

Term Paper Discussion

Consider the following Cobb-Douglas production function:

$$Y_i = K_i^\alpha L_i^\beta$$

Where,

$i = 1, 2, 3, \dots, n$

Y_i = GDP of i^{th} country.

K_i = Gross Capital Formation (GCF) (investment)/ Gross Fixed Capital Formation (GFCF)

L_i = Total Labour force

α = Share of capital

β = Share of labour

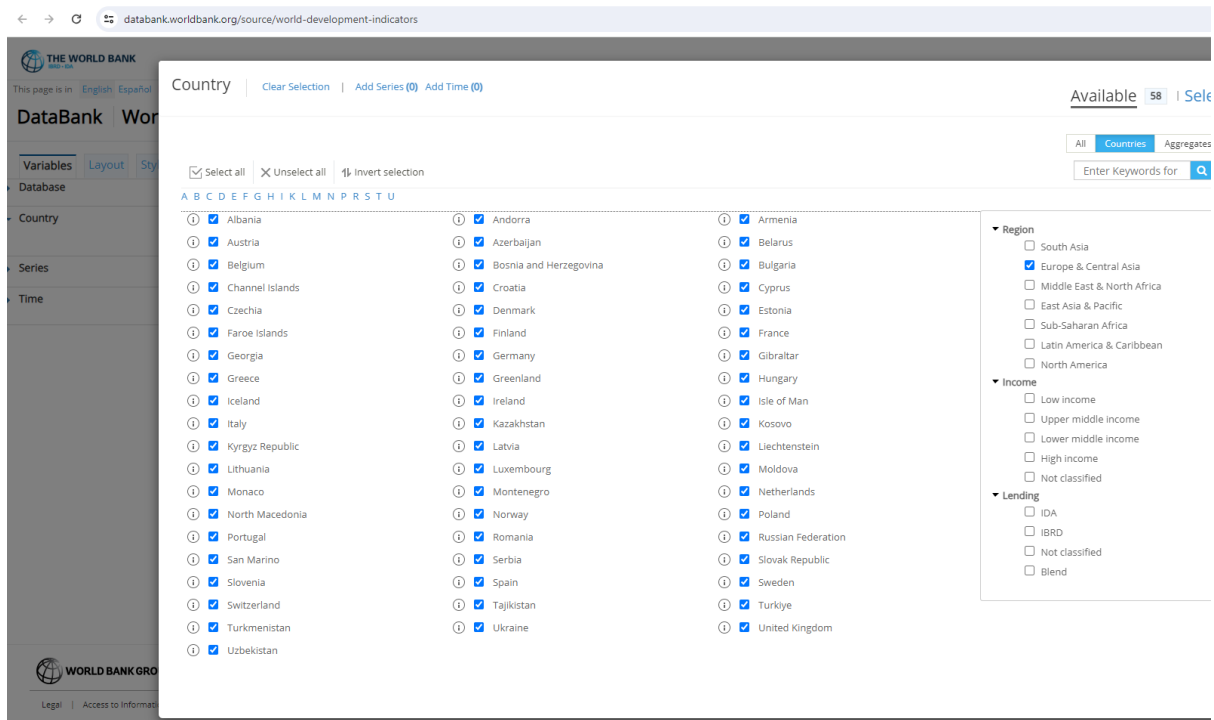
Consider current (inflation-unadjusted) and constant (inflation-adjusted) local currency unit (LCU) and for GDP and GCF/GFCF (use GFCF or GCF depending on the data availability). Data can be downloaded from World Development Indicators (WDI). Each group will work with a group of countries.

