Emerging Economic Models in the Age of Internet and E-Commerce

Sumanjeet

Assistant Professor, Department of Commerce, Ramjas College,
University of Delhi, Delhi, India
E-mail: sumanjeetsingh@gmail.com

Abstract

Business and economy are inextricably linked with the development and implementation of new technology. While e-commerce clearly has a positive impact on the business sector, doubts have been raised about its impact on macroeconomic growth and development. Impact of internet and e-commerce on business in heavily industrialised, and to a limited extent, in lightly industrialised countries, has been extensively discussed but this domain of Internet activity has received relatively little attention. Therefore, it has become pertinent to analyse the implications of e-commerce and internet on the economy. This paper studies the economic implications of e-commerce on different segments of an economy like intermediation process, agriculture, labour market, transportation, taxation, cost price and competition and monetary system.

Keywords: E-Commerce, Implications, Economics, Growth

JEL Codes: O2, O3, O4, I2

The information revolution aided by the revolution in the telecommunications and institutional innovations initially promised to change the nature of the market altogether. The market’s primary role as merely a place where buyers and sellers meet has now been revolutionised by the impact of the information revolution in its subsidiary role, i.e., as a transmission belt of information. Today a market is a place where there are no intermediaries between a seller of goods and their final buyer, to the mutual benefit of both parties (Sengupta, 2004). The internet and its enabled technologies (especially electronic commerce) have caused the costs of many kinds of market interaction to plummet (Saloner, 2001). E-commerce also has the potential to stimulate growth and employment in industrialised as well as developing countries. Further, e-commerce allows economics agents (both buyers and sellers) to interact more effectively by creating new market opportunities (Mukhopadhyay, 2002). Thus, e-commerce has strong economic implications at both micro and macro levels.
E-Commerce and Economic Growth

While e-commerce clearly has a positive impact on the business sector, doubts have been raised about its impact on the macroeconomic growth, particularly productive growth. Various studies show that e-commerce has an impressive performance particularly in terms of productivity growth (Solow, 1987; Liebowitz, 2003; Lichtenberg, 1995; Sichel, 1997; Brynjolfsson & Hitt, 1996; Berndt et al, 1992; Dedrick et al, 2003 and Parson et al, 1993). The US, which leads the world in IT and e-commerce, has had a notable economic performance, particularly in terms of productive growth, since 1995. But, the same has not happened with developing countries as they have failed to catch up technologically with the industrialised world. To assess the broader economic impact of e-commerce and the ramifications of whether or not developing countries can catch up, UNCTAD has conducted a quantitative analysis based on two scenarios: one in which the developing countries fall behind technologically and the other in which they catch up with the developed countries. The analysis is centered on cost saving and assumes that e-commerce can reduce costs of services, particularly in retail and wholesale trade, transport and financials and business services. Cost savings in services are stimulated through a productive growth scenario, which allow for the analysis of such macro-economic variables as GDP, welfare, wages and terms of trade. The analysis is a unique application of a computable general equilibrium model to e-commerce at the global level.

According to the report, under the first scenario developed countries would have welfare gains of $117 billion, while the developing world (excluding Asia) would lose welfare of $726 million. The Asian region, on the other hand, would gain $802 million, largely attributable to the transport services sector. Besides welfare and GDP losses, developing countries would also experience a reduction in wages and deteriorating terms of trade.

Table 1: Welfare Impact of a 1% Increase in Productivity in Developed countries ($Million).

<table>
<thead>
<tr>
<th>Services</th>
<th>Trade</th>
<th>Air Transport</th>
<th>Maritime Transport</th>
<th>Other Transport</th>
<th>Financial Services</th>
<th>Business Services</th>
<th>Services (1) to (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed countries</td>
<td>47942</td>
<td>3365</td>
<td>2896</td>
<td>17238</td>
<td>12071</td>
<td>35081</td>
<td>117869</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>-55</td>
<td>-13</td>
<td>21</td>
<td>11</td>
<td>-8</td>
<td>-53</td>
<td>-93</td>
</tr>
<tr>
<td>Asia</td>
<td>-121</td>
<td>130</td>
<td>528</td>
<td>261</td>
<td>-8</td>
<td>1</td>
<td>802</td>
</tr>
<tr>
<td>Latin America</td>
<td>-197</td>
<td>-5</td>
<td>83</td>
<td>-19</td>
<td>-52</td>
<td>-123</td>
<td>-301</td>
</tr>
<tr>
<td>Africa</td>
<td>-45</td>
<td>-4</td>
<td>69</td>
<td>-40</td>
<td>-12</td>
<td>5</td>
<td>-23</td>
</tr>
<tr>
<td>Rest of the world</td>
<td>-196</td>
<td>-38</td>
<td>96</td>
<td>-8</td>
<td>-56</td>
<td>-124</td>
<td>-309</td>
</tr>
</tbody>
</table>

