, remote EU vendors must register in the EU member state where the customer is located and collect the VAT of that state, in keeping with a true destination-based system. This registration system does not apply to tangible services, which are taxed on an origin basis. Sales between registered traders in the European Union are based on a reverse charging system, in which exports are zero-rated¹⁶ and purchasers are expected to self-assess the tax of the destination member state. Thus, remote vendors must be able to differentiate between sales to registered traders and sales to others. The VAT Information Exchange System (VIES) was set up to enable companies to easily confirm the validity of VAT registration numbers and to allow tax administrators to monitor and control the flow of intra-EU trade.¹⁷

2.3 Electronic Commerce in Tangibles

Via the Internet, a purchaser can buy tangible goods (CDs, computer equipment, clothing, etcetera)¹⁸ from virtually any online seller in the world, thereby reducing a firm's fixed costs of entering new markets. Some authors, for example, Li (2003), claim that electronic commerce has substantially reduced physical trade distances between countries. The Internet may have bridged distances for the purposes of marketing and ordering, but Freund and Weinhold (2004) find little evidence that the Internet has directly affected the negative relationship between distance and international trade. Shipping costs and imperfect information about foreign markets still play a significant role in confining trade generated in cyberspace to certain geographic areas, although these factors are thought to be less important in sales of digitized (that is, intangible) products.

Let us first look at cross-border Internet sales transactions. If a US customer purchases a book over the Internet from a seller in the United Kingdom, the proper destination-based consumption tax and applicable customs tariff can be levied when the consignment crosses customs control at the US border. Such a sale does not raise any fundamental taxation issues.

large firms doing business in one state to 87 percent of tax revenue for small firms doing business in 45 states.

¹⁴Trade of non-member countries with EU countries is taxed "at the border."

¹⁵A disadvantage of employing thresholds is the risk of unequal treatment of those traders above and below the threshold. Optimal thresholds are derived by equating the marginal collection costs to marginal revenue.

¹⁶To protect the destination basis of VAT applied to interjurisdictional trade, a number of reform proposals are proposed, which are reviewed in Bird and Gendron (2000) and Keen (2000).

¹⁷Taxable persons are required to file on a quarterly basis all sales to and purchases from other EU member states.

¹⁸Tangible services are typically supplied and consumed locally.

As these types of transactions become more common, customs authorities will have to handle significantly greater flows of small consignments. Keen (2002) and Bacchetta (1998) have suggested to raise customs exemptions for small consignments, particularly when the costs of inspection and collection are likely to exceed the revenue raised.¹⁹ In this context, the United States—the world’s largest Internet seller and a net exporter of products sold via the Internet (cf. Bacchetta and others (1998))—could unilaterally raise customs exemptions to induce other countries to follow suit.

What about the interjurisdictional taxation of electronic commerce within a federation? In the United States, most Internet transactions involve tangible products sold by out-of-state vendors, and in this sense do not differ very much from mail-order catalogue purchases. It does not matter whether a book is ordered by postal mail or over the Internet from an out-of-state mail-order firm; both transactions require physical delivery to the consumer’s home. The taxation problem boils down to the question of how to charge sales tax according to the place of consumption in a federal system. The nexus issue plays a role here. Although the Quill ruling explicitly deals with mail-order sales, it also applies to electronic commerce (including remote sales of digital content). Accordingly, most Internet sales in the United States now escape sales and use tax. But it is unclear how the term “physical presence” should be interpreted in a digital world. Peha and Strauss (1997) argue that a vendor can have a taxable nexus in a state where it uses agents to provide services. This raises the question whether remote vendors have a nexus in the state where their Web site hosting service is located. In the electronic commerce debate, OECD countries have interpreted nexus issues in a narrow sense that does not encompass Web site hosting (see also Section 4).

Electronic commerce allows customers to purchase their products directly from online suppliers, giving rise to a compressed production-distribution chain, which is known as the so-called Threatened Intermediaries Hypothesis (cf. Sarkar, Butler and Steinfield (1995)).²⁰ Owing to the absence of profit margins of traditional intermediaries (distributors, brokers, sales representatives, etcetera), prices can be lower, resulting in a smaller consumption tax base. Disintermediation also reduces the number of tax collection points, which in turn reduces tax administration costs but also limits the tax authorities’ control over the flow of commerce.²¹ This effect is partly offset by the introduction of new intermediaries—for example, Internet Service Providers (ISPs),²² Web site hosting services, and authentication services.

¹⁹These exemptions lower the effective taxation of cross-border trade over the Internet, thereby adversely affecting a nation’s revenues and distorting household purchasing decisions.

²⁰This is a more serious issue if digital transactions that can be directly delivered online are involved. In that case, the traditional distribution chain is no longer needed.

²¹This point is particularly relevant for countries that impose VAT, which is applied to the value-added at each stage in the production-distribution chain.

²²ISPs provide the service of Internet connectivity.

New services related to the Internet have blurred the distinctions between the stages of the production-distribution chain. Tax administrators of countries with a single-stage retail sales tax, such as the United States, face the difficult task of identifying the true retail function and avoiding double taxation at that level. For example, Peha and Strauss (1997) argue that network service providers often sell services to each other—and are typically adding on new services—potentially giving rise to a taxable service function at both the wholesale and the retail level. In addition, Li (2003) argues that the convergence in information technology industries makes it hard to distinguish between different types of services for which different place-of-supply rules may apply. For example, Voice Over Internet Protocol—that is, a technology that permits telephone calls to be made via the Internet—is a bundling of a traditional telecommunications service with Internet access.

