

MACRO ISSUES IN ELECTRONIC COMMERCE AND FOREIGN DIRECT INVESTMENT

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ABSTRACT

This paper contends that countries seeking to bridge the digital divide with developed countries need to consider e-commerce participation in conjunction with infrastructural issues, including both information and communication technologies [ICT], and its links to foreign direct investment [FDI]. It is argued that the likely impact of e-commerce for any individual country is closely tied to the macro environmental constraints that also condition FDI in that country. Failure to address these constraints can act as a barrier for inflows of FDI and thus restrain e-commerce participation. Following elaboration of the importance of ICT infrastructure, macro environmental constraints on e-commerce and e-commerce related FDI are identified and briefly discussed using a multidimensional analytical framework that accounts for technical, legal and regulatory, and socio-economic issues. The causal relationship between FDI and e-commerce is then discussed.

It is concluded that the macro problems that reduce a country's attractiveness for e-commerce are problems that make it less attractive for FDI. However, the relationship goes further than that. FDI brings know-how and infrastructure that enable e-commerce, but conversely, an established e-commerce capacity in a country makes FDI more attractive. The potential global span of e-commerce means that failure to address the macro challenges may reduce existing levels of FDI as investors move to alternative locations, similar to any other adverse socio-economic condition.

Policy-wise, Governments must recognise that the ability of countries to engage in e-commerce is tied both directly and indirectly to their attractiveness for FDI. Strategically conceived Government intervention is likely to be required to create competitive advantage in attracting infrastructural or developmental FDI, and then to attract effective entrepreneurial FDI. Just as e-commerce is a factor attracting FDI, foreign investment may be a prerequisite for e-commerce, particularly in developing countries.

1. INTRODUCTION

There is general agreement that information and communication technology (ICT) has fundamentally reshaped the way businesses and consumers can communicate, interact and transact globally, generating the rapid growth of on online transactions. There is also evidence in the literature that ICT, including the Internet, influences foreign direct investment (FDI, that is, investment by business in manufacturing and service facilities in a foreign country (Gholami, Lee and Heshmati, 2005; Addison and Heshmati, 2004; Gani and Sharma, 2003). Accordingly, in a world characterised by global connectivity, technological convergence and freely available information, the benefits for individuals, businesses and nations would accrue universally. However, developed countries have distinctly higher e-commerce participation rates (a proxy for measuring benefits) than most other countries (Fife and Pereira, 2002), despite the global and relatively inexpensive wide bandwidth communications mechanism offered by the Internet (Heffes, 2001). This has consequences for e-commerce effectiveness and for FDI (Kotabe and Helsen, 2004) as a facilitator of e-commerce participation.

It is argued that countries seeking to bridge the digital divide in relation to developed countries need to consider issues facing e-commerce participation on an equal footing with ICT infrastructural issues and its links to FDI. It is suggested that addressing the growth of e-commerce for any individual country is closely tied to macro environmental constraints that condition FDI in that country. Failure to address these constraints can act as a barrier for inflows of FDI and hence for e-commerce participation. ICT infrastructure can be seen as a necessary but not sufficient condition for e-commerce takeoff. While FDI in ICT can benefit economic growth and may be a sought by governments, attracting FDI in e-commerce requires addressing issues in addition to those in the FDI and ICT linkage.

Following elaboration of the importance of ICT infrastructure, macro environmental constraints on e-commerce and e-commerce related FDI are identified and discussed briefly using a multidimensional analytical framework accounting for technical, legal and regulatory, and socio-economic issues (Aisbett and Pires, 2003; Bingi, Mir and

Khamalah, 2000). Causality between FDI and e-commerce is then identified. It is concluded that, given this context, countries that fail to address the macro-challenges are likely to lose FDI and linked growth in e-commerce.

2. THE IMPORTANCE OF ICT INFRASTRUCTURE

A review of e-commerce research reveals that its development path has been troubled, first by the collapse of the dot.com boom in 2001 and, more recently, by an apparent disenchantment by investors with business adoption rates, relatively low trade volumes and, arguably, low profitability in the B2B environment, at least prior to 2004 (Emarketer, 2004). The reasons for this troubled development may be tied to the reliance of e-commerce on ICT, to the focus of e-commerce on adding stakeholder value and the provision of global linkages.