Source: UNCTAD, E-Commerce and Development Report, 2001

1 This section of the study is based on the data, facts collected from the Report of UNCTAD on E-Commerce and Development, 2001. However, the analysis is done by the researcher.
2 In previous technological revolutions, productivity gains have managed to provide for one of the main goals of development in the long run, that is, to improve living standard.
E-Commerce could therefore end up actually widening, and not narrowing, the gap between the developed and developing countries.

Under the second scenario, however, if developing countries were to catch up with developed countries in productivity, they would increase output, wages and welfare.

**Table 2**: Welfare Impact of a 1% Increase in Productivity in Each Developing Region Only ($Million).

<table>
<thead>
<tr>
<th></th>
<th>Trade Services (1)</th>
<th>Air Transport (2)</th>
<th>Maritime Transport (3)</th>
<th>Other Transport (4)</th>
<th>Financial Services (5)</th>
<th>Business Services (6)</th>
<th>Services (1)to (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Europe</td>
<td>6604</td>
<td>89</td>
<td>56</td>
<td>345</td>
<td>122</td>
<td>492</td>
<td>1770</td>
</tr>
<tr>
<td>Asia</td>
<td>3601</td>
<td>1914</td>
<td>1530</td>
<td>2389</td>
<td>863</td>
<td>1706</td>
<td>12016</td>
</tr>
<tr>
<td>Latin America</td>
<td>1920</td>
<td>1199</td>
<td>860</td>
<td>1439</td>
<td>949</td>
<td>1236</td>
<td>7614</td>
</tr>
<tr>
<td>Africa</td>
<td>1214</td>
<td>144</td>
<td>139</td>
<td>1214</td>
<td>233</td>
<td>383</td>
<td>2663</td>
</tr>
</tbody>
</table>

Source: UNCTAD, E-Commerce and Development Report, 2001

A 1% productive growth in the service sector in Asia, for example, would result in welfare gains of $12 billion, GDP growth of 0.4% and a 2 to 3% growth in the service exports (Tables 4.1 & 4.2). By reducing costs, increasing efficiency, and reducing time and distance, e-commerce could thus become an important tool for development.

**Impact of E-Commerce on Economy**

Business and economy are inextricably linked with the development and implementation of new technology (Tassabehji, 2003). Growth and development of any modern economy has been recognised by many economic theorists, such as Kondratieff, Schumpeter, Mensch and Porter, to be based on innovation of new technology. In the early twentieth century, the economist Kondratieff introduced his ‘Long Wave Theory’ of economic growth. He detailed the numbers of years that the economy expanded and contracted during each part of the half-century long cycle, which industries suffer the most during the ‘downwave’ and how technology plays a role in leading the way out of the contraction into the next ‘upwave’. Building on this theory, the economist Schumpeter (1961) assigned technological innovation an almost exclusive role, as an engine of economic development: the fundamental impulse that sets and keeps the capitalist engine in motion comes from new consumers’ goods, new methods of production or transportation, new markets, and the new forces of industrial organisation that capitalist enterprise creates. Mensch (1979) updates the Schumpeter theory, giving it an empirical base in history, where clusters of innovation take place and generate completely new sectors. Mensch stressed that only technological innovations can overcome

---

3 The theory was based on a study of 19th century price behaviour, which includes wages, interest rates, new material, prices, foreign trade, bank deposits and other data. From this he suggested that a long order of economic behaviour existed and could be used for the purpose of anticipating future economic development. He mentioned that an economy goes through the phase of prosperity, recession and recovery in cycles of approximately 50-60 years.
depression and that governments must implement an aggressive innovation policy to stimulate the search for new and basic innovation. Further, Porter (1990) emphasises that the prosperity and competitive advantage of a nation no longer happens as a result of a nation’s natural resources and its labour force, but rather the ability of its industry to innovate and upgrade. This can be seen as a disruptive technology on a macro environmental level. And today, whether economic community subscribes to these economic theories or not, the impact of new technology on the economy of a nation is indisputable. Continuous growth of e-commerce is expected to have a deep impact on structure and functioning of economies at various levels and overall impact on macro-economy. Some key areas are discussed below:

**Impact on Intermediation**
The traditional production, transportation and distribution process is characterised by the liner-point-to-point path\(^4\). In this process intermediaries play an important role (Figure 1). In the physical world\(^5\), due to large distances between production units and consumer units, it is not possible for consumers to approach producers directly and vice versa. The existence of intermediaries, namely distributors, wholesalers and retailers increases the transaction costs for both producers and consumers.

