

# Data in the spotlight: International Time Series Data

**David Rawnsley** 

8th December 2021





# Can you hear us?

You should be able to, please check:

Your local speakers/phones

Check also that you have the right audio selection chosen in the menu (top right corner)

There is an option to join by telephone (see menu in top right corner)

# What we will cover today

Introduction

International macrodata

Demo

Documentation and tips

Questions



#### What is the UK Data Service?

 A comprehensive resource funded by the ESRC

- A single point of access to a wide range of secondary social science data
- Support, training and guidance



#### What data do we hold?

#### Surveys

Large-scale government funded UK and cross-national surveys

#### Longitudinal

Major UK surveys following individuals over time

#### International

Multi-nation aggregate databanks and survey data

#### Census

Census data 1971 – 2011 + 2021/22

#### Business

Microdata and administrative data

#### Qualitative

Range of multimedia qualitative data sources

Repository for researcher generated datasets





#### Key services

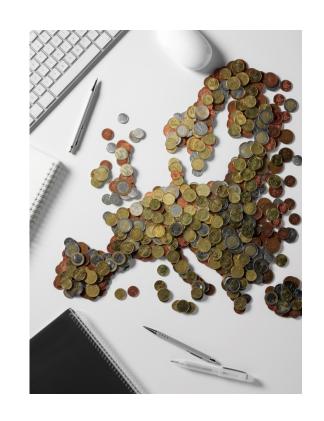






# International macrodata: data about countries

- Time series data aggregated to country/region
- International governmental organisations
- Wide range of socio-economic topics
- Availability



## Data providers

- International Monetary Fund (IMF)
- Organisation for Economic Co-operation and Development (OECD)
- World Bank
- United Nations
- International Energy Agency (IEA)

#### International data themes

#### **Databanks** cover:

- economic performance and development
- trade, industry and markets
- employment
- demography, migration and health
- governance

- human development
- social expenditure
- education
- science and technology
- land use and the environment
- energy

#### International macrodata

	→ı Va	riables Total population	Total population of the metropolitan area (persons)								
		2009		2010	2011	2012	2013	2014			
	-	Time ▲ ▼		<b>▲</b> ▼							
→ Metropol	itan areas										
■ Australia		21	691 653	22 031 750	22 340 024	22 728 254	23 125 868	23 490			
Australia	Adelaide	1	237 354	1 253 097	1 264 091	1 278 600	1 291 377	1 304			
	Brisbane	2	2 068 479	2 108 348	2 147 436	2 193 316	2 236 044	2 274			
	Gold Coast-Tweed Heads		509 133	519 630	528 766	540 527	551 123	560			
	Melbourne	4	1 031 787	4 105 857	4 169 366	4 252 458	4 344 673	4 440			
	Perth	1	739 342	1 781 132	1 833 567	1 904 858	1 972 849	2 021			
	Sydney	4	492 380	4 555 516	4 608 949	4 676 118	4 756 398	4 840			
■ Austria		8	3 3 3 5 0 0 3	8 351 643	8 375 164	8 408 121	8 451 860	8 506			
Austria	Graz		602 465	608 420	614 454	620 587	626 826	633			
	Linz		604 006	606 514	609 054	611 622	614 214	616			
	Vienna	2	2 656 523	2 683 251	2 710 331	2 737 753	2 765 519	2 793			
■ Belgium	·	10	753 080	10 839 905	10 951 266	11 035 948	11 099 554	11 203			
Belgium	Antwerp	1	046 834	1 053 725	1 060 675	1 067 688	1 074 765	1 081			
	Brussels	2	2 460 663	2 485 480	2 510 626	2 536 106	2 561 930	2 588			
	Ghent		572 560	576 408	580 281	584 187	588 127	592			
	Liege		723 142	726 431	729 740	733 071	736 425	739			
■ Canada		33	3 628 571	34 005 274	34 342 780	34 752 128	35 154 279	35 540			
Canada	Calgary	1	237 622	1 271 737	1 306 924	1 342 733	1 379 633	1 417			
	on 30 Nov 2016 12:24 UTC (GMT) from UKDS.Stat										

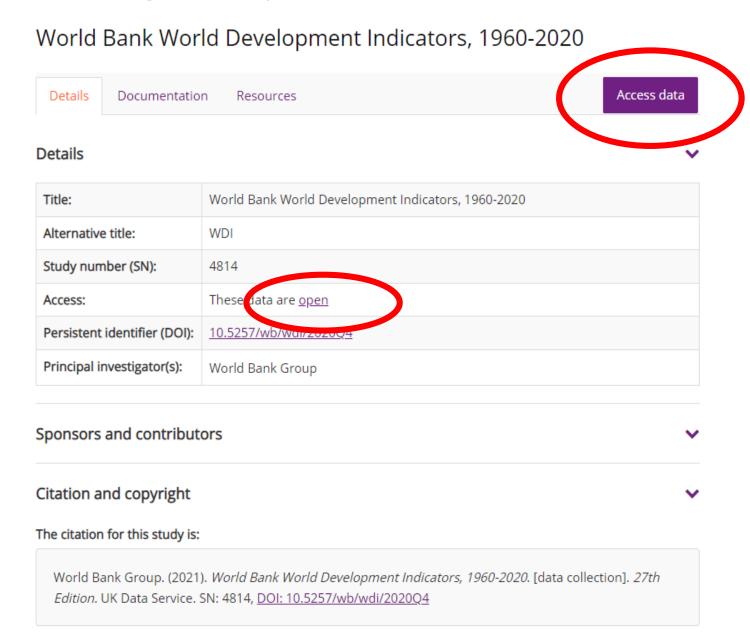
Login | Contact Us | Site Map | Guide

## Accessing the international macrodata

- World Bank IMF, OECD, UNESCO data are open to all
- Other data restricted to UK FE and HE (UNIDO, IEA)
- Access via Federated access
- Data delivered over the web via UKDS.stat
- Download formats include \*.xls, \*.csv

# Catalogue record

Home > Data catalogue > Studies > Study



## **UKDS.Stat**

OECD

United Nations

Human Rights Atlas

International Monetary Fund



Login | Contact Us | Guides | Visualisation | Usage Stats | Accessibility Statement | UK Data Service

Welcome to international aggregate data from the UK Data Service

We expect to run as normal a service as possible during this COVID-19 (Coronavirus) emergency. Please visit our COVID-19 page for the latest information.