2.4 Electronic Commerce in Intangibles

Tax collectors are concerned primarily with the sale of intangible products over the Internet, even though the international sales of intangibles constitute only a small percentage of total electronic commerce. Boyle and others (1999) have estimated that in 2001 digital sales in the United States and Europe amounted to only 5 percent and 3 percent, respectively, of total electronic commerce. Because intangible (digital) products—for example, downloaded software, music, games, movies, and books²³—and intangible services²⁴ are delivered electronically and thus cannot be checked or recorded at the border, jurisdictional and national boundaries are not relevant. Digital transactions raise more difficult tax-compliance issues than purchases and sales of tangible goods and services. To be able to effectively tax a consumption transaction under traditional taxation principles, tax collectors need to know where the transaction takes place and whether the transaction involves a good or a service. In addition, tax administrators rely on a paper trail of transactions for auditing purposes; digital transactions typically do not generate such records.

Vendors of intangibles often do not know—and usually do not need to know—the physical location of their customers. The relative anonymity of the Internet makes it easy for customers to hide their identity and their physical location, either for privacy reasons or to avoid the payment of tax. Moreover, it may be difficult for the tax authorities to determine the locations of the vendors, which would normally collect consumption taxes. For example, a vendor may sell its products through a Web site on a server located in a country or jurisdiction other

²³Cockfield (2002) classifies these as “information goods” to distinguish them from “traditional” intangible goods such as patents, copyrights and trademarks.

²⁴A distinction should be drawn between tangible and intangible services. Tangible services (delivery of public utilities, provision of lodgings, rentals of tangible property, food services, etcetera) are physically performed at an identifiable location. Intangible services (consultancy, accountancy, advertising, broadcasting, data processing, banking, provision of information, medical consultations over the Internet, etcetera), cannot readily be seen to take place at a particular location. The OECD applies the rule that any services capable of electronic delivery are classified as intangible.

than the purchaser's. The point of origin and the destination of a transaction are obscured, making it hard for tax collectors to enforce fiscal frontiers. These issues are discussed in more detail in Section 4.

Typically, countries apply differential tax rates to goods and services. This necessitates a clear classification of digital products as one or the other. But technological developments have begun to blur the boundaries between goods and services. Is a downloaded movie functionally the same product as a movie rented or bought at a store? If it is not, a case can be made to classify the former as a digital (or electronically delivered) service—that is, the provision of information—which is the line taken by the European Commission (2002). Most intangible services go untaxed in the United States, but not in the European Union. In Canada, digitized products are classified as intangible personal property, which is taxable under the federal Goods and Services Tax (GST). Clearly, country experiences differ, potentially giving rise to double taxation or no taxation at all of cross-border trade (see Section 5).

3 The Pros and Cons of Taxing Electronic Commerce

Can electronic commerce be taxed? Should it be taxed? The explosive growth of Internet sales over the last five years has heightened the urgency of these questions, particularly in the United States, where most Internet purchases go untaxed. In the debate, it is understood that local retail sales over the Internet would have to be taxed to prevent the routing of transactions from terminals in bricks-and-mortar stores to the Internet and back. Without local taxation, the sales tax would become in the popular phrase, road kill on the information super highway. Moreover, the emerging international consensus, as discussed below, is that interjurisdictional Internet sales should not be exempted either.

Traditional retailers and some academics²⁵ argue that remote sellers (without a physical presence) enjoy an unfair competitive advantage over local bricks-and-mortar retail stores because they do not have to charge sales tax.²⁶ A study by Goolsbee (2000) shows that people who live in US states with high sales tax rates are significantly more likely to buy online than people who live in states with low (or no) sales tax rates. The exempting of Internet sales thus distorts consumer behavior and thereby creates efficiency losses.²⁷ Moreover, businesses are encouraged to offer their products online when they would otherwise have established a

²⁵McLure (2000) reports that 170 tax policy specialists have voted against a permanent exemption of electronic commerce.

²⁶Besley and Rosen (1999) show that retail prices increase when sales taxes are imposed. Although it is generally expected that sales taxes will be fully shifted forward to consumers, Besley and Rosen (1999) find a variety of shifting patterns, depending on the type of good.

²⁷Indeed, if electronic commerce is not taxed, the tax rate on traditional commodities needs to be higher to finance a given amount of public revenue. Because the excess burden of a tax—that is, the welfare costs of taxation in excess of the revenue collected—rises more than proportionally with the tax rate, uniform taxation induces a smaller efficiency loss. See Chapter 12 of Atkinson and Stiglitz (1980), for a formal exposition of the argument.

physical store. Given that elasticity of substitution between Web-based and Main Street purchases of the same good is high, optimal taxation theory prescribes that imposing a uniform tax on both traditional and electronic commerce would minimize efficiency losses. Remote sellers, however, point to the shipping and handling fees charged on Web-based sales; they argue that such fees would offset any tax advantages that they currently enjoy. This may be true in the case of low-value purchases such as CDs; but consumers tend to buy more expensive items, such as DVD players and computers, from retailers that do not charge sales tax. Moreover, there are no shipping and handling fees on digital content such as downloaded software.

Empirical evidence gathered by Goolsbee and Zittrain (1999), however, suggests that the Internet so far has been a trade creator; people who buy online are more likely to shop at conventional retail stores than they were before they shopped online. As time progresses, more Internet purchases may be substituted for traditional retail purchases, partly because of falling transport costs resulting from advances in logistics. Nevertheless, trade diversion is bounded, reflecting the positive utility many households assign to the traditional shopping experience. The jury is still out on this matter and more research is necessary.