**Figure 1:** Traditional Intermediation Process.

\(^4\) In a typical (point-to-point) supply chain, physical goods flow from upstream to downstream (i.e., products from manufacturers to wholesalers, wholesales to distributors, distributors to retailers and retailers to customers)

\(^5\) Physical world here means an environment in which all commercial activities are conducted without the help of any electronic media
However, in the emerging economic scenario, liner-point-to-point information and knowledge flow no longer represent the reality. In the process of e-commerce transactions, it is possible for the consumer to conduct and place an order with the manufacturer instantly and directly (Singla, 2000). And the same is possible within the various agents of this process (i.e., between producers and retailers, retailers and distributors, distributors and retailers etc.). E-commerce technology brings about the benefits of more accurate and timely information flow, administrative saving, lower total distribution cost\(^6\), closer trading relationship (Figure 2), improved cash flows, and moving closer to the end consumers (Gattorna & Walters, 1996).

Figure 2: E-Commerce Based Intermediation Process.

No doubt, online ordering arid delivery of products is reducing the role of intermediaries. Therefore, it is feared that intermediaries would be completely eliminated in the e-commerce economy. However, this fear may be unfounded. In the e-commerce economy, though it is possible to deliver a number of goods and services online, it may not be possible to eliminate the physical delivery of many goods because of their very nature. Goods such vegetables and grocery, garments and shoes, toys etc cannot be delivered online (they have physical existence). Though intermediaries like wholesalers and retailers can be eliminated in such transactions, it may not be possible to eliminate distributors and transporters. The demand for distributors and transporters is in fact expected to increase tremendously (Westland and Clark) in the future. Even with the advent of e-commerce technology, the functions of intermediaries will not change, as collecting information is a labour and time intensive task. However, this group can exploit new opportunities\(^7\) and challenges.

\(^6\) E-Commerce can coordinate distribution, transport, buying in bulk, which has the effect of lowering the total cost of distribution

\(^7\) The corresponding fall in the cost of and time required to collect this information will increase productivity, and customers will respond accordingly by asking for more services from the intermediaries. Within this activity, intermediaries will contribute in a positive manner to the value of
Impact on Agriculture
The open access architecture of the Internet, declining information technology costs, and high volume have resulted in progressive steps forward for the entire marketing system. Parallel changes in the structure of agriculture have also contributed to the popularity of the current generation of information technology. Chief among the changes is the need for closer coordination of the supply chain - both upstream and downstream from the producer - and stretching from seed, fertilizers, and machinery suppliers, to food processors and retailers. Thus, technologies like electronic commerce have forced new relationships between and among the buyers of agribusiness to form a complex web interaction (Ehmake et al., 2001).

Various studies show that there is much about the potential success of e-commerce in agriculture. Common agribusiness business-to-business transactions such as buying, selling, trading, delivering and contracting seem to be natural targets for conversion to e-commerce (Shapiro and Varian, 1999). Many theoretical benefits of e-commerce in agriculture have been identified such as: (1) promotion of information flow, market transparency and price discovery (Poole, 2001); (2) facilitation of industry coordination (Nicolaisen, 2001); and (3) reduction or elimination of transaction costs (Porter, 2001; Thompson, 1996). Internet based e-commerce also offers tremendous opportunities to create collaborative marketplaces in a low-cost, effective way (Nicolaisen, 2001). E-commerce can also change the situation of hard bargains caused by scattered farmers and lack of information. At the same time, the fast and convenient electronic bargain manner can accelerate the circulation of commodities, lessen the risk, and increase the competition of agricultural products in the international market (Cao and Chen, 2001). These theoretical benefits appear to be undisputed. However, they have yet to materialise into profitability. A Golman Sachs study (2000) discussed the general barriers cited by business to Internet based e-commerce adoption and explained that these barriers also apply to agribusiness. They include: (1) unclear return on investment; (2) lack of budget; (3) lack of stakeholders support and (4) complicated technology. Added to these, there may be factors slowing down e-commerce adoption in agriculture. No doubt e-commerce has huge opportunities for the agricultural sector, but adoption of e-commerce in agriculture is not an easy task. And at this point in time the impact of e-commerce on farms, agribusiness firms, markets, and rural communities is not very clear. Are there only winners or are losers too? If so, who are they? What will governments do, will they be with or against e-commerce in agriculture? Since e-commerce is still evolving, it is too early to be able to obtain a definitive answer (Mueller, 2000). An inspection of current practices; however, suggests that success of e-commerce in agribusiness is undeniable. Factors specific to agriculture will create additional challenges, which must be overcome before success can be attained. The ability of

