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1

Introduction: Charting a New Development Trajectory?

Anthony P. D'Costa

1.1 Introduction

The last three decades have witnessed a sea change in the character and functioning of the world economy. Both quantitatively and qualitatively the OECD and a handful of newly industrialising economies have been transformed by global flows of trade, foreign direct investment (FDI), technology and technical talent. Within national economies the ensuing structural change is nothing short of remarkable, with the speeding up of the relative decline of the industrial sector, the rise of the services economy, and the growing ubiquitousness of information and communications technologies (ICT) such as computers, software, satellite communications, e-mail and the Internet in the wider society. This twin sectoral development and structural change, combining ICT and services, is labelled the 'new economy' and considered integral to a 'knowledge-based, information society'. There is increasing recognition that knowledge-based economic activities are key to international competitiveness and productivity growth, and that industrialisation, particularly manufacturing, is no longer viewed as the principal driver of economic growth. This poses a fundamental question: what are the implications of the new economy for developing countries?

This volume takes a broad look at the new economy both theoretically and empirically to understand the development possibilities and the attendant challenges associated with ICT. As services comprise a significant sector in the new economy, the book begins with some conceptual issues pertaining to the measurement and performance of services. Andersen and Corley (Chapter 2) argue that the 'productivity paradox' associated with ICT exists not because of a lack of productivity growth but rather due to flaws associated with the measurement of total factor

productivity (TFP). As services are intertwined with new technologies such as telecommunications and the Internet, they are not only difficult to measure but they require new global rules of engagement because of their network characteristics. Consequently, whether developing countries can work effectively with the changing global regime, how they might utilise the open access to knowledge and information, and how they can adopt best practices (such as telemedicine, distance learning and e-government) are significant questions for development (Cogburn: Chapter 3).

Developing countries are structurally disadvantaged in seeking the best from the global regime of ICT infrastructure, which, *inter alia*, is related to their lack of key ingredients such as human capital, physical infrastructure, and lack of venture capital to exploit ICT (Kenny: Chapter 4; Chudnovsky and López: Chapter 7). But that does not mean the doors are completely shut. Poor countries such as the Philippines, which have unwittingly created human capital, are better placed to interact with the global economy, adapt imported ideas and know-how and localize them (Saloma-Akpedonu: Chapter 10).

The empirical studies in the volume show that the impact and potential of ICT for development are at best mixed and there is considerable variation within and among countries. Small domestic markets limit the adoption of ICT and thus productivity growth. This can be seen in the case of several transition economies of Central and Eastern Europe (Piatkowski: Chapter 5) and Argentina, which has made limited progress in leveraging the domestic market for software service exports (Chudnovsky and López: Chapter 7). Similarly, the Arab region is characterised by a high degree of uneven adoption and diffusion of ICT due to income differences and low levels of human capital development (Nour: Chapter 8).

The transition economies also display wide variation in ICT diffusion, mainly due to weak economic and institutional environments. This suggests that the old (non-ICT) economy and the traditional development concerns are equally important to secure the benefits of the new economy (Piatkowski: Chapter 5). Previously emphasised development needs, such as infrastructure investments and domestic market stimulation, are still relevant. However, the selective adoption of ICT in the developing world introduces a new set of contradictions. For example, while ICT in the form of automation suggests not only increasing competitiveness of small and medium-size enterprises (SMEs) due to productivity growth (Bhavani: Chapter 9), it also results in labour displacement, especially of the unskilled (Nour: Chapter 8). At the same

time, productivity-led opportunities thrown open by economic integration suggest that the vast rural poor and illiterate populations may miss out on the benefits of ICT if appropriate social policies are not aimed at improving the quality of their lives (Kaushik: Chapter 6).

It is important to underscore that both *production* of ICT goods and services and their *local consumption* are critical to securing the full benefits of the new economy (D'Costa 2005a; Parayil 2006). However, most poor countries are not poised to take advantage of ICT hardware manufacturing nor do they necessarily possess a large and strong science and technology base to offer skill-based services. But they can introduce ICT in SMEs and the public sector to improve the quality of service delivery and increase productivity. This is all the more necessary under a WTO-inspired world economy, under which few companies in the future will be immune from global competition. This could very well spur local economic activities, leading to adaptation of technologies and even export competitiveness of higher-value goods and services. That said, there is also the danger that ICT will display urban, English-speaking, middle-class and gender biases (Arun and Arun 2002; Meng and Li 2002; Wong 2002; D'Costa 2003a).