Proponents of the taxation of electronic commerce also point to the revenue losses associated with a permanent exemption. Tanzi (2000) describes electronic commerce transactions as “fiscal termites” that gnaw away at the consumption tax base. As Goolsbee and Zittrain (1999) and Bruce and Fox (2000) show, however, sales tax revenue losses in the United States to date have been relatively small; they are estimated at less than 2-3 percent of sales tax revenue in 2003.²⁸ A number of factors contribute to this result: (i) most Internet sales (on the order of 80 percent, see McLure (2000)) involve business-to-business sales, which are exempt from sales tax; (ii) a substantial share of retail electronic commerce involves exempt goods and services (for example, prescription drugs); and (iii) electronic commerce is still in its infancy. Bird (2003) argues that for Canada the revenue losses will be considerably smaller because Internet sales are less important in absolute terms. Nonetheless, there is a real threat of more substantial revenue losses in the future if no action is taken.²⁹

Not only consumption tax revenues are at stake. Some countries levy customs duties on physical trade in digital media; that revenue would be lost if the products were “imported” electronically. Perez-Esteve and Schuknecht (1999) argue, however, that the potential tariff revenue losses would be small. Governments of developing countries—which depend heavily on import duties³⁰—would be hurt the most. Consumers in those countries, however, would benefit from lower prices of digital products. There is broad support in the WTO for the exemption of electronically delivered products from customs duties. The rationale is that

²⁸The sales tax revenue loss is US\$ 612 million out of US\$ 203 billion of total sales tax revenue.

²⁹Projections of revenue losses from online sales for 2011 vary widely, ranging from US\$ 4.5 billion to US\$ 54.8 billion (Congressional Budget Office, 2003).

³⁰Ebrill and Stotsky (1998) have calculated that in 1990 non-OECD countries collected customs duties on the order of 29 percent of total tax revenue whereas OECD countries collected only 1.7 percent.

import tariffs cause larger by-product distortions than consumption taxes.³¹ Moreover, it would not make sense to levy these duties if there is no physical border.

Finally, some observers stress equity arguments; the non-enforcement of taxes on electronic commerce will redistribute income to the wealthy because the poor are less likely to have Internet access. In the United States, the average Internet user has two more years of education and US\$ 22,000 more family income than the average non-user (Goolsbee and Zittrain, 1999). Over time, this argument will lose its relevance as Internet access becomes more widespread.

Goolsbee and Klenow (1998) and Goolsbee and Zittrain (1999) employ an “infant industry” argument for a temporary moratorium on Internet taxes. They stress the growth-enhancing effect of “network externalities” associated with Internet use; a person’s joining the network makes it larger, thereby benefiting not only that person but also the other participants in the network.³² For example, the value of e-mail increases with the number of individuals who have e-mail and thus are potential exchangers of e-mail messages. Individual users do not internalize these spillovers. As a result, too few people use the Internet if the government does not subsidize access.³³ These network externalities exist mainly in the early stages of a network’s development.

The preferential treatment of electronic commerce on the basis of network externalities is not desirable. The Congressional Budget Office (2003) reports that already a substantial share of the US population (56 percent in 2001) uses the Internet. Moreover, exempting sales over the Internet—and thus effectively subsidizing this trade—is an indirect means of addressing an existing distortion. As the principle of targeting (Dixit, 1985) suggests, a distortion should be countered directly at the relevant margin. The subsidization of Internet access fees is a more carefully targeted instrument, but in the United States and many other countries Internet access is already given preferential treatment. Finally, Zodrow (2003) concludes that there is no convincing direct empirical evidence that shows that these network externalities are significant.³⁴ Freund and Weinbold (2004) provide some indirect evidence on network size effects, showing that a 10 percent increase in the number of Internet hosts increases commodity export growth by 0.2 percentage points.

Those who oppose the taxing of electronic commerce point to the high administrative costs associated with charging thousands of different tax rates—costs for which retailers would receive no compensation.³⁵ Moreover, one can purchase software programs that calculate

³¹Keen and Ligthart (2002) show that a cut in tariffs combined with a point-for-point increase in domestic consumption taxes increases both welfare and public revenue in a small open economy.

³²See Shy (2001) for a detailed discussion of network externalities.

³³Opponents of preferential treatment of electronic commerce warn of possible negative congestion externalities (for example, Gupta, Stahl and Whinston (1995)) because of zero marginal cost pricing by ISPs.

³⁴Network externalities are difficult to measure empirically. Goolsbee and Zittrain (1999) have made a first attempt to quantify these spillovers.

³⁵Some observers in the United States claim that the sales tax system requires considerable simplification before Internet sales can be made taxable. This is further discussed in Section 4.

the amount of tax to be collected based on the address of the buyer and the amount of the purchase. Tax authorities could also certify companies to perform the task of online tax processing to guarantee the confidentiality of information and the security of collected funds. This topic is discussed further in Section 4.

4 Reform Proposals

4.1 Tax Collection by Vendors

If electronic commerce is to be taxed, how can it be taxed effectively? Most proposals put forward in the formal and informal literature prefer tax collection on a destination basis; a minority favors taxation at source. The common characteristic of these approaches is that the vendor³⁶ faces the collection and revenue transmittal obligation as in the traditional collection model. The conventional criteria that denote a good tax system—efficiency, administrative simplicity, neutrality, fairness and flexibility—should be employed.³⁷ Moreover, the allocation of revenues should be fair; cooperation between and within countries on the design of taxation solutions is needed to prevent double taxation or no taxation of cross-border electronic commerce.

