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**The New Economy and the  
International Regulatory Framework**

by

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# **The New Economy and the International Regulatory Framework**

## **Abstract:**

The rapid diffusion of the internet and electronic commerce changes the way business and international trade take place. The new economy poses new challenges to the international regulatory framework, since small distortions due to differing sets of regulations and taxation between countries might grow to non-negligible dimensions. This paper examines the necessary reforms of the multilateral framework concerning standards, policy coordination and taxation and stresses that the new economy reinforces the need for consistent, transparent, non-discriminatory, simple and enforceable rules. Furthermore, strategies to overcome the digital divide between countries are set out.

**Keywords:** New Economy, Policy Coordination, Tax Distortion, Trade Diversion, WTO, Developing Countries.

**JEL classification:** F02 (International Economic Order – Economic Integration), O19 (International Linkages to Development: Role of International Organizations); O3 (Technological Change).

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## 1 The Issues

The advent of the *new economy* has already produced a sizable body of literature. This paper does not attempt to discuss all the issues involved in the new economy, but aims to extract the implications for the international regulatory framework and to provide guidelines for necessary changes. It will thereby focus on the establishment of standards, on policy co-ordination and on taxation. The new economy is sometimes seen as the herald for a truly borderless world. However, since the internet requires substantial prerequisites concerning technical infrastructure and human capital, some worry that the developing countries will be left behind. The paper addresses this fear of a growing "technological apartheid" between the industrialized and the developing countries and looks at policies to overcome the digital divide.

The structure of the paper is as follows: The paper first clarifies the various catchwords of the new economy, examines the rapid growth of e-commerce and looks at the digital divide between countries. It then discusses the necessary modifications for the multilateral framework concerning the establishment of standards, the need as well as the scope for policy coordination, taxation and the overall treatment of e-commerce. Finally, the paper looks at strategies to tackle the digital gap between countries.

## 1.1 Catchwords and Concepts for the New Economy

Various catchwords have been coined to capture the essence of the economy-wide consequences resulting from an increased use of processed digital information and from the application of the internet for a wide array of services (software programming, webpage maintenance, ticket and hotel reservations, on-line information and support, ordering facilities, publishing, indexing or abstracting etc.) as well as transactions (delivering music, movies, documents, literature or software in digital form).<sup>1</sup> The following catchwords aim at different characteristics of this phenomenon but are frequently used as synonyms: "digital economy", "information economy", "knowledge-based economy", "weightless economy", "virtual economy", "internet economy", "electronic commerce", "e-commerce", "e-conomy", or maybe more capacious "new economy". Some authors have tried to assign distinguishing concepts to this variety. For example, Kling and Lamb (2000) suggest to use the term "information economy" to include all informational goods and services like publishing, research, legal and insurance services, entertaining, and teaching in all of its forms, and the term "digital economy" to address (only) the goods and services whose development, production, sale, or provision is critically dependent upon digital technologies. Furthermore, the term "new economy" is

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<sup>1</sup> See also Panagariya (2000) for a listing of e-commerce services and their significance for developing countries.

associated for them to possible consequences of the information economy and the digital economy, namely high growth, low inflation, and low unemployment.

However, in many papers – including the present one – the concept of the "new economy" is wider and includes the characteristics of the "information economy" and of the "internet economy" as subsets. In the following, the term "new economy" describes an economy where both final output and intermediate input predominantly consist of information and where the modern (digital) information and communication technologies provide world-wide access to almost any available information. These new technologies might have the potential to enable an increase in the productivity of conventional business practices, but also facilitate the establishment of new processes and products. Consequently, the evolution of the new economy should not be considered as being restricted to the information sector, but as a far reaching process that might alter and extend the products and production processes within the whole economy.

This description of the new economy does not necessarily imply growth rates for the whole economy above the average growth rate of past decades. In fact, doubts about sustainable higher growth rates have been voiced, for example, by Gordon (2000), who critically reviews the potential for productivity gains

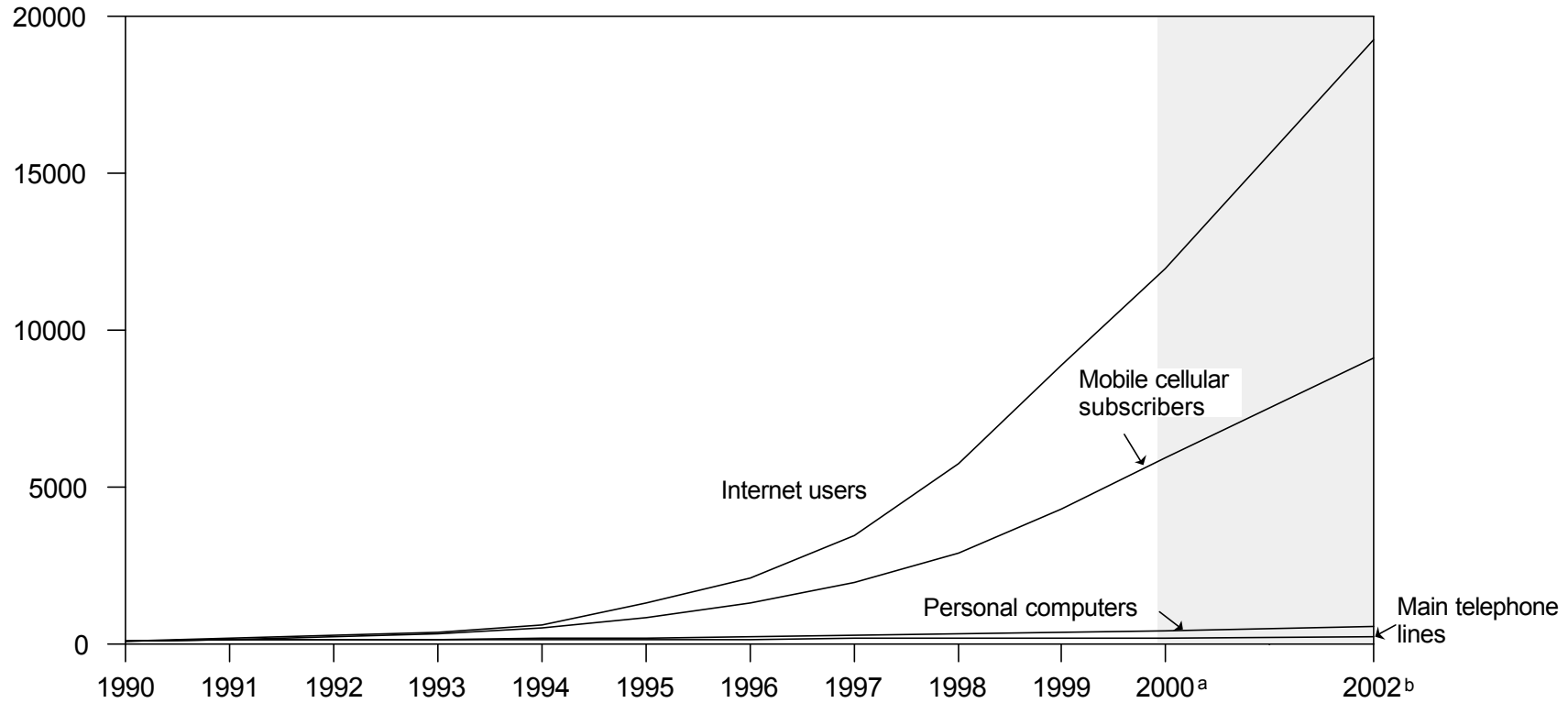
within the new economy. Furthermore, Gundlach (2001) questions the usefulness of residual measures of total factor productivity growth to deduct the existence of higher growth paths. With the failure of several new economy enterprises ("dotcoms") during the year 2000 and the slow-down of the US economy in 2001, a more realistic assessment of the changes induced through the new economy will become more widely spread.

