

What do academics want?
Research requirements for cross-national data
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Abstract

International data are widely used by the research community, but what do academics require from a data dissemination service and what can we say about the kind of data they select for their research? In this paper we describe how the needs of the social science academic community have been successfully addressed in the United Kingdom through the establishment of a dedicated national data service. We also present the results of a preliminary analysis of our web server logs showing the countries and indicators preferentially chosen by academics when looking for data to support their research.

Background

As the global integration of societies and economies accelerates, the accompanying issues of growth, stability, inequity and the role of government have attracted increasing interest from the research community. This has led to a growing demand for socio-economic cross-national data from the academic sector. Collective global issues such as climate change, the banking crisis, international security, the spread of infectious disease, and other collective global problems can only be addressed at a multilateral level and the academic sector requires evidence bases in order to contribute and comment on the required trans-national policy responses. Access to international databanks also allows researchers to make cross-country comparisons and interpret their findings in a broader perspective. Moreover in social science fields such as crime, employment or economics, a research question that may have been a single country study a few years ago now requires examination in an international context.

The international data which feed into this type of social science research are produced by intergovernmental organisations (IGOs) such as the World Bank or International Monetary Fund. These bodies have a presence in every country in the world, the authority to create international standards and the technical and financial capacity to support the development of national statistical infrastructures. The result is that IGOs produce databases of tremendous quality, scope and potential value to the academic sector. These regularly-updated time series databases typically contain a huge range of macro-economic and social indicators aggregated to national or regional level and collectively cover virtually every country in the world. However, in the past, the data has largely been unavailable or very expensive for people outside these organisations to use, with only those academics belonging to an institution with an institutional subscription to each IGO having access to the full databases. Databases are disseminated in different interfaces so if a user wishes to use data from a variety of sources, there is a need to learn a number of different access methods. The data are frequently presented in complex, seemingly

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unfathomable tables which many users lack the statistical skills to unravel and users must attempt to understand the metadata accompanying each of the datasets which often varies greatly in its completeness and quality. Locating data is a major problem for users as little searchable metadata is produced in any standardised form.

Building a national data service: ESDS International

In the United Kingdom ESDS International, a specialist data service of the wider Economic and Social Data Service, was established in January 2003 to address these issues of access to these types of data for the UK academic community. This national service hosted by Mimas at the University of Manchester now provides free access to over 35 socio-economic databases from eight different data providers. At the start of the service, a series of user consultations were undertakenⁱ and these processes identified a number of key barriers to the use of the data, namely:

- Prohibitive data license costs
- Different service providers, multiple registration systems and interfaces
- Data not delivered via web
- The data required not the data available
- Lack of awareness of available data
- Lack of appropriate data handling skills
- Lack of integrated user support
- Lack of documentation
- Problems locating data

The new service was designed from the outset to reduce or remove these barriers. Free access to the service is possible through a series of ground-breaking national licensing agreements between each of the data providers and the University of Manchester. These licensing agreements allow members of the UK academic community to access the data through ESDS International free at the point of use. Institutional or individual subscriptions are no longer required. As a result of this licensing model, the UK academic community can now access the major statistical publications of the World Bank, International Monetary Fund, OECD, International Energy Agency and a number of other international agencies free at the point of use (see Appendix 1).

Multiple registration systems and interfaces were a major issue as a barrier to use identified by users. Access to the data hosted by ESDS International is through a single sign-on (the service uses Federated Access Management, an international access and authentication standard). The data are produced by the IGOs in many different formats, and disseminated through many different interfaces. It was decided that ESDS International would use a single web interface, a proprietary web delivery software called Beyond 20/20, to deliver the data. Beyond 20/20 provides a relatively straightforward interface to the data and runs in a standard web browser, is accessibility compliant and can be used to display, subset, visualize and download time series data required. In order to do this it was first necessary to convert the large and complex files from a range of sources into Beyond 20/20's own format. This process was problematic as data was provided in various formats with differing quantities and quality of explanatory documentation.

The first stage was to understand the contents and structure of the datasets by analysing the data provider's original data files, documentation and user interface.

Once the structure of the database was understood it was possible to interpret how this could be presented. Data processing programs were written to re-format the raw data, to load the data and to publish the tables on the web server. Each dataset consisted of a unique set of data files, requiring a unique set of processing programs which varied considerably from dataset to dataset. Once these processing programs had been developed all the databases and their subsequent updates were available through Beyond 20/20, so as a result, users of the service are provided with a familiar, intuitive, web interface whichever databases are accessed.

Providing access to the right data means user consultation. User surveys, literature review and gap analyses have all been used in the development of the data portfolio. In addition, the research councils have their own strategic research priorities for UK higher education and these were also given high consideration in the collection development strategy in order to meet contemporaneous and future demand.

Priority was given to those 'research quality' databases; that is, those that are regarded internationally as being key sources of high quality, authoritative, reliable and up-to-date statistics with good temporal and spatial coverage. The databases must provide long term potential for research and teaching, with long and consistent time series, relatively stable data domains and strong opportunities for comparable research. Final consideration was given to those databases where prohibitive data license costs were previously an obstacle to use. In addition to these more methodical approaches to identifying new data sources and research areas with specific data needs, a data wishes page was also created on the website where researchers can request particular data resources to be added to the service.

A lack of data handling skills and awareness of available data resources were two further barriers identified by the user surveys. Students rarely, if ever, enter higher education with any level of statistical literacy. However, the size and complexity of social science databases mean the provision of training is critical. These issues have been addressed through a programme of workshops, courses and seminars run around the UK on the structure, content and research potential of the databases. The service website, www.esds.ac.uk/international, also hosts e-learning resources designed to promote the use of the data and raise statistical capacities. The "Countries and Citizens" e-learning materials, for example, are a comprehensive self-guided course aimed at early career researchers on combining international aggregate databanks with survey data. Written by subject specialists, the materials include PowerPoint slides, tutorials and streamed video files.