We host hundreds of economic and social datasets provided by the World Bank, OECD, International Monetary Fund, United Nations, and International Energy Agency. Key datasets include World Energy Balances, World Development Indicators, Balance of Payments Statistics, Direction of Trade Statistics, International Financial Statistics, World Economic Outlook, Main Economic Indicators, Quarterly National Accounts, and the Human Rights Atlas. Datasets also cover statistics on science, environment, education, health, and in depth regional statistics.

Find your dataset in the data provider facet on the left hand side of the screen, or view the video Accessing, exploring and visualising data in UKDS.Stat to get started.

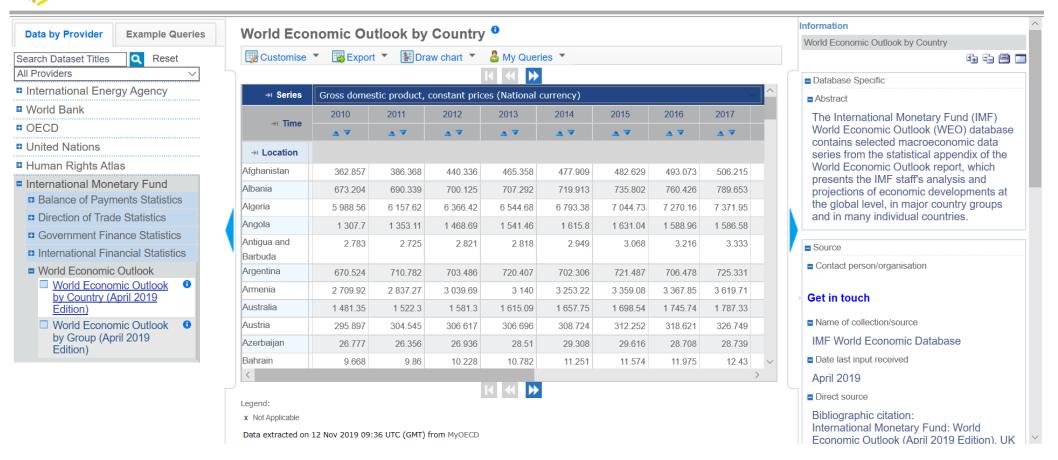
2

stats.ukdataservice.ac.uk

#### International macrodata

UK Data Service

Login | Contact Us | Guides | Visualisation | Usage Stats | UK Data Service



#### World Bank Databases



- Collects data on all aspects of human development worldwide
- Annual data, designed for international comparability
- Open access
- Host 4 databases:
  - World Development Indicators
  - International Debt Statistics
  - Africa Development Indicators
  - Subnational Population Database



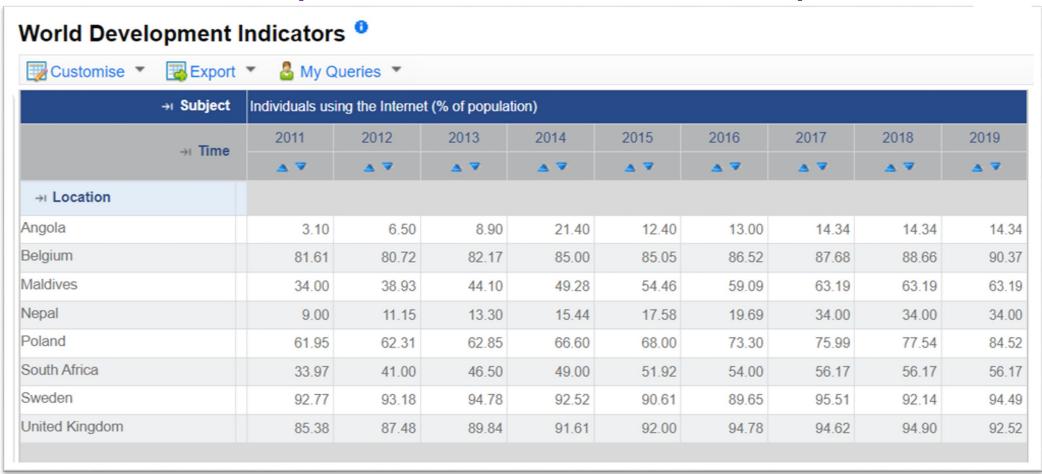
#### World Development Indicators



- Covers over 200 countries
- Annual data starting 1960
- Widely cited
- Our most popular database