## **1.2 Growth of International E-Commerce**

The various indicators for the use of telecommunication in the years 1990 to 2002 (projected data) show a steady growth of the use of personal computers and main telephone lines and, particularly, the rapid increase in the number of internet users and mobile cellular subscribers (Figure 1). Comparing the expected level of 2002 with the actual level of 1990, the amount of main telephone lines will more than double (factor 2.1) in this period and the amount of personal computers will increase by the factor 5.6, whereas the mobile phone subscribers will go up by the factor 90 and the number of internet users will explode by the factor 192.

Figure 1 — Indicators of Telecommunication Media Use, 1990 - 2002

Index 1990=100



<sup>a</sup>Projection. – <sup>b</sup>Estimate.

Note: The gray area includes the data that are projected or estimated.

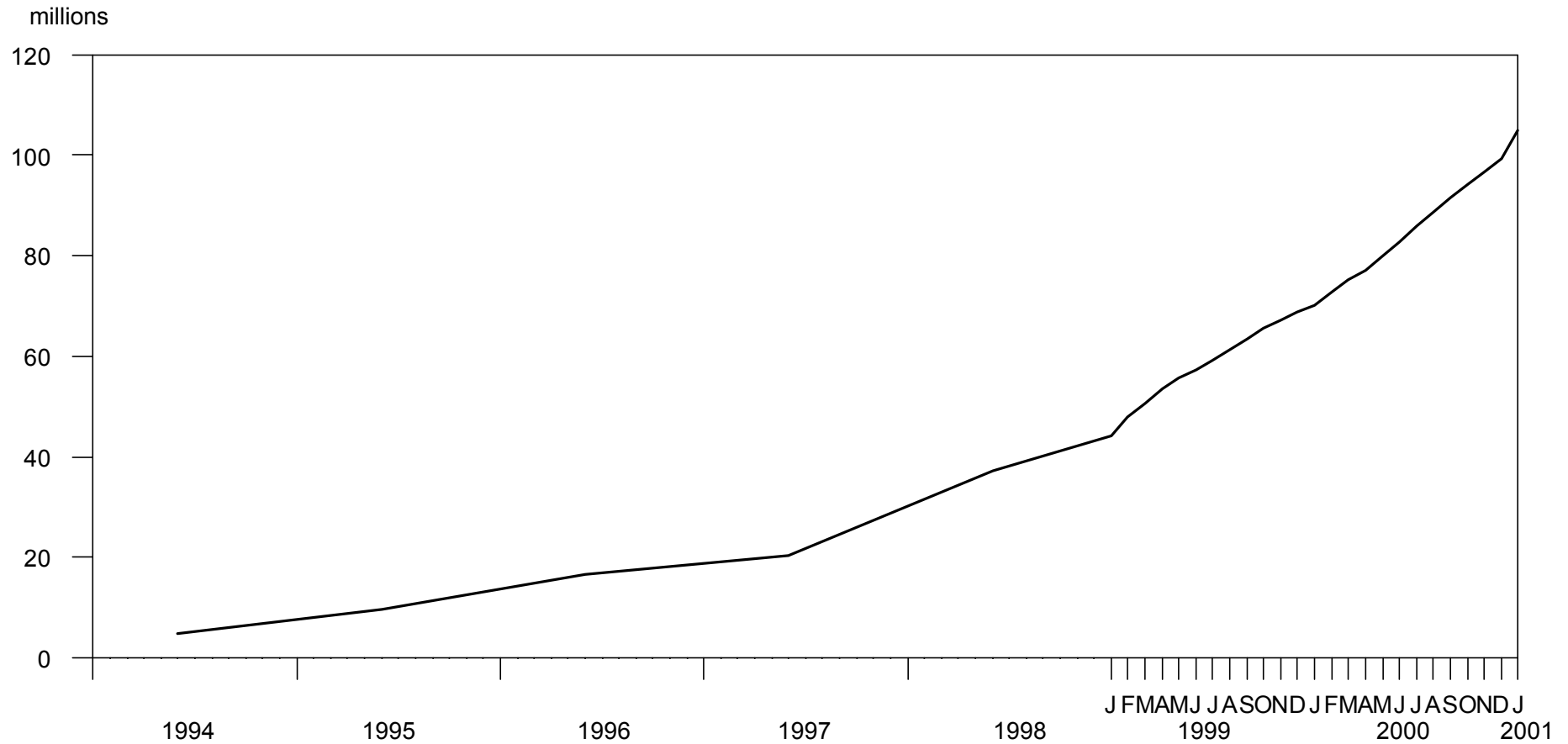


Source: Own representation based on International Telecommunication Union (2001).

This rapid development in the use of the internet is also reflected in the accelerating growth of the number of internet hosts. From mid-1994 to January 2001 world-wide internet hosts multiplied by the factor 22 from 4.8 millions to more than 105 millions (Figure 2).