Locating data is one of the biggest problems researchers face, and this has been addressed through the development of a set of comprehensive and consistent user guides. For each database, a dataset user guide is produced which provides information of the geographical, subject and time period coverage of each database in a standard format. These dataset user guides lie outside the data authentication point and, as a consequence, are used by people from all over the world as a resource. In 2008 these guides were viewed by 75,857 different users; 74% of those were from outside the UK. Software user guides which take people step by step through accessing each database in Beyond 20/20 and thematic guides detailing data resources for particular topics are also provided.

Most providers produce a country list for each databank but there is very little searchable data on the subject covered and virtually none in any standard form. A key element of ESDS International's data delivery strategy was to enable users to

search across the full portfolio of international datasets. However, as the data come from various data providers with no common way of describing their data, it was necessary to create collection level descriptions of the datasets. This was accomplished by creating metadata records containing subject headings and classification numbers. These were all assigned using the Humanities and Social Science Electronic Thesaurus (HASSET) thesaurus, an international social science metadata standard.

In addition to the supporting web materials, specialist advice is provided via a dedicated helpdesk where the team's familiarity with the contents and structure of the various databases within the portfolio enables timely responses and has proved integral in building service-user relationships and keeping the service in step with needs of the academic community. Case studies showcasing research use of the data are available on the ESDS International website and an annual conference, which brings together speakers from intergovernmental organizations and the academic sector, provides an opportunity for users and providers of international data to meet and share their ideas. An ESDS International YouTube channel and Twitter site provide additional routes to user engagement.

All these measures have been built into the creation and development of ESDS International.ⁱⁱ The result has been a huge increase in the use of these types of data by the UK social science community. At the start of the service in May 2003 only a couple of hundred researchers from a handful of institutions were using these types of data. Through ESDS International, the data has been accessed by over 20,000 individual users from over 200 institutions of further or higher education in the United Kingdom.

Want do academics want? An analysis of web data logs

In September 2007, we began recording all country, year and series selections made within the World Bank databases hosted by ESDS International using the Beyond 20/20 weblogs. These weblogs of user activity detail over 4,700,000 selections made by users within Beyond 20/20 and enable us to examine the characteristics of the data that researchers select to view, chart or download. These selections not only tell us which countries and series are of interest to the academic community but also the time-scales selected, co-selections (such as country groups) and associations (such as which series tend to be selected for which countries).

The World Bank databases are suitable candidates for this kind of analysis. They are frequently-cited databases with wide geographical coverage, designed for cross-country comparability, and with a manageable number of tables and stable data domains. They also have an exceptionally high level of use.

The data for analysis, derived from the log of the user activity, include information on years, countries and series viewed, charted or downloaded within 3 categories corresponding to the 3 databases produced by the World Bank and hosted by ESDS International. These are the World Development Indicators, Global Development Finance and Africa Development Indicators. The time period covered by the analysis runs from September 2007 (May 2009 for the Africa Development Indicators) to August 2009. The data were processed into 9 separate SPSS files and analysis conducted separately for each category. A summary of main findings for each database is described below.

The **Global Development Finance** web data logs consist of 20,536 records for the years 1970 to 2016 for 231 countries and 215 series. The 20,536 records relate to 20,536 individual activities by 1,567 individual IP addresses. The average number of activities per IP address was 13.11 (95% CI 11.50 to 14.72) and this ranged from 1 to 529.

The most commonly selected country was Ghana, a country often regarded as a model of successful development. Ghana's regional neighbours Benin, Burkina Faso and Cote d'Ivoire also feature in the top ten countries selected for this database (see Appendix II). (This database only covers countries with external debt.) The most commonly selected series concerned long-term debt levels, foreign direct investment, debt forgiveness and reduction, and the cost of debt servicing.

The **Africa Development Indicators** web data logs consist of 7,216 records for the years 1960 to 2008 for 231 countries and 1,460 series. The 7,216 records relate to 7,216 individual activities by 305 individual IP addresses. The average number of activities per IP address was 23.66 (95% CI 19.38 to 27.94) and this ranged from 1 to 216.

This database covers 53 north and sub-Saharan countries and five regional groups. Nigeria was the most frequently viewed country alongside regional neighbours Benin and Burkina Faso (see Appendix III). The most frequently viewed series related to GDP growth, GDP per capita and foreign direct investment.

The **World Development Indicators** web data logs consist of 441,741 records for the years 1960 to 2008 for 231 countries and 869 series. The 441,741 records relate to 441,741 individual activities by 11,662 individual IP addresses. The average number of activities per IP address was 37.88 (95% CI 35.8 to 39.9) and this ranged from 1 to 529.

This database covers over 200 countries and 18 regional groups worldwide. Brazil and China were the most frequently viewed countries with around 47,000 data selections each. The UK's major European partners France and Germany ranked highly, alongside Ghana and other sub-Saharan African nations, and Brazil's Mercosur partners Argentina, Colombia and Chile (see Appendix IV). Countries and groupings of least interest to the academic sector were found to be small island states and the economic groupings constructed by the World Bank.

The database covers a range of topics including human development, globalisation, migration, labour markets, social expenditure, demography, environment, education and science and technology. We found the most frequently viewed series related to foreign direct investment.

As the World Development Indicators is a global database covering a broad range of socio-economic topics and with very high usage, we undertook a more detailed analysis of its web data logs, in particular looking at **data downloads**.

Analysis of table downloads from the World Development Indicators database

There were 98,051 table downloads from the World Development Indicators database and these related to 7,909 individual IP addresses who downloaded an

average of 12.4 tables (ranging from 1 to 1297). The median number of downloads was 3. The chart and table below show the distribution of number of downloads per IP address.