4.1.1 Destination-Based Taxation

The OECD (2000, 2001a,b), the European Commission (2002), and various authors³⁸ have proposed taxation at the place of consumption³⁹ via destination-based registration by vendors.⁴⁰ In this context, McLure (1997, 2000) proposes a complete overhaul of the current US sales tax system with a view to simplifying vendor compliance and tax administration. His proposal consists of the following elements: (i) a single uniform tax base for all states, including conventional commerce, services, and intangibles; (ii) an exemption for all business purchases and those merchants whose sales to consumers do not exceed a certain threshold or a *de minimis* amount; (iii) a requirement for vendors to register and file with their “base” state (the state where the vendor has a physical presence in the form of personnel and ware-

³⁶Note that self-assessment by purchasers is also a potential collection model. As was argued earlier, this is, given the current state of technology, not viable for business-to-consumer sales, which is the focus of this section. Accordingly, it is not discussed further in this section.

³⁷In 1998, the Ottawa ministerial meeting endorsed these principles, which are also known as the “Ottawa taxation framework conditions.”

³⁸Fox and Murray (1997), the National Tax Association (1999), and McLure (1997, 2000).

³⁹The OECD (2001a,b) defines the place of consumption for goods trade as the customer’s residence (that is, the home address of an individual consumer) and the “business presence” of a firm (that is, headquarters or branch). Matters are quite different for tangible services, in which case typically the place of service delivery—which is equivalent to the location of the supplier—is chosen, giving rise to some origin-based taxation.

⁴⁰Both the OECD (2000a, 2001a,b) and the European Commission (2002) prefer the destination-based method, but they acknowledge that there is no single option without significant compliance difficulties.

houses) only;⁴¹ and (iv) a uniform legal framework. States would be free to set their own tax rates. A uniform tax base, however, would undermine the fiscal sovereignty of local governments, and thus would be politically difficult to implement. An alternative is the National Tax Association's (1999) project, which is less ambitious in its reforms of the tax base; it proposes a single rate per state and a uniform menu of 100,000 potentially taxable products.

The application of destination-based registration at a global level would impose an insurmountable compliance burden on globally operating firms in a world of more than 100 different VAT systems. To facilitate the process of destination-based registration, as Doernberg and Hinnekens (1999) argue, a real-time online system should be provided whereby the non-resident vendor could check the validity of purchasers' VAT tax registration numbers. Substantial international cooperation is required to prevent blocs of countries from implementing mutually inconsistent tax policies—potentially giving rise to double or no taxation of trade flows—and to provide for the mutual enforcement of tax debts.

4.1.2 Origin-Based Taxation

In view of the administrative complexities associated with taxation on a destination basis, Ryan and Miethke (1998) and Wagner and Anderson (1999) have proposed to tax electronic commerce at origin (that is, at the point of first sale). This is in line with the traditional vendor collection model, in which the vendor charges, collects, and remits the tax to the local revenue authority. An advantage of origin taxation is its administrative simplicity. Compliance costs would be low because vendors would deal only with the revenue administration of their home jurisdiction. Small firms in particular would find this a distinct advantage.

The origin-based approach has been criticized for introducing distortions in trade and factor flows and for unleashing tax competition among jurisdictions within a federation and between national governments. Online retailers will locate themselves in places with low consumption tax rates, and customers will buy products from Web retailers in those locations. Indeed, tax competition is likely to be more aggressive in a digital world due to the mobility of physical capital used in electronic commerce as compared with traditional sectors (cf. Fox and Murray (1997)) and the lower transaction costs to consumers of making purchases—particularly of intangibles—in other jurisdictions.

Origin-based taxation can be combined with some other mechanism to attribute revenue to the place of consumption.⁴² The simplest technique is allocation based on aggregate consumption statistics, as proposed by the European Commission (1996). A more complex approach involves setting up a clearing-house system (as proposed in an earlier paper issued

⁴¹Alternatively, he proposes the following two schemes: (i) the involvement of trusted third parties that employ certified computer software to calculate and remit consumption tax (see Section 4); and (ii) a hybrid system in which registration is consolidated (as in the base state system), but filing is done on a state-by-state basis.

⁴²See Ligthart (2003) for an overview of attribution mechanisms.

by the European Commission (1985)), which periodically compares amounts of tax revenue associated with interjurisdictional sales and transfers revenue from the net exporting jurisdiction to the net importing jurisdiction to balance the account. This system requires close cooperation between jurisdictional tax administrations: they must exchange information regularly to validate information such as the identity of the vendor and purchaser and their respective taxpayer identification numbers.

Although a revenue attribution mechanism is viable in a federation, it is cumbersome on a world scale. International agreements on revenue transfers must be concluded and administrative cooperation is required to establish enforceability. In particular, the exchange of taxpayer-specific information through existing arrangements—such as bilateral double taxation treaties, the recent OECD (2002) model agreement, and various multilateral treaties—should be better utilized to prevent tax evasion.⁴³ The Internet can facilitate timely exchanges of information.