There have been expectations for an increased volume of transactions because of the expansion of participants at the global level, a corresponding increase in the value of trade exchanges and increased profitability resulting, for example, from transaction costs economies. This contrasts with the fact that the bulk of e-commerce in developed countries continues to be generated by business-to-business (B2B) economic activity. In the US, for example, B2B e-commerce (defined as transactions by manufacturers and merchant wholesalers) accounted for 93 percent of all online transactions in 2004, (E-Stats, 2006), transactions bypassing World Wide Web capabilities. This shows that a hoped for, potential global linkage of stakeholders is far from being realized.

Reliance on ICT, particularly the Internet, to achieve value creating global linkages of stakeholders means that FDI and e-commerce will be vulnerable to the diversity of different countries with respect to their culture, demography and infrastructure. For example, ICT infrastructure in the form of telecommunications capacity and computing resources includes Web servers, application service providers and computers which support browser-based commercial transactions (OECD, 2000a). It also includes the skilled workforce necessary to maintain, develop and support the on-line information systems that underpin e-commerce (ILO, 2000). Such infrastructure is essential for attracting FDI and thereby achieving effective e-commerce participation in increasingly competitive world markets (Matambalya and Wolf, 2001).¹ While some affluent countries may finance ICT infrastructure domestically, less affluent ones may require FDI for this financing.

The need to attract FDI to develop an ICT infrastructure itself capable of attracting FDI that seeks to take advantage of global e-commerce opportunities, is necessarily a very challenging one, particularly when other types of infrastructure, such as housing, education, basic communications and energy, may be lacking. This challenge arises because the benefits (and costs) from infrastructural investment can be measured in terms of efficiency, equity and social welfare (Weisbrod, 1997). Efficiency is associated with business costs and productivity gains. Equity refers to a better distribution of employment and income opportunities. Efficiency and equity gains can sustain strategic benefits associated with an improved competitive position in the global market and economic development. Finally, social welfare gains refer to other quality of life factors resulting from economic development. Hence, it is suggested that the digital divide amongst nations may combine with a cultural divide (Aisbett and Pires, 2003) to distinguish between 'haves' and 'have-nots'.

Grounded on macro-infrastructure efficiencies, developed countries benefit from higher levels of connectivity and preparedness where ICT usage is concerned, often supported by legal and regulatory frameworks and by government incentives. These 'have' countries host substantial FDI seeking to benefit from the available ICT infrastructure [evidence of this?]. They have developed e-commerce facilities which allow for high participation rates. In contrast, coupled with poor infrastructure, insufficient availability of ICT services is an inhibiting factor for economic growth in less developed (or developing) countries (Addison and Heshmati, 2004). Impeded by inadequate ICT infrastructure (inclusive of appropriately skilled people, technology and underlying processes), a lack of e-commerce facilities implies a lack of opportunity for generating online transactions. This may deter FDI by business in 'have-not' countries for which proximity to suppliers or markets might otherwise be advantageous.

There is little doubt that the distribution of FDI across developing countries is highly unequal (15 countries account for over 80 per cent of FDI to developing countries), with the 49 least developed countries (LDCs) attracting only 0.3 per cent of world FDI inflows in 2000 (UNCTAD 2001: xiii). It is possible that a lack of ICT infrastructure and low levels of e-commerce adoption in a country may have a wider transmission effect, making the country less

¹ While FDI may be required for financing ICT infrastructure, ICT was also argued not to be critical driver for corporate FDI decision by almost 80 percent of US businesses in 2001 (GBPC, 2001).

attractive for FDI and helping to perpetuate an unfavourable e-commerce environment (Clarke, 2002), with a negative impact on the country's economic growth (Saggi, 2002).

The focus of attention in the literature is on the environmental forces that sustain the link between ICT and FDI, and its impact on economic growth. However, this link may be better understood if the potential for e-commerce and ensuing business case for e-commerce participation are equally taken into account. The next section identifies and briefly discusses some of the main macro related issues that have the potential to inhibit the widespread uptake of e-commerce and, hence, to impact on FDI.

3. MACRO ISSUES THAT AFFECT E-COMMERCE AND RELATED FDI

FDI has been defined as the acquisition of physical assets that gives decision-making control to a foreign firm over an enterprise in another country (Sodersten and Reed, 1994, p.469; Meyer, Corner and Parker, 1970, p. 523), or at least that gives enough direct influence on the running of the enterprise (Lewis *et al.* 2003, pp. 91-92). While there are several alternative explanations for FDI (Dunning, 1977), the advantages of FDI are often expressed the same way as, or in association with, those of e-commerce, involving an increase in value to stakeholders.