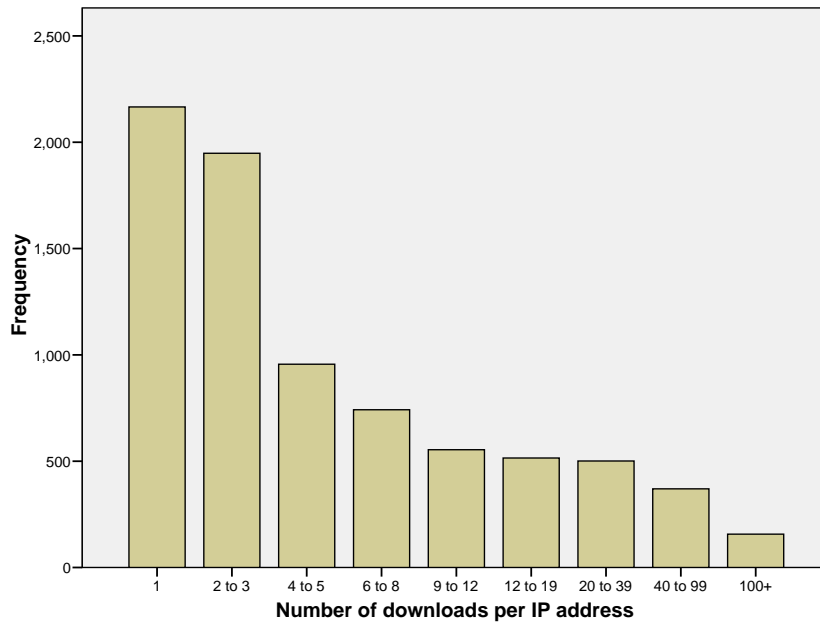


Table 1

Number of downloads	Frequency	Percent
1	2166	27.4
2 to 3	1948	24.6
4 to 5	956	12.1
6 to 8	742	9.4
9 to 12	554	7.0
12 to 19	515	6.5
20 to 39	501	6.3
40 to 99	370	4.7
100+	157	2.0
Total	7909	100.0

The top ten most frequently downloaded countries are shown in the table below.

Table 2

Country	Total number of downloads that included the country	Percent of all downloads that included the country
India	14 671	15.0
United Kingdom	14 661	15.0
Mexico	14 424	14.7
Brazil	14 393	14.7
Ghana	14 201	14.6
Nigeria	14 130	14.5

Kenya	14 120	14.4
China	14 097	14.4
United States	14 041	14.4
Indonesia	14 037	14.3

Note the ranking of countries selected for download varies slightly from the ranking associated with countries viewed in tables or charted. The United Kingdom ranks much more highly in the download statistics as might be expected as under our licensing agreements with the data providers, access is restricted to the UK academic community.

Over 30% of downloads included all available years i.e. time series of almost 50 years from 1960 to the latest available year (all three of the World Bank databases are annual databases). These longer time series allow researchers to construct more statistically-robust time series analyses and identify long term trends. Long time series are also needed by academics in order to teach statistical methods.

When a subset of years was selected, later years were more frequently chosen. The provision of up to date data had also come through as a strong request in our user consultation processes. Researchers need up to date data to explore recent events and generate policy-relevant research. Up to date data also make a subject more relevant and interesting for students and encourage them to investigate their own questions about the world.

A further area of interest was to see which series tended to be selected for individual countries. We first looked at which series were selected for the five most highly ranked countries, namely India, United Kingdom, Mexico, Brazil and Ghana. Appendix V lists the most popular series selected for each of these countries. The database covers a broad range of topics including demography, labour markets, education, health, income distribution, the environment, the economy and business environment. However, it is apparent that a similar collection of series is preferentially selected for these most commonly-selected countries. Across all the countries, **macro-economic** data were the most frequently selected type of series. **Foreign direct investment** in particular ranked highly across all the frequently selected countries. Series relating to **education** are of particular interest, in particular expenditure on education, and educational outcomes such as attainment and the fraction of the labour force with a secondary education.

During the period covered by the analysis, a perfect storm of surging demand, bad harvests, rising oil prices and speculative trading in commodities resulted in sharp increases in the price of basic foodstuffs, and series relating to **food** also feature highly in the rankings. The web log data show that spread of **infectious disease** is also a topic of interest as are various indicators of national **communication and IT capacity** including the level of use of personal computers and investment in telecoms.

Conclusions and further research

In this paper we have identified some of the barriers that in the past have restricted the use of international data in academic research. The establishment of ESDS International provided an opportunity to remove some of these barriers by adopting a new and unique approach to the delivery of key international data resources. The

service is now a thriving UK-wide national academic data service providing free web-based access to regularly updated international databanks produced by intergovernmental agencies. The service also helps users locate and acquire international survey data and provides a helpdesk, support materials and learning and teaching resources.

In this analysis we have sought to understand some of the particular requirements of the academic community regarding international data. By examination of our web data logs, we identified the countries of greatest interest to the UK academic community and the individual topics and characteristics of the data they prefer to select. This preliminary analysis did encounter some problems. Due to the way the Beyond 20/20 software logs data downloads it was only possible to analyse a subset of the data for the country analysis. The subset represents 27% of the total log data. However, the sample size and spread of the subset is sufficient to allow a representative analysis. Secondly, although the median number of downloads per IP address was 3, some IP addresses downloaded over 100 tables. This means results may be skewed towards people who downloaded many data tables. We are investigating ways to minimize this skew, for example by eliminating multiple downloads of the identical countries or series by the same user. Finally, a cluster analysis of the data was investigated, however due to the volume of data and huge variability in user selections standard cluster analysis techniques were not viable.

In the next stage of this research, we plan to map the data to look for spatial patterns in country selections and examine if the country groupings constructed by the data providers match the co-selections made by users. We would also like to extend the research to include a wider range of databases, including those provided by the International Monetary Fund, OECD and United Nations. Data mining methods, which are specifically designed to find patterns in very large databases, may provide additional ways to further investigate how the international databases are used by the research community.