4.1.3 “Permanent Establishment” for Consumption Tax Purposes

Nexus issues are common to both income and consumption taxation. One might therefore consider expanding the concept of “permanent establishment” (PE)—which is employed in direct taxation⁴⁴—for consumption tax purposes to include electronic connections such as the location of servers and telecommunications links. However, expanding the PE definition to include virtual presence would make it a hollow concept, because a great deal of electronic activity would qualify.⁴⁵ Moreover, the location of the server is not a good proxy for the place where economic activity occurs (the origin principle) or the place where consumption occurs (the destination principle); it says nothing about the importance of the economic ties (if any) with the country. Normative issues play a role here as well; businesses should not be subject to the tax authority of jurisdictions from which they receive no substantial benefits in terms of public goods. Finally, making taxation contingent on the location of the Web servers induces vendors to choose hosting services that operate servers in low-tax jurisdictions.

4.2 Tax Collection by Intermediaries

Some observers have proposed using trusted third parties, such as financial institutions and ISPs, as new tax collectors or developing technology-based solutions (discussed later) to facilitate tax collection. Such a system would allow jurisdictions to keep their autonomy to set their own tax policies and would require few changes to the current tax system. Compli-

⁴³See Tanzi and Zee (1999) and Keen and Ligthart (2004) for an overview of existing bilateral and multilateral arrangements, which provide a legal basis for the exchange of tax information between nations. Recently, the OECD (2002) developed a model convention for information exchange covering all kinds of taxes.

⁴⁴Defined in the OECD model tax convention (2000b) as “a fixed place of business through which the business of an enterprise is wholly or partly carried out.”

⁴⁵See Lukas (1999) for a more detailed discussion.

ance costs would be shifted to third parties and could potentially be reduced. Note that the technology-based approach can be complementary to the approaches discussed in the previous subsection.

4.2.1 Tax Withholding by Financial Intermediaries

Goolsbee and Zittrain (1999), McLure (2000), and the OECD (2001a,b) have suggested that consumption tax on digital products be withheld through financial institutions (that is, credit card companies and the like) at the time of the sale, depending on the applicable tax rate in the location of the purchaser and the type of purchaser (household or exempt business). Such a real-time system would require the financial institution to maintain a database of the tax bases and rates of each state and local jurisdiction. In addition, vendors would have to submit essential information on the sale and the parties (that is, the account numbers of the vendor and purchaser, the value of the sales, the amount of tax due, and the billing address of the purchaser). Typically, the billing address on file with the credit card company would determine the location of the purchaser. To streamline the tallying and remitting of sales tax to the jurisdiction of consumption, Eads and others (1997) have proposed that the financial institutions employ a clearing-house system (as discussed earlier).

The involvement of financial institutions in consumption tax collection raises the issue of anonymity. To avoid taxation, online shoppers might establish a mailing address in a low-tax jurisdiction by using a post office box, a friend’s mailing address, or mail-forwarding service. Not surprisingly, the OECD (2001a,b) and others consider credit card information insufficient evidence of the jurisdiction of residence. “Know-your-customer” rules—under which financial institutions are required to identify beneficial owners of bank accounts—are helpful in providing identity verification.⁴⁶ However, a purchaser’s identity cannot be ascertained if the credit card used for payment is issued by a country with bank-secrecy laws.

The withholding of consumption taxes is an effective and administratively simple way to prevent tax evasion on transactions that pass through the banking system, but not on transactions that are paid in other ways (for example, by digital cash). However, withholding shifts the onus of collection from the seller to the bank, which is not involved in the actual sale and purchase. Without any form of financial compensation, this system is not commercially viable; banks would have to bear the fixed costs of setting up the system and the variable costs associated with each transaction. Currently, banks and other financial institutions are technically not well equipped to deal with the transmission of massive amounts of data. In sum, allocating the collection task to financial institutions would only be legitimate if banks are allowed to charge a fair fee for services provided.

At present, electronic commerce is dominated by credit card payments, but it unclear whether this will always be the case. Other forms of payment systems do not require the

⁴⁶See the Financial Action Task Force (1990) on “know-your-customer” rules in anti-money-laundering activities.

involvement of banks—for example, various forms of digital cash, of which some automatically leave an audit trail while others cannot be traced.⁴⁷ The use of untraceable digital cash makes it virtually impossible to know the location and identities of the trading parties.⁴⁸ Some observers, such as Soete and Ter Weel (1998), have suggested the taxing of electronic cash *ex ante* (that is, at the time it is issued). So far, digital cash has not been widely accepted, but this could change as people grow to trust this new form of payment.

In sum, with appropriate checks on the identity of the customer, withholding could work in a federal system, provided that a national clearing-house system is set up to attribute tax revenue to the jurisdiction of destination and that banks and other financial institutions invest in the required technology and receive compensation for costs. As was noted earlier, setting up a clearing-house system among sovereign countries is politically and practically more difficult than it is in a federation. The transmission of personal information over the Internet raises privacy issues that must be resolved before the development of a withholding system can proceed.

4.2.2 Collection by Internet Service Providers

Soete and Ter Weel (1998) suggest involving ISPs—which are technically able to keep track of all Internet transactions of their customers⁴⁹—as trusted third parties to charge, collect, and remit sales tax. In line with McLure’s proposal, the ISP would register with the clearing house, which in turn would forward the revenues to the jurisdiction or country in which the sale occurred. The ISP, however, cannot necessarily determine where consumption actually takes place, because it is difficult to trace the true origin and destination of electronic transactions. For example, a US consumer might purchase a digital product in the Netherlands through an ISP located in the United Kingdom.