Linked to the increase in internet users and internet hosts is a mounting importance of the internet for business transactions. Due to limited availability of secure on-line payment devices in previous years, many users were initially reluctant to purchase goods and services via the internet. However, the standard of encoding and, consequently, the security of transaction have improved in the last years, and electronic commerce has become more popular so that it is set to gain quickly in significance relative to overall business. According to a survey conducted by the UNCTAD (2000: 7) about the various projections, the importance of on-line business for total cross-border trade flows is estimated to range between 10 and 25 per cent of world trade by the year 2003. This range of estimation exhibits on the one hand the considerable uncertainty concerning the rate of growth of e-commerce, but on the other hand underlines the expectation that e-commerce will become a major component of business life and cross-border trade even if a more cautious assessment turns out to be true. For the year 2005, the association of 67 multinational firms within the "Global Business Dialogue on

Figure 2 — World-Wide Growth of Internet Hosts, 1994 – January 2001



Notes: For the years 1994 to 1998, annual data are given. For the period January 1998 to January 2001 monthly average data are presented in the figure.

Sources: Own representation, World Bank (2000), Telcordia (2001a).

Electronic Commerce" expects that on-line business to business will amount to more than US\$ 7 trillion annually (Global Business Dialogue 2000a: 2). Furthermore, the association expects that more than one billion people will be connected to the internet by that date.

Related to the progress of electronic commerce, the OECD (1999: 21) envisions a significant rise in international trade, especially in electronically delivered products. These products are frequently services that are, until now, only traded to a limited amount and that are predominantly supplied on an international level within multinational firms. These shifts in business practices could be detrimental for sectors that have been protected until now by regulatory or structural barriers. Furthermore, the OECD expects from this development considerable pressures to reduce differences in regulatory standards concerning especially accreditation, licensing or restrictions on activity for these newly tradable products.

### **1.3 The Digital Divide between Countries**

The previous section has documented the exponential rise of the use of the internet and the expected future importance of electronic commerce. However, it could be claimed that the internet age has arrived only in some parts of the world. Table 1 presents the density of the five main tools of the

Table 1 — The Arrival of the Information Age, by Region

Region	Television sets per 1000 people		Telephone main-lines per 1000 people		Mobile phones per 1000 people		Personal computers per 1000 people		Internet hosts per 1000 people	
	1998	in percentage of world average	1998	in percentage of world average	1998	in percentage of world average	1998	in percentage of world average	1999	in percentage of world average
Low income (GNP per capita less than US\$ 731)	138	56	37	25	8	15	6.2	9	0.03	0.3
Lower middle income (GNP per capita between US\$ 731 and 3030)	227	92	115	79	15	27	24.9	35	0.59	6
Upper middle income (GNP per capita between US\$ 3031 and 9360)	297	120	189	129	75	136	50.3	71	2.47	26
High income (GNP per capita more than US\$ 9361)	662	268	567	388	265	482	311.2	441	60.76	643
World	247	100	146	100	55	100	70.6	100	9.45	100

Note: The gray areas include the data with density values of less than 50 percent of the world average for this indicator.

Source: Own calculations, World Bank (2000a), World Bank (2000b), World Bank (2000c), International Telecommunication Union (2000).

communication and information era (television sets, telephone mainlines, mobile phones, personal computers and internet hosts per 1000 people) according to an income classification of countries. The classification of countries follows the World Bank (2000a): "Low income" are countries with a Gross National Product (GNP) of less than US\$ 731 for the year 1998, "lower middle income" are countries with a GNP between US\$ 731 and US\$ 3030, "upper middle income" are countries with a GNP between US\$ 3031 and US\$ 9360, whereas "high income" countries are the remaining ones with a GNP of more than US\$ 9361.

Table 1 shows that the gap between the low income and the high income countries increases considerably with the state of technology of the communication and information equipment. Whereas the low income countries achieve with their density of television sets 56 percent of the world average, with their density of telephone mainlines 25 percent and with their density of mobile phones still 15 percent, the gap is more pronounced in internet related equipment: The density of personal computers in the low income countries is less than 10 percent of the world average and the density of internet hosts is even less than half of one percent of the world average. This gap is sometimes denominated "digital divide" (cf. OECD, 2001b). It is also interesting to note that the countries classified as upper middle income achieve quite high density

values (above 70 percent) relative to the world average for four categories (television sets, telephone mainlines, mobile phones and personal computers per 1000 people) but fall to just 26 percent of the world average concerning the diffusion of internet hosts. Since the internet hosts contain the data that are world-wide available, the density of hosts in a country indicate how much this country can influence the contents of the internet.<sup>2</sup>

Table 2 displays the regional distribution of internet hosts and internet users and underlines the assessment of a digital divide separating the high income countries from the rest of the world. 91 percent of all internet hosts are in the EU, the USA, Canada and Japan. These countries account also for more than 80 percent of world total of internet users. Developing regions like South America or Africa account only for 1.1 or 0.2 percent of internet hosts, respectively, and 3.4 or 0.6 percent of the world total of internet users, respectively.

Table 2 also shows that the USA are with 66.9 percent of the world total of internet hosts and 38.1 percent of the world total of internet users the decisive

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<sup>2</sup> However, it has to be noted that there is not yet a unique definition of internet hosts and that the methodology of collecting the data about internet hosts still differs significantly from one statistical source to another.

Table 2 — The World-Wide Distribution of Internet Hosts and Internet Users, January 2001