Around 1400 indicators per country

#### World Development Indicators: example

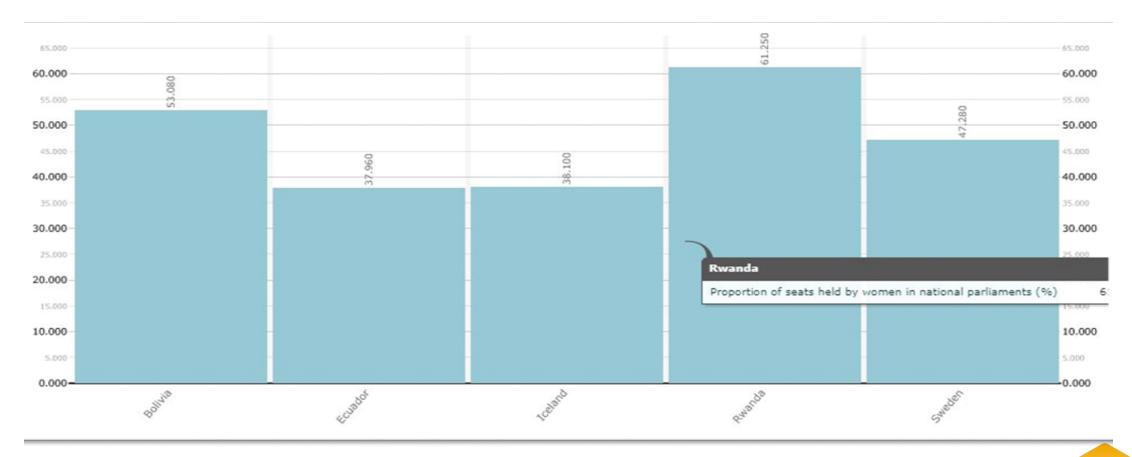


World Bank (2020): World Development Indicators (Data downloaded: February 2021). UK Data Service. https://doi.org/10.5257/wb/wdi/2020Q4

Which country had the largest proportion of women in parliament during 2019?

Go to www.menti.com and use code 3755 5340

# Proportion of seats held by women in national parliaments, 2019 (%)



World Bank (2019): World Development Indicators (Data downloaded: December 2019). UK Data Service. https://doi.org/10.5257/wb/wdi/2019Q4

#### International Debt Statistics



- Financial flows
- Contains the Bank's projections for debt repayments for next five years
- Annual data starting 1970s
- Replaces Government Development Finance

# Subnational Population Database



- Provinces, states, or regions below the national level
- 2000 to 2016
- Subnational areas and the shares relative to total national population estimates
- Allows researchers, students and practitioners to investigate population and intra-country migration trends

#### Belarus subnational data

#### Subnational Population Database •



	→ı Subject	Population, total						
	→ı Time	2010	2011	2012	2013	2014	2015	2016
	71 IIIIle	<b>▲</b> ₹	<b>∆</b> ₹	<b>▲</b> ₹	<b>∆</b> ♥	<b>▲</b> ▼	<b>▲</b> ▼	<b>▲</b> ▼
→ı Cour	ntry or region							
■ Belarus		9 491 000	9 473 000	9 464 000	9 466 000	9 475 000	9 490 000	9 507 000
Belarus	Belarus, Brest	1 397 000	1 393 000	1 391 000	1 389 000	1 389 000	1 390 000	1 391 000
	Belarus, Gomel	1 437 000	1 432 000	1 429 000	1 427 000	1 426 000	1 426 000	1 426 000
	Belarus, Grodno	1 069 000	1 064 000	1 060 000	1 057 000	1 054 000	1 053 000	1 052 000
	Belarus, Minsk	1 416 000	1 408 000	1 403 000	1 402 000	1 400 000	1 399 000	1 398 000
	Belarus, Minsk City	1 854 000	1 875 000	1 893 000	1 911 000	1 934 000	1 959 000	1 984 000
	Belarus, Mogilev	1 093 000	1 084 000	1 078 000	1 075 000	1 070 000	1 067 000	1 064 000
	Belarus, Vitebsk	1 226 000	1 218 000	1 211 000	1 205 000	1 200 000	1 196 000	1 193 000

#### IMF databanks

- International Financial Statistics
- Government Finance Statistics
- Balance of Payments Statistics
- Direction of Trade
- World Economic Outlook
- Open access



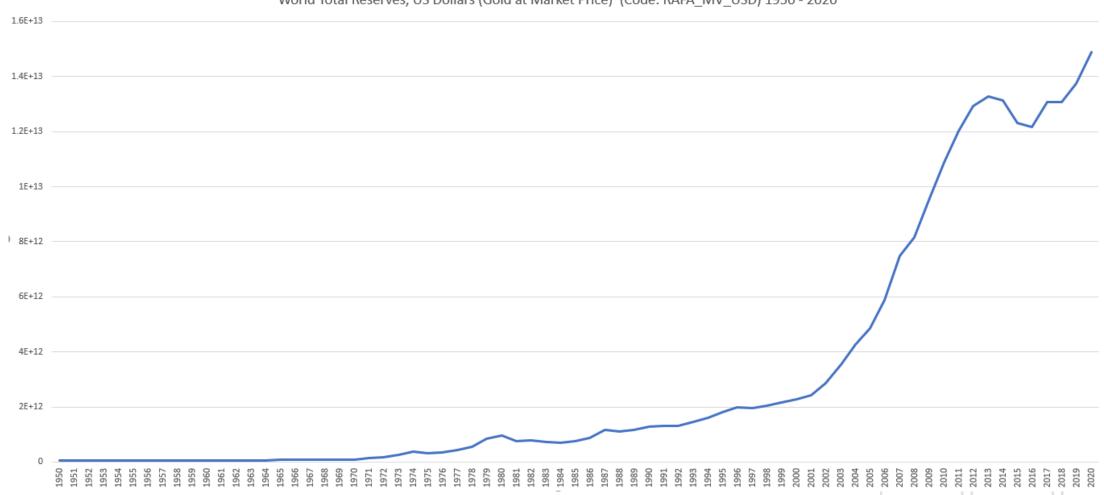
# IMF International Financial Statistics



- Standard source for all aspects of international and domestic finance
- Monthly, Quarterly, and Annual data
- Includes over 200 countries
- Reports time series data on exchange rates, international liquidity, money and banking, interest rates, prices, production, national accounts...

