



Measurement issues related to business ICT

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International Seminar on Information and Communication
Technology Statistics

19 - 21 July 2010, Seoul, Republic of Korea



My presentation will cover...

- Statistically, what is business ICT?
- Internationally comparable core ICT business indicators
- Statistical manuals and standards
- Potential new areas of measurement, focusing on business ICT use
- Discussion points.



Statistically, what is business ICT?

- Use of Information and Communication Technology (ICT) by businesses, including
 - Use of a range of ICTs
 - Activities facilitated by ICT, including e-business
 - Expenditure and investment on ICT
 - Impacts of ICT use on business effectiveness
 - ICT security
 - ICT skills
 - Barriers to use.
- Characteristics and performance of the ICT sector – businesses that produce ICT goods and services.
- International trade in ICT goods and services.
- Business use of ICT will be a focus of this presentation.



Internationally comparable core ICT business indicators

- The Partnership on Measuring ICT for Development released a revised core list of ICT indicators in 2010.
- It covers the business ICT indicators
 - ICT use by businesses (12 indicators)
 - The ICT sector (2 indicators)
 - Trade in ICT goods (2 indicators).
- The core list does not cover all aspects of business ICT; exceptions include
 - Impacts of ICT, barriers to use, expenditure & investment, ICT security, use of mobile phones, integrated e-business, ICT skills and trade in ICT services.



Core indicators – the ICT sector

- ICT1. Proportion of total business sector workforce involved in the ICT sector.
- ICT2. ICT sector share of gross value added.
- The main statistical standards associated with these indicators are:
 - The definition of the ICT and business sector (ISIC Rev3/3.1, 4)
 - Definitions of variables used in the indicators.
- Data are sourced from country industry surveys, usually conducted for other purposes.
- Major statistical issues are:
 - Data availability and age of data
 - Survey scope
 - Change in definition of the ICT sector (ISIC Rev4) leading to break in time series.



Core indicators – international trade in ICT goods

- ICT3. ICT goods imports as a percentage of total imports
- ICT4. ICT goods exports as a percentage of total exports
- The main statistical standards associated with these indicators are described in *Core ICT Indicators*. They are:
 - The definition of ICT goods (HS 1996, 2002, 2007; CPC Ver 2)
 - Trade concepts (*UN COMTRADE*).
- Data are sourced from *UN COMTRADE*, based on country trade data reported to UNSD.
- The major statistical issue is:
 - Change in definition of ICT goods leading to break in time series without appropriate treatment.



Core indicators – use of ICT by businesses

B1	Proportion of businesses using computers
B2	Proportion of persons employed routinely using computers
B3	Proportion of businesses using the Internet
B4	Proportion of persons employed routinely using the Internet
B5	Proportion of businesses with a web presence
B6	Proportion of businesses with an intranet
B7	Proportion of businesses receiving orders over the Internet
B8	Proportion of businesses placing orders over the Internet
B9	Proportion of businesses using the Internet by type of access: narrowband, fixed broadband, mobile broadband
B10	Proportion of businesses with a local area network (LAN)
B11	Proportion of businesses with an extranet



Core indicators – use of ICT by businesses

B12	<p>Proportion of businesses using the Internet by type of activity:</p> <ul style="list-style-type: none">Sending or receiving e-mailTelephoning over the Internet/VoIPPosting information or instant messagingGetting information about goods or servicesGetting information from general government organizationsInteracting with general government organizationsInternet bankingAccessing other financial servicesProviding customer servicesDelivering products onlineInternal or external recruitmentStaff training
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Core indicators – use of ICT by businesses

- The main statistical standards associated with these indicators are described in *Core ICT Indicators*.
- They are:
 - Industry and size – scope and classifications
 - Statistical units (enterprises, establishments)
 - Definitions of the terms used in the indicators
 - Model questions
 - How to calculate the indicators.



Core indicators – use of ICT by businesses

- Data are sourced from country surveys; most are ICT-specific surveys...
 - but a good starting point may be to add some questions to an existing business survey.
- Major statistical issues include:
 - Variable industry and business size scope
 - The technical nature of many of the indicators
 - Aggregating and reporting data
 - Lack of data – time series and for most developing countries.