Borrowing from the classification used by Wood (2004) for e-commerce activities, and following the argument developed in this paper, e-commerce and FDI flows in a country can result from developmental or infrastructural activities, from entrepreneurial activities and from residual activities, as shown in Table 1.

Table 1: Activities influencing e-commerce and e-commerce related FDI

	E-Commerce	E-commerce related FDI
Infrastructural / Developmental Activities	Top-down marketing activities, probably initiated by government associated with infrastructure development, including ICT.	Related to the development of an ICT infrastructure and other infrastructure needed for effective e-commerce.
Entrepreneurial Activities	<ul style="list-style-type: none"> Top-down marketing activities directed to promoting the country infrastructure and spurring e-commerce participation. Bottom-up marketing activities, initiated by business, associated with exploring e-commerce opportunities. 	Related to deepening effective exploration of e-commerce activities by business
Residual Activities	Some intra-company operations may involve trade flows using proprietary software (still considered e-commerce).	Divestment may occur because of traditional trade flows moving to the Internet.

Developmental or infrastructural activities are associated with preparing the country for e-commerce up-take and participation by developing the necessary infrastructure. Entrepreneurial activities are associated with e-commerce participation itself. Residual activities are so named because they refer to activities associated with intra-company operations. Any inherent trade flows are commonly identified as 'traditional e-commerce' conducted with the use of electronic data interchange (EDI) over proprietary value-added networks. While they are not directly related to the argument advanced in this paper, they need to be noted because of their common inclusion in e-commerce statistics.

In terms of the residual activities, the important point to note is that they involve trade flows that are fast moving to the Internet (Zwass, 1998). Hence a crowding-out like effect may occur with divestment in traditional e-commerce transactions being compensated by transactions using the Internet.

To benefit from e-commerce participation a country needs to establish and develop the necessary infrastructure, both ICT (including the Internet's World Wide Web as the prime driver of contemporary e-commerce) and general trade supporting infrastructure (e.g. roads, ports, energy and telecommunications). Where domestic investment is not available, governments may seek to attract FDI, for example by providing greater entry opportunities for foreign business through deregulation. While liberalization can attract FDI, not all such investment is equally advantageous for the host country. More beneficial FDI activities may require locational advantages and promotional effort by the government, as well as national policies, such as the upgrading of technologies and skills (Gergely, 2003: p.4). This is

the case, for example, of the permission given to the Mexican company Telmex's mobile subsidiary to partner with the Swedish company Ericsson to introduce a wireless Internet service in Mexico (Kearney, 2001: p.12).

Arguably, much more FDI involving infrastructural and developmental activities is needed in developing countries, before entrepreneurial investment can flow in. The World Bank estimated that the growth of telecommunications in developing countries over the period 1997-2002 would require an annual investment of \$60 billion (World Bank, 2003) due to the unpreparedness resulting from a lack of the basic infrastructure in many of those countries, as illustrated by paltry five or fewer computers per 1,000 people across most of sub-Saharan Africa (APC, 2004).

Initiating the higher order entrepreneurial and infrastructural activities relating to both e-commerce and the attraction of e-commerce related FDI (table 1) requires addressing the constraints listed in Table 2, based on a review of the relevant literature. Table 2 identifies macro issues influencing e-commerce and e-commerce related FDI, distributed over three categories based on whether they are essentially technical, legal and regulatory or socio-economic. Each category of issues is briefly discussed below.

