9 Digitalising It: Women and Trade in ICT in Developing Countries

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According to the International Telecommunication Union (ITU), information and communications technologies such as the internet, mobile phones and computers can contribute to enhanced productivity, competitiveness, growth, wealth creation and poverty reduction, and can spur the knowledge-based economy (ITU, 2008). They can have a significant impact on the lives of women and men by transforming the nature and organisation of work in the industrial and service sectors (Hafkin, 2002); they also have implications for agriculture and rural development. For example, BRIDGE reports that in Gujarat, India, women dairy producers use the Dairy Information System Kiosk to maximise productivity and earnings (Gurumurthy, 2004).

With increasing trade and investment liberalisation, ICT will become an essential feature of developing countries' economies. Increasingly, the workforce in many countries is working with some form of ICT, and women are rapidly being absorbed into the outsourced areas of call centres, data processing, tourism, banking, finance and the insurance industry. The use of ICT devices such as PDAs (personal digital assistants) and financial software applications in micro-credit activity is also being explored by development agencies and NGOs to enhance women's economic opportunities.

Changing trade policy in the ICT sector

Many developing countries have fully or partially liberalised their ICT sectors under the WTO or through bilateral or regional trade agreements that go beyond agreements reached at the multilateral level. Internationally, the General Agreement on Trade in Services and the 1996 Ministerial Declaration on Trade in Information Technology Products (ITA) are the key arbiters of the rules that apply to telecommunications and overall ICT regulation and authorisation (see Box 9.1). The GATS schedules contain additional trade commitments by individual member countries concerning specific services, including basic telecommunications services (ITU, 2008).

Box 9.1 Trade in information technology products

The Ministerial Declaration on Trade in Information Technology Products (ITA) was concluded by 29 participants at the Singapore Ministerial Conference in December 1996. According to the WTO, the 'ITA is solely a tariff cutting mechanism'; it does not specifically address non-trade barriers. It offers coverage of three basic areas: (1) all products listed in the Declaration must be covered; (2) all must be reduced to a zero tariff level; and (3) all other duties and charges must be bound at zero. While there are no exceptions to product coverage, it is possible to have an extended implementation period for sensitive items. All commitments are on an MFN basis. The implementation and oversight of the ITA is administered by the Committee of Participants on the Expansion of Trade in Information Technology Products. The Committee periodically reviews product coverage (so-called ITA II) specified in the Attachments to the Declaration.

Though no developing countries were signatories to the original ITA, the following are now signed-up participants: Costa Rica; El Salvador; India; Macau, China; Malaysia; Panama; Philippines; and Thailand. As of February 2008, 107 WTO members had made commitments to open some or all segments of their telecommunications markets to foreign suppliers, and 80 members had committed themselves to the 'Reference Paper', a blueprint for sector reform (WTO, n.d.).

This liberalisation is occurring through many different pathways. In some cases, countries are dismantling their system of state and monopoly control of telecommunications sectors by privatising and selling them off and/or issuing additional licences to encourage more competition; others are simply removing tariff and non-tariff barriers and opening up the sectors to foreign participation. ICT-specific liberalisation, in combination with other aspects of liberalisation such as trade-related intellectual property rights and trade-related investment agreements, has implications for women's and men's employment opportunities, conditions of work and overall access to ICT services. These services range from radio, TV and the internet to electronic banking, online educational services, telemedicine and data processing. In all cases, women's roles, needs and concerns will be significantly affected.

ICT-related trade

ICT is a complex area and is highly nuanced in its impact on women's and men's employment, and in their ownership, control and access to its products and services. Women and men are users, workers, service providers and creators of ICT. For ease of presentation, this chapter adopts the World Bank (2007) framework and distinguishes between three types of trade: ICT-enabled trade, which covers employment-related activities in call centres and data processing for overseas clients; ICT-facilitated trade, which explores the utilisation of websites and other ways of selling products; and ICT trade, which focuses on international phone calls, websites and email. This case study is primarily interested in ICT-enabled trade as it seeks to examine the impact of trade policy on women's employment.