Business use of ICT – major statistical issues

- Variable industry and business size scope
 - Use of ICT is related to the industry of a business's activity and its size.
 - If the industry and size scope varies across countries, their data will lack comparability.
 - The core ICT indicators have minimal standards on scope designed to enable comparability.
 - Where the scope of a particular country's survey is broader, it may be possible to tabulate data to be consistent with the recommended scope.
 - UNCTAD collects detailed data and can produce more comparable tabulations.



Business use of ICT – major statistical issues

- The technical nature of many of the indicators
 - Many of the technologies in the core indicators are changing and are inherently complex.
 - web presence, types of Internet access, LAN, extranet, intranet, Internet sales/purchases.
 - This presents challenges for surveys, especially those that are mail-based (the majority).
 - The core indicators standards include definitions for technologies
 - with the aim of reducing any bias associated with technical issues.



Business use of ICT – major statistical issues

- Aggregating and reporting data is addressed in *Core ICT Indicators*.
 - Aggregation across categories needs to be done by countries at the unit record level.
 - B7, B8, B9 and B12 may be presented as proportions of all businesses or of businesses that use the Internet
 - Need to be clear on the basis (i.e. denominator used).
 - UNCTAD collects data as numbers, rather than percentages, thus enabling re-aggregation (e.g. by industry, size category).
 - Data provided to UNCTAD should refer to the total population, not the sample.