Table 2: Issues influencing e-commerce and e-commerce related FDI

	E-Commerce	FDI (E-commerce related)
Technical issues	<ul style="list-style-type: none"> o Availability and sustainability of support infrastructure o Availability and sustainability of ICT infrastructure o Telecommunications (excellence, access cost) o Internet hosts and users o Employment and skills o Security, Reliability and Protocols o Software integration 	<ul style="list-style-type: none"> o Availability and sustainability of support infrastructure o Telecommunications (excellence, access cost). o Internet hosts and users. o Human capital
Legal and regulatory issues	<ul style="list-style-type: none"> o Taxation issues o Policing o Trade laws and regulations o Legal "harmonization" and infrastructural "modernization" o Setting standards o Intellectual property, cyber-crime and consumer protection o Electronic signatures and potential cultural domination o Financing and access to credit o Industrial relations constraints 	<ul style="list-style-type: none"> o Rules for entry and operations o International trade agreements o Investment agreements o Trade laws and regulations o Coherence of trade policies and FDI o Privatization policy o Regulation of foreign affiliates o Competition policies o Taxation issues o Democratisation o Governance o Bureaucracy and red tape
Socio-economic issues	<ul style="list-style-type: none"> o Internet access o Privacy and Security o Trust o Intangibility o Skills gaps o Cost justification o Going global o Standardisation VS Adaptation o Intercultural communication of information o Understanding stakeholders in cultural diversity 	<ul style="list-style-type: none"> o Economic, political and social stability o Natural resources o Market size, structure and growth o Distance from and access to major markets o Availability and price of labour o Income level per capita o Economic environment o Cost advantages o Exchange rate o Export orientation o Risk

Source: E-commerce issues extracted from Aisbett & Pires (2003). FDI issues sourced from UNCTAD (2003, p. 85)

Technical Issues

As with any exchange system, e-commerce requires a minimum of two parties electronically connected, as well as a sustainable support infrastructure (including roads, ports and distribution networks, reliable energy supplies, telecommunications, skilled labour supply and finance), for trade to occur. For e-commerce to achieve its potential, however, an effective participation worldwide is necessary. The technical issues concerning e-commerce participation relate mainly to differences in current and future technological capacity within and between countries, within regions and even within continents. The focus of attention is on the availability, convergence (including software integration) and sustainability of the technical infrastructure and manpower support needed for e-commerce participation. However, while considerations of a nation's technical potential to engage in e-commerce tend to focus on its ICT infrastructure, this is conditional on the availability and sustainability of an effective trade supporting infrastructure. A requisite trade infrastructure is often linked to a nation's ability to attract developmental or infrastructural FDI. In fact, Table 2 shows that many issues of relevancy for e-commerce are equally relevant for e-commerce related FDI.

In terms of telecommunications, for example, excellent networks are essential for e-commerce to take place, but existing infrastructural limitations in many countries pose a real challenge for e-commerce to develop, and for those countries, including most of the African continent, to benefit from that development. For example, ICT simply does not exist in many poor and rural areas of developing countries, and mobile phones are 29 times more prevalent in high-income countries (UNCTAD, 2006). Although mobile telephony grew faster in non-OECD countries, their distance from OECD countries has been widening. Growth in Africa, in particular, has been negligible (OECD, 2000b). For parity to be achieved globally less developed countries would need to overcome current infrastructural limitations, often by attracting suitable FDI flows.

Regarding Internet hosts and users, the requirement of affordable access to ICT is as much a matter of making available the appropriate technology and information content to potential users within countries, areas where infrastructural FDI also has important role to play, as it is to encourage the use of the infrastructure and to provide users with the necessary skills to do so (Fife and Pereira, 2002). As with telecommunications, the gap between OECD countries and non-OECD countries is widening, since the level of technological achievement and diffusion of instruments of ICT, such as internet hosts and mobile telephony are major pull factors of FDI in high income countries (Gani and Sharma, 2003). In October 2000, 95.6 percent of the 94 million Internet hosts were in OECD countries. Africa had a decreasing share (0.25% OECD, 2000a). More recent research has found that secure Internet servers, deemed a rough indicator of e-commerce activity, are over 100 times more common in high income than in low income countries. Accessing the Internet in low income countries is 150 times more expensive than in high-income countries. Not surprisingly it is reported that a person in high-income countries is over 22 times more likely to use the Internet than in low-income countries (UNCTAD, 2006).

Where issues of employment and skills are concerned, governments everywhere have realized the role that a skilled labour force plays in constructing a resilient ICT infrastructure and the need to encourage IT skills development and IT literacy. ICT labour shortages were widely publicized in developed countries at the height of the dot.com boom. However, even at times when there is comparatively high unemployment amongst ICT workers, a skills gap may persist because of the widely varying specialist requirements in this sector. In some developed countries, such as Australia, Canada and the US, addressing this gap included the targeting of IT skilled immigrants, many of whom were sourced from developing countries. Other solutions were found by recurring to supra-national, internationally dispersed teams of ICT experts working on e-commerce software and information service projects, coordinated using the Internet and assisted by specialist project management software (Carmel, 1999).

