

IMPACT INTERNET AND E-COMMERCE ON THE LABOUR MARKET

Dr. Sumanjeet Singh

Assistant Professor

Department of Commerce, Ramjas College

University of Delhi,

North Campus, Delhi, INDIA

E-Mail: sumanjeetsingh@gmail.com

Abstract

As the impact of e-commerce becomes more widely felt through the community, its implications are becoming apparent to all sectors of society – even those which have hitherto tended to see the New Economy as irrelevant to their activities. Impact of computers and ICTs on business and economic growth and productivity in industrialized, and to a limited extent, in less industrialized countries, has been extensively discussed and documented. While some of these studies have shown that internet and especially e-commerce technology has positive impact on the business sector, doubts have been raised about its impact on macroeconomic growth, and labour market in particular. There are very few studies which have focused on the impact of internet and e-commerce on the labour market. In fact, this domain of Internet activity has received relatively little attention. Therefore, it has become pertinent to analyze the implications of e-commerce and internet on the labour market. The present paper seeks to analyse the impact of internet and e-commerce on the labour market and also points out some estimation problems that the economists are facing in the internet and e-commerce environment. The paper analyze the impact of e-commerce on employment, labour productivity, delivering job services skills requirement and content of trade unions.

Key Words: E-Commerce, Labour, Impact, Market

JEL Classifications: J4; J6; O31; L84

Acknowledgment: While bearing full responsibility for any remaining mistakes, I wish to thank to my supervisor Prof. L. N. Dahiya for reading the earlier versions of this paper and making a number of helpful comments and constructive criticisms. In fact, his academic spirit is an inspiration to me.

About the author: Author is M.Com, MBA, M.Phil (E-Commerce) and Ph.D in the field of e-commerce and doing E-MBA. He is also Microsoft Certified Professional. He has authored more than 80 papers for various national and international journals of repute. He is serving as a member of editorial board and review board of many international journals including international journal of e-commerce research. He is also editor of international journal of Business and Scientific Research. He has participated in more than 30 national and international levels of conferences. His areas of interest are: E-Commerce, Marketing, IPRs.

IMPACT INTERNET AND E-COMMERCE ON THE LABOUR MARKET

Abstract

As the impact of e-commerce becomes more widely felt through the community, its implications are becoming apparent to all sectors of society – even those which have hitherto tended to see the New Economy as irrelevant to their activities. Impact of computers and ICTs on business and economic growth and productivity in industrialized, and to a limited extent, in less industrialized countries, has been extensively discussed and documented. While some of these studies have shown that internet and especially e-commerce technology has positive impact on the business sector, doubts have been raised about its impact on macroeconomic growth, and labour market in particular. There are very few studies which have focused on the impact of internet and e-commerce on the labour market. In fact, this domain of Internet activity has received relatively little attention. Therefore, it has become pertinent to analyze the implications of e-commerce and internet on the labour market. The present paper seeks to analyse the impact of internet and e-commerce on the labour market and also points out some estimation problems that the economists are facing in the internet and e-commerce environment. The paper analyze the impact of e-commerce on employment, labour productivity, delivering job services skills requirement and content of trade unions.

The emergence and growth of information and communication technologies (ICTs), in their diverse form (especially internet and e-commerce¹), are revolutionising the world of work, how organizations function, change and evolve and the nature of leadership, managerial roles and professional careers. They have become integral elements of business, industry and commerce, and thus driving the growth of modern economy. In fact, business and economy are inextricably linked with the development and implementation of new technology. Impact of computers and ICTs on business and economic growth and productivity in industrialized, and to a limited extent, in less industrialized countries, has been extensively discussed (Brynjolfsson and Hitt, 1998; Castells, 1996; ILO, 2001; Knights and Willmott 1988; Forster, 2006; Mitter and Rowborham, 1995; Sumanjeet, 2007; Pailwar, 2001; UNCTAD, 2005). While some of these studies have shown that internet and especially e-commerce technology² has positive impact on the business sector (see Table 1), doubts have been raised about its impact on macroeconomic growth, and labour market in particular. There are very few

¹ Electronic Commerce popularly called 'E-Commerce' is often used interchangeably with the IBM's coined term 'E-Business'. In reality, scope of e-business is much more than e-commerce. E-Business include not only e-commerce, but also used Internet based communications and Internet enabled business processes (for example, Enterprise Resource Planning, and Electronic Customer Relationship Management etc.), which might not be strictly commerce in the sense of buying and selling. In fact, e-business is a part of how you run your business and thus, e-commerce is just a subset of e-business