Some observers have suggested using Internet Protocol (IP) addresses to trace cross-border transactions. IP addresses are used in transmitting data from point A to point B; they are an essential part of every access point to the Internet. Some technical hurdles must be overcome. Currently, many IP addresses are randomly assigned, which makes it difficult to trace the transactions of individual users. Moreover, IP addresses can be manipulated to hide a user’s identity and location.⁵⁰

4.3 Technology-Based Solutions

The simplest way to lower vendors’ compliance costs is by means of a technological fix. Compliance software at the point of purchase applies the tax rate of the destination state,

⁴⁷See Peha and Strauss (1997) for a more detailed discussion.

⁴⁸Moreover, encryption—which encodes information in such a manner that only persons who have the proper key are able to decipher the message—could be used.

⁴⁹Via a unique static IP address, Internet transactions and surfing behavior could easily be traced.

⁵⁰To hide their identity consumers can use services such as Anonymizer.

calculates the amount due, charges the customer's credit card, and transfers the amount due to the account of the tax authority of the state where final consumption occurs. Federal authorities could certify commercial companies ("trusted third parties") to run the compliance software. This system permits payments to be made in real time. Moreover, it works at the level of individual transactions, whereas the clearing-house system aggregates transactions.

The Internet may be a threat to tax administrators, but it also offers opportunities. New technological developments may make reverse charging of business-to-consumer sales feasible in the not too distant future. The OECD (2000a, 2001a,b) has suggested using digital signatures⁵¹ as a solution to identity issues. In addition, a smart card—a small electronic device similar to a prepaid calling card—could be designed to store information about a consumer's jurisdiction of residence, tax identification number, and online transactions.

It is even conceivable that new technologies will enable tax administrators to capture a larger number of transactions in the tax net, thus more than offsetting the leakage caused by electronic commerce. For example, if all countries can agree on a uniform taxpayer identification number to be used worldwide, as suggested by the OECD (2001b), the role of tax administrators will be substantially strengthened. Moreover, positioning information provided by cellular phone networks and a geographic coding system of transactions could help determine the location of the consumer at the time of an online purchase. None of these approaches, however, is likely to be implemented in the short to medium term.

4.4 Bit Tax

Cordell and Ide (1994)⁵² have proposed a bit tax—a small fixed fee levied on the number of bits transmitted over the Internet. Operators of telecommunications carriers, satellite networks, and cable systems would collect and remit payment to their home jurisdiction. To preclude competitive distortions created, for example, by carriers locating their server networks in zero-bit tax locations, the bit tax should be introduced on a worldwide basis. The bit tax would apply to both business and personal transmission of information over the Internet.⁵³

The bit tax was heavily criticized—and dismissed as a viable proposal—by the OECD's 1998 Ottawa ministerial meeting, by the WTO and by the European Union. The bit tax is a specific tax; it does not take into account the value of the good that is being taxed, as and an *ad valorem* tax does. Accordingly, high-bit-volume, low-value transactions are taxed disproportionately: for example, the downloading of a new computer manual would trigger less tax than the transmission of a personal photograph, thus creating distortions.

⁵¹Digital signatures provide integrity, signature assurance, and non-repudiability for documents transmitted over the Internet. Such features are particularly important for formal documents such as contracts and price lists.

⁵²See also Cordell and others (1997).

⁵³The bit tax applies to all bit transfers, including those transactions that are typically not subject to taxation, such as downloads of personal photographs. In addition, if uploads and downloads are taxed, both the vendor and purchaser of intangibles delivered over the Internet are taxed, giving rise to double taxation.

Per-unit taxation is common practice for phone companies, however, which typically price and tax phone calls on the basis of distance and usage time. Moreover, the value-added that is generated by Internet access is difficult to measure, and thus difficult to tax on an ad valorem basis. Substantial technical hurdles would have to be overcome to implement a bit tax. Internet access points would have to be equipped with bit-measuring tools, which tend to cost more than the revenue raised. Moreover, sophisticated users could hide bits through compression techniques and encryption to reduce their tax burden.

5 Recent Policy Developments

5.1 The European Union

The EU debate has focused on how best to tax electronic commerce given the current transitional VAT regime. Much progress has been made in tackling the cross-border taxation of electronically delivered services to consumers and unregistered businesses. The European Commission (2002) has adopted a council directive on electronic commerce VAT in line with the OECD's (2001a,b) proposals. The directive requires non-EU vendors with Internet sales above a threshold of euro 100,000 to register⁵⁴ in the member state where its customers reside or, under a special scheme,⁵⁵ to register in a single state and charge and collect VAT at the rate that applies in the country of registration.⁵⁶ American businesses, for example, would then need to act as tax collectors for European governments if their customers were located in Europe. The set of services covered by the directive is defined in Article 9 of the sixth VAT directive (European Commission, 1977) and includes Web hosting services; downloaded software, images, music and films; digitized publications; and electronic auctions.

The electronic commerce directive took effect in July 2003 and is operating on a trial basis for the next three years. It has been heavily criticized for imposing large compliance burdens on non-EU vendors; they must verify the tax status (that is, business or consumer) and the residence of their EU customers and submit tax returns to the country of registration.⁵⁷ If a vendor's customers are all located in EU member states, the vendor normally must collect taxes under 15 different VAT systems unless it participates in the special scheme. The European Union's approach suffers from another drawback: it discriminates against

⁵⁴The registration threshold is equated to the threshold for remote supplies of physical commodities so that neutrality in tax treatment is preserved.

⁵⁵The supplier has to register electronically in the member state of choice and make an electronic VAT return—even if it does not have sales in that period—and pay tax (if applicable) to the member state of registration. The latter will transfer the revenue to the member state of final consumption. See European Commission (2002) for further details.