#### International Financial Statistics: example

World Total Reserves, US Dollars (Gold at Market Price) (Code: RAFA\_MV\_USD) 1950 - 2020



International Monetary Fund (2021): International Financial Statistics (Data updated February 2021). UK Data Service. https://doi.org/10.5257/imf/ifs/2021-01

#### **IMF** Direction of Trade



- Exports and imports
- Bilateral data between countries
- Monthly, quarterly and annual data are presented
- 1980 onwards

Long and consistent time series

Stable data domains

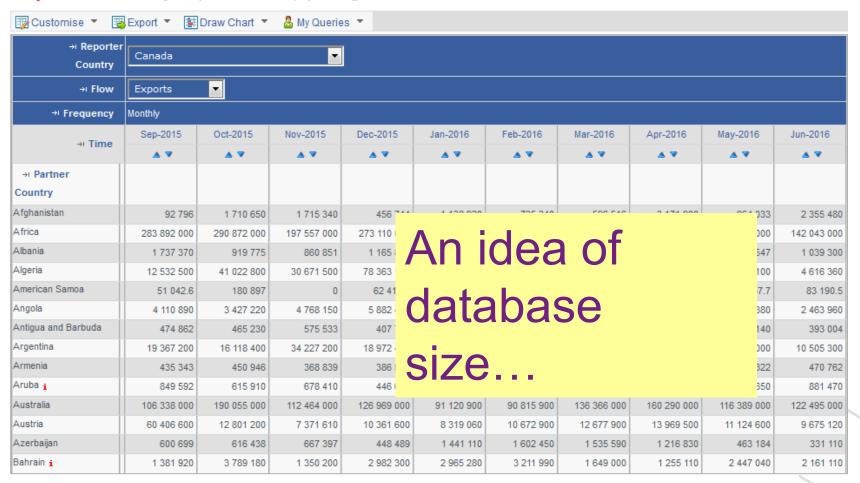
Good geographic and temporal coverage

Up-to-date data

#### Inside the database – IMF DOTS

Direction of Trade Statistics - November 2016

Did you know ... how to change the layout in UKDS.Stat? http://youtu.be/\_ZnS0aGBQ3s



## IMF Balance of Payments Statistics



- Balance of payment components and international investment positions of countries worldwide
- 204 countries and country groups worldwide
- 1970s onwards
- Quarterly and annual data

#### **IMF Government Finance Statistics**



- Data on government income
- Expenditure by sector
- All levels of government
- 174 countries worldwide
- Annual time series data, running 1990 onwards.

#### World Economic Outlook

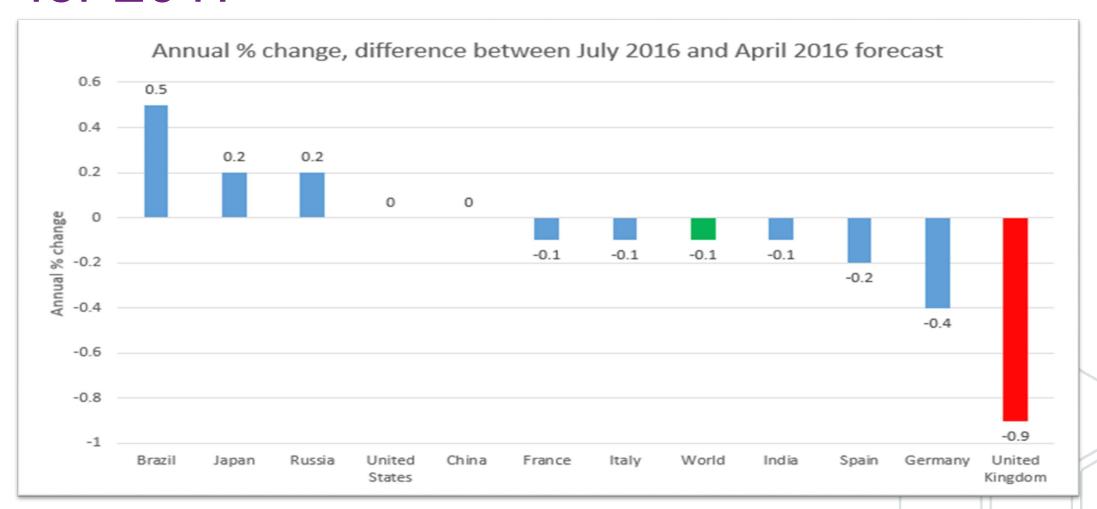


World Economic Outlook report

 Data on national accounts, inflation, unemployment rates, balance of payments, fiscal indicators, and commodity prices

Projections for most indicators run up to 2026

# IMF revision of GDP growth forecasts for 2017



Data source: IMF World Economic Outlook, April 2016, updated 19 July https://doi.org/10.5257/imf/weo/2021-04