ICT-enabled trade

In the first phase of IT trade, which was labour-intensive electronics assembly line work, women were employed to make IT products for low wages, working long hours in unsafe and unhealthy working conditions. In the more recent phases, women continue to predominate as a source of cheap labour, but now are using IT in their work – for example, using automated technology in call centres and teleworking. However, as an economy progresses towards more knowledge-based activities requiring higher computer literacy and technical skills, there has been a noticeable downturn in the employment of women. Similarly, as more automatic and robotic type processes are involved, women's employment has declined (Hafkin, 2002). There is increasing evidence of this in several Asian countries, with Malaysia a good case in point. In the peak days of electronic assembly line sweatshops, women made up over 90 per cent of the workforce; by 1986, however, they comprised 67 per cent of the workforce in the IT sector.

At the same time, there has been an increase in women's employment in the service industry. Because of their typing skills on the QWERTY keyboard, they make up 90 per cent of data entry workers in the Caribbean, China, India, Philippines, Singapore and Vietnam (Hafkin and Taggert, 2001). Women dominate online export-oriented information processing (medical transcription, airlines, banking and insurance). In banking, for example, they predominate in information processing and computer typing, and as tellers. In India, women make up 70 per cent of the workforce in insurance, printing and publishing. The majority of staff in call centre customer services are women (Hafkin and Taggert, 2001). Medical transcribers in India earn an average of US$1,200 a year, which is significantly less than the US$25,000 that would be earned by their American counterparts.

However, in the high-tech areas of software and computer analysis women are in the minority. A study in Vietnam shows that men tend to dominate the conceptualisation aspects (designing and building) of software, whereas women dominate the testing or executing tasks (commonly explained by their calm and patient ability to spend long hours running the same test). Similarly, in examining the ICT sector in Barbados and Jamaica, Dunn and Dunn (1999) note the wide disparities in wages and working conditions between high- and low-tech industries. Both wages and working conditions are much better in the (male-dominated) software programming companies than in the (female-dominated) data entry companies.

In some developing countries, such as Brazil, India and Malaysia, women make up 20–30 per cent of workers in the professional levels of the software industry (for example software programmers and computer analysts) because of proactive national ICT policies that focus on higher education for women (Hafkin, 2002). This is comparable to the situation in Organisation for Economic Co-operation and Development (OECD) countries such as the UK and USA, where about 25 per cent of computer professionals are women (1998–2004 data cited in Van Welsum and Montagnier, 2007). Hafkin and Taggert (2001) note that African countries such as Togo and the United Republic of Tanzania are also quickly moving up this ladder. In both developing and developed countries women form the majority (90%) of the clerical workforce in the IT sectors.

Just as in the old electronics assembly line sweatshops of the 1970s and 1980s, the new trade-enabled ICT work environment poses particular health and safety hazards for women. Lack of adequate breaks and ergonomic working conditions mean that women suffer from chronic and sometimes debilitating eye strain, back injuries and a multiplicity of repetitive strain injuries. ICT is also associated with the expansion of informal sector activities such as home-based work (old IT) and teleworking (new ICT), both typical subcontracting activities. As in the rest of the informal sector, contracts and benefits are lacking in these sectors in developing countries.

ICT-facilitated trade

ICT-facilitated trade is best exemplified by India, which since 1984 has evolved an elaborate strategy for building a knowledge-based economy across all sectors (agriculture, services and manufacturing). This strategy has enabled Indian firms to penetrate global export markets in a wide range of product sectors and areas. It is grounded in a strong education policy, starting with basic education and going up to tertiary level.

ICT trade

Current data show that women are 38 per cent of all internet users in Latin America, 22 per cent in Asia and just 6 per cent in the Middle East. No regional figures by gender are available for Africa (Hafkin and Taggert, 2001). Women are very involved in domestically oriented ICT-driven profit centres such as phone shops, which require little capital and skills. These have been profitable areas for women in Bangladesh, Ghana and Morocco.

Impacts of changes in trade policy on women

In any examination of the impact of changes in trade policy on women, the distinction between ICT-enabled trade, ICT-facilitated trade and ICT trade is crucial, given their often quite distinct and contradictory effects.