⁵⁶Business-to-business sales of digital services are taxed on a self-assessment basis, which is also supported in the OECD proposals (2000a, 2001a,b).

⁵⁷To help non-EU vendors verify the tax status of their customers, Web-based access to VIES could be provided.

some products delivered online, which is not in keeping with the principle of neutrality⁵⁸ as endorsed by the 1998 ministerial meeting in Ottawa. For example, newspapers purchased at the corner store are typically subject to a zero VAT rate, whereas digital newspapers are taxed.

The goal of the electronic commerce directive is to put EU and non-EU vendors of digital commerce on an equal footing in order to minimize tax distortions, but it still leaves ample room for tax planning. A non-EU vendor could establish either a branch or a subsidiary within an EU member state; the non-EU vendor would be subject to the same tax treatment as its EU counterparts, which charge and collect VAT on sales to non-business EU consumers at their domestic tax rate.⁵⁹ As Heredia and Fernandes (2003) argue, the non-EU vendor could benefit from tax arbitrage by locating a branch or a subsidiary in an EU member state with a low VAT rate. For example, Madeira⁶⁰—which charges a VAT rate of 13 percent compared with an average rate of 19.3 percent in the European Union—is likely to be a popular location.

The European Union has moved unilaterally on a solution to the electronic commerce issue. However, successful implementation of the electronic commerce directive requires the cooperation of the United States, which is the main supplier of electronically delivered products. Such cooperation with the European Union would entail a clear loss to the US federal government, which does not have a federal sales tax that would benefit from reciprocal tax enforcement assistance by the European Union. The states themselves face the Quill barrier and cannot benefit from reciprocal action either.

5.2 The United States

The US debate has centered on the question whether or not to tax electronic commerce.⁶¹ Under the Quill ruling, electronic commerce is treated in the same way as mail-order sales, and thus is given preferential tax treatment. The 1998 Internet Tax Freedom Act (ITFA) imposed a three-year moratorium on new Internet access taxes⁶² levied by states or local

⁵⁸Neutrality implies that the consequence of taxation should be the same irrespective of the mode of commerce, the method of delivery of the product, or the location where the transaction originates.

⁵⁹The sixth VAT directive prescribes that the taxable place of digitized products sold by EU vendors is the location of the supplier and is thus independent of the place of consumption.

⁶⁰Madeira is an autonomous region of Portugal, which has been able, under the regional aid Program of the European Union, to legislate a low VAT rate—13 percent, compared with 17 percent in Portugal and 25 percent in Sweden (which has the highest rate in the European Union).

⁶¹To be more precise, the issue is whether or not businesses should be liable for sales tax. Legally speaking, consumers are already liable, but they do not pay the use tax. Owing to high administrative costs, tax authorities typically do not enforce use taxes. Involving remote sellers could lower the administrative costs considerably.

⁶²The ITFA (1998) forbids states from applying sales tax to Internet access fees. Goolsbee (2001) shows that if sales tax were applied to Internet access charges, the revenue collected (US\$ 630 million) would exceed the sales tax revenue loss (as discussed in Section 3).

governments. In addition, it allowed existing sales taxes to remain in effect and permitted governments to introduce new sales taxes on electronic commerce, as long as they applied equally to traditional commerce. In November 2001, the ITFA was extended for another two years; it expired in November 2003 and was extended again in April 2004 for another four years.

The most recent effort in the United States to address the electronic commerce issue entails a weak variant of McLure's (2000) proposal to revamp the complex US sales tax. In 2000, the National Governors' Association, the Federation of State Tax Administrators, and the Conference of State Legislatures set out to lower the compliance costs of vendors by designing a voluntary sales and use tax system with common tax base definitions and similar tax-filing and audit procedures.⁶³ In November 2002, the features of such a system were laid down in the Streamlined Sales and Use Tax Agreement (SSUTA). As of April 2004, 42 US states and the District of Columbia were involved in the project and 20 had enacted legislation aligning their sales tax systems to the SSUTA.⁶⁴ If a vendor agrees to comply with the SSUTA, it will be required to collect sales and use tax in any state that is party to agreement, and it will receive compensation for compliance. The SSUTA does not specify how closely the compensation will match the actual compliance costs.

To lower the compliance costs of vendors, the SSUTA proposes a number of reforms. It would require common local and state tax bases within the same state, allowing for differences in bases across states, and would limit the number of major categories of items in the tax base.⁶⁵ Local governments would retain the autonomy to set their own rates, but no more than one local rate would be permitted. The state tax authority would administer all local sales taxes. Uniform sourcing rules would apply, allowing for origin taxation if the purchaser's location, that is, the destination of the good, cannot be determined. The agreement would also involve the use of computer software to simplify the calculation (in real time), remittance, and auditing of sales and use taxes. States could contract with a certified service provider to handle those sales and use tax functions, but firms with sales in at least five states would also be able to have their own systems certified.

The SSUTA combines features of the destination-based registration and the technology fix. It is a step in the right direction, but it falls short of a fundamental reform of the sales and use tax system as proposed by McLure (2000). The agreement will help states in their push for congressional action on the electronic commerce issue. The US policy line, however, has not been coordinated with Canada, whose provinces also impose retail sales taxes (see

⁶³The political motivation was to increase the likelihood of congressional action on the electronic commerce issue.

⁶⁴Some states adopted a modified version of the original proposal. The SSUTA was to go into effect after 10 states, representing 20 percent of the population of the states that impose a sales tax, sign on. See McLure (2003) for further details.