# Organisation for Economic Cooperation and Development (OECD) Data



- Open data
- Comparable data
- Limited number of countries
- Wide range of data

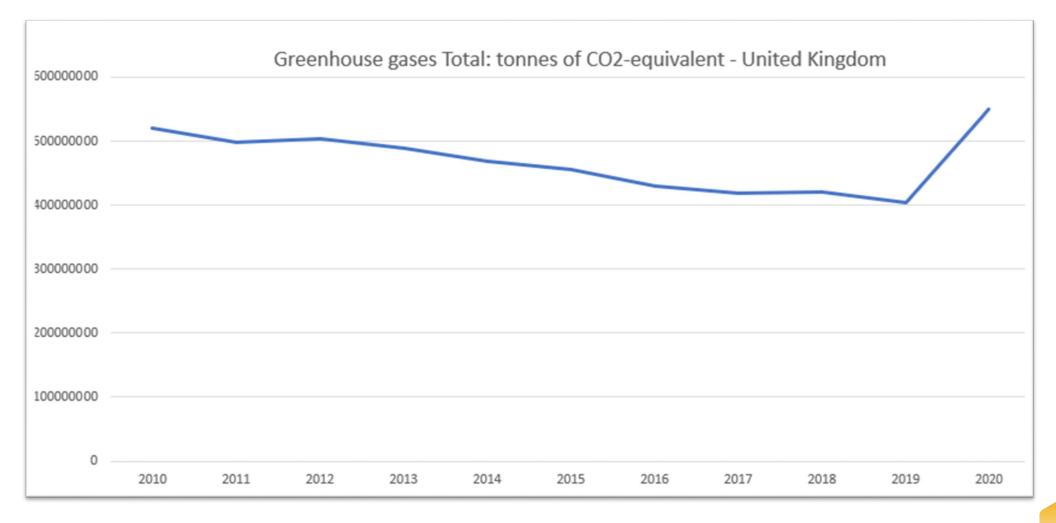


#### OECD data

- Banking Statistics
- Economic Outlook
- Education and Training
- Employment and Labour Market Statistics
   National Accounts
- Environment Statistics
- Health Statistics
- Institutional Investors Statistics
- Insurance Statistics
- International Development Statistics
- International Direct Investment Statistics
- International Trade in Services
- International Migration Statistics
- Main Economic Indicators

- Main Science and Technology Indicators
- Measuring Globalisation
- Monthly Statistics of International Trade
- Patent Statistics
- Pensions Statistics
- Product Market Regulation
- Productivity Statistics
- Regional Statistics
- Social and Welfare Statistics
- Structural Analysis
- Tax Statistics
- Telecommunications and Internet Statistics

#### Greenhouse Gas Emissions - UK

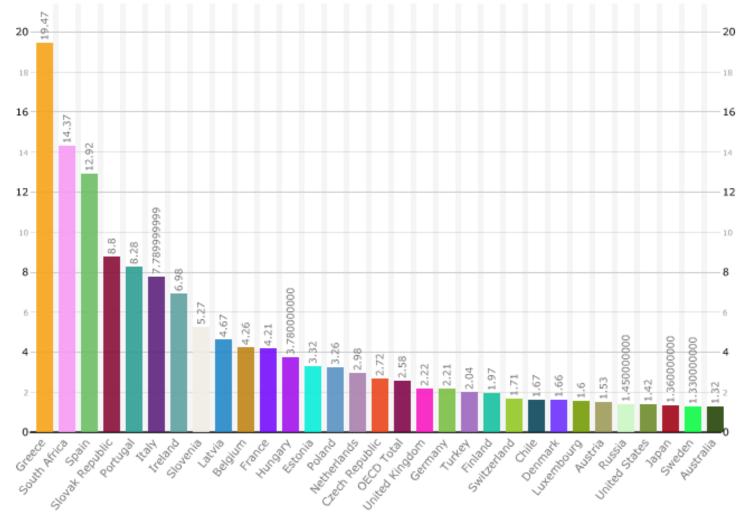


Organisation for Economic Cooperation and Development (2021 Environment Statistics (Updated: October 2021). UK Data Service. DOI: http://dx.doi.org/10.5257/oecd/env/2021

# Which country had the highest long term unemployment rate in 2016?

Go to www.menti.com and use code 5616 0533

## Long-term unemployment rate % (2016)

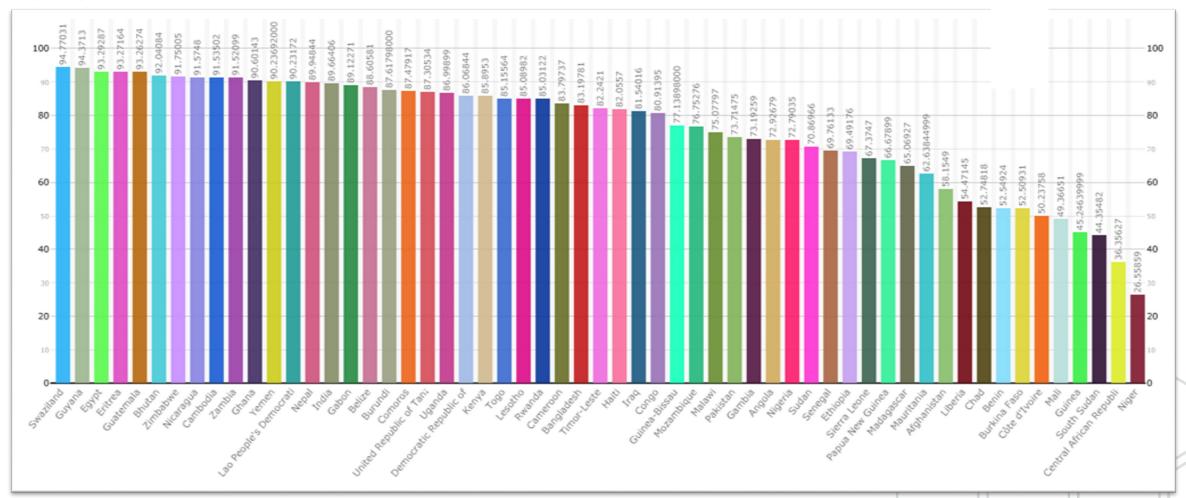


Organisation for Economic Development and Cooperation (2016): Better Life Index 2016, OECD Social and Welfare Statistics, UK Data Service. DOI: http://dx.doi.org/10.5257/oecd/sws/2016

## **UNESCO**

- Education Statistics (1970 onwards)
  - Out of school, progression, attainment, literacy, student migration, teachers, financial resources and much more
- Innovation Statistics (2005 onwards)
  - R&D activity data
- Culture
  - Cultural employment (2009 onwards)
  - Feature film statistics (1995 onwards)
- Communication and information (1995 onwards)
- Open data

# Youth literacy rate, population 15-24 years, both sex (%)



UNESCO (2016): Education Statistics (Edition: June 2016). UK Data Service.