In the case of ICT-enabled trade, the effect of liberalisation is somewhat different than with traditional products. For example, trade policy here is more about export promotion (linked to investment and intellectual property rights protection) than simply about classic tariff or non-tariff barrier reductions. The focus is on welcoming foreign investors and offering inducements to enable them to produce IT and IT-related products in a relatively secure (with regard to profit repatriation, trade facilitation and taxation measures) and conducive environment. It can be argued that openness to trade means more employment for women. This is certainly the case with the export of services via call centres and teleworking. The downside is the impact on women's health and morbidity, which must be taken into account as well as its effect on wages, benefits and opportunities for economic advancement and long-lasting empowerment. Of course, the usual substitution effect may occur if wages in the export sector exceed wages in the domestic competing sector, leading workers to switch into the higher wage sector and affecting the domestic demand for labour. Most developing economies, however, have a labour surplus.

In the area of ICT-facilitated trade, it is generally argued that liberalisation poses both challenges and opportunities for the domestic sector. Challenges arise in terms of global competition for products, which can now be purchased through the internet, etc., but this depends on the nature of cross-border online payment and on bricks and mortar systems (including customs/trade facilitation) for package distribution. Opportunities arise in terms of local firms having direct access to a wider market of international clients through the internet and e-commerce. This can clearly help small and medium-sized firms, including those that are owned by women.

In terms of ICT trade the issue is at least threefold: price effect; domestic policy/social regulation effects; and the impact on government revenues. In

the first place, liberalisation is expected to decrease the end user prices of many ICT products and services. On the face of it, this should be beneficial to women. According to Hafkin (2002), high customs duties on mobile telephones and computer equipment, as well as high prices for telephone services, are deterrents to women users. With the reduction of tariffs, prices for ICT products and services should be lower, thus yielding significant benefits to both female and male end users. But there may be an offsetting counter effect. Hafkin (2002: 13) argues that:

> In preparation for competition in the telecoms sector, many countries are rebalancing international and domestic tariffs to eliminate existing subsidies, most frequently on local service. This rebalancing has meant higher rates for local calls in many places, which hit the poor, the majority of whom are women, the hardest. Although it is expected that competition will lower prices in the long run, in the interim many users cannot afford local service. Among the ways to compensate for rebalancing costs are basing tariffs on forward-looking costs and establishing regional (e.g. rural vs. urban) tariffs.

Liberalisation means adjusting domestic laws with regard to telecommunications and other ICT services, including domestic regulations to promote universal access to phone and internet services in rural and poor communities. Proactive governments may include the promotion of women's empowerment and enhancement of opportunities for women's advancement, in terms of employment and business, up the ICT value-added ladder.

As with traditional product liberalisation, there are the usual concerns about the loss of tariffs and the consequential impact on government revenues. The specific concern centres around how this translates into cuts in social sector programmes. In the area of ICT there does not seem to be an acute cause for alarm. This is due to the fact that ICT is a very small proportion of many developing countries' revenue stream. For example, though ICT grew by 32 per cent between 2006 and 2007 in Uganda, it directly employed only about 6,000 persons (Uganda Investment Authority, 2008). For Kenya and the United Republic of Tanzania, ICT accounted for 4.8 per cent and 4.1 per cent of GDP, respectively (World Bank, 2007).

A further complication of ICT liberalisation is, as noted above, the potential leakage of funds abroad. Developing countries may be unable to tax internet transactions and capital is now extremely mobile. Equally important is the fact that ICT represents a high level of profit repatriation from developing countries. Apart from direct transfer in the purchase of ICT-related infrastructural equipment, developing countries must also pay huge amounts to international backbone providers – which supply access to

high-speed transmission lines – through settlement rates and payment for bandwidth. The high mobility of capital is forcing developing countries to lower tax regimes in order to attract foreign direct investment, which has eroded their revenue from taxation (Torres, 2001, cited in Ya'u, 2002). Additionally, in terms of trade and commerce, local firms are not able to compete with transnational ones, thus exacerbating capital flight (Ya'u, 2002).

A recent story in *Modern Ghana News* argues that West Africa's ICT industry faces a major threat from liberalisation, as small-scale operators in software development will be forced out of the market (Ghana News Agency, 2009). This has serious implications for the long-term development of indigenous creativity and innovation. Gender also plays a role, as women will be the most vulnerable group among the small players trying to compete against foreign multinationals in the software development area.