References

ⁱ See, for example, Robin Rice, Peter Burnhill, Melanie Wright and Sean Townsend "An enquiry into the use of numeric data in learning & teaching", Edina website, <http://datalib.ed.ac.uk/projects/datateach/DataReport.pdf>, accessed Oct 2009

ⁱⁱ Celia Russell, Keith Cole, Susan Noble and Nicholas Syrotiuk "Delivering the World: The Establishment of an International Data Service" UNECE website, <http://www.unece.org/stats/documents/2005/02/dissemination/wp.8.e.pdf>, accessed Oct 2009

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Appendix I: ESDS International macro data portfolio

- * Eurostat New Cronos
- * IEA Coal Information
- * IEA CO2 Emissions from Fuel Combustion
- * IEA Electricity information
- * IEA Energy Prices and Taxes
- * IEA Energy Technology Research and Development Database
- * IEA Natural Gas Information
- * IEA Oil Information
- * IEA Renewables Information
- * IEA World Energy Statistics and Balances
- * IMF Balance of Payment Statistics
- * IMF Direction of Trade Statistics
- * IMF Government Finance Statistics
- * IMF International Financial Statistics
- * IMF World Economic Outlook
- * National Statistics Time Series Data
- * OECD Education Statistics
- * OECD Globalisation
- * OECD International Development
- * OECD International Direct Investment Statistics
- * OECD International Migration Statistics
- * OECD International Trade by Commodities Statistics
- * OECD Main Economic Indicators
- * OECD Main Science and Technology Indicators
- * OECD National Accounts
- * OECD Quarterly Labour Force Statistics
- * OECD Services Statistics
- * OECD Social Expenditure Database
- * OECD SStructural ANalysis
- * UNIDO Industrial Demand Supply
- * UNIDO Industrial Statistics
- * United Nations Commodity Trade Statistics Database (UN Comtrade) Database
- * United Nations Common Database
- * World Bank Global Development Finance
- * World Bank World Development Indicators
- * World Bank Africa Development Indicators

Appendix II: Top country selections from the World Bank Global development Finance

Ghana	1255
Benin	1249
Burkina Faso	1227
Cameroon	1154
Côte d'Ivoire	1134
Malawi	1117
Mali	1112
Chad	1105
Burundi	1086
Mozambique	1078
Bolivia	1060
Congo, Democratic Republic	1057
Honduras	1053
Madagascar	1052
Central African Republic	1051
Mauritania	1049
Ethiopia	1045
Congo, Republic of	1044
China	1033
Guinea Bissau	1033

Appendix III: Top country selections from the World Bank Africa Development Indicators

Nigeria	1292
Benin	1270
Burkina Faso	1266
Angola	1234
Ethiopia	1225
Botswana	1217
Ghana	1217
Zambia	1192
Burundi	1183
South Africa	1173
Mali	1166
Cameroon	1162
Tanzania	1152
Gambia	1147
Kenya	1145
Madagascar	1138
Congo, Dem Rep	1128
Malawi	1127
Uganda	1123
Mozambique	1120

Appendix IV: Top country selections from the World Bank World Development Indicators

Brazil	47699
China	46699
France	46429
Ghana	46401
Germany	46320
Argentina	45724
Chile	44189
Côte d'Ivoire	43617
Colombia	43406
Cameroon	43332
Egypt	43266
Belgium	43145
Australia	42952
Botswana	42909
Bangladesh	42804
Austria	42699
Finland	42691
Ethiopia	42590
Denmark	42531
Czech Republic	42285

Appendix V: Top series selections for most popular countries downloaded from the World Bank World Development Indicators

India

Series	Number of table downloads	% of table downloads for India (14671)	% of all table downloads (98051)
Foreign direct investment, net inflows (BoP, current US\$)	1127	7.7	1.1
Foreign direct investment, net inflows (% of GDP)	862	5.9	0.9
Forest area (% of land area)	818	5.6	0.8
Food exports (% of merchandise exports)	765	5.2	0.8
Final consumption expenditure etc (% of GDP)	758	5.2	0.8
Personal computers	733	5.0	0.7
Incidence of tuberculosis (per 100, 000 people)	636	4.3	0.6
Financing via international capital markets (gross, % of GDP)	635	4.3	0.6
Food beverages and tobacco (% of value added	618	4.2	0.6

in manufacturing)			
GDP per capita, PPP (current international \$)	590	4.0	0.6
Firms offering formal training (% of firms)	590	4.0	0.6
Final consumption expenditure etc	588	4.0	0.6
Forest area (sq km)	564	3.8	0.6
Final consumption expenditure etc	544	3.7	0.6
Food imports (% of merchandise imports)	535	3.6	0.5
GDP growth (annual %)	531	3.6	0.5
Final consumption expenditure etc	531	3.6	0.5
Fertilizer consumption (metric tons)	527	3.6	0.5
Fossil fuel energy consumption (% of total)	521	3.6	0.5
Roads, goods transported (million ton-km)	520	3.5	0.5
Time required to obtain an operating license (days)	517	3.5	0.5
Labor force with secondary education (% of total)	509	3.5	0.5
Firms that do not report all sales for tax purposes	484	3.3	0.5
Income payments (BoP current US\$)	484	3.3	0.5
Persistence to grade 5, female (% of cohort)	481	3.3	0.5
Expenditure per student, secondary (% of GDP per capita)	475	3.2	0.5
Final consumption expenditure etc	470	3.2	0.5
Foreign direct investment, net (BoP, current us\$)	466	3.2	0.5
Investment in telecoms with private participation	464	3.2	0.5
Final consumption expenditure (current US\$)	463	3.2	0.5
GDP (current US\$)	456	3.1	0.5
GDP (current LCU)	442	3.0	0.5
External debt stocks (public and publicly guaranteed)	429	2.9	0.4
Foreign direct investment (net outflows %GDP)	428	2.9	0.4
Residential fixed line telephone tariff (US\$ per month)	426	2.9	0.4
Net DAC donor flows (Canada current UD\$)	424	2.9	0.4
Inflation, consumer prices (annual %)	419	2.9	0.4
Household final consumption expenditure	406	2.8	0.4
Employees, industry, male (% of male employment)	401	2.7	0.4
Public spending on education total (% of GDP)	390	2.7	0.4