² E-Commerce is a broader concepts that covers all types of business and commercial transactions which are affected by electronic means whatsoever which, *inter alia*, includes Telephone, Telex, Facsimile, EDI, EFT, electronic mail, computers and Internet etc. But specifically it is with Internet because Internet is the most potent way or technique to perform business or commercial activities electronically. It is therefore; E-Commerce and Internet Commerce terms are used interchangeably.

studies which have focused on the impact of internet and e-commerce on the labour market. In fact, this domain of Internet activity has received relatively little attention. Therefore, it has become pertinent to analyze the implications of e-commerce and internet on the labour market. Impact of internet and e-commerce on the different segments of labour market is given as under:

Table 1: Worldwide Growth of E-Commerce (in US \$ Billion)

Countries	2000		2004			
	Level	%	Level	%	CAGR (%) 2000-04	% of total sales in 2004
Total	657.0	100	6,789.8	100.0	58.4	8.6
North America	509.3	77.5	3,456.4	50.9	47.9	12.8
United States	488.7	74.4	3,189.9	47.0	46.9	13.3
Canada	17.4	2.6	160.3	2.4	55.5	9.2
Mexico	3.2	0.5	107.0	1.6	87.7	8.4
Asia Pacific	53.7	8.2	1,649.8	24.3	85.6	8.0
Japan	31.9	4.9	880.3	13.0	82.9	8.4
Australia	5.6	0.9	207.6	3.1	90.3	16.4
Korea	5.6	0.9	205.7	3.0	90.1	16.4
Taiwan	4.1	0.6	175.8	2.6	94.0	16.4
All Other	6.5	1.0	197.1	2.9	85.3	2.7
Western Europe	87.4	13.3	1,533.3	22.6	71.6	6.0
Germany	20.6	3.1	386.5	5.7	73.3	6.5
UK	17.2	2.6	288.8	4.3	70.5	7.1
France	9.9	1.5	206.4	3.0	75.9	5.0
Italy	7.2	1.1	142.4	2.1	74.6	4.3
Netherlands	6.5	1.0	98.3	1.4	67.9	9.2
All Other	25.9	3.9	410.8	6.1	69.1	6.0
Latin America	3.6	0.5	81.8	1.2	78.1	2.4
Rest World	3.2	0.5	68.6	1.0	76.6	2.4

Source: Forrester, 2004

Note: Total may not equal sum of rows due to rounding

Impact of E-Commerce on Employment

Internet³ and e-commerce have long been recognized as having an important impact on work, workers, and the workplace. It can contribute to better employment opportunities in especially for developing countries both through improved labour facilitation and direct employment. Studies revealed that E-Commerce activities, in general, will spur employment needs for workers involved in e-commerce systems and organizations and its website design. According to Worldcom study more than two third Americans have engaged in virtual work (Nancy, 2003). Vera, 2002 studied the impact of e-commerce on B2C e-commerce on Philippine Workers and revealed that e-commerce can generate almost 20 per cent additional jobs. Thus, e-commerce economy has huge potential to generate employment (Table 2).

Occupation Likely effect	Employment (1998)	Likely Affect
All Occupations	140,514	
Executive, administrative, and managerial: Engineering, science, and computer and information systems managers	326	Stimulates
Management Analyst	345	Stimulates
Purchasing managers, purchasing agents, and wholesale and retail buyers.	547	Dampens
Professional specialty: Artists and commercial artist	309	Stimulates
Computer systems analysts, engineers, and scientists 1,530	15,30	Stimulates*
Designers	335	Stimulates
Writers and Editors	341	Stimulates
Technicians and related support: Computer programmers	648	Stimulates
Marketing and Sales	15,341	Stimulates
Administrative support workers, including clerical	24,461	Dampens
Customer service representatives (adjustment clerks)	479	Stimulates**

Note: *Except dampens for computer for computer support specialists in post sales technical support.

**but also dampens as more traditional duties are more self services.

Source: Hecker, 2001.

³ A common misconception is that the Internet and World Wide Web are the same thing. However, from the technical perspective, Internet and World Wide Web are two separate activities. The Internet is a collection of wires, protocols and hardware that allows to electronic transmission of data over TCP/IP. Any data can be transferred over this collection of hardware and software components. Example includes e-mail, video, voice and webpage. On the other hand, World Wide Web exists on the Internet. The web is composed of hypertext pages views by a browser, which are served from a web server over TCP/IP, web pages always begin with http:// or https://, signifying their contents, while internet is the infrastructure, the web can be thought of as an application for the Internet.