Measures taken to help women deal with policy changes

While ICT-enabled trade offers opportunities for export growth and women's socio-economic empowerment in Asia, Africa and the Caribbean, it can also perpetuate women's marginalisation and reinforce gender inequities. Ngone Diop from the African Centre for Gender and Development (ACGD), speaking at the forum on Information Communication Technologies, Trade and Economic Growth at the UN Conference Centre in Addis Ababa, argued that trade and ICT could be a critical pathway to socio-economic growth and development in Africa, but that without a gender perspective, the potential benefits of ICT and trade would not be experienced by women and girls. Rather, gender inequalities and the socio-economic exclusion of women and other vulnerable groups would be perpetuated, hampering Africa's development prospects (Zulu, 2006).

As a result of these concerns, there is a local, regional and national agenda to use ICT to promote the social and economic empowerment of women in developing countries. In terms of employment, there are efforts at all levels to promote better working conditions for women in call centres.

National measures

The most direct attempts to ensure that workers have access to benefits and health care are by unions and professional associations. In India, these include the well-established Union for Information Technology and Enabled Services (UNITES) and the IT Professionals Forum (ITPF). A newer entrant into the struggle to improve the welfare of IT workers is the Centre of Indian Trade Unions (CITU) launched by the West Bengal Information Technology Services Association.

In general, however, most efforts around women workers in the IT sector have centred on enhancing education as the pathway for improving their conditions and opportunities for greater access to and ownership and control of ICTs, whether for personal growth, poverty reduction or career advancement. In this respect, many NGOs are taking action to increase the computer literacy and skills of large segments of the population.

In Benin and Ghana, for example, NGOs have set up community learning centres for building computer and other ICT skills. In Benin, with the assistance of the United States Agency for International Development, Cyber Shonhai NGO has trained many people and focused its outreach on women. A Ghanaian NGO trained over 14,000 people in 2000. However, due to inattention to gender issues (such as timing, location and gendered customary rules of behaviour), about 85 per cent of those trained were young men between the ages of 18 and 40. Elsewhere, NGOs such as CEEWA-Uganda (Council for the Economic Empowerment of Women in Africa) have focused on improving women entrepreneurs' access to ICT (see Box 9.2).

Box 9.2 Benefits from and issues with an ICT project in Uganda

CEEWA-Uganda set up an ICT project in 1997 that targeted women entrepreneurs. Women at four sites were provided with access to various ICTs, including computers, email and internet services, telephones, fax, scanner, printer, photocopiers, radio and television. Women were also given business and agricultural information through a database-driven website. The project developed ICT training materials as well as entrepreneurship training on CD-ROMs tailored to the needs of local women. The materials were in audio-visual forms and were translated into the local language, Luganda.

Some of the women involved testified that the project enabled them to access training and information that improved their standard of living and their businesses. However, some of the women said they experienced abuse from their husbands, especially when they received calls from male clients or when they came home late from the telecentres. Even if women owned their own phones, access was restricted by their spouses, who wanted to control who could call their wives and the times at which this was acceptable. The economic benefits of ICT also disadvantaged women in some instances, as an increase in income meant additional burdens because the men simply left all financial responsibilities to their wives.

Source: Adapted from Litho, 2007

There is also a great deal of effort at national level to ensure women's access to and control of new ICT, such as computers, emails and the internet, as well as to enhance their access to traditional or older technologies, including non-electronic media such as print, radio and television. Furthermore, some national governments, for example India, Mauritius and Uganda, have pioneered the use of ICT in social development, including the delivery of health care (telemedicine). South Africa's Telecommunications Act includes provisions to redress gender imbalance and other areas of disadvantage.

Regional and international measures

The liberalisation of the movement of skilled professionals, including ICT workers, in the Caribbean Single Market and Economy (see Box 9.3) is one example of a regional approach to gender and ICT. In general, as in other regions, males and females in the Caribbean are found in specific types of occupational sub-groups in the ICT sector, with women dominating the low-skill, low-wage occupations such as teleworking and men dominating the high-skill, high-wage occupations such as software programming (Dunn, 2008).

Civil society groups in West Africa are advocating for harmonisation of national policies on ICT and telecommunications within the Economic Community of West African States (ECOWAS) legal framework. In the Asia-Pacific Economic Cooperation (APEC) region, the focus of attention has been on en-gendering ICT-facilitated trade, in particular the interconnections with women's small and medium-sized enterprises.