United Kingdom

Series	Number of table downloads	% of table downloads for UK (14661)	% of all table downloads (98051)
Foreign direct investment, net inflows (BoP, current US\$)	993	6.8	1.0
Foreign direct investment, net inflows (% of GDP)	748	5.1	0.8
Food exports (% of merchandise exports)	737	5.0	0.8
Final consumption expenditure etc (% of GDP)	703	4.8	0.7
Personal computers	691	4.7	0.7
Forest area (% of land area)	678	4.6	0.7
Food beverages and tobacco (% of value added in manufacturing)	574	3.9	0.6
Forest area (% sq. km)	573	3.9	0.6
Fossil fuel energy consumption (% of total)	536	3.7	0.5

Fertilizer consumption (metric tons)	523	3.6	0.5
Incidence of tuberculosis (per 100, 000 people)	506	3.5	0.5
Final consumption expenditure etc	502	3.4	0.5
Final consumption expenditure etc	500	3.4	0.5
GDP per capita, PPP (current international \$)	486	3.3	0.5
Financing via international capital markets (gross, % of GDP)	476	3.2	0.5
Firms offering formal training (% of firms)	475	3.2	0.5
GDP growth (annual %)	471	3.2	0.5
Final consumption expenditure etc	470	3.2	0.5
Labor force with secondary education (% of total)	465	3.2	0.5
Food imports (% of merchandise imports)	459	3.1	0.5
Net DAC donor flows (Canada current UD\$)	455	3.1	0.5
Final consumption expenditure etc	446	3.0	0.5
GDP (current US\$)	445	3.0	0.5
Firms that do not report all sales for tax purposes	435	3.0	0.4
Investment in telecoms with private participation	435	3.0	0.4
Foreign direct investment (net outflows %GDP)	434	3.0	0.4
Final consumption expenditure (current US\$)	434	3.0	0.4
Time required to obtain an operating license (days)	433	3.0	0.4
GDP (current LCU)	427	2.9	0.4
Foreign direct investment, net (BoP, current us\$)	425	2.9	0.4
Persistence to grade 5, female (% of cohort)	422	2.9	0.4
Roads, goods transported (million ton-km)	415	2.8	0.4
Gross savings (current LCU)	415	2.8	0.4
Expenditure per student, secondary (% of GDP per capita)	410	2.8	0.4
Income payments (BoP current US\$)	402	2.7	0.4
Firms using banks to finance investment (% of firms)	393	2.7	0.4
Food production index (1999-2001=100)	393	2.7	0.4
Services, etc., value added (current US\$)	390	2.7	0.4
External debt stocks (public and publicly guaranteed)	383	2.6	0.4
Inflation, consumer prices (annual %)	380	2.6	0.4

Mexico

Series	Number of table downloads	% of table downloads for Mexico (14424)	% of all table downloads (98051)
Foreign direct investment, net inflows (BoP, current US\$)	1066	7.4	1.1
Foreign direct investment, net inflows (% of GDP)	874	6.1	0.9
Forest area (% of land area)	819	5.7	0.8
Food exports (% of merchandise exports)	764	5.3	0.8
Personal computers	722	5.0	0.7
Incidence of tuberculosis (per 100, 000 people)	681	4.7	0.7
Final consumption expenditure etc (% of GDP)	647	4.5	0.7
GDP growth (annual %)	614	4.3	0.6
Financing via international capital markets (gross, % of GDP)	610	4.2	0.6
Food beverages and tobacco (% of value added in manufacturing)	591	4.1	0.6
Forest area (sq km)	571	4.0	0.6
GDP per capita, PPP (current international \$)	563	3.9	0.6
Expenditure per student, secondary (% of GDP per capita)	552	3.8	0.6
Fossil fuel energy consumption (% of total)	548	3.8	0.6
Firms offering formal training (% of firms)	519	3.6	0.5
Time required to obtain an operating license (days)	513	3.6	0.5
Roads, goods transported (million ton-km)	502	3.5	0.5
Labor force with secondary education (% of total)	500	3.5	0.5
Fertilizer consumption (metric tons)	499	3.5	0.5
Final consumption expenditure etc	498	3.5	0.5
Final consumption expenditure etc	498	3.5	0.5
Income payments (BoP current US\$)	492	3.4	0.5
Food imports (% of merchandise imports)	481	3.3	0.5
Final consumption expenditure etc	478	3.3	0.5
Household final consumption expenditure	462	3.2	0.5
Persistence to grade 5, female (% of cohort)	460	3.2	0.5
Investment in telecoms with private participation	460	3.2	0.5
Final consumption expenditure etc	451	3.1	0.5
Firms that do not report all sales for tax purposes	446	3.1	0.5
Foreign direct investment, net (BoP, current us\$)	444	3.1	0.5
Final consumption expenditure (current US\$)	439	3.0	0.4
GDP (current US\$)	427	3.0	0.4
DEC alternative conversion factor (LCU per US\$)	427	3.0	0.4
GDP (current LCU)	421	2.9	0.4
Foreign direct investment (net outflows %GDP)	417	2.9	0.4
Net DAC donor flows (Canada current US\$)	416	2.9	0.4
Inflation, consumer prices (annual %)	410	2.8	0.4
Household final consumption expenditure etc	404	2.8	0.4
Gross savings (current LCU)	399	2.8	0.4
Residential fixed line telephone tariff (US\$ per month)	395	2.7	0.4