1.2 The new economy and globalisation

The notion of the new economy itself is contested. What exactly is new and how it differs from the 'old' economy are weighty questions. Some view the new economy as simply an intensifying form of capitalist exploitation where workers are subject to 'flexible' work demands and a 'race to the bottom' in terms of wage pressures brought about by the global workings of neo-liberalism, deregulation and privatisation (Harvey 1989: 121–200; Gadsfrey 2003). Others, based on the US and OECD experiences, disproportionately play up the qualitatively new features of contemporary capitalism, where services, with their weightless character, become the economic engine and ICT is perceived to be critical for productivity growth (Alcaly 2003; OECD 2003). The sources of growth vary but arise from increasing returns to scale and network externalities (OECD 2000: 17).

While the conceptual understanding and measurement of the service sector remain problematic, services themselves have qualitatively changed. Previously, most services were classified as non-tradable, that is, the service was consumed at the point of production. Thus international trade in services remained low. Also, most services were embedded in the production process; hence they were included in the value of

manufacturing. Today, however, services are becoming increasingly tradable, thereby not only making cross-border multinational activity in services a reality but also facilitating their outsourcing to third parties. With innovations in ICT it is now possible to conduct global outsourcing or 'offshoring' of services in commerce, engineering, accounting, management, law, finance, insurance, health, advertising, entertainment, retail and logistics areas (UNCTAD 2004). Consequently, export opportunities have arisen for developing countries with a good supply of technical and professional talent such as India, the Philippines and China.

As markets become more open, the new economic spaces are hotly contested, with low-wage countries competing in labour-intensive manufacturing, while workers in affluent societies, particularly in older industries, face retrenchment (Castells 2002). In rich countries, where social and political responses have been weak, the new economy is characterised by anti-union, anti-statist and anti-welfare developments (Gadfrey 2003). However, workers in rich countries can still resort to some forms of state-supported income transfers while their economies adjust to the new economy by specialising in high-technology manufacturing and high-value services. Both extensive and intensive deployment of ICT in business and in society at large, such as the access to, and use of, the Internet and convergence technologies, in general facilitates renewed productivity growth in rich countries (Cohen *et al.* 2004: 11–29). Both new and old sectors such as ICT, biotechnology, automobile production and education benefit, albeit selectively, from the deployment of ICT.

The new economy notwithstanding, developing countries must still contend with traditional development problems such as poverty and inequality as well as structural transformation from agriculture to industry (Cypher and Dietz 2004). These countries continue to be plagued by low levels of economic development and low living standards (Castells 2000; Hoogvelt 2001). Increasing export competition in labour-intensive manufactures means declining terms of trade and a reduction in social protections due to endemic fiscal crisis. Whatever job growth exists is accompanied by the ever-expanding informal sector in urban self-employment or low-value services, open unemployment due to privatisation of the state sector and, paradoxically, by productivity-enhancing new technologies. China, and to some extent India, known for recent robust growth and massive expansion in the production and consumption of ICT goods and services, is also faced with rising unemployment and regional inequality (Meng and Li 2002: 277; D'Costa 2003a). The

continued emphasis on investment in old development spheres such as education, literacy, basic health and physical infrastructure is necessary (D'Costa 2003a; Gadfrey 2003).

Furthermore, the evidence of productivity growth based on ICT diffusion is not robust, certainly not for developing countries (Heeks 2002). For example, the data on adoption of ICT by SMEs in Kenya, Tanzania and India show a negative or weak relationship between adoption and productivity (Chowdhury and Wolf 2006; Bhavani: Chapter 9). Also, there are considerable productivity lags with the diffusion of ICT (Andersen and Corley: Chapter 2). Consequently, it may not seem realistic or attractive for poor countries to participate in the new economy, which rests heavily on a highly skilled and educated workforce, a developed communications infrastructure, high investment in fixed capital and high income (Pohjola 2001; Clarke 2003).

At the same time it would be foolhardy to ignore the benefits of ICT in poor societies. If anything, ICT is an enabling carrier technology, applicable in both new and old economies (OECD 2003: 92). While ICT is not a panacea for poverty, developing countries, if they fail to actively engage in the use and production of ICT goods and services, are likely to be impoverished further and experience a pronounced form of global digital divide (Clarke 2003).