---

8 USDA’s annual National Agricultural Resources Management Study showed that 29% of farms had Internet access by 1995 and about 15% of those had conducted some business (e-commerce) over the Internet, mostly to purchase crop inputs (Morehart, M. and Hopkins, J. (2000), “On the Upswing: Online Buying and Selling of Crop Inputs and Livestock”, Agricultural Outlook, September, p. 4. Further, a study of Goldman Sachs estimated that 12% of all agricultural sales in the US would be conducted over the internet in the year 2004, compared to only 4% in the year 1999

9 In the traditional form of the supply system, products moved from the manufacturer to a series of wholesale distributors before reaching the retailers and the producers

10 Lack of education, poverty, poor IT infrastructure and lack of technology-savvy people (farmers and business people) may be another reason for the poor implementation of e-commerce in agriculture; this is especially true in developing countries like India
each player to work though these challenges will determine the speed of implication of e-commerce in agriculture.

Impact on the Labour Market

E-commerce, consisting of marketing and other business processes conducted over computer-mediated networks, is changing the way organisations in many industries operate. It leads to the automation of some job functions and replaces others with self service operations, raising output per worker and dampening employment requirements in some occupations, as well as in the industries in which these occupations are concerned (Hecker, 2001). The introduction and implementation of new technologies has posed important challenges for the commercial workers and their trade unions worldwide. Among the issues that unions have to deal with are, both B2B and B2C, self-scanning, logistics systems, multimedia and other in-store sales support applications. In many ways, they are already deeply affecting the labour market (Gottardi et al., 2004). In contrast, e-commerce has spurred employment in industries producing software, and systems used by e-commerce and other occupations associated with websites and networks.

Various studies showed that e-commerce has a positive impact on labour productivity. In a recent study, Atrostic and Nguyen (2004) considered the impact of computer networks on labour productivity in the US manufacturing sector, using micro data predominantly for 1999. They found a positive and significant impact of computer networks on plant level labour productivity, suggesting that networks increase labour productivity by approximately 7.5 per cent. Motohashi (2001) provides evidence for the positive impact of different information networks on labour productivity in Japan. In the UK a recent study by Criscuolo and Waldron (2003), based on Annual Business Inquiry, shows that buying online positively affects the labour and total factors of productivity, while selling online has a negative impact on productivity.

Perhaps the larger impact of e-commerce on the labour market can be seen in the form of online job searches. Little, however, is known about the importance of online job applications or direct employer initiated contracts with potential candidates. Even then, online job posting have grown spectacularly (Autor, 2001). Estimates place the number of online job boards at over 3000, the number of active resumes online at over 7 million, and the number of job postings at 29 million (Boyle et al., 1999; Computer Economics, 2000). Kuhn and Skuterud (2000) reported that 7 per cent of employed workers regularly used the web to search for a

---

11 E-commerce activities, in general, will spur employment needs for workers involved in e-commerce systems and organisations and its website design. More computer workers are needed to set up, maintain, and oversee the additional hardware and software systems that e-commerce requires. Among the workers needed are computers and information system managers, computer system analysts, computer engineers, computer support specialists, database administrators, computer scientists and computer programmers. E-commerce activities also require more artist and commercial artists, designers and writers and editors.

12 Their studies are based on companies that use all computer mediated networks, including Internet and therefore provide a useful reference for our analysis.