Brazil

Series	Number of table downloads	% of table downloads for Brazil (14393)	% of all table downloads (98051)
Foreign direct investment, net inflows (BoP, current US\$)	1081	7.5	1.1
Foreign direct investment, net inflows (% of GDP)	889	6.2	0.9
Forest area (% of land area)	846	5.9	0.9
Food exports (% of merchandise exports)	794	5.5	0.8
Personal computers	741	5.1	0.8
Incidence of tuberculosis (per 100, 000 people)	705	4.9	0.7
Final consumption expenditure etc (% of GDP)	629	4.4	0.6
GDP growth (annual %)	625	4.3	0.6
Financing via international capital markets (gross, % of GDP)	621	4.3	0.6
Forest area (% sq. km)	587	4.1	0.6
Food beverages and tobacco (% of value added in manufacturing)	584	4.1	0.6
Expenditure per student, secondary (% of GDP per capita)	566	3.9	0.6
GDP per capita, PPP (current international \$)	560	3.9	0.6
Fossil fuel energy consumption (% of total)	548	3.8	0.6
Labor force with secondary education (% of total)	528	3.7	0.5
Time required to obtain an operating license (days)	525	3.6	0.5
Final consumption expenditure etc	525	3.6	0.5
Firms offering formal training (% of firms)	525	3.6	0.5
Income payments (BoP current US\$)	521	3.6	0.5
Roads, goods transported (million ton-km)	521	3.6	0.5
Final consumption expenditure etc	508	3.5	0.5
Fertilizer consumption (metric tons)	499	3.5	0.5
Final consumption expenditure etc	491	3.4	0.5
Food imports (% of merchandise imports)	484	3.4	0.5
Persistence to grade 5, female (% of cohort)	482	3.3	0.5
Household final consumption expenditure	475	3.3	0.5
Investment in telecoms with private participation	471	3.3	0.5
Foreign direct investment, net (BoP, current us\$)	457	3.2	0.5
Firms that do not report all sales for tax purposes	450	3.1	0.5
GDP (current LCU)	448	3.1	0.5
DEC alternative conversion factor (LCU per US\$)	444	3.1	0.5
Final consumption expenditure (current US\$)	436	3.0	0.4
GDP (current US\$)	436	3.0	0.4
Final consumption expenditure etc	430	3.0	0.4
Net DAC donor flows (Canada current US\$)	424	2.9	0.4
Residential fixed line telephone tariff (US\$ per month)	421	2.9	0.4
Foreign direct investment (net outflows %GDP)	415	2.9	0.4
Inflation, consumer prices (annual %)	408	2.8	0.4
Household final consumption expenditure etc	402	2.8	0.4
Public spending on education total (% of GDP)	396	2.8	0.4

Ghana

Series	Number of table downloads	% of table downloads for Ghana (14201)	% of all table downloads (98051)
Foreign direct investment, net inflows (BoP, current US\$)	1086	7.6	1.1
Foreign direct investment, net inflows (% of GDP)	855	6.0	0.9
Forest area (% of land area)	822	5.8	0.8
Food exports (% of merchandise exports)	746	5.3	0.8
Personal computers	734	5.2	0.7
Incidence of tuberculosis (per 100, 000 people)	669	4.7	0.7
Financing via international capital markets (gross, % of GDP)	667	4.7	0.7
Final consumption expenditure etc (% of GDP)	643	4.5	0.7
Food beverages and tobacco (% of value added in manufacturing)	617	4.3	0.6
Forest area (% sq. km)	589	4.1	0.6
Fossil fuel energy consumption (% of total)	562	4.0	0.6
Final consumption expenditure etc	554	3.9	0.6
GDP growth (annual %)	553	3.9	0.6
GDP per capita, PPP (current international \$)	547	3.9	0.6
Final consumption expenditure etc	545	3.8	0.6
Labor force with secondary education (% of total)	544	3.8	0.6
Time required to obtain an operating license (days)	529	3.7	0.5
Roads, goods transported (million ton-km)	528	3.7	0.5
Firms offering formal training (% of firms)	519	3.7	0.5
Expenditure per student, secondary (% of GDP per capita)	519	3.7	0.5
Income payments (BoP current US\$)	511	3.6	0.5
Final consumption expenditure etc	493	3.5	0.5
Persistence to grade 5, female (% of cohort)	486	3.4	0.5
GDP (current LCU)	464	3.3	0.5
Food imports (% of merchandise imports)	464	3.3	0.5
Investment in telecoms with private participation	463	3.3	0.5
Fertilizer consumption (metric tons)	460	3.2	0.5
GDP (current US\$)	458	3.2	0.5
Final consumption expenditure etc	448	3.2	0.5
Firms that do not report all sales for tax purposes	447	3.1	0.5
Final consumption expenditure (current US\$)	444	3.1	0.5
Foreign direct investment, net (BoP, current us\$)	436	3.1	0.4
External debt stocks (public and publicly guaranteed)	427	3.0	0.4
Inflation, consumer prices (annual %)	427	3.0	0.4
Net DAC donor flows (Canada current US\$)	427	3.0	0.4
Foreign direct investment (net outflows %GDP)	414	2.9	0.4
Household final consumption expenditure	413	2.9	0.4
Residential fixed line telephone tariff (US\$ per month)	412	2.9	0.4
DEC alternative conversion factor (LCU per US\$)	395	2.8	0.4
Road sector fuel consumption per capita (liters)	393	2.8	0.4

Nigeria

Series	Number of table downloads	% of table downloads for Nigeria (14130)	% of all table downloads (98051)
Foreign direct investment, net inflows (BoP, current US\$)	7.8	1.1	7.8
Foreign direct investment, net inflows (% of GDP)	6.1	0.9	6.1
Forest area (% of land area)	6.0	0.9	6.0
Food exports (% of merchandise exports)	5.3	0.8	5.3
Personal computers	5.3	0.8	5.3
Incidence of tuberculosis (per 100, 000 people)	4.9	0.7	4.9
Financing via international capital markets (gross, % of GDP)	4.8	0.7	4.8
Food beverages and tobacco (% of value added in manufacturing)	4.4	0.6	4.4
Final consumption expenditure etc (% of GDP)	4.3	0.6	4.3
Forest area (sq km)	4.2	0.6	4.2
Fossil fuel energy consumption (% of total)	3.9	0.6	3.9
GDP growth (annual %)	3.9	0.6	3.9
Labor force with secondary education (% of total)	3.9	0.6	3.9
GDP per capita, PPP (current international \$)	3.8	0.6	3.8
Income payments (BoP current US\$)	3.8	0.6	3.8
Time required to obtain an operating license (days)	3.8	0.5	3.8
Firms offering formal training (% of firms)	3.8	0.5	3.8
Roads, goods transported (million ton-km)	3.8	0.5	3.8
Final consumption expenditure etc	3.6	0.5	3.6
Expenditure per student, secondary (% of GDP per capita)	3.5	0.5	3.5
Persistence to grade 5, female (% of cohort)	3.5	0.5	3.5
Final consumption expenditure etc	3.5	0.5	3.5
Final consumption expenditure etc	3.4	0.5	3.4
Investment in telecoms with private participation	3.3	0.5	3.3
Final consumption expenditure etc	3.3	0.5	3.3
Food imports (% of merchandise imports)	3.3	0.5	3.3
Fertilizer consumption (metric tons)	3.2	0.5	3.2
Firms that do not report all sales for tax purposes	3.2	0.5	3.2
GDP (current LCU)	3.2	0.5	3.2
GDP (current US\$)	3.1	0.5	3.1
Foreign direct investment, net (BoP, current us\$)	3.1	0.5	3.1
Final consumption expenditure (current US\$)	3.1	0.5	3.1
Household final consumption expenditure	3.0	0.4	3.0
Residential fixed line telephone tariff (US\$ per month)	2.9	0.4	2.9
Foreign direct investment (net outflows %GDP)	2.9	0.4	2.9
Net DAC donor flows (Canada current US\$)	2.9	0.4	2.9
External debt stocks (public and publicly guaranteed)	2.9	0.4	2.9
DEC alternative conversion factor (LCU per US\$)	2.9	0.4	2.9
GINI index	2.9	0.4	2.9
Grants and other revenue (% of revenue)	2.8	0.4	2.8