⁶⁵The bases would differ by the categories they included, but the items included in any category would be the same across all states.

the discussion below) and suffer revenue losses from Canadians who shop across the border in the United States.

5.3 Canada

In 1998, the Canadian tax authorities indicated their intention to base any new rules for the taxation of electronic commerce on global standards as developed by the OECD. So far, the federal authorities have not introduced any new legislation to address electronic commerce; instead, they have chosen the patchwork approach. Specific rulings⁶⁶ were issued to clarify the provisions of the Excise Tax Act, which provides the legal framework for the GST. The Canadian GST, which applies to sales of goods and services and intangible property at a rate of 7 percent, was introduced in 1991. The GST is modeled on the VAT and features an invoice-credit mechanism and border tax adjustments (zero-rating of exports and taxation of imports of goods and services).

A non-resident (foreign) supplier who has a PE (which is based on physical presence as defined by the OECD for income tax purposes) or who is “carrying on business” in Canada must register for GST purposes. Non-resident firms that supply books and magazines by mail or courier to a Canadian mailing address are considered to carry on business if they make annual taxable supplies over \$30,000.⁶⁷ Imported foreign publications are not taxed at the border, but the tax is collected directly from Canadian customers. In the context of electronic commerce, “carrying on business” is given a restrictive interpretation; a non-resident Web-based vendor—without much physical presence in Canada—that sells digital goods to Canadian residents does not need to register for GST purposes. Once a foreign supplier is registered for GST purposes, its sales of digitized products can be monitored via periodic audits. Therefore, it makes sense to expand the registration requirement to all non-resident firms that do not have a PE, but meet the registration threshold.

Canadian purchasers (businesses and consumers) that import “services” or “intangible personal property” or that consume goods and services from non-resident or domestic suppliers that are not registered for GST purposes are required to self-assess tax on the basis of the place of “use.”⁶⁸ Electronic downloading or ordering of digital products, and subscriptions to electronic databases and Web sites are characterized as supplies of intangible property. Web site hosting and software maintenance contracts, however, are classified as services.⁶⁹ To be more precise, Web site access and hosting are considered telecommunications services, which are taxed according to the place of performance of the service. As is argued earlier,

⁶⁶Li (2003) reports that in July 2002 the Canadian Revenue Agency issued a technical bulletin setting out an interpretation of provisions in the Excise Tax Act that are relevant to electronic commerce.

⁶⁷Resident individuals and firms that make annual taxable supplies in Canada of more than a threshold of \$ 30,000 must register for the GST.

⁶⁸Businesses need to self-assess the tax in cases where the recipient is not able to recover the tax as an input tax credit.

⁶⁹See Li (2003) for further discussion of the criteria underlying this distinction.

self-assessment is plagued with problems; the question is whether the Canadian tax authorities want to keep self-assessment if the volume of business-to-consumer electronic commerce expands. Li (2003) sees some merit in reforming the self-assessment procedures to facilitate the collection of small amounts.

Besides the federal GST, Canadian provinces also impose consumption taxes. British Columbia, Saskatchewan, Manitoba, Ontario, and Prince Edward Island have single-stage Provincial Sales Taxes (PST), which are imposed on sales of goods and on a limited number of services. Nova Scotia, New Brunswick, and Newfoundland and Labrador have replaced their PST and the GST with the Harmonized Sales Tax, which applies a combined rate of 15 percent—of which 7 percent is the federal component and 8 percent is the provincial component—to the same base of goods and services that is taxable under the GST. Quebec has also harmonized the Quebec Sales Tax (QST) with the base of the GST; but Quebec levies a QST rate of 7.5 percent, and the QST is applied to the total of the selling price plus the GST. Resident remote suppliers without a physical presence in the destination province may sell goods and services without registering for the PST in that province; in this way, they enjoy a tax advantage in comparison with registered traders. The provinces have yet to determine the tax status of electronically delivered products; at present, such products seem not to be subject to PST.

Canada's slow response to the electronic commerce issue could prove fruitful, because it now has the opportunity to learn from the EU experience. If the EU approach turns out to be effective, Canada may consider adopting destination-based registration.

6 Conclusion

The development of the Internet has made it possible for firms and consumers to buy tangible and intangible commodities and services anywhere in the world. Electronic commerce in tangible products does not raise any fundamental taxation issues because this trade is not very different from mail-order purchases. Sales of digitized products and services over the Internet pose substantial tax enforcement issues, particularly in connection with business-to-consumer sales.

Preferential tax treatment of electronic commerce is undesirable for reasons of efficiency and revenue collection. A viable system of taxing electronic commerce is destination-based registration, which requires remote vendors of digital content to register in the jurisdiction of final sale. To alleviate the compliance costs of firms and the administrative costs of tax authorities, simplified electronic registration, filing, and payment procedures should be developed. New technologies can facilitate this task and may, in the future, even yield new models of tax collection.

Both the European Union and the United States have taken steps to implement destination-based taxation of electronic commerce; the European Union has made the most progress. The

EU approach focuses on the taxing of electronic commerce within the current VAT framework; the US approach focuses on reform of the retail sales tax system, which would lower the compliance costs of both traditional and electronic retailers. Canada is awaiting the resolution of various key policy issues within the framework of the OECD, which has coordinated the international debate on the taxation of electronic commerce. Besides tax policy coordination, strong administrative cooperation between national tax authorities is required if a global solution is to be found. Without reciprocal tax enforcement assistance, it is hard to effectively tax cross-border electronic transactions.

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