Overall, sourcing of ICT workers from developing countries has the dual effect of depleting the stock of IT skilled labour and of questioning the returns achievable from FDI directed to ICT infrastructure development in those countries. Reportedly, investment in ICT within developing countries appears to provide significantly lower returns than in developed countries (Dewan and Kraemer, 2000), due to labour market inflexibility and human capital quality issues (Piatkowski, 2002). However, the negative impact on this type of FDI may be counteracted by contemporary relocation practices of firms involved in development and maintenance of e-commerce systems to lower cost suppliers, such as India (Litan, 2001), creating job markets in developing countries that can offer appropriate skills.

Legal and Regulatory issues.²

² See Aisbett & Pires (2003) for a more in-depth discussion of legislative and normative issues related to e-commerce.

Legal and regulatory issues for e-commerce refer to the conduct of commerce across national boundaries. Naturally, independent of the technologies involved, legislation for e-commerce involves much the same problems that have always been associated with trade in general, namely the complex and variable nature of the many laws and regulations that relate to commercial transactions within and across countries. But the newness of e-commerce justifies that the framework in which it operates is still somewhat ill-defined, in contrast to FDI which is generally highly regulated.

While trade regulations impact on FDI, as indicated in Table 2, the link between legal and regulatory issues affecting e-commerce and FDI is not well established empirically. Some analysts consider the link to be significant (Buch, 2001; Lee and Mansfield, 1996), while others dispute whether such a link exists (Altomonte, 2000). However, no matter how feeble the link might be, it is apparent that long-standing efforts to harmonize international trade laws across countries, including tariffs and other barriers (hence relevant to commerce, FDI and other areas) have gained new impetus with the relatively cheap global reach and pervasiveness of e-commerce (United Nations, 1996). For example, the reduction of barriers to trade has promoted the rapid growth of multinational corporations in the European Union (Zekos, 2005), supporting the view that the degree of market openness is an essential determinant of FDI (Gani and Sharma, 2003; Chakrabarti, 2002).

Other important macro issues impacting on e-commerce include *infrastructural* modernization, the setting of standards, regulation of intellectual property, cybercrime and consumer protection, electronic signatures and the potential for cultural domination (Aisbett and Pires, 2003). In terms of e-commerce related FDI, flows are influenced by the rules regarding entry, operations and competition, foreign affiliates and privatization policies, investment agreements, taxation, coherence of trade and FDI policies, democratisation (Addison and Heshmati, 2002), bureaucracy, corruption, red tape, law and order and quality of governance (Hossain, 2000).

Socio-economic issues.

Economic management and social stability are key socio-economic factors influencing FDI, along with market driven issues. But there are a many *socio-economic* issues associated with e-commerce and e-commerce related FDI, namely the extent to which firms actually do operate globally, and the problems that arise when they do. Then there are cultural differences in information needs and how information is best communicated.

Current cross-cultural marketing research has tended to focus on issues such as how information is viewed by different cultures, intercultural communication of public and commercial information and, importantly, a firm's decision to focus on cultural diversity or "go global" (Pires and Stanton, 2005). From a societal perspective, concern is about the growing "digital divide" and the penetration of foreign cultural norms.

The increasing knowledge, skills gaps and wealth disparities between countries with different levels of development are reflected within nations, in the "haves" and "have-nots" of their electronic communities. Culture affects preferences in information search and presentation, as well as impacting on economic factors which ultimately constrain the ability to access the Internet and engage in e-commerce. The tension between standardisation and adaptation is exacerbated when markets are diverse, as is particularly the case with e-commerce.

In addition to culturally related issues, e-commerce participation is also influenced by concerns about privacy and security, by the intangible nature of the value propositions when offered online, by the need to trust a 'new' global market void of perceived-risk reducing reassurances and, ultimately, by the difficulty in justifying objectively the gains from e-commerce participation (Bingi, Mir and Khamalah, 2000).

Economic, political and social stability are positive influences on e-commerce related FDI flows (Kokko, 2003), together with an abundance of natural resources, the availability of skilled and low cost unskilled labour, high income level per capita, favourable exchange rates, an export orientation and other time-specific and country-specific effects (Gholami, Lee and Heshmati, 2005), including the size and rate of growth of the market (Chakrabarti, 2002; Hossain, 2000) and, for some developing countries, proximity and access to major markets (Addison and Heshmati, 2002).