	Number of Internet Hosts		Number of Internet Users	
	January 2001 in thousands	in percent of world total	January 2001 in thousands	in percent of world total
<b>EU</b>	<b>15560</b>	<b>15.3</b>	<b>118576</b>	<b>28.7</b>
UK	3370	3.3	35340	8.5
Germany	3035	3.0	24311	5.9
Italy	1979	1.9	13536	3.3
Netherlands	1429	1.4	7994	1.9
France	1302	1.3	9248	2.2
Sweden	1019	1.0	4904	1.2
Finland	894	0.9	2773	0.7
Spain	716	0.7	5331	1.3
Austria	556	0.5	3631	0.9
Belgium	427	0.4	2999	0.7
Denmark	405	0.4	2661	0.6
Greece	156	0.2	3617	0.9
Portugal	147	0.1	1159	0.3
Ireland	113	0.1	966	0.2
Luxembourg	14	0.01	108	0.03
<b>NAFTA</b>	<b>72692</b>	<b>71.5</b>	<b>179236</b>	<b>43.4</b>
USA	67983	66.9	157609	38.1
Canada	4307	4.2	19914	4.8
Mexico	403	0.4	1713	0.4
<b>Asia</b>	<b>7745</b>	<b>7.6</b>	<b>59843</b>	<b>14.5</b>
Japan	4697	4.6	35197	8.5
Taiwan	1248	1.2	7036	1.7
South Korea	493	0.5	13984	3.4
Hong Kong	590	0.6	3998	1.0
Singapore	229	0.2	2213	0.5
Malaysia	74	0.07	2141	0.5
<b>Oceania</b>	<b>1880</b>	<b>1.9</b>	<b>15078</b>	<b>3.6</b>
Australia	1493	1.5	8962	2.2
New Zealand	379	0.4	1227	0.3
<b>South America</b>	<b>1084</b>	<b>1.1</b>	<b>14121</b>	<b>3.4</b>
Brazil	625	0.6	9890	2.4
Argentina	232	0.2	984	0.2
Chile	83	0.08	842	0.2
<b>Africa</b>	<b>242</b>	<b>0.2</b>	<b>2646</b>	<b>0.6</b>
<b>Others</b>	<b>2443</b>	<b>2.4</b>	<b>23840</b>	<b>5.8</b>
<b>World Total</b>	<b>101647</b>	<b>100.0</b>	<b>413341</b>	<b>100.0</b>

Sources: Own calculations, Telcordia (2001b).



country for the spread of the internet. The United Kingdom or Germany, the two EU countries with the most internet hosts and internet users, have only a twentieth of the internet hosts of the USA.

The existing economic divide between the industrialized and the developing countries is, of course, partly the reason for the digital divide between the high income countries and the rest of the world. Lack of computers, unstable electricity infrastructure, shortage of telephones and capacity of telephone lines aggravate the introduction of the necessary information technology for the digital economy. Furthermore, the fees for new software and internet services are prohibitive for many users in developing countries.

The threatening danger of the digital divide has important economic implications. If the projected exponential rise of on-line business as percentage of total trade turns out to be true, the low participation rate of the developing countries at the internet may impede these countries to profit from the growing cake of business activities and will widen the economic gap between nations.

There are also some more optimistic assessments. The latest technological innovations might enable developing countries to install fully digital wireless networks in order to leapfrog expensive analog terrestrial exchanges. For example, Hudson (2000) sets out that in Uganda there are now more cellular customers than fixed lines, and that the African Communication Group installs

wireless kiosks for Internet access to enable small business to get established in the global market place. There are some success stories where villages in developing countries were able to offer their products directly to consumers in the developed world, thanks to lower barriers to entry and improved contact facilities provided by the internet. Furthermore, the rapidly increasing exports of software services from Indian firms to OECD countries have almost attained proverbial status in the discussions about the catching-up of developing countries (cf. Langhammer, 2000).

Unfortunately, it is quite likely that – despite some success stories and selective leapfrogging within the developing countries – it will not be possible to close or even significantly narrow the digital divide, since the new technologies are heavily dependent on physical capital (for infrastructure, hardware and software), human capital (for installation, maintenance, updates and efficient usage of the computers) and the general economic policy environment (for functioning payment systems).

## **2 Necessary Modifications for the International Framework**

The rapid spread of the internet as a means for business transactions has not yet been accompanied by corresponding modifications of the international framework. An interdependent transborder network of business activities

requires international policy coordination in order to ensure clear, predictable and non-discriminatory rules. A failure to establish these kinds of rules will restrain investment and, consequently, growth. The following sections discuss the necessary changes to create an international regulatory framework that helps to foster an undistorted development of e-commerce in order to maximize the world-wide benefits of the new economy.

## **2.1 Establishing Standards and the "Country of Origin" Principle**

A high percentage of trade among nations is based on different endowments and production processes to make the exchange of goods and services beneficial for the involved parties. However, trade requires common norms and standards to facilitate the exchange of good and services by reducing transaction costs. Consequently, it can be said that standards foster and impede trade at the same time (cf. Sykes, 1995). The need for uniform technical standards is especially pronounced for electronic commerce that is depending to a wide extent on functioning and compatible networks. The provider of standards is, however, able to achieve a kind of monopoly power, and there might be a danger of commercial policy abuse by establishing standards and norms that favor one specific company or the companies of a specific country.

For the new economy, important standardization issues concern questions like who determines the network norms, who decides on domain names, how is the compatibility between software programs ensured or how can new improved technological advances substitute obsolete, but still widely spread practices. The overriding principle to answer these question should be the desire to guarantee open network access and open electronic commerce practices. This means, that the use of existing business approaches can yield the benefit of common standards while the possibility of introducing enhanced applications or processes limits the monopoly power of the established firms. The frequent interaction between market participants encourages the formation of uniform standards within networks and e-commerce in a gradual market oriented approach. However, it will be the responsibility of policy authorities that are independent from specific companies and individual countries to ensure the contestability of all market segments.

Of course, the preeminence of the US companies within most sectors of the new economy will cause certain dependencies of such policy authorities on the US government or large US firms. Furthermore, examples like the persistence of the English "QWERTY" or the German "QWERTZ" typing keyboards show that ingrained standards are sometimes very hard to replace. Nevertheless, in order

to maximize overall welfare, it will be decisive to approximate as closely as possibly an open access approach to networks and electronic commerce.

Within the European Union (EU), the "country of origin" principle in combination with the establishment of common minimum standards will become the guiding framework for electronic commerce. For transborder e-commerce within the EU the country's regulations of the seller will be the applicable ones. It is hoped for, that this will accelerate sales and distribution via the internet, since sellers will not have to modify their business practices to the EU-member's specific regulations. Customers will have the right to file complaints in their home countries, but the standards of the seller's country will be decisive for any judgment.<sup>3</sup> The jurisdiction of the seller country will also override any rules of private law that might determine the applicability of another country's regulations. The electronic commerce directive of the EU Commission's requesting the "country of origin" principle for e-commerce is a useful step to simplify internet transactions.