More computers workers are needed to set up, maintain, and oversee the additional hardware and software systems that e-commerce require. 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 (Kuhn, 2000; Hecker, 2001; Borenstein and Saloner, 2001; Autor, 2001). E-Commerce activities also require more artist and commercial artists, designers and writers and editors. Added to this, global information revolution, which is largely derived by internet technologies, is making it possible for many service related jobs to be outsourced to the developing countries and for new forms of work outside the traditional office and new opportunities for self employment and entrepreneurs.

On the flip side, it has also been feared that the reduction in number of intermediaries⁴ and sales persons due to reduction in number of supermarkets and showroom would reduce employment world over. The worst affected are expected to be the unskilled manpower. It is true that unskilled labour is getting displaced in a big way in the e-commerce economy. Internet and e-commerce by facilitating firms to employ home-workers on a contractual basis are seen to promote insecure employment opportunities. In India, as well as in the other low-income economies, the potential of e-commerce is seen to employment from the formal sector to small firms in the unorganized sector where employment is not protected by any legislation. Further, if this feature of e-commerce encourages the formation of small firms that are narrowly specialized, it also implies that there is less room for employee mobility within the firms, transforming the careers paths of employees (Francis, 1986). It is also important to note that the rise of Internet and E-Commerce has led to increase in women's presence in paid employment, reproduction of gender based discrimination within these segments notwithstanding (Mitter and Rowbotham, 1995).

Impact on Productivity

Various studies⁵ showed that e-commerce has a positive impact on the labour productivity. Atrostic and Nguyen (2002) discussed the nature of pervading influence of e-commerce on productivity and revealed that e-commerce and internet has strong implications on the labor productivity. At the theoretical level, since e-commerce reduces coordination costs between different work processes, they facilitate firms to fragment tasks to enable them to improve the labour productivity. At the same time, when the routine tasks can be automated, e-commerce reduces unskilled work. Autor (2001) argued that the internet and e-commerce is likely to change how some worker deliver labor services. For example, falling telecommunications traffic regardless of where it originates (Call Centre, 1997 and 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

⁴ However, these fears may not be unfounded. In e-commerce economy, though it is possible to deliver a number of goods and services online, it may not be possible to completely eliminate the physical delivery of many goods because of their very nature. Goods such as vegetables and grocery, garments and shoes, toys, etc. can not be delivered online. 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.

⁵ Their study is based on companies that use all computer mediated networks, including Internet and therefore, it provides a useful reference for our analysis.

documents will enable them to perform some or all of their work from home or elsewhere. One potential source of efficiency gain is from delivering services remotely is that hours spent in unproductive commuting may be replaced by the rapid online delivery.

Further in a recent study of Atrostic and Nguyen (2004) considered the impact of computer networks on the 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, suggested that networks increase labour productivity by around 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.

Impact on Job Search

Perhaps the larger impact of e-commerce on labour market can be seen in the form of online job search. In terms of formal information and services, there would be advantages in the development of more interactive jobs search sites, allowing job seekers to store search preferences and user profiles, and to follow through identified vacancies by making online applications. The internet has become an invaluable tool for sourcing and recruiting qualified staff. The ease of posting employment openings, the relatively low cost of advertising and the speed of candidates response has many hiring managers devoting more time than ever before to recruiting online. However, very little is known about the importance of online job applications or direct employer initiated contracts with the potential candidates. Even then, online job posting has grown spectacularly (Autor, 2001). Estimates place the number of online job boards⁶ at over 3000, the number of active resumes online at over 7 million, and the number of job posting over at 29 million (Boyle et al, 1999; Computer Economics,2000). Kuhn and Skuterud (2000) reported that 7 per cent of employed workers regularly use the web to search for a new job in 1998. The leading job boards⁷, Monster.Com offered 3.9 million resumes and 4, 30,000 jobs in August 2000 (Nakamura and Pugh, 2000).

As with other tools, the internet is not without the limitations as a means of attracting qualified candidates. For example, companies listing opportunities on major job boards may receive applications from a much wider geographic region- and sometimes less qualified applicants-requiring additional sorting and review. Firms are also noting that some candidates who post their resumes online may be more passive job seekers;

⁶ Job boards holds several advantages over the textual counterpart, newspaper help wanted ads. They offer more information about more jobs in more locations than is conceivable for paper equipments. They are easier to search. They are potentially more up to date, because ads are posted more immediately and can be edited frequently. Jobs boards can also take an active role in matching, rather than waiting on worker or firms to find one to another, software can parse posted job listings and resumes to identify plausible matches and notify both the parties.