13 Job boards hold several advantages over their textual counterparts, newspaper help wanted ads. They offer more information about more jobs in more locations than is conceivable for paper equivalents. They are easier to search. They are potentially more up-to-date, because ads are posted more immediately and can be edited frequently. Job boards can also take an active role in matching, rather than waiting for workers or firms to find one another. Software can peruse posted job listings and resumes to identify plausible matches and notify both the parties.
new job in 1998. The leading job board\footnote{Some job boards are provided on a non-profit basis. For example, the US Department of Labour runs America’s Job Bank, to be found at (http://www.ajb.org), which makes the job listing and search services of the Us Public Employment Service broadly accessible, and Canada’s CareerOwl job search facility, developed by the university faculty, volunteers and found at (http://www.careerowl.ca), provides job search assistance for Canadian students.}, Monster.com, offered 3.9 million resumes and 4, 30,000 jobs in August 2000 (Nakamura and Pugh, 2000). Further, the Internet is likely to change how some workers deliver labour services. For example, falling telecommunications traffic, regardless of where it originates (Call Centres, 1997; Uchitelle, 2000). Improvements in communication and control technology likely mean that people who monitor equipment or other workers can perform their task at the greater physical remove. Remote access to e-mail and company documents will enable many workers to perform some or all of their work from home to elsewhere.

\section*{Impact on Transportation}

At least from a theoretical point of view, it seems quite clear that online shopping\footnote{Online shopping represents about 10-20 per cent of total e-commerce (B2C+B2B) and just a little proportion of retail trade, less than 1 per cent in the US, the most developed e-commerce market. It is growing fast now. Colin, (2001) estimated that online shopping could come to approximately 5-7 per cent of retail trade in 2005 in the US and Europe. (Colin, J. (2001), \textit{The Impact of E-Commerce on logistics}, Paper Presented at OECD/CEMT Joint Seminar on ‘The Impact of E-Commerce on Transport’, Paris, June.)} could lead to reduction of transport demand. In some cases, online shopping eliminates any kind of physical transport (when goods can be dematerialised as software, books, music etc.). In other cases, goods transport is still necessary, but the journeys to shops are eliminated or reduced. Even if the purchase is finally made at the shop, the consumer can have used the Internet, looking for information, instead of visiting different shops (Keskines \textit{et al.}, 2001). Thus, electronic commerce transactions have strong implications on transportation. In this context, numbers of studies have been conducted to measure the impact of e-commerce on the number of trips. Browne (2001) first quoted the study made by Farahmand and Young (1998). It modelled the effects of the number of trips by switch to home shopping of 10 per cent of the customers of a grocery store and a DIY store (of a typical size) in the UK. They assumed that delivery vans would carry the loads of nine customers on each round trip. In both the cases, the reduction in total trips is approximately 9 per cent. The vehicle kilometre made by the delivery vans for the 10 per cent of home shoppers suppose a reduction of 87 per cent in comparison with the vehicle kilometres previously made by car. Further, the study (Coirm, 1999) also modelled a case of grocery home delivery in UK and their result shows that if 10-20 per cent of shoppers use home shopping, the reduction in the trips could arrive to 7-16 per cent. For purchases made from home, the reduction in vehicle kilometres is 70-80 per cent even if each van only carries eight loads.

E-commerce also has an impact on companies where heavy transportation is needed. E-transportation tools can enable seamless connectivity, provide dock-to-dock visibility of the supply chain, and deliver real time information that leads to better and faster decisions\footnote{Other benefits of e-transactions are: (1) electronic execution of transactions; (2) elimination of clerical error; (3) compressed cycle time; (4) increased asset utilisation and increased incremental revenue for private fleets; (5) streamlined procurement practices; (6) direct savings ranging up to thousands of million of dollars and (7) automation of time consuming manual process}. E-transportation also gives shippers a choice of carriers to be used for shipments of merchandise
Emerging Economic Models in the Age of Internet and E-Commerce

varying in weights and service, and identifies all shipping packing, marking, labelling and communications requirements. (Vevaldi and Prasad, 2002). But many shippers are still not quite ready to put their faith in this relatively new e-commerce tool. Indeed, as with the introduction of new technology, e-commerce, as it relates to the transportation industry, is going to take time to catch on.

Impact on Taxation

When new technologies evolve, can taxation issues be far behind? If e-commerce is being billed as one of the greatest economic developments of the 21st century, the taxation issues arising therefrom pose the single biggest challenge of the century to both the businesses and the taxmen. (Girish, 20001) This is particularly true in the context of digitised products because transactions of such products are not backed by any physical of goods. As e-commerce transcends the barriers of geographical boundaries, concepts like the place of transactions and place of consumption become immaterial. Therefore, it is often difficult to determine national jurisdiction and revenue rights particularly in the case of digitised products.