The national implementations, as for example in Germany, yet run the risks of including too many exemptions to this overall principle so that intended clarity about the applicable jurisdiction becomes blurred. National exemptions reduce

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<sup>3</sup> This requires also clear rules which country will be judged to be the country of origin, if e.g. a French internet site offers the services of a Portuguese producer to German clients.

the value of the EU directive considerably. To overcome the danger of a myriad of exemptions and to facilitate further the spread of e-commerce within Europe, the EU Commission has proposed to harmonize the most important regulations for electronic commerce. The agreement on common minimum standards will reduce the information costs for the customers and will thereby be able to foster transborder electronic commerce in more complex business sections such as in the insurance or financial markets, too. However, the establishment of common standards requires normally considerable time and reduces the flexibility to account for national peculiarities and new developments. An enlarged EU with about 25 members by the end of this decade might run the risk to react too slowly to technological innovations with the adaptations of the common harmonized standards. In that respect, the chosen approach of the priority of the country of origin principle over the establishment of common standards does justice to the fast moving nature of the new economy.

The establishment of the country of origin principle will necessitate the clear labeling of the applicable jurisdiction that govern an internet site and therefore the related transactions. Furthermore, it will be also of great interest to the on-line businesses outside the EU to avoid the liability under foreign laws. The on-line businesses have therefore the incentive to point out to their customers that the use of the internet site will make them subject to the laws and regulations of

the country of the site owner. It is very probable that future web sites will indicate clearly the relevant jurisdiction and will offer additional details about the various specific policies. Furthermore, Forrester (2000) expects that internet users will be able to specify within their internet browsers their preferences concerning acceptable jurisdiction, consumer protection, privacy, contract characteristics or tax issues. These personal preferences will be automatically compared with the site policies. Thereby, it will be possible to quickly detect discrepancies and allow the customer to decide whether to proceed with the activities on this site.

World-wide common standards will be necessary for basic rules for electronic commerce that ensure free and non-discriminatory access to the national networks, a minimum level of data protection, the rule of law concerning concluded contracts, safe electronic signatures, unique internet addresses as well as copyright protection and trademark protection (cf. Senti, 2000). Furthermore, it is likely that over time common standards concerning prohibited contents on the internet like child pornography, racism, terrorism, or construction plans for bombs will emerge.

## **2.2 Policy Co-ordination**

The arguments for establishing open common standards point to an increased necessity for policy co-ordination that can take into account new technological

developments. In general, the decentralized nature of the internet will be also best served by decentralized regulations. Even if the internet restricts the ability of governments to effectively implement their laws, it is neither foreseeable nor preferable that countries convey their legislative means to global legal institutions.

Rather, it will be necessary to increase co-ordination on multi- and bilateral bases in order to help countries to establish sound and internationally compatible regulatory frameworks. While national differences in regulations are possible and even desirable to foster competition, they have to be reconcilable with the participation of all nations in the global economy. The international policy co-ordination has to lead to clear code of practices including also a predictable schedule of responsibilities, if national laws differ.

Various international organizations have tried in the last years to establish feasible common ground for co-ordination and possible joint implementation. An "Electronic Commerce Task Force" of the World Trade Organization (WTO) has examined various fields for increased co-operation like common product and service categories, consistent rules of origin, synchronized assessment of customs values of goods and services, increased transparency and improved copyright as well as brand name protection (cf. WTO, 2001). Furthermore, in the context of the increasing importance of e-commerce the WTO has repeatedly



pointed to the necessity to advance further the opening of markets, to equalize and reduce the level of customs burdens between countries and categories, and to extend the most favored nation principle for services (cf. WTO, 1998). It has also been recommended to focus on the alignment of competition rules within the General Agreement on Trade in Services (GATS) (cf. Bronckers and Larouche, 1997). In the year 2000, work formally began at the WTO to re-launch service negotiations with the overall aim to broaden and deepen market access commitments in the GATS and to strengthen the GATS rules and principles.

The new economy leads to increased demands on the multilateral regulatory system, since the increasing interdependencies require a substantial increase in policy coordination. However, national differences in preferences have not become smaller or at least have not converged at the same speed as business practices. Consequently, it could be argued that establishment of common and non-ambiguous trade rules has become even more difficult - despite or because of the new economy. This development might jeopardize the beneficial effects of the rule based trade policy. The debacle of the Seattle round and substantial differences in assessments between countries concerning ways and means to liberalize all modes of cross-border supply of services highlight the difficulties

in advancing the liberalization of services that are important for the new economy.<sup>4</sup>

Even countries on comparable per-capita income level differ considerably in their assessment of liberalization needs for services. For example, the EU tends to prefer state intervention in order to protect consumers and to support local culture as well as national identity, whereas the US tends to promote liberalization of trade regardless of historical or cultural particularities of other nations. These differences in assessment of liberalization requirements for services are even more pronounced between industrialized and developing countries. Therefore, it is not surprising that the process of finding common denominators in the co-ordination of service trade liberalization uses considerable and even increasing time with the cumulative complexity of service liberalization.

Consequently, the WTO has two main sets of tasks. The first set is to continue further the approach of step-wise liberalization. These liberalization issues have to cover services, especially the provision of national treatment and market access for the decisive sectors of the e-commerce "value chain" and of the

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<sup>4</sup> These modes of service delivery are within the GATS: (1) cross-border supply, (2) consumption abroad, (3) commercial presence, and (4) movement of natural persons. It is still not clear whether electronic commerce will be consistently treated as mode (1) or mode (2) by the WTO members (cf. Panagariya, 2000).

information technology.<sup>5</sup> However, it is likely that the negotiations about future additional liberalization between 140 (as of early 2001) WTO members will require considerable time. The second set of tasks is to generate a level playing field for e-commerce. This should be done with the establishment of an open trade environment by ensuring that national regulations for e-commerce are transparent, predictable, neutral concerning the technical mode of service and in the least possible way trade restricting (cf. Senti, 2000).

Within the scope of the WTO, it might be also feasible to establish in the medium run coordinating bodies that address the issues of trade related consumer protection and data privacy. Concerning privacy, the EU Commission has tried to introduce with its privacy directive a harmonization of privacy standards. With this directive the Commission aims implicitly not only at a harmonization within the EU, but also at setting a world-wide standard. However, due to the – at present – unspecific location of the on-line business, it is likely that this endeavor is going to fail. As long as regulatory authorities are not able to specify the position of a computer the implementation of the privacy directive will remain fragmentary. Consequently, it will depend on the customers to ensure that the standards concerning privacy of the on-line

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<sup>5</sup> Krancke (2000) provides a detailed analysis of the existing trade barriers in the e-commerce "value chain."

business correspond to their preferences. As described above, this comparison of customers' preferences and site policies could be done automatically.