⁷ Some job boards are provided on a non profit basis. For example, the UD 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 search assistance for the Canadian students.

they want to “test the waters” and wait for the results, versus proactively applying for open positions.

Skills Requirement

The last decade has witnessed a pronounced shift in labor demand towards high-skilled workers. The changing trends in labor demand are not primarily driven by shifts in economic activity between industry towards more skill-intensive activities, rather they have arisen within most industries, both manufacturing and non-manufacturing industries. What is clearer is the fact that electronic commerce will cause changes in the mix of skills required, driving demand for information technology (IT) professionals. This may exacerbate a supply shortage, which has received great attention in the United States, although it is not peculiar to that country. For electronic commerce, IT expertise also needs to be coupled with strong business applications skills, and therefore requires a flexible, multiskilled work force. Apart from contingent skills needed to support electronic commerce transactions and applications, there will be a more structural and long-term shift in the skills required to perform economic activities on line. In general, e-commerce is likely to accelerate existing upskilling/multi-skilling trends in the OECD work force (Taylor et al, 2004). These skill requirements place new demands on schools and vocational training facilities. Becoming computer-literate can be a significant additional cost, one which is likely to vary as a function of age and educational background. A system of education that familiarizes young students with the technology of the Internet can greatly

reduce skills acquisition costs and decrease differences in participation rates in electronic commerce in the various segments of a society’s population. These changes in the labour force caused by e-commerce underscore the need for flexible labour markets and active labour policies that help workers adjust to changes in these markets. This will be particularly important for those service sector jobs, such as those in retailing, that have not yet been exposed to significant technological change or international competition.

In contrast to the comprehensive demand for skilled workers in all areas of the expanding IT and multimedia industries, the demand for commercial employees in the remaining sectors, which has been created by the development of internet-based distribution strategies, is limited to the areas of advertising and marketing, although project management will also be affected in the midterm. No quantitative changes appear to be on the horizon in the areas of sales and data processing. Across economic sectors, the increasing expansion of e-commerce applications points to a decreasing demand for specialists in the areas of procurement, logistics, human resources, accounting, administration, organization and management.

Organizing Workers

Within this wider context of union organizational and strategy evolution, the emergence of the Internet has heightened debate about the nature of the change and the possible role of new ICTs within and across union structures. The growth of Internet and other information communication technologies (ICTs) has led to a new spin on the continuing debates about the role and health of traditional representative organizations such as trade unions (Darlington, 2001). From the early 1990s the growth of ICTs has led to claims of the likely demise of representative organisations such as unions. Grossman

(1995), amongst others has argued 'that the big losers... [in the Internet era], are the traditional institutions that have served as the main intermediaries between government and its citizens – the political parties, labor unions, civic associations (Grossman, 1995). They also permit traditional unions to better engage and interchange with their local bases. There is a dynamic of relocalisation afforded by the new information communication technologies (Shostak, 2000). The coordination capabilities of the new information technologies also permit new forms of the organization of labour at the local level - 'bootleg' industrial action by those not in agreement with traditional union leadership becomes more possible and the advent of 'ten minute' activist funding technologies (click and donate) become the device by which such action can be sustained (Green *et al*, 2001) . As membership of mass trade union organizations has fallen and their political influence waned, they have often been seen as being in inexorable decline, particularly in terms of their representative function also and as a linkage mechanism between state and citizen (Ward and Lusoli, 2002). This decline is all the more worrying in an increasingly less secure industrial society, as unions do have a beneficial effect on wages, safety in the workplace and working conditions. The advent of the Internet has seen a variety of contrary claims about their adoption by trade unions. Some have argued that increasing use of ICTs will further undermine the role of traditional representative organisations, including trade unions, in favour of more issue oriented groups, protest networks and/or individualised forms of participation. Alternatively, there has been interest in the notion of e-unions, virtual unions or cyber unions, where ICTs are harnessed to reinvigorate and modernize union practices.