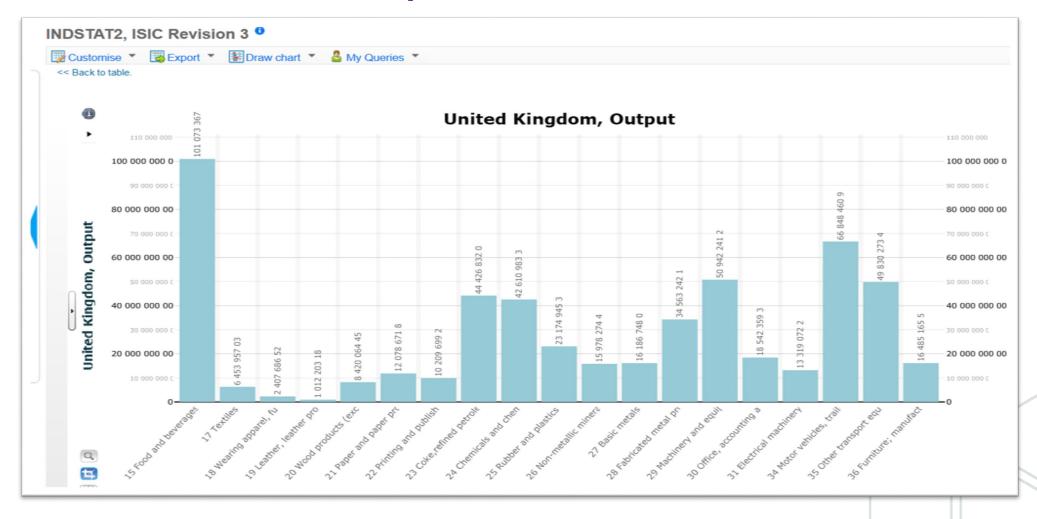
DOI: http://dx.doi.org/10.5257/unesco/edulit/2016-06

# United Nations Industrial Development Organization (UNIDO)



- UNIDO Industrial Statistics Databases
   Employment, wages and trade world-wide, broken down by manufacturing sector
  - INDSTAT2
  - INDSTAT4
- UNIDO Industrial Demand Supply Balance Databases Imports, exports and apparent consumption by manufacturing sector, from 1990 onwards
- Annual data, updated each year
- Restricted to UK FE/HE

## UNIDO data: Output UK 2017

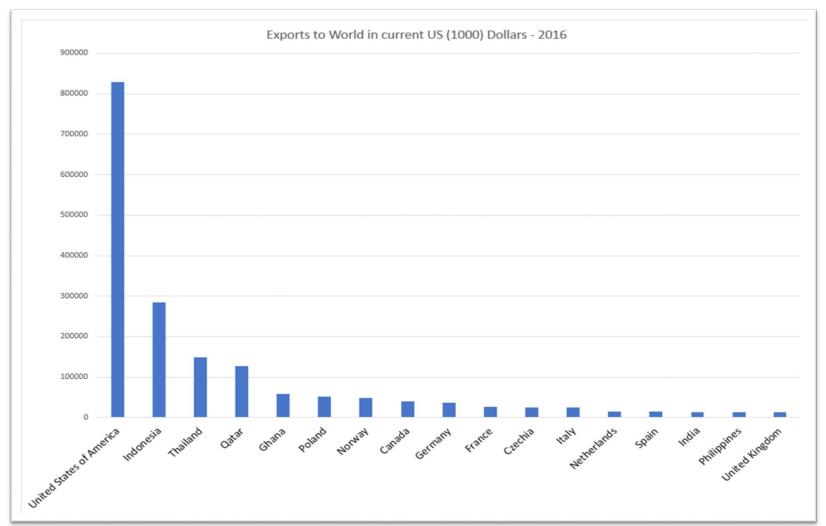


United Nations Industrial Development Organization: INDSTAT2 Rev. 3 Industrial Statistics Database (2019 Edition). UK Data Service. <a href="https://doi.org/10.5257/unido/ind2/2019">https://doi.org/10.5257/unido/ind2/2019</a>

The US had the highest value of weapons and ammunition exports in 2016. But which country came second?