International measures

Some of the measures taken at the international level include:

- Better and more effective mechanisms to facilitate global money transfers and remittances;
- Promotion of ICTs and women's entrepreneurship through the growth of micro finance;
- The development by the International Telecommunication Union (ITU) of a gender-sensitive framework that promotes gender mainstreaming not only within the ITU itself, but also through its gender task force, which is working to promote greater gender sensitivity and end the gender digital divide;
- USAID's Greater Access to Trade Expansion (GATE) and Academy for Educational Development projects that seek to promote the provision of public access to the internet and other ICTs – particularly for low-income populations and micro, small and medium-sized enterprises.

Box 9.3 Gender and ICT in the Caribbean Common Market

The CARICOM Single Market and Economy (CSME) is an integrated development strategy agreed in 1989 by the Heads of Government of the states comprising CARICOM. In addition to the free movement of goods, the CSME allows for free movement of services and of skilled persons without the need for work permits. The CARICOM Free Movement of Persons Act, now enacted legislation in all CSME countries, initially applies only to certain categories, but calls for eventual free movement of all persons.

Given the gender differentials, gender inequalities and occupational sex segregation in the labour market in the Caribbean, it is important to determine how different groups of women and men will benefit. For example, the first category of skilled persons is university graduates. Until recently, the University of the West Indies was the main institution for university education across the region. Gender analysis of data from UWI Mona shows that there is a 70:30 ratio in favour of female graduates. It can therefore be assumed that the majority of these mobile professionals will be females.

Dunn and Dunn (1999) note that Barbados targeted investment companies involved in the high end of the IT market, while Jamaica focused on attracting those at the low end in response to the realities of their workers' profiles. As a result, most IT companies in Barbados were involved in software engineering and programming, while those in Jamaica were involved in data entry, data processing and call centres. CSME-qualified workers are thus more likely to migrate to Barbados, Jamaica, and Trinidad and Tobago, which are most 'e-ready', to utilise the emerging job opportunities in the ICT sector.

Source: Adapted from Dunn, 2008

Lessons learned

ICT in the three areas briefly touched on in this sector review – ICT-enabled trade, ICT-facilitated trade and ICT trade – present both challenges and opportunities for women's and men's economic and social progress and the empowerment of women as a group. However, restrictive and oppressive gender relations and socio-cultural barriers stand in the way of the successful attainment of these goals, which are the central objectives of develop-

ment. It is therefore imperative to make gender a key aspect of national ICT policies. Gender needs to be taken into account in assessing the location of ICT facilities, infrastructure, costs and training of workers. Gender constraints and challenges also need to be considered in the formulation of plans to further liberalise ICT in developing countries.

In order to retain and build on the employment gains associated with globalisation and the spread of ICT, women need to move into more technical or higher-level, better-paying jobs. For this, they need access to the educational and training opportunities necessary to equip them for the rapidly changing skill requirements. Policies should encourage girls and women to use ICT early in education and pursue higher studies in ICT and technical careers as scientists, researchers, administrators and educators (Hafkin, 2002).

Greater consideration of local and national social and cultural gender biases needs to be factored into programmes aimed at improving women's computer literacy. The research shows that simply having a curriculum does not ensure that women will benefit unless great care is taken to schedule workshops and training at times appropriate for them. Further, case studies from Benin and Mauritius show that different methods of accessing time at computer terminals need to be creatively established in order to ensure that girls and women have equitable access (Fontaine, 2000; Diga, 2009; Mbambo-Thata *et al*., 2009; Oumrane, 2009). First come, first serve approaches do not serve women as well as they do men, and boys seem to be better able to access computer time than girls for a variety of cultural and behavioural reasons.

Lessons for governments are many. These range from making sure that gender is at the centre of ICT policies, and that gender issues as well as rural-urban dynamics are taken on board in setting up the infrastructure of ICT and telecommunications, to including a gender perspective when formulating and implementing universal access policy and universal service obligations (USO) with ICT suppliers, both foreign and domestic.

In terms of enhancing the contribution of ICT-centred employment in both the foreign and domestic sectors of the economy, there is a need to go beyond the issues of access and to develop policies, programmes and strategies that encourage more women to pursue careers in high-tech occupations such as software engineering and computer programming (Dunn, 2008). IT companies also need to specifically target and recruit women to these jobs. In order to promote women's role in this area both as workers and businesses owners, governments need to ensure access to free/open source software and providers in their ICT policy and regulation.

At the international level, many NGOs, international agencies and governments are developing outreach to support the projects mentioned above.

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Non-Tariff Trade Barriers