1.3 Participating in the new economy

What then are the areas in which developing countries could conceivably enter to foster the production and consumption of ICT? As outlined in Figure 1.1, telecommunications, information technology (IT) and information content are three broad areas in which developing countries could selectively insert themselves. As the prices for cellular phones decline, wireless rather than ground lines are generally easier and less costly to introduce. Even low-income economies have been witnessing the growth of such services, though teledensity as a whole still remains very low compared to OECD economies (ITU 2005).

In general the production of telecommunications and IT equipment is beyond the manufacturing capability of most developing countries. The limited market size, large investment requirements and manufacturing inexperience in sectors that are subject to short product and innovation cycles are inherent barriers to entry (Piatkowski: Chapter 5; Chudnovsky and López: Chapter 7; Nour: Chapter 8). A handful of East and South East Asian and Latin American countries are manufacturing telecommunications equipment and components. Japan, China, Taiwan, South

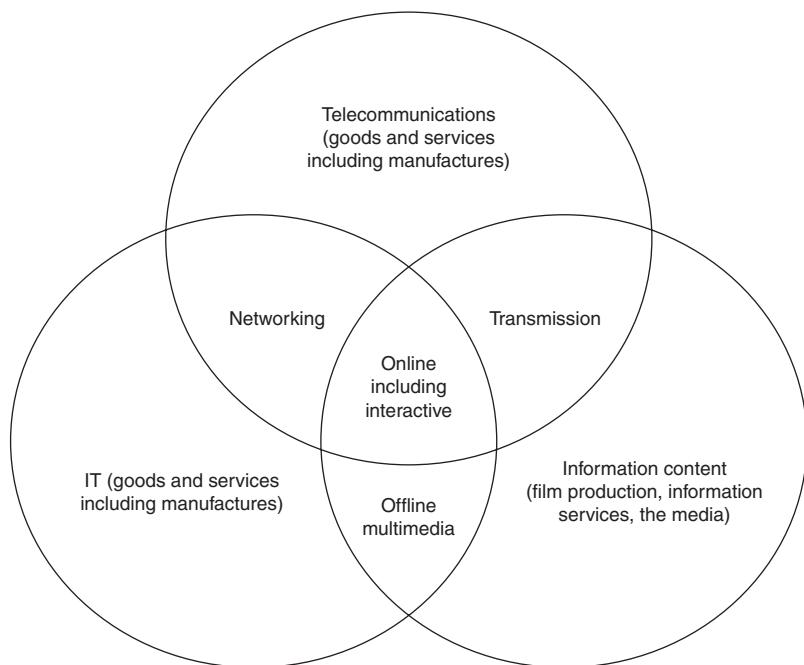


Figure 1.1 Areas of ICT opportunities and challenges

Source: OECD (2005: 99)

Korea and Singapore are key global centres of electronics goods production, while the bulk of software products and services are produced mostly in the US with Western Europe (including Ireland), Israel and India among other contributors (D'Costa 2004a). However, this division between ICT hardware and software production is compounded by the division between production and consumption. The ability of Japan and the four East Asian economies to capture a large share of the global electronics market has not necessarily led to a greater adoption of ICT use there compared to OECD economies (Wong 2002; also Piatkowski: Chapter 5). This suggests that export success in ICT manufacturing must be complemented by domestic consumption of ICT goods and services, or productivity growth, based on network externalities, may not be realised.

In the area of IT services, which includes a range of software services, India, China and the Philippines are becoming important global export centres. For smaller countries, including some in Africa, opportunities

exist for offering labour-intensive IT-enabled services such as call centres and back office operations. Both India and China are economically expanding, integrating internationally and regionally, becoming efficient, and reducing poverty. Their use of ICT is also increasing, even as the benefits accrue mostly to those with the college degrees, technical skills and middle-class position (D'Costa 2003b). Businesses both large and small are investing in IT in a range of domains such as finance, retail, banking, education, manufacturing industries and design.

Information content is one area in which developing countries could have some control. For example, due to local tastes and culture film production, information services and media (radio, TV, the Internet) could also have a large domestic component. However, the power of the US entertainment industry combined with capital-intensive technologies for transmission and networking are significant barriers to entry. Generally the larger developing countries with a visible industrial experience and relatively strong domestic cultural industries are likely to maintain some autonomy.

From a development perspective, the option of not participating in the new economy does not exist. However, given the experience of global ICT production it is clear that only the larger, industrially stronger countries can manufacture for export markets. These include but are not limited to China, East and South East Asia, and to some extent Brazil and India. Where the supply of technical talent is not a major constraint, wage arbitrage could work in favour of such countries to export ICT-based services. India, the Philippines, Thailand, China, Brazil and Argentina are good candidates. That leaves virtually the entire developing world to figure out how to insert themselves into the new economy favourably. One basic fact should not be forgotten: old economy challenges such as education, literacy, health, inequality and infrastructure still remain and hence must be aggressively pursued.