Go to www.menti.com and use code 5809 2649

## Weapons and ammunition Exports (current US \$ (1000) in 2016

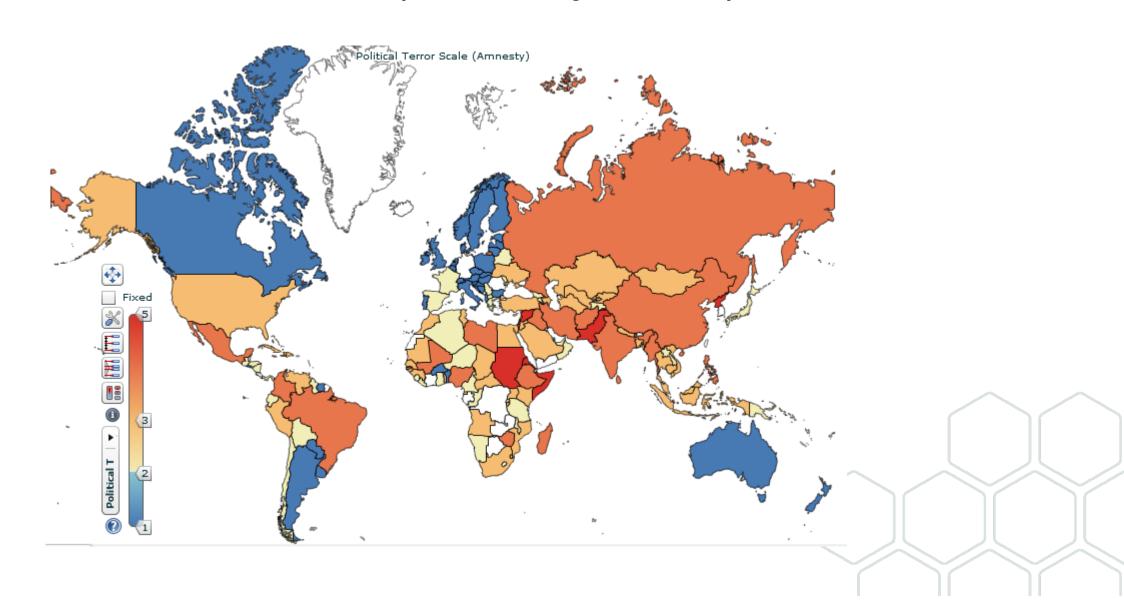




## Human Rights Atlas

- 1981 2012
- 240 indicators
- Combines data from World Bank, UN, academia, and non-governmental organisation
- ESRC funded project
- Open data

## Political Terror Scale (Amnesty, 2012)

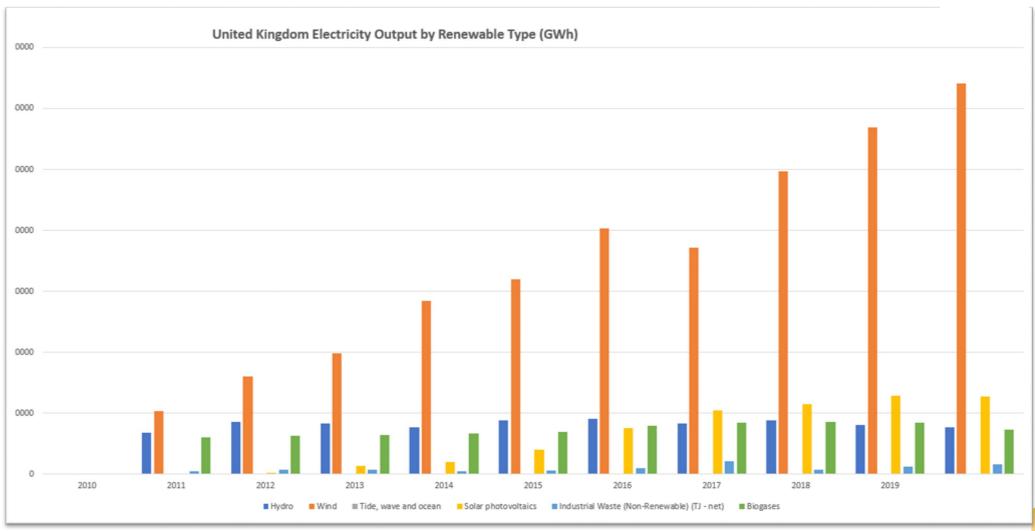


## International Energy Agency



- CO<sub>2</sub> Emissions from Fuel Combustion
- Energy Prices and Taxes
- Energy Technology Research and Development Database
- World Energy Statistics and Balances
- Specialist databanks:
  - Electricity information
  - Coal Information
  - Natural Gas Information
  - Oil Information
  - Renewables Information
- Restricted to UK FE/HE

### **IEA Renewables Information**



International Energy Agency: Renewables Information: World Renewable and Waste Energy Statistics (2021 Edition), 1990-2019 (Data downloaded: 6 September 2021). UK Data Service, DOI: http://dx.doi.org/10.5257/iea/ri/2021

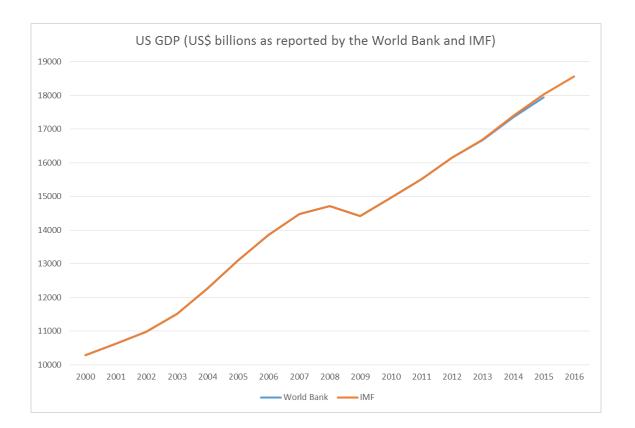
## Follow along demo

Go to https://ukdataservice.ac.uk

- How have UK Exports to its key EU partners fared in the last 10 years
- IMF Direction of Trade Statistics
- Goods, Value of Exports, Free on board
- Denmark, France, Germany, Ireland, Italy, Portugal, Spain, World

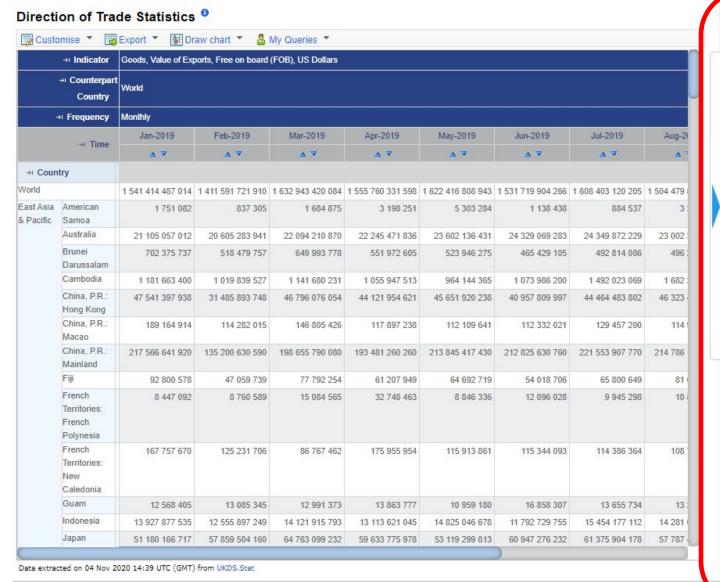
## Some tips on using the databanks

- Tip 1: choose your data from the same databank or family of databanks
  - comparability issues between data from different databanks, even for series with well-established standards
  - theoretically identical series can have slightly different values in different databanks