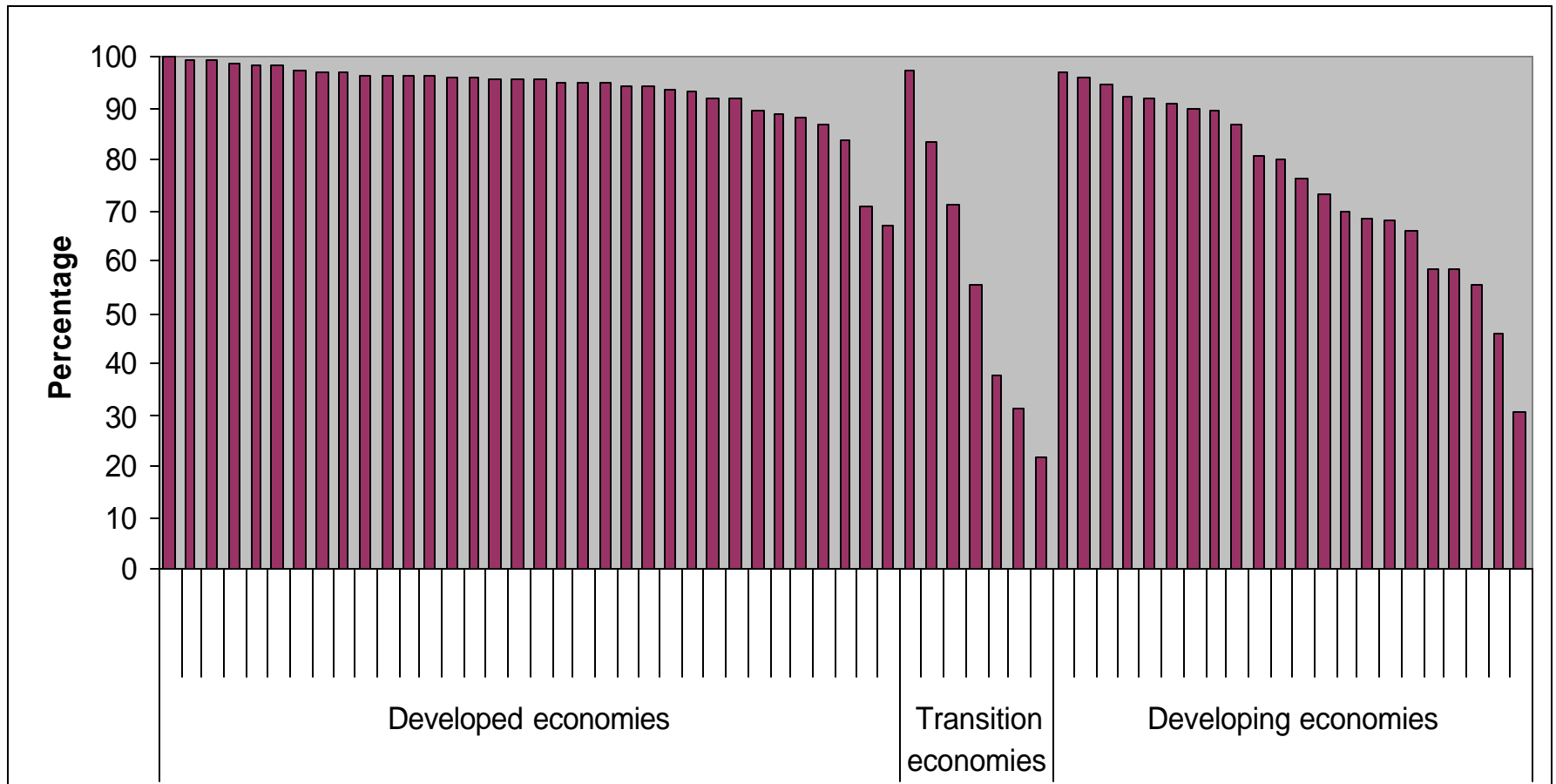


Business use of ICT – major statistical issues

- Lack of data – time series and for most developing countries.
 - This is a major issue which is gradually being addressed.
 - The capacity-building efforts of UNCTAD (and the *Partnership* more broadly) should be noted, they consist of
 - Manuals and other guides
 - Technical workshops and training courses.
 - Countries that would like to receive technical assistance on business ICT measurement should email emeasurement@unctad.org.



B3, Proportion of 10+ businesses using the Internet (latest year available)



Source: UNCTAD Information Economy Report 2010 (from annual survey and Eurostat data).



Statistical manuals and standards – *Core ICT Indicators, 2010*

- Produced by the Partnership on Measuring ICT for Development
 - A revised edition was released in 2010.
- The 2010 edition includes core ICT indicators and related statistical standards and methodologies.
- Link
http://new.unctad.org/upload/docs/ICT_CORE-2010.pdf.



Statistical manuals and standards – *Manual for the Production of Statistics on the Information Economy, 2009*

- Produced by UNCTAD and first released in 2007
 - A revised edition was released in 2009.
- Covers all the core business ICT indicators.
- Content includes statistical standards, methodologies, data sources, model questions and questionnaires.
- Link
http://new.unctad.org/templates/Page_____885.aspx.



Other statistical manuals and standards

- OECD *Guide to Measuring the Information Society, 2009*, www.oecd.org/sti/measuring-infoeconomy/guide.
- Eurostat information society statistics home page, with links to methodological manuals and questionnaires, http://epp.eurostat.ec.europa.eu/portal/page/portal/information_society/introduction.
- General standards from UNSD, WCO, ITU, ILO
 - ISIC, CPC, SNA, Harmonized System (for trade statistics), ICT definitions, employment.



Potential new areas of measurement in business ICT use

- Potential new indicators include:
 - Use of mobile phones by businesses
 - Barriers to ICT use
 - Use of more advanced ICT applications (e-business)
 - ICT expenditure and investment
 - ICT security
 - ICT skills
 - Impacts of ICT use.



Potential new areas of measurement – use of mobile phones by businesses

- The argument for including use of mobile phones as a core indicator is based on the importance of mobile phones for small businesses in many developing economies.
- UNCTAD's manual (2009 revision) suggested some possible indicators on business mobile phone use
 - Proportion of businesses using mobile phones
 - Proportion of businesses receiving/placing orders via mobile phones
 - Proportion of businesses using mobile phones by type of activity (several response items).



Discussion points...

- New indicators
 - Mobile phone use by businesses
 - Other potential new indicators.
- Other issues relating to business ICT measurement.