It is trite but true, that taxation of e-commerce is a major concern for international agencies and tax authorities worldwide. In Europe, North America and Australia and in many Asian countries (particularly India and Singapore) substantial research has been conducted on the impact of e-commerce on taxation. Among the plethora of books, reports, articles and papers produced on this topic, however, the work of Organisation for the Economic Co-

17 Briefly, the following issues arise for consideration:

• Traditional “source” concepts were based on a strong connection between economic activity and a specific location. Traditional “residency” concepts were based on parameters such as personal and economic relations, physical presence and place of effective control. These concepts were used as effective tools in allocating taxing rights between various countries. As technological changes weaken the physical nexus of business with a specific geographical point, what are the implications for this concept? With whom lies the jurisdiction to tax?
• A related issue is the constitution of a Permanent Establishment (PE). Are the traditional principles of PE valid in the determination of the jurisdiction to tax? Can a server or a server space constitute a PE for tax purposes?
• How can income from transfer of technology over the Internet be characterised? Does it constitute business profits or royalties? Is there an erosion of source taxation?
• How can new technologies be used to improve the administration of taxes by checking problems of tax evasion, identifications and audit trails of the transactions and providing better services to taxpayers?
• What would be the transfer pricing issues arising out of EC transactions?
• What are the issues arising in relation to Value Added Tax (VAT)?

18 A proactive and interesting conclusion is submitted by Krever (2000), “Electronic Commerce and Taxation –A Summary of the Emerging Issues”, Asia Pacific Tax Bulletin, June, p 151, who states: “a more sober study will reveal that in many respects much of the hyperbole about the e-commerce and tax is just that and in the overall scheme of things the impact of e-commerce on tax systems may be limited. It is the case, however that e-commerce will place enormous strains on the some aspects of consumption tax bases and will test the boundaries of some important international income tax concepts such as the source of income and the definition of ‘permanent establishment’”. See also Mattson (1997), “Demystifying Taxation of the Global Electronic Commerce: Let’s Get On With the Business of E-commerce”, Paper submitted to the OECD for round table discussion on November. And Boyle; Peterson, Sample; Schottenstein and Sprague (1999), “The Emerging International Tax Environment for Electronic Commerce”, Tax Management International Journal
Operation and Development (OECD) stands out as the most significant\textsuperscript{19}, given its commitment to consulting broadly with worldwide governments as well as with the business community to develop an integrated and comprehensive approach to the taxation of e-commerce.

The identification and analysis of the inter-jurisdictional measures imposed by e-commerce is one thing. The formulation of domestic and treaty policies for dealing with e-commerce is another, even more controversial challenge. Perhaps the most fundamental threat to the international tax system is the erosion of the worldwide tax base. It is increasingly possible for a company to try to divert income to a tax haven by locating its server there. This raises issues of allocation of business profits between the residence and source countries and leakage to tax haven (Cidambi, 2000). The debate over how international tax principles ought to be revealed and may be reformed is still in its formulative stage. It would be necessary to equip the tax administration after reviewing the entire procedure in the light of the advent of e-commerce. First, the procedures have to be simplified. Second, it would be necessary to create an environment within the tax department to ensure that the tax laws are implemented appropriately, and that integrity of the tax base is maintained\textsuperscript{20}. (Mantravadi and Chowdary, 2002).

For India, it is time to learn from the experience of the work of OECD, Japan and the US to suggest a strategy to encourage e-commerce and integrate the tax system in such a way that it takes care of the twin problems of determining the sites of sales and also identifies the jurisdiction with regard to its authority to tax transactions. In doing so, we have to keep in mind the associated risk for tax compliance.

**Impact on Cost, Price and Competition**

Logically, e-commerce reduces search and transaction cost (Mukhopadhyya, 2002). The net impact of e-commerce on the UK economy has been estimated to be between 2% to 3% of GDP (Landon Economics, 2000). It has also been estimated that improved demand forecasting and stock management as a result of e-commerce will enable reduction in overall inventories by as much as 25% in the US. At the micro level, there is evidence that this will provide sustainable improvement in the profitability by an average of 5% or more for the enterprises currently working with low margin (Goldman Sachs, 1999). E-commerce lowers costs\textsuperscript{21} because the Internet lowers selling search costs by allowing the seller to communicate product information cost effectively to potential buyers, and by offering sellers new ways to

\textsuperscript{19} The OECD has done some pioneering work in highlighting not only issues connected with the e-commerce but on the overall e-commerce industry. For example, in 1992, the OECD revised its commentary on Article 12 of its model convention to incorporate the income characterisation relating to software transactions. It was the first attempt at issuing specific guidelines for the software transaction. The OECD convened its first informal discussion of EC tax issues with the business community in Turku, Finland in November 1997. The conference was one of the first initiatives taken on a collective basis by the member countries to identify the key issues involved in e-commerce.