Time	World Bank	IMF
2000	10284.8	10284.8
2001	10621.8	10621.8
2002	10977.5	10977.5
2003	11510.7	11510.7
2004	12274.9	12274.9
2005	13093.7	13093.7
2006	13855.9	13855.9
2007	14477.6	14477.6
2008	14718.6	14718.6
2009	14418.7	14418.7
2010	14964.4	14964.4
2011	15517.9	15517.9
2012	16155.3	16155.3
2013	16663.2	16691.5
2014	17348.1	17393.1
2015	17947.0	18036.7
2016		18567

## Tip 2: metadata is in the sidebar



# Information Direction of Trade Statistics Database Specific Abstract The International Monetary Fund (IMF) Direction of Trade Statistics (DOTS) database presents the value of merchandise exports and imports disaggregated according to a country's primary trading partners. Area and world aggregates are included in the display of trade flows between major areas of the

primary trading partners. Area and world aggregates are included in the display of trade flows between major areas of the world. Reported data is supplemented by estimates whenever such data is not available or current. Imports are reported on a cost, insurance and freight (CIF) basis and exports are reported on a free on board (FOB) basis, with the exception of a few countries for which imports are also available FOB. Time-series data includes estimates derived from reports of partner countries for non-reporting and slow-reporting countries.

### Contact person/organisation

### Get in touch

■ Source

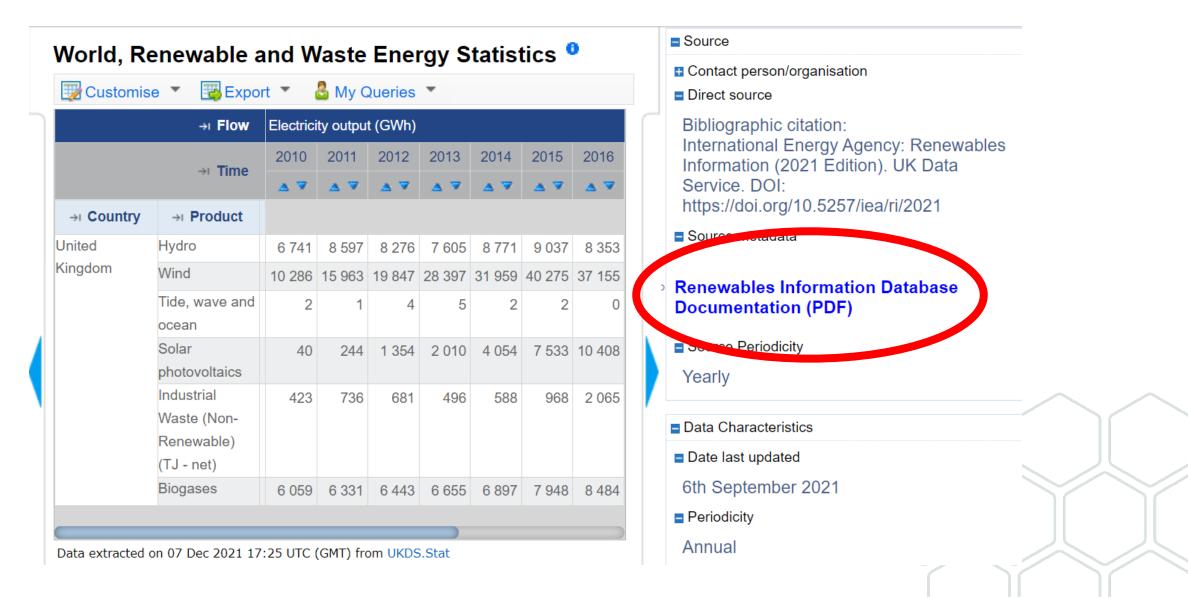
### ■ Direct source

Bibliographic citation: International Monetary Fund: Direction of Trade Statistics (March 2020 Edition). UK Data Service. https://doi.org/10.5257/imf/dots/2020-03

#### Source metadata

Direction of Trade Statistics (DOTS), Quarterly (PDF) Direction of Trade Statistics (DOTS), Yearbook (PDF) IMF Working Paper 1816: New Estimates

## Tip 3: documentation is in the sidebar too



## What we provide

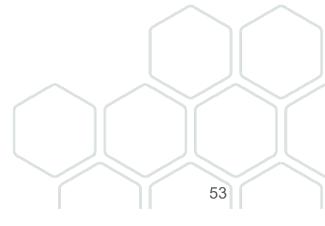
- Data free at point of use
- Single portal and search across a wide range of international databanks from several intergovernmental organisations
- Consistent and comprehensive documentation
- Training, user support, knowledgeable helpdesk
- Web: <u>ukdataservice.ac.uk</u>

## Data Skills modules

- Introduction to survey data
- Introduction to longitudinal data
- Introduction to aggregate data
- Exploring Crime surveys with R (beta)
- https://ukdataservice.ac.uk/learning-hub/data-skillsmodules/

## Any questions?









## Thank you.

david.rawnsley@jisc.ac.uk