Kenya

Series	Number of table downloads	% of table downloads for Kenya (14120)	% of all table downloads (98051)
Foreign direct investment, net inflows (BoP, current US\$)	1100	7.8	1.1
Foreign direct investment, net inflows (% of GDP)	844	6.0	0.9
Forest area (% of land area)	787	5.6	0.8
Personal computers	765	5.4	0.8
Food exports (% of merchandise exports)	750	5.3	0.8
Incidence of tuberculosis (per 100, 000 people)	651	4.6	0.7
Financing via international capital markets (gross, % of GDP)	629	4.5	0.6
Final consumption expenditure etc (% of GDP)	614	4.3	0.6
Food beverages and tobacco (% of value added in manufacturing)	609	4.3	0.6
Forest area (sq km)	558	4.0	0.6
Labor force with secondary education (% of total)	553	3.9	0.6
Fossil fuel energy consumption (% of total)	540	3.8	0.6
Time required to obtain an operating license (days)	531	3.8	0.5
GDP per capita, PPP (current international \$)	531	3.8	0.5
Roads, goods transported (million ton-km)	526	3.7	0.5
GDP growth (annual %)	516	3.7	0.5
Firms offering formal training (% of firms)	512	3.6	0.5
Income payments (BoP current US\$)	510	3.6	0.5
Persistence to grade 5, female (% of cohort)	503	3.6	0.5
Final consumption expenditure etc	496	3.5	0.5
Final consumption expenditure etc	493	3.5	0.5
Investment in telecoms with private participation	485	3.4	0.5
Expenditure per student, secondary (% of GDP per capita)	481	3.4	0.5
Final consumption expenditure etc	468	3.3	0.5
Food imports (% of merchandise imports)	461	3.3	0.5
GDP (current US\$)	454	3.2	0.5
Fertilizer consumption (metric tons)	444	3.1	0.5
Final consumption expenditure etc	442	3.1	0.5
GDP (current LCU)	441	3.1	0.4
Foreign direct investment, net (BoP, current us\$)	438	3.1	0.4
Firms that do not report all sales for tax purposes	433	3.1	0.4
Residential fixed line telephone tariff (US\$ per month)	425	3.0	0.4
Household final consumption expenditure	420	3.0	0.4
Final consumption expenditure (current US\$)	420	3.0	0.4
Foreign direct investment (net outflows %GDP)	406	2.9	0.4
Net DAC donor flows (Canada current US\$)	402	2.8	0.4
External debt stocks (public and publicly guaranteed)	397	2.8	0.4
Inflation, consumer prices (annual %)	395	2.8	0.4
Public spending on education total (% of GDP)	386	2.7	0.4
GINI index_	381	2.7	0.4

China

Series	Number of table downloads	% of table downloads for China (14097)	% of all table downloads (98051)
Foreign direct investment, net inflows (BoP, current US\$)	1091	7.7	1.1
Foreign direct investment, net inflows (% of GDP)	836	5.9	0.9
Food exports (% of merchandise exports)	750	5.3	0.8
Personal computers	747	5.3	0.8
Final consumption expenditure etc (% of GDP)	746	5.3	0.8
Forest area (% of land area)	745	5.3	0.8
Incidence of tuberculosis (per 100, 000 people)	629	4.5	0.6
Financing via international capital markets (gross, % of GDP)	614	4.4	0.6
Food beverages and tobacco (% of value added in manufacturing)	601	4.3	0.6
Firms offering formal training (% of firms)	591	4.2	0.6
Forest area (sq km)	591	4.2	0.6
GDP per capita, PPP (current international \$)	580	4.1	0.6
Final consumption expenditure etc	560	4.0	0.6
Final consumption expenditure etc	549	3.9	0.6
Fertilizer consumption (metric tons)	539	3.8	0.5
Time required to obtain an operating license (days)	538	3.8	0.5
Food imports (% of merchandise imports)	536	3.8	0.5
GDP growth (annual %)	529	3.8	0.5
Fossil fuel energy consumption (% of total)	525	3.7	0.5
Final consumption expenditure etc	524	3.7	0.5
Firms that do not report all sales for tax purposes	490	3.5	0.5
Labor force with secondary education (% of total)	480	3.4	0.5
Final consumption expenditure etc	475	3.4	0.5
Roads, goods transported (million ton-km)	473	3.4	0.5
Expenditure per student, secondary (% of GDP per capita)	470	3.3	0.5
Income payments (BoP current US\$)	460	3.3	0.5
GDP (current LCU)	460	3.3	0.5
GDP (current US\$)	459	3.3	0.5
Foreign direct investment, net (BoP, current us\$)	456	3.2	0.5
Final consumption expenditure (current US\$)	454	3.2	0.5
Investment in telecoms with private participation	453	3.2	0.5
Persistence to grade 5, female (% of cohort)	450	3.2	0.5
Net DAC donor flows (Canada current US\$)	432	3.1	0.4
Foreign direct investment (net outflows %GDP)	430	3.1	0.4
External debt stocks (public and publicly guaranteed)	423	3.0	0.4
Household final consumption expenditure	410	2.9	0.4
Inflation, consumer prices (annual %)	406	2.9	0.4
Employees, industry, male (% of male employment)	397	2.8	0.4
External debt stocks, short-term (DOD, current US\$)	396	2.8	0.4
Public spending on education total (% of GDP)	394	2.8	0.4