\textsuperscript{20} For example, the system of registration of dealers and submission of tax returns could be through e-mail. Dealers could submit their accounts, along with their software program to the development on a floppy disk

\textsuperscript{21} E-commerce provides new distribution channels, ideally suited to products and services that can be digitised (such as software, information etc.). These can be delivered for a fraction of the cost of traditional distribution channels. Enterprises working online have greater reach, so that they are able to find the cheapest suppliers for their purchasers. E-commerce enables rationalisation of the supply chains as more efficient intermediaries emerge to displace existing ones
reach buyers through the targeted advertisement and one-on-one advertising. Thus it is helpful in reducing the search costs on both sides. By reducing search costs on both sides of the market, it appears likely that buyers will be able to consider more product offering and will identify and purchase products that better match their needs, with a resulting increase in economic efficiency. But the reduction in the cost combined with new capabilities of technology can set off more complex market dynamics (Bakos, 2001).

**Figure 4.3: Net Impact on Cost.**

<table>
<thead>
<tr>
<th>Decrease in the cost</th>
<th>Increase in the cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Paperless transactions</td>
<td>• Packing cost</td>
</tr>
<tr>
<td>• Reduction in inventory level</td>
<td>• Transportation and distribution cost</td>
</tr>
<tr>
<td>• Reduction in middlemen</td>
<td>• Payments to portals and e-retailers</td>
</tr>
<tr>
<td>• Lower manpower</td>
<td>• Increase in the number of warehouses</td>
</tr>
<tr>
<td>• Reduction in the property cost</td>
<td>• High cost of e-advertising</td>
</tr>
<tr>
<td>• Reduction in the advertising cost</td>
<td>• Web page development</td>
</tr>
<tr>
<td>• Increasing the return to scale</td>
<td></td>
</tr>
<tr>
<td>• Lower transaction cost</td>
<td></td>
</tr>
</tbody>
</table>

The lower search and information cost should push markets towards a greater degree of price and competition, and this outcome is certainly possible, especially for homogeneous goods. On the other hand the use of Internet technology is to provide and differentiate customised products, and thus avoid competition purely on the price.

Lower search costs in the digitised markets will make it easier for the buyers to find low cost sellers and will thus promote price competition among the sellers. Therefore, e-commerce economy comes quite close to the features of the prefect competition, as larger numbers of buyers and sellers can instantly interact with each other. However, some of the distinguishing characteristics of e-commerce setups also have the potential for creating monopoly power in certain lines of products. The e-commerce setup has negligible distribution costs for the intangibles and therefore marginal cost of production and distribution. Sales of these goods to a particular customer do not reduce their availability to other potential customers. Economies of scale arising out of negligible marginal cost, along with network externalities and consumer preference for the already acquired skills, provide natural monopoly power to some of the products in the e-commerce setup. Early birds are thus expected to reap the benefits in these lines of production. Therefore, in the e-commerce environment, monopoly is expected to exist along with prefect competition. Competition will be especially seen in areas where goods and services cannot be digitised and economies of scale are not very prominent. Breaking the monopoly power to remain in the competition would require high speed of innovation and making the product visible all the time, whether there is a demand for the products or not. Competition would be basically in the form of converting ideas, knowledge and brainpower into innovation.

---

22 This effect will be most pronounced in the commodity markets, where lowering search costs may result in intensive price competition, as customers can ‘shop’ around the world and conduct comparison either by visiting different sites, or by visiting a single site where prices are aggregated from a number of providers and compared (example: www.moneyextra.co.uk; for financial products and services)
Impact on Money