Concluding Remarks

The new technologies especially internet and e-commerce together with other important changes, such as the continued increase in the educational attainment of the work force, shift of employment to service sectors, and increased employment opportunities for women, formation of online trade unions are producing a labor market that differs greatly from the industrial labor market that characterized the 20th century. Further, increased competition, global access and organizational change are affecting labor markets by influencing employment demand, wages and skill requirements. Thus, impact of Internet and e-commerce on the labor market is undeniable. At many front labour markets is gainer and at some it is loser also. But, it is expected that implications of these technologies will open new opportunities for the labour market and give a new shape to the future labour market. To make the best of these technologies, what really needed is that how to convert threats arising due to implications of these technologies into opportunities. In fact, it is only the labour that will decide where they want to stand. In this digital economy only powerful can survive. Therefore, workers continuously need to develop IT skills and to be on the alert to market them at every opportunity. Internet and e-commerce technologies are just as tool, what labour market is going to do with these tools; it will decide the future of labour market.

References

- Autor, David (2001), "Wiring the Labour Market", *Journal of Economic Perspective*, Vol. 15, No. 1, pp 25-40.
- Borenstein, Severin and Saloner, Gath (2001), "Economics of Electronic Commerce", *Journal of Economic Perspective*, Vol. 15, No. 1, pp 3-12.
- Brynjolfsson, E. and Hill, L.M. (1998), "Information Technology and Organizational Design: Evidence from Micro Data", Working Paper Series, Sloan School of Management, Cambridge: MA.
- Castells, M. (1996), *The Rise of the Network Society*, Malden, Blackwell" MA.
- Clement, A. (1991), 'Designing Without Designers: More Hidden Skills in Office Computerization', paper presented at the fourth international conference on Women, Work and Computerization, 30th June-2 July, Helsinki: Finland.
- Darlington, R. (2001), 'The Creation of the E-Union: The Use of ICT By British Trade Unions'. Text of paper presented to New Economy Conference, Deutsche Postwerkschaft, Berlin, 1 February.
- Francis, A. (1986), *New Technology at Work*, Clarendon Press: Oxford.
- Froster, Nick (2006), "The Impact of Emerging Technologies on Business, Industry, Commerce and Humanity During 21st Century", *Vision: Journal of Business Perspective*, Vol. 10, No. 4, pp 1-29.
- Greene, A-M., Hogan, J. and Grieco, M. (2001), 'E-collectivism and Distributed Discourse: New Opportunities for Trade Union Democracy'. Paper presented to the TUC/LSE Conference on Unions and the Internet, London 12th May.
- Grossman, L.K. (1995), *The Electronic Republic: Reshaping Democracy in America*, Viking: New York.
- Hecker, Daniel. (2001), "Employment Impact of Electronic Business", *Monthly Labour Review*, May, pp 3-16.
- ILO (2001), *World Development Report: Life at Work in the Information Economy*, International Labour Organisation: Geneva
- Knights, D. and Willmott (1988), *New technology and the Labor Process*, Macmillan: London.
- Kuhn, Peter (2000), "Policies for an Internet Labour Market", *Opinion Politiques*, October, pp 42-47.
- Mitter, S. and Rowbotham, S. (1995), "Women Encounter Technology: Changing Patterns of Employment in the Third World Countries", Routledge: London and New York.
- Nancy, Mansfield (2003), "The Information Revolution and Its Impact on Employment Relationship: An Analysis of the Cyberspace Workplace", *American Business Law Journal*, accessed on <http://www.allbusiness.com/technology/internet-technology/618188-3.html>
- Pailwar, Veena (2001), "E-Commerce: Emerging Economic Implications", *Productivity*, Vol. 42, No. 3, pp 1-29.
- Shostak, Aurther (2000), "CyberUniob: Empowering Labour through Computer Technology", accessed on <http://www.geocities.com/unionsonline>

- Sumnajeet (2007), "*Economic Implications of Electronic Commerce*", International Journal of Business and Economics, forthcoming Issue.
- Taylor, J.M.; McWilliam, J.; D. England and J. Akomode (2004), "*Skills Required in Developing Electronic Commerce for Small and Medium Enterprise: Case Based Generalization Approach*", Electronic Commerce Research and Applications, Vol. 3, No. 3, pp 253-365.
- Vera, R. (2002), "*The Employment Impact of Business to Customer E-Commerce on Philippine Worker*", APEC Study, accessed on <http://www.eldis.org/static/DOC13810.htm>
- Warden, Stephen and Lusoli and Wainer (2002), "*Dinosaur in Cyberspace? British Trade Union and Internet*", Paper presented at Political Studies Association Annual Conference, University of Aberdeen, 4th April.