USA

Series	Number of table downloads	% of table downloads for USA (14041)	% of all table downloads (98051)
Foreign direct investment, net inflows (BoP, current US\$)	989	7.0	1.0
Foreign direct investment, net inflows (% of GDP)	726	5.2	0.7
Food exports (% of merchandise exports)	713	5.1	0.7
Final consumption expenditure etc (% of GDP)	702	5.0	0.7
Personal computers	693	4.9	0.7
Forest area (% of land area)	680	4.8	0.7
Food beverages and tobacco (% of value added in manufacturing)	590	4.2	0.6
Forest area (sq km)	572	4.1	0.6
Fossil fuel energy consumption (% of total)	533	3.8	0.5
Fertilizer consumption (metric tons)	522	3.7	0.5
Incidence of tuberculosis (per 100, 000 people)	508	3.6	0.5
Financing via international capital markets (gross, % of GDP)	493	3.5	0.5
GDP per capita, PPP (current international \$)	488	3.5	0.5
Final consumption expenditure etc	488	3.5	0.5
Final consumption expenditure etc	486	3.5	0.5
Final consumption expenditure etc	485	3.5	0.5
Firms offering formal training (% of firms)	485	3.5	0.5
Final consumption expenditure etc	469	3.3	0.5
Labor force with secondary education (% of total)	468	3.3	0.5
Final consumption expenditure (current US\$)	460	3.3	0.5
Food imports (% of merchandise imports)	456	3.2	0.5
GDP growth (annual %)	455	3.2	0.5
Firms that do not report all sales for tax purposes	454	3.2	0.5
GDP (current US\$)	447	3.2	0.5
Time required to obtain an operating license (days)	446	3.2	0.5
Net DAC donor flows (Canada current US\$)	446	3.2	0.5
Foreign direct investment, net (BoP, current us\$)	436	3.1	0.4
Investment in telecoms with private participation	432	3.1	0.4
Roads, goods transported (million ton-km)	427	3.0	0.4
Persistence to grade 5, female (% of cohort)	422	3.0	0.4
Foreign direct investment (net outflows %GDP)	422	3.0	0.4
Firms using banks to finance investment (% of firms)	418	3.0	0.4
GDP (current LCU)	417	3.0	0.4
Income payments (BoP current US\$)	417	3.0	0.4
Expenditure per student, secondary (% of GDP per capita)	411	2.9	0.4
Gross savings (current LCU)	399	2.8	0.4
External debt stocks (public and publicly guaranteed)	396	2.8	0.4
Employees, industry, male (% of male employment)	392	2.8	0.4
Food production index (1999-2001=100)	391	2.8	0.4
Residential fixed line telephone tariff (US\$ per month)	380	2.7	0.4

Indonesia

Series	Number of table downloads	% of table downloads for Indonesia (14 037)	% of all table downloads (98 051)
Foreign direct investment, net inflows (BoP, current US\$)	1130	8.1	1.2
Foreign direct investment, net inflows (% of GDP)	832	5.9	0.8
Forest area (% of land area)	775	5.5	0.8
Food exports (% of merchandise exports)	739	5.3	0.8
Personal computers	731	5.2	0.7
Final consumption expenditure etc (% of GDP)	711	5.1	0.7
Incidence of tuberculosis (per 100, 000 people)	602	4.3	0.6
GDP per capita, PPP (current international \$)	590	4.2	0.6
Food beverages and tobacco (% of value added in manufacturing)	588	4.2	0.6
Financing via international capital markets (gross, % of GDP)	585	4.2	0.6
Firms offering formal training (% of firms)	570	4.1	0.6
Final consumption expenditure etc	549	3.9	0.6
Forest area (sq km)	541	3.9	0.6
Final consumption expenditure etc	534	3.8	0.5
Final consumption expenditure etc	532	3.8	0.5
Fossil fuel energy consumption (% of total)	529	3.8	0.5
Food imports (% of merchandise imports)	523	3.7	0.5
Fertilizer consumption (metric tons)	501	3.6	0.5
Labor force with secondary education (% of total)	501	3.6	0.5
GDP growth (annual %)	499	3.6	0.5
Time required to obtain an operating license (days)	493	3.5	0.5
Roads, goods transported (million ton-km)	480	3.4	0.5
Income payments (BoP current US\$)	477	3.4	0.5
Firms that do not report all sales for tax purposes	471	3.4	0.5
Persistence to grade 5, female (% of cohort)	464	3.3	0.5
Investment in telecoms with private participation	457	3.3	0.5
Final consumption expenditure (current US\$)	455	3.2	0.5
Expenditure per student, secondary (% of GDP per capita)	451	3.2	0.5
Final consumption expenditure etc	449	3.2	0.5
Foreign direct investment, net (BoP, current us\$)	449	3.2	0.5
GDP (current US\$)	444	3.2	0.5
Foreign direct investment (net outflows %GDP)	432	3.1	0.4
GDP (current LCU)	424	3.0	0.4
Residential fixed line telephone tariff (US\$ per month)	416	3.0	0.4
Net DAC donor flows (Canada current US\$)	408	2.9	0.4
External debt stocks (public and publicly guaranteed)	405	2.9	0.4
Public spending on education total (% of GDP)	387	2.8	0.4
Military expenditure (% of central government expenditure)	386	2.7	0.4
Food production index (1999-2001=100)	380	2.7	0.4
Gross national income (constant LCU)	379	2.7	0.4