With the economic landscape outlined, let us return to the money. Not surprisingly, in the intangible (e-commerce based economy) economy, money is also becoming increasingly intangible. The relative weight on non-cash monetary transactions now exceeds the value of cash money by the factor of ten (Goldfinger, 2002). Money and payments are delivered via electronic networks as data bits and database entries. At the wholesale level, money representation and manipulation are fully automated. Beyond the alteration of the appearance and mechanics of money, there are deeper structural changes. The triumph of markets means that money is increasingly used to settle multilateral transactions rather than the bilateral commercial transactions. The functional evolution in turn leads to profound modification in the design of the clearing system and networks, which need to handle large volumes, work in real time, and offer more open access. Growth of e-commerce and development of various payment alternative channels (ie. Debit and Credit Cards, E-Cheque, Digital Purse, E-Cash etc) assist payment channels. The delivery channels have greatly impacted the retail banking and the wholesale markets of banks (Avasthi and Sharma, 2001). And today, these new technologies have transformed the banking business almost beyond belief in the last decade and a half23. Most of all the customers have benefited24, as have the banks themselves (Sumanjeet and Mehlawat, 2005). But this new form of money has also posed certain challenges before the banking sector, most of them related to IT plans25 (Kamesan, 2003). No doubt, these changes make money more visible and pervasive but they also make it less stable, more volatile in its value and more elusive. Therefore, in the new economy, monetary policy becomes more important as a lever of economic management at the same time the classical monetary aggregates - M1, M2, M3 - lose their reliability as signals of future economic growth and inflation (Goodhar, 1984). Nevertheless, one thing appears certain: electronic money will continue to emerge, rendering the overall money landscape more intricate and multifarious. To facilitate the emergence of electronic money, it is important to be open minded, to accept innovative visions of money and money transaction. At the same time it is also essential to recognise that many of these visions will either never be implemented or fail the critical test of customer acceptance.

23 The first banking system designed for the Internet was written in 1996 and the first Internet bank was set up in the US. However, the concept of using IT in banking actually begun in the 1950s when the first automated book-keeping machines were installed at a few US banks

24 In the banking sector IT can reduce costs (according to the American Banking Association, the cost of a single banking transaction at a traditional bank branch is $1.1, whereas an Internet transaction costs barely 0.1. Indian rates are Rs. 35.38 through traditional accounts, Rs. 14-16 through ATMs and only Rs. 1-3 through the Internet), increase volume, and facilitate customised products. It opens up new markets. Funds can be transferred electronically between accounts, drastically reducing the need to keep hard cash. There are lower service fees but higher interest rates of deposits. The investment for the setting up of bank branches is reduced, as online trading requires fewer branches. There is no need of manual updating of accounts. Relocation of customers does not matter. Internet based banking offers many services - mutual funds, brokerage, consumer finance and credit cards. Last but not least, large data can be stored for information and decision-making. More secrecy is observed in using IT in banking sector as compared to the manual file system

25 Deciding the IT plans for the bank as whole; working out the strategy for the implementation of plans, training requirements for the IT implementation, data warehousing, data mining and other related areas; sourcing of IT requirements; standardisation of the various components of IT - including hardware, software, operating systems and application software platforms; interfacing across the banks - especially in the context of disparate systems across different banks and outsourcing of the various components of IT including maintenance
Concluding Remarks
The emergence and rapid growth of Internet and e-commerce has strong implications on economic and social activities. It is quite possible that these new technologies might transform the future of the economic and societal landscape. At the economic front, there is a clear evidence that e-commerce and Internet technology have positive impacts (UNDP, [2003], Pohjola [2000], Dewan and Kramer [2000], Kraemer and Dedrick [2000]). To study the economic implications of e-commerce, some areas of economy (transportation, intermediation, agriculture, labour market, taxation, cost, price and competition, and money) have been selected for this paper. On the basis of various studies it is revealed that e-commerce technology has strong economic implications. Generally there are two types of potential economic gains from the use of e-commerce and IT enabled technologies. First are the gains in efficiency, both static and dynamic. Static gains are one-time, and come from more efficient use of scarce resources, allowing higher consumption in the present. Dynamics gains come from higher growth, potentially raising the entire future stream of consumption and population. Efficiency gains of e-commerce also come about through the enabling of new digitised goods and services. The second type of potential benefits comes from cost reduction. Studies indicate that e-commerce is helpful in reduction of search cost, administration cost, distribution cost and even labour costs. However, all these opportunities are yet to materialise into profitability i.e. in the agricultural sector, benefits of e-commerce exist, but only theoretically; not practically, as the implementation of e-commerce technology in the agricultural sector has certain challenges. Added to this, e-commerce based economic models have also posed a number of challenges before the concerned communities. The area of e-taxation is one of the best examples and a most controversial issue globally. As e-commerce transcends the barriers of geographical boundaries, concepts like the place of transactions and place of consumption become immaterial. With the emergence and growth of digital money in the economy, the chances of fraud have also increased. Another most difficult issue is planning regarding the adoption and implementation of e-commerce technology in various economic activities. In a nutshell, with e-commerce based economic models, there is little to lose and much to gain.

References


Emerging Economic Models in the Age of Internet and E-Commerce


Sumanjeet