Increased policy co-ordination will be also necessary for regulations such as concerning intellectual property rights, encryption, authentication, certification or credit-card liability that are applicable to electronic commerce. These regulations have to ensure a non-discriminatory treatment concerning the mode of supply. Similar transactions carried out by electronic commerce or by traditional means have to be treated in the same way. The following principles for the treatment of electronic commerce should be emphasized (cf. OECD, 2000): (1) efficiency – compliance costs with the regulations are kept to the minimum; (2) certainty and simplicity – the regulations should be clear and easily understandable; (3) effectiveness and fairness – the regulations should keep loopholes to a minimum and (4) flexibility – the regulations are suitable to take into account changed technological and business practices.

The ongoing telecommunication deregulation in many countries and technology improvements will help to drive costs down and enable the increase of accessibility, which will facilitate the further spread of electronic commerce. As it was laid out, clear and non-distortionary rules within an international co-ordinated regulatory framework are necessary, too, in order to foster a suitable setting for the new economy.

### **2.3 Taxation and Duties**

With the increasing share of electronic – and therefore hardly tangible – transactions, it will be more and more difficult for the government keep control on the tax base and to impose taxes and levies. Due to difficulties in raising taxes on purely electronic transactions, the US had introduced a tax moratorium for these activities concerning indirect taxation, i.e. product taxes, sales taxes and value added taxes. Such a tax moratorium was also recommended for the EU (Siebert, 2000: 30).

Electronic transmissions crossing borders are right now also duty free due to the moratorium on customs duties for electronic transactions that was introduced in the year 1998. Consequently, electronic commerce as one mode of business conduct (sending software, literature, music and pictures via the internet) receives at present a preferential treatment over other modes of supply (sending these information embodied in documents, books, tapes, compact discs or films via the conventional channels). The effect of this preference concerning duties is similar to trade preferences of one region granted to another region, as examined within the Vinerian customs union theory. Consequently, Mattoo and Schuknecht (2000) expect also from this preference for one mode "trade-

diversion" to the detriment of other modes.<sup>6</sup> Therefore, this duty exemption of electronic commerce questions the concept of technological neutrality, that prohibits discriminations among products on the basis of their means of delivery. This concept or better principle of technological neutrality is, however, decisive to make sure that the GATS system is applied in a consistent way to electronic commerce. A similar distortion is also introduced into national tax systems if one mode of supply is singled out for different treatment. This has been examined by various authors like Chan (2000), Goolsbee (2000), Goolsbee and Zittrain (1999) or Watanabe (2000).

While at present electronic commerce tends to be favored in its tax treatment, there are also some provisions within countries that discriminate against electronic products. Publishers in Germany have complained about the discrimination of the e-commerce through tax regulations. The same product faces two different tax rates depending on its distribution as either a printed text or an electronic copy. In Germany, there is a reduced sales tax of 7 percent on books, journals and newspaper compared to a sales tax of 16 percent on electronic sales and compact discs.<sup>7</sup> The publishers have pointed out that this

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<sup>6</sup> In their analysis of existing electronic commerce, Mattoo and Schuknecht (2000) do not find an alarming magnitude of trade-diversion. However, this finding might be partly due to the dated material (1990 until 1996) they used.

<sup>7</sup> The tax subsidy for books is justified with the attempt to encourage the education of the population. However, the electronic distribution of books and journals is not seen as delivery, but as a service subject to a higher tax rate.

constellation leads to a discrimination of digital services by the government, despite repeated pledges to foster the right environment for the new economy. It has to be noted, however, that it is not the German parliament or the German finance ministry that can change this constellation. This could only be done by the EU, which has confined in 1977 in its 6th directive concerning value added taxes the reduced tax rates to books, journals, newspapers and booklets for painting and music.

These examples highlight the unsystematic treatment of electronic commerce. In order to achieve consistency of tax and duty systems, it is necessary to eliminate exemptions. Through special treatment of electronic commerce within the tax system considerable distortions might be introduced. A special treatment of electronic commerce concerning duties is also questionable. Previous experiences have shown that temporary waivers for certain sectors within the GATT / WTO system (like for agriculture or textile) often become resistant to change (cf. Siebert, 1999: 284). The danger of large distortions is especially pronounced for areas that will become increasingly important in the future.

Consequently, the difficulty in levying taxes on electronic commerce should not lead to the introduction of new distortions within the tax systems. Rather, it seems necessary to look for possible alternatives. In summer 2000, the EU Commission brought out its proposal for the introduction of value added taxes

for electronic products. With this proposal, the EU Commission aims at a simplification of the value added taxes within the EU. Right now, companies do not have to collect consumption taxes on on-line sales made directly to consumers in other countries. This leads, of course, to substantial distortions. A French vendor has to impose the consumption tax on its French customer, whereas the US provider could deliver the same product without collecting this consumption tax. The EU will introduce through its proposal a more consistent treatment. Each vendor of on-line goods and services will be required to register for value added tax (VAT) collection purposes in an EU country and to collect and pay the VAT to that country for all sales to EU customers. Open questions related to this approach concern the remaining differences in the tax rates within the EU and the enforceability of this primarily voluntary system (cf. Bleuel and Stewen, 2000).

A possible solution concerning the tax differences will be the application of a single rate for all digitized sales in the EU for all vendors. Concerning the enforceability, the solution might lie in technological progress. Future technological developments might enable the localization of the on-line buyers and the sellers. Forrester (2000) expects that already by the year 2002, it will be possible with global positioning systems to determine the actual position of



customers. Consequently, modified tax policies might emerge with the new possibilities of taxing cross-border transactions.<sup>8</sup>

To simplify the international tax regime (covering more than just the EU members), the OECD Technical Advisory Group (TAG) on taxation has proposed four feasible methods for taxation that would help to reduce the existing array of various tax systems and regulations for e-commerce (OECD, 2001): (1) self-assessment, (2) tax at source and transfer, (3) registration of non-residents, (4) the use of third party intermediaries. These proposals are, however, subject to the same open questions of enforceability and different tax rates as mentioned above for the EU approach.

The "Global Business Dialogue on Electronic Commerce" has repeatedly argued that distortions between countries could only be reduced through a harmonization of sales taxes (Global Business Dialogue, 2000b). There are globally more than 100 different sales tax systems, which hinder the distribution of products via the internet. Furthermore, internet sales face frequently double taxation. Consequently, the initiative of the EU commission concerning VAT for electronic products was welcomed by the "Global Business Dialogue on Electronic Commerce", since it achieves a harmonization within the EU.