In general, the drivers and impediments of e-commerce and FDI listed in Table 2 mostly consist of top-down activities associated with macro issues, commonly addressed by governments. Given contextual constraints determined by geography, demography, availability of natural resources and the level of development, effective management of those drivers and impediments should contribute to the creation of an environment attractive to developmental and infrastructural FDI and, ultimately, to the provision of ICT infrastructure that enables e-commerce participation. What is not being catered for is a process to transform potential e-commerce participation into actual

participation. This process, as explained in discussing Table 1, may involve attracting more FDI, entrepreneurial FDI in this case.

4. FDI AND E-COMMERCE: CAUSE OR EFFECT?

A recent study of the causal relationship between ICT and FDI found that a higher level of ICT investment leads to an increased inflow of FDI, concluding that ICT may contribute indirectly to economic growth in a sample of mainly developed countries, by attracting FDI (Gholami, Lee and Heshmati, 2005). The causality is not disproved for developing countries, although *'poorer countries may find themselves in a "low-ICT equilibrium trap". They cannot attract ICT intensive FDI because they do not have an ICT infrastructure to start with, and they do not have sufficient private or public resources to develop such an ICT infrastructure'* (Addison and Heshmati, 2002). Hence, it is argued that countries need to achieve a 'threshold level of development' (Blomstrom, Lipsey and Zejan, 1994), a certain level of educational, technological and infrastructure development before they can attract FDI (OECD, 2002b, p. 69, cited in Gholami, Lee and Heshmati, 2005).

Focusing on the indirect links between ICT, FDI and economic growth, it is also possible that growth may ensue from the use of ICT backed FDI for e-commerce. The argument is that, because the Internet is global and e-commerce can readily cross national boundaries, the growth of e-commerce internationally will impact positively on the economic growth and development of participating countries. Hence, the desire to benefit from e-commerce participation can be a strong motivator for the creation and development of the infrastructure required for e-commerce to take place. This is consistent with countries such as Ireland, Hong Kong, Korea, Malaysia and Taiwan that have sought to develop competitive advantage in ICT related activities by attracting FDI directed at augmenting the stocks of technology and managerial expertise and improving the means of access to export markets (Fife and Pereira, 2002; Lehman, 2002). Focusing only on the ICT to FDI link can obscure the need to attract FDI that targets the creation and development of infrastructure required for e-commerce to take place.

Although the importance of ICT infrastructure alone cannot be questioned, it may not be sufficient to trigger e-commerce participation. This may involve a new round of top-down, Government initiated initiatives targeting domestic entrepreneurs by means of tax concessions, industry development funds and other incentives, as well as initiatives targeting entrepreneurial FDI. Following the World Investment Report (2003), these may include country image building and investment promotion by means of investment-generating activities, investment-facilitation services, investment incentives and after-investment services, as well as measures directed at administrative efficiency, equity (e.g. anti-corruption, equality of treatment with domestic ventures) and expatriate amenities, such as bilingual schools and quality of life (UNCTAD, 2003, p. 85).

Initiated by investors, entrepreneurial FDI may target the development of industries that can take advantage of the existing infrastructure, often building on links established through exports as a way of strengthening a market position (Hongxin and Levary, 2002). For example, the growth in sales of a product in another country through electronic transactions may require a service system based in that country. Hence, the growth of services that can be supplied electronically, by screen and telephone, to a global market also encourages FDI (The Economist, 2000, p. 37). This has generally been the case of FDI in East Asian economies (Xiaoquin and Dickie, 2000).

Summing up, countries need a suitable ICT infrastructure if they are to engage in beneficial e-commerce activities. Hence, countries may seek to attract FDI that contributes to creating a business and technological environment favourable to e-commerce development. Conversely, countries that can participate in e-commerce because they have the necessary ICT infrastructure are in a better position to attract FDI, and to experience the transmission effects of economic development that come with this investment. This sustains claims by international development agencies that commercial applications of ICT have great potential to accelerate economic growth in developing nations (Wood, 2004). For example, multinational firms have increased incentives to move production to low cost suppliers when communication and information transfers are assured at the new location. Lack of an ICT infrastructure, and consequent access to e-commerce, therefore prejudices a country's growth prospects (The Economist, 2000, p. 39).