Poor countries must foster e-development to complement a development strategy to meet basic needs. Based on the extensive and intensive use of ICT, public sector services can be efficiently provided to citizens, different levels of government arms and businesses. The expected benefits are lower transactions costs, efficiencies in delivery of services, transparent governance and productivity growth (Singh 2004).

1.4 New economy policy thrust

Consistent with national industrial policy the production of ICT goods is an option for the larger developing economies. With rising

investment costs in electronics and semiconductor production facilities, and increasingly the commoditisation of much manufacturing, ICT goods production is unattractive for late entrants. Due to small markets most developing countries are unlikely to reap the benefits of network externalities and scale economies at this time. However, the export of ICT-based services is one option for countries with a science and technology skill base. Both small and large countries such as Ireland, Israel, the Philippines, China and India have been successful in this area. Yet heavy reliance on a few export markets could lock the nation's industry into low-end activities and induce a variety of distortions (D'Costa 2004b, 2005a; Joseph 2006). Hence, when it comes to choosing a strategy the challenge is to find a balance between ICT goods and services production, between domestic and export markets, and among export markets.

What all developing countries ought to foster, beyond those who can produce ICT goods and services, is the use of ICT as a tool to provide critical information-based services and thus, over the long haul, productivity growth. Several sectors such as education, industry, government administration and agriculture could come under the ambit of ICT. Computers and the Internet can be used for a wide range of service applications: to obtain and store information, access libraries remotely, send e-mail, order industrial inputs for manufacturing, organise the logistics of complex production, manage inventory, schedule delivery of finished products and provide price, weather and health information to various constituencies. Many developing countries have launched such ICT-based services, even in rural areas (author's field visit, Bangkok 2003;¹ for India, Kaushik: Chapter 6).

The challenges to the implementation of such projects should not be underestimated as it requires resources, long-term commitment, public acceptance and intra-government coordination. For example, in some rural areas in India the deviation of expected from actual benefits from the use of ICT has been largely due to imposition of ICT projects without a good understanding of the intended beneficiaries' needs (Sreekumar 2006). In other rural areas, it has been pointed out that only by removing old obstacles such as unequal landownership, illiteracy and financial duress can ICT act as a potent force in the development process (Thomas 2006). Similarly, in Thailand, the telemedicine programme to provide health-care services to rural areas has faltered due to overspending in satellite communications and failure to anticipate the reluctance of urban doctors to consult with their rural counterparts (interview, Ministry of Health, Bangkok 2003; see note 1).

It is apparent that ICT cannot be seen as a technological fix to what are essentially social and political problems. At the same time, the economics of ICT suggest that developing countries can increase their long-term economy-wide productivity if they do not remain outside the new economy. In the end ICT must diffuse in both old and new production sectors, in manufacturing and agriculture, in education and social sectors, to generate employment and to increase the efficiency of basic services for the public at large.

No doubt the principal barriers to the development of, and access to, ICT-based services are investment and inequality, widely known as the digital divide. Addressing them is consistent with old economy challenges (see Figure 1.2). Furthermore, effective participation in the global economy increasingly points to the importance of creating technological and commercial knowledge through both the endogenous process of human capital development and international technology transfers. Other intrinsic benefits of ICT-led productivity and growth include inducing expatriate technical talent to return home and encouraging others not to leave (D'Costa 2005b; Rai 2005). Much of the investment for public sector services and the necessary ICT infrastructure must