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<sup>8</sup> These possibilities to track the position of customers for tax purposes will raise new questions relating to the protection of data privacy.

Furthermore, the firms represented by the "Global Business Dialogue on Electronic Commerce" demand the implementation of tax rules that are based on the principles of neutrality and fairness, simplicity and global viability. The principle of global viability includes also the issues of enforceability and technological efficiency as well as international coordination and consistency. Concerning income tax, these firms demand that the main place of residence (physical presence) should define where income taxes are due.

The ultimate aim of these proposals can be seen in the desire for an enforceable, fair and globally (respectively EU-wide) accepted e-commerce tax system that avoids an array of inconsistent, national tax laws. However, the desire for harmonization has to take into account the danger of encrustation when setting joint tax rates. In that respect also an open, i.e. flexible, approach should be favored, where countries agree upon the overriding principle of the country of origin principle while establishing simple and easily comparable tax systems that will be applicable world-wide.

### **3 Strategies to Overcome the Digital Divide between Countries**

The establishment of the basic requirements set out in the previous chapter will be decisive to establish a framework that does not discriminate against countries or companies of certain regions. It is necessary, however, to address the

particular concerns that hinder developing countries to participate fully in the new economy. As it was set out at the beginning of this paper, there is a pronounced digital divide between the rich countries and the rest of the world. It might be that this digital divide is smaller than the gap for previous new technological developments (steam engines, telephones, electricity) five or ten years after these innovations came to the markets since the connection to the world-wide web and the implementation of digital devices require less sunk costs than the former main technological waves. In that respect, it could be argued that also the digital divide will diminish with time until the gap in the density of computers and internet hosts just reflects the different economic development stages during the catch-up process. Yet, the rapid rising importance of the internet within the last decade and the prediction about the enormous on-line business within a few years highlight the necessity to overcome and erode any "technological apartheid" that would even reinforce the existing economic divide.

The success of the Indian cities of Bangalore, Bombay, Hyderabad and New Delhi in exporting computer software services is based on the relatively advanced capital accumulation as embodied in the local infrastructure and a relatively high level of human capital for certain segments of the population. These levels of physical and human capital accumulation are, however, lacking

in most other areas of India and also in many other developing countries. Some emerging markets like Brazil, China, Russia, Mexico, and South Korea will be able to establish comparable local hubs of physical and human capital accumulation that have a comparative advantage in offering software and services for the internet. However, most regions in the developing world do not yet have a broad enough base of educated and trained people and lack until now the required infrastructure to compete in the new economy.

To diminish the digital gap between countries, it is necessary to tackle various issues. It is especially important to increase the participation of the population of developing countries in the new economy through computer-related education and training. This special training should not only aim at a quite general increase in the levels of human capital, but at the procurement of the required skills for the new economy. The focus on the relevant information technology abilities increases the chances for the occurrence of leapfrogging.<sup>9</sup> At least, the broadened base of computer skills will reduce the widening of the digital divide if advanced applications are introduced that require already a certain level of computer literacy.

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<sup>9</sup> Of course, the chances for leapfrogging might diminish if the qualified computer specialists from developing countries are then recruited by the industrialized countries as for example through the German Green-Card-Initiative for software programmers.

The government in India started to emphasize the building-up of engineering and computer skills in the 1950s and 1960s through its Institutes of Technology (cf. Mann et al., 2000: 185). This has laid the foundation for the present Indian export boom in software involving more than 600 specialized companies and employing 300.000 computer experts. Furthermore, some regions in India like Bangalore offer particular tax incentives for software exporters.

For physical capital a similar focus is also necessary, that should take into account the requirements of the new economy. Access to the internet has to be ensured by taking care of various specific aspects like infrastructure, affordability and reliability. In the context of developing countries, there are various strategies to increase the access potential. Hudson (2000) proposes the use of service obligations, regional differentiated subsidies, rural telecommunication funds, and the licensing of rural operators. The enhancement of access in rural, remote and low-income area is not only desirable for the sake of equity, but advisable to ensure overall economic efficiency via network effects.

The OECD (2001b) stresses, too, that apart from general approaches in reducing the digital divide like extending the infrastructure, skills and information, it will be especially important to offer low costs access. With computers and internet available at public institutions like libraries, post offices, local and regional

government facilities, schools etc., individuals can build up familiarity with the information technology and develop important relevant skills. Especially, the provision of low-cost and subsidized access in schools will help to establish a sound fundament for computer literacy of the future workforce and will improve the diffusion of decisive knowledge for the new economy.

The developing countries can, furthermore, learn from the experience of the liberalization of telecommunication and information technology markets in the high-income countries. These experiences point to considerable growth and a substantial reduction in user costs in the liberalized market segments. There is now mounting evidence that within developing countries the enhanced competition in telecommunication markets has led to similarly beneficial effects as for example in the wireless telephone networks of several countries (OECD, 2001b). Since many telecommunication market segments within the developing countries are still heavily regulated and monopolized, there is considerable scope for market liberalization and associated economic as well as social benefits.

#### **4 Conclusions**

The exponential increase in internet connectivity and in electronic commerce is likely to have a lasting effect on the conduct of business activities.

Consequently, the already observable changes indicate only the beginning of a long-term phenomenon, which might be labeled with the term new economy. This paper has examined the required changes for the international and multilateral policy environment. It has looked at the scope for common standards and the country of origin principle, the need for policy coordination and the desirability of tax alignment for electronic commerce. Furthermore, the paper has investigated the strategies to bridge the digital gap between countries.

In short, the paper has argued that it is particularly important to eliminate existing distortions affecting the spread of electronic commerce and has pointed out the crucial importance of a certain set of criteria for international rules and regulations. The rules that govern the new economy have to be transparent, non-discriminatory, simple, enforceable, and consistent. The separate frameworks of the countries can differ and it is neither likely nor desirable that the regulatory treatment of electronic commerce will converge to a single and exclusive corpus of legislation.

Rather the different regulatory frameworks of the countries have to be compatible to each other in order to ensure the participation of all countries in the world-wide (digital) exchange of goods, services and ideas. Such an approach will enable further investment and growth in the new economy and

will help to spread the benefit of the new economy also to the developing countries.