Ultimately, since FDI involves increased foreign ownership likely to foster increased ICT infrastructure and use of the Internet and of e-commerce, the growth of FDI will impact on the growth of e-commerce internationally. But the growth of e-commerce also stimulates FDI, as reflected in the fact that, between 1990 and 1999, the decade in which Internet communication and e-commerce matured, FDI trebled as a proportion of global GDP from 1% to 2.9% (Clarke, 2002). The conclusion must be that the attractiveness of national markets for e-commerce is intertwined with their attractiveness for FDI.

5. CONCLUSION

This paper has identified underlying macro problems as influences on e-commerce and e-commerce related FDI, in order understand how e-commerce and e-commerce related FDI are articulated. The macro problems that reduce a country's attractiveness for e-commerce are problems that make it less attractive for FDI. However, the relationship goes further than that. FDI brings know-how and infrastructure that enable e-commerce, but conversely, an established e-commerce capacity in a country makes FDI more attractive. The potential global span of e-commerce means that failure to address the macro challenges might reduce existing levels of FDI as investors move to alternative locations, just as any other adverse socio-economic condition would.

The macro environment impacts on the growth rate of Internet access and the availability of local IT trained personnel, important criteria for those seeking to expand e-commerce markets. The IT requirements of both local and global e-commerce may stimulate FDI and create jobs in developing countries, as foreign companies take advantage of cheaper IT workforces. However, existing jobs in this and other sectors may also be lost or downgraded, as investors have more flexibility in sourcing goods and services.

The scope of e-commerce at the reach of firms in any country is bounded by other countries' limitations in participating in e-commerce. E-retailers seeking to target and offer better service to customers in different countries (Yoon, 2002), US-national e-businesses seeking to target Spanish speaking customers outside the US (Disabatino, 2000), and e-traders seeking to expand in markets that could be new engines for growth (Yoon, 2002), all benefit from the widespread adoption of e-commerce. In this way, e-commerce indirectly encourages FDI that builds e-commerce capacity.

E-commerce has brought renewed attention to the need for legal and regulatory harmonization, which would facilitate FDI. Along with the variability in access rules and in taxation which have encumbered foreign investors, countries and states differ in the extent to which intellectual property is preserved, (cyber) crime pursued, or consumers protected. While progress is being made, the complexity of the existing situation means that change will be slow, and more targeted legislation that closes "loopholes" will not always encourage e-commerce.

E-commerce may have a potential global reach, but the world still remains culturally diverse. The ultimate onus for those pursuing e-commerce, as for any global player, is on cultural sensitivity and responsiveness facilitated by global marketing segmentation practices, because this enables business (as well as governments) to understand and deal with "difference". Some product offerings may be standardised and some may not but, at each step, more value can be afforded to stakeholders. Standardisation and globalisation are bound by a cultural and digital divide, and there appears to be no clear indication that these divides will recede significantly in the foreseeable future.

Governments and international agencies seeking to increase investment need to take into account the role of e-commerce, and the macro issues which affect its development. The fear of being left behind in the rapidly changing global economy concerns governments in industrialised and developing countries alike, because *"countries that do not have an environment conducive to Internet usage and electronic commerce will be marginalized from the globalized production process and global economy, at increasingly great cost to their citizens"* (Mann, 2000, p.9). However, national capacities to develop e-commerce vary tremendously. The ability to build a successful IT industry in small industrialized countries is related to the extent of government IT promotion, the level of private sector investment in research and development, and the existence of an education system that produces IT literate graduates (Watson and Myers, 2001). Without the R&D base and the skilled workforce, the main stimulus for e-commerce in developing countries is external. Foreign owned firms or firms which supply trading partners in industrialized countries, where there is good ICT infrastructure and payment services, are the most likely adopters, and technology transfer becomes critical for developing local skills (Clarke, 2002).

Clearly, Governments need to realize that the ability of countries to engage in e-commerce is tied both directly and indirectly to their attractiveness for FDI. Strategically conceived Government intervention is likely to be required to attract infrastructural or developmental FDI, and then to attract effective entrepreneurial FDI. Just as e-commerce is a factor attracting FDI, foreign investment may be a prerequisite for e-commerce, particularly in developing countries. Infrastructure issues impeding e-commerce participation need to be considered on an equal footing when dealing with the links between ICT and FDI.

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