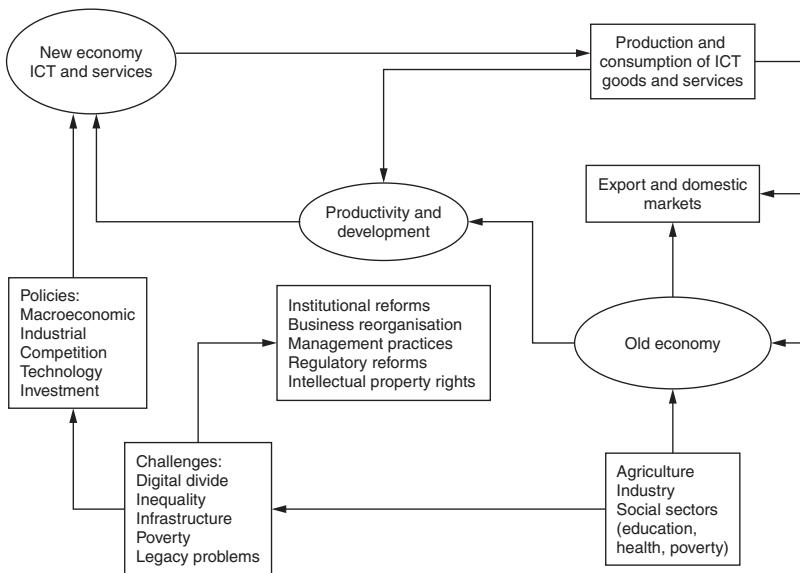


Figure 1.2 New economy development trajectory

Source: Compiled by the author; Clarke (2003)

come from governments. This must be complemented by an enabling environment of business growth and employment through market development, competition policy, intellectual property rights and appropriate equity-based social policies. The role of the government and other institutions cannot be overemphasised, especially in areas of regulatory reform (OECD 2005: 297–313; Piatkowski: Chapter 5).

1.5 Conclusion

The general lessons obtained from the theoretical and empirical materials presented in this volume suggest that structural change towards services is significant for both OECD and select non-OECD countries, many such services rely heavily on ICT, and increasingly they are becoming tradable. This calls for better measurement techniques and suggests that developing countries ought to promote the more value-adding ICT-based services, especially for the rural and urban poor. This in turn suggests the continued emphasis on knowledge workers, information literacy and communications infrastructure vital to participating effectively in the new economy. At the same time, developing countries must find a political voice at the global level so that they are not excluded from the multilateral negotiations on the emerging global information society. At the very least, such participation could create the space for a global consensus on the modes of governance of the new economy and poor countries' involvement (Cogburn: Chapter 3) and in a limited way generate a sense of national identity (Saloma-Akpedenu: Chapter 10).

However, too much emphasis on the new economy could be misplaced. After all, past radical technological developments such as the railways, telephone and television have not fundamentally transformed the economic structures of developing economies. Far from convergence, the 50 years of development experience and the more recent diffusion of ICT demonstrate the uneven character of global and regional outcomes even as some countries in some narrow sectors have closed the technology gaps. Also, at the industry level, the Indian experience suggests that the mere adoption of ICT does not produce international competitiveness. Rather the transformation of business and management practices and work reorganisation are complementary to ICT adoption.

Since the all-important new economy coexists with a vast old economy comprising both agriculture and traditional industries it is imperative to continue to address old economy problems but address them with new economy approaches. Thus fostering knowledge workers

and establishing communications infrastructure is consistent, though in conflict resource allocation-wise, with basic education and human capital development and with infrastructure spending on rural roads and irrigation. Also consistent with industrialisation, the production of ICT goods and services, especially those that have significant spillover effects, could be a viable strategy for some of the larger developing economies. Export markets will no doubt be critical for developing countries, but building up competitiveness will call for familiar policies of protection, promotion and performance in various degrees. Both macroeconomic policies sustaining an open economic system and sectoral policies within the framework of a national innovation system will be critical. Thus FDI, technology transfers, local learning efforts, SME development and revamping of education will remain critical in the years to come. The adoption of ICT is likely to compel reorganisation of business, new management practices and increased research and development spending, which are critical for many developing and transition economy firms plagued by legacy problems and global competition. However, the fruits of ICT adoption such as enterprise competitiveness may remain mixed at best.

More importantly, in an age of runaway globalisation, the role of the government is even more salient, especially when it comes to addressing the more fundamental development challenges of literacy, basic education, alleviation of poverty and inequality, health and the rural–urban gap. These are areas where ICT adoption could complement collective efforts in providing a variety of critical services to underserved constituencies. The Indian ICT projects aimed at the rural poor are promising. By being a major consumer of ICT goods and services, the state could begin to address the legacies of the old economy such as inefficiency, lack of transparency and lack of accountability. In the process it could nurture the backbone of an information society, create the conditions for growth and in a virtuous way induce more organisations to adopt ICT. And the ensuing ‘good’ governance will indubitably strengthen democracy.

Note

- 1 Field research was conducted in the greater Bangkok area with several ICT-implementing public sector agencies during August–September 2003. These included Ministries of Health and Education, Customs and Revenue Departments, Election Office for voter registration smart card as well as Thailand’s National Electronics and Computer Technology Centre (NECTEC) and the public sector software technology park.

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