## 5 References

- Bleuel, Jens and Marcus Stewen (2000). Value Added Taxes on Electronic Commerce: Obstacles to the EU Commission's Approach. *Intereconomics* 35, July/August: 155–161.
- Bronckers, Marco C. and Pierre Larouche (1997). Telecommunications Services and the World Trade Organization. *Journal of World Trade* 31 (3): 5-48.
- Chan, Clayton (2000). Taxation of Global E-Commerce on the Internet: The underlying issues and Proposed Plans. *Minnesota Journal of Global Trade* 9 (1): 233–268.
- Forrester (2000). *Regulating Global E-Commerce*. Forrester Report, Cambridge, MA.
- Global Business Dialogue (2000a). *Global Business Dialogue: Trade*. Miami Conference. Working Paper. Available under: [www.gbde.org/nn/2000/trade.html](http://www.gbde.org/nn/2000/trade.html)
- Global Business Dialogue (2000b). *Global Business Dialogue – State of Global E-Commerce*. Available under: [www.gbde.org/state\\_address.html](http://www.gbde.org/state_address.html)
- Goolsbee, Austan (2000). In a World without Borders: The Impact of Taxes on Internet Commerce. *Quarterly Journal of Economics* 115 (2): 561–576.
- Goolsbee, Austan and Jonathan Zittrain (1999). Evaluating the Costs and Benefits of Taxing Internet Commerce. *National Tax Journal* 52 (3), September: 413–428.
- Gordon, Robert (2000). Does the "New Economy" Measure Up to the General Inventions of the Past?. *Journal of Economic Perspectives* 14 (4), Fall: 49–74.
- Gundlach, Erich (2001). Interpreting Productivity Growth in the New Economy: Some Agnostic Notes. Kiel Working Papers 1020. Kiel.
- Hudson, Heather E. (2000). Extending Access to the Digital Economy to Rural and Developing Regions. In: Erik Brynjolfsson and Brian Kahin (eds.), *Understanding the Digital Economy – Data, Tools, and Research*. MIT Press, Cambridge, Massachusetts.
- International Telecommunication Union (2000). *World Telecommunication Development Report 1999*. Geneva.

- International Telecommunication Union (2001). *Key Indicators for the World Telecommunication Service Sector*. Available under [www.itu.int/ti/industryoverview/index.htm](http://www.itu.int/ti/industryoverview/index.htm).
- Kling, Robert and Roberta Lamb (2000). IT and Organizational Change in Digital Economies: A Sociotechnical Approach. In: Erik Brynjolfsson and Brian Kahin (eds.), *Understanding the Digital Economy – Data, Tools, and Research*. MIT Press, Cambridge, Massachusetts.
- Krancke, Jan (2000). Marktordnung und Barrieren im grenzüberschreitenden Handel mit Kommunikationsdienstleistungen: Dienstleistungen der Informationstechnologie. Kiel Working Papers 1008. Kiel.
- Langhammer, Rolf J. (2000). Developing Countries as Exporters of Services: Looking Beyond Success Episodes. Kiel Working Papers 992. Kiel.
- Mann, Catherine L., Sue E. Eckert and Sarah Cleeland Knight (2000). *Global Electronic Commerce – A Policy Primer*. Institute for International Economics, Washington, DC.
- Mattoo, Aaditya and Ludger Schuknecht (2000). Trade policies for electronic commerce. Policy Research Working Paper 2380. World Bank, Washington, DC.
- OECD (1999). *The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda*. OECD, Paris.
- OECD (2000). *Implementing the Ottawa Taxation Framework Conditions*. Committee on Fiscal Affairs, OECD, Paris. Available under: [www.oecd.org/daf/fa/e\\_com/ecom\\_english.PDF](http://www.oecd.org/daf/fa/e_com/ecom_english.PDF).
- OECD (2001a). *Technical Advisory Group on Taxation*. OECD, Paris. Available under: [www.oecd.org//daf/fa/e\\_com/tag.htm](http://www.oecd.org//daf/fa/e_com/tag.htm).
- OECD (2001b). *Understanding the Digital Divide*. OECD, Paris. Available under: [www.oecd.org//dsti/sti/prod/Digital\\_divide.pdf](http://www.oecd.org//dsti/sti/prod/Digital_divide.pdf).
- Panagariya, Arvind (2000). E-Commerce, WTO and developing countries. *The World Economy* 23 (8): 959–978.
- Senti, Richard (2000). *Die Welthandelsordnung der Telekommunikation – Gegenwärtige Ansätze und Probleme bei der Regelung des internationalen Telekommunikationsmarkts*. ETH Zürich. (Mimeo).
- Siebert, Horst (1999). *The World Economy*. Routledge, London.

- Siebert, Horst (2000). *The New Economy – What is really new?* Kiel Working Paper 1000. Kiel Institute of World Economics.
- Sykes, Alan O. (1995). *Product Standards for Internationally Integrated Goods Markets*. Brookings Institution, Washington, DC.
- Telcordia (2001a). *Netsizer – Monthly Average Hosts*. Morristown, New Jersey. Available under [www.netsizer.com](http://www.netsizer.com).
- Telcordia (2001b). *Current Stats for Top Internet Penetrated Countries*. Morristown, New Jersey. Available under [www.netsizer.com/daily/TopCountry.html](http://www.netsizer.com/daily/TopCountry.html).
- United Nations Conference on Trade and Development (UNCTAD) (2000). *Building Confidence – Electronic Commerce and Development*. United Nations, Geneva.
- Watanabe, Satoshi (2000). Electronic Commerce, International Taxation, and Tax Administration. *Hitotsubashi Journal of Economics* 41 (1): 53–64.
- World Bank (2000a). *World Development Indicators CD-ROM*. World Bank, Washington, D.C.
- World Bank (2000b). *The Information Age*. World Bank, Washington, D.C. Available under: [www.worldbank.org/data/wdi2000/pdfs/tab5\\_11.pdf](http://www.worldbank.org/data/wdi2000/pdfs/tab5_11.pdf).
- World Bank (2000c) *Power and Communications*. World Bank, Washington, D.C. Available under: [www.worldbank.org/data/wdi2000/pdfs/tab5\\_10.pdf](http://www.worldbank.org/data/wdi2000/pdfs/tab5_10.pdf).
- World Trade Organization (WTO) (1998). *Electronic Commerce and the Role of the WTO*. Geneva.
- World Trade Organization (WTO) (2001). *Electronic Commerce in the WTO*. Geneva. Available under: [www.wto.org/english/tratop\\_e/ecom\\_e/ecom\\_e.htm](http://www.wto.org/english/tratop_e/ecom_e/ecom_e.htm).