Steps for Downloading Data from WDI

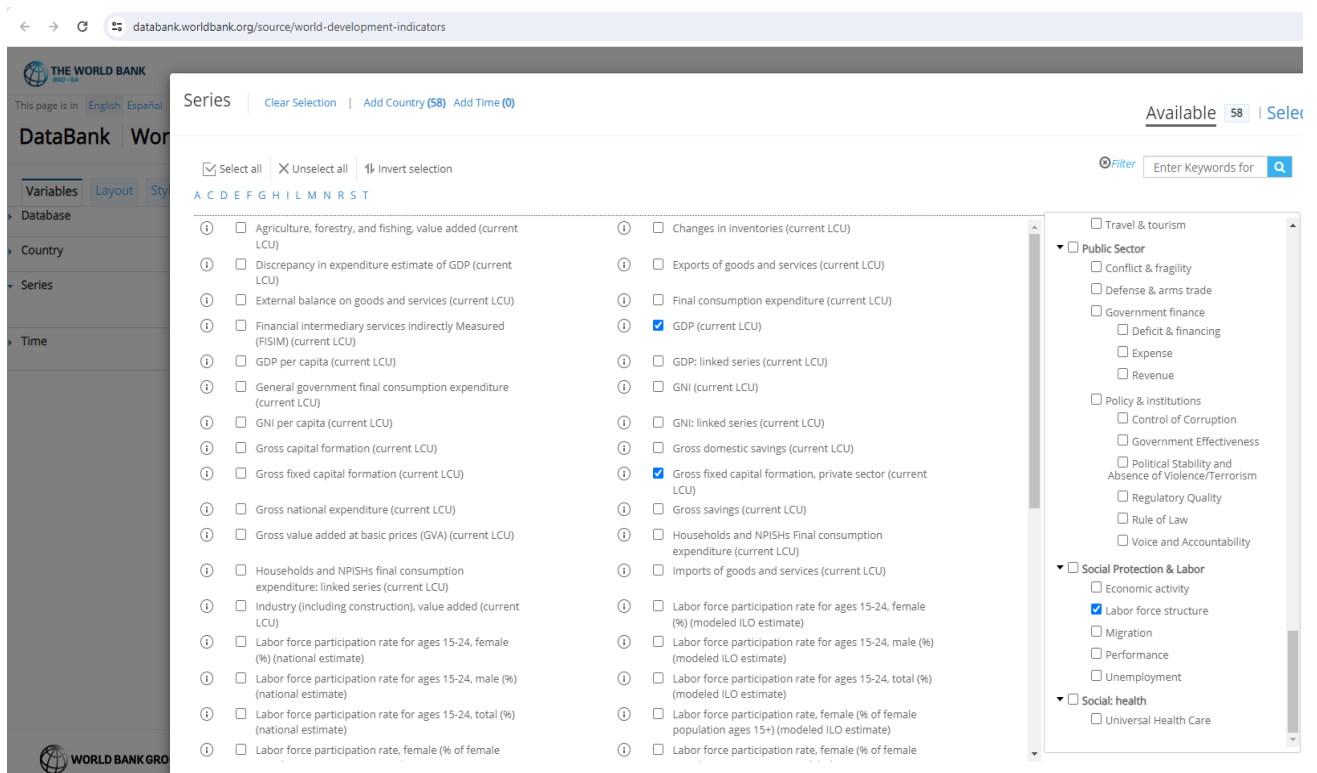
1. Go to the WDI website: <https://databank.worldbank.org/source/world-development-indicators>

The screenshot displays the World Bank DataBank website interface for selecting World Development Indicators. The browser address bar shows the URL: databank.worldbank.org/source/world-development-indicators. The page header includes the World Bank logo and language options (English, Español, Français, العربية, 中文). The main navigation bar shows 'DataBank' and 'World Development Indicators'. Below this, there are tabs for 'Variables', 'Layout', 'Styles', 'Save', 'Share', and 'Embed'. The 'Variables' tab is active, showing a list of available indicators. The 'Country' section is expanded, showing a list of countries with checkboxes for selection. A search bar is present with the text 'Enter Keywords for'. The 'Series' and 'Time' sections are also visible, showing available and selected counts. A 'Preview' panel on the right side of the page displays a message: 'Please select variables from each of the following dimensions to view a report. You can select from left panel or by clicking the links above.' The dimensions listed are 'Country', 'Series', and 'Time'. An 'Apply Changes' button is located at the bottom of the preview panel. The footer of the page includes the World Bank Group logo and links for 'Legal', 'Access to Information', 'Jobs', 'Site Map', and 'Contact'. The copyright notice at the bottom reads: '© 2024 The World Bank Group. All Rights Reserved.'

- First select the **Country** and use **detail view**. You can see Europe and Central Asian countries are selected.



- Cross the detailed view select **Series**. Similarly, use the **detail view**. Use the right hand side drop down items to search for data. **You** can see GDP, GCF, GFCF, Total Labour is selected.



- Cross the detailed view select **Time**. Choose any single period. You can see 2019 is chosen.

The screenshot shows the 'Time' selection interface on the World Bank DataBank website. The page is titled 'DataBank | World Development Indicators'. The 'Time' tab is active, showing a list of years from 1960 to 2023. The year 2019 is selected, indicated by a blue checkmark. The interface includes options to 'Select all', 'Unselect all', and 'Invert selection'. The 'Available' count is 64. The page is titled 'DataBank | World Development Indicators'.

- Cross the detail view go to **Layout**. Select **Custom** as **Orientation**. Make Time=Row, Series=Column, Country=Page. Press **Apply Changes**.

The screenshot shows the 'Layout' configuration interface on the World Bank DataBank website. The 'Orientation' section is expanded, showing 'Time' set to 'Row', 'Series' set to 'Column', and 'Country' set to 'Page'. The 'Preview' section shows a table with columns for 'GDP (current LCU)' and 'Gross fixed capital formation, private sector (current LCU)'. A message box says 'Selections have been modified. Click on "Apply Changes" at any time to refresh the report with the changes made. Otherwise, click on "Cancel" to go back to previous selections.' The 'Apply Changes' button is highlighted.

6. Download as excel from **Download options**

This page is in: [English](#) [Español](#) [Français](#) [العربية](#) [中文](#)

DataBank

World Development Indicators ①

Variables

Layout

Styles

Save

Share

Embed

Database

Country

Series

Available 85

Selected 1

Available 58

Selected 58

Available 58

Selected 4

Sort

Remove all

⊙ GDP (current LCU)

⊙ Gross fixed capital formation, private sector (current LCU)

⊙ Labor force, total

⊙ Gross capital formation (current LCU)

Create Custom Indicator ⊙

Define Aggregation Rule ⊙

Preview

Clear Selection

Add Country (58)

Add Series (4)

Add Time (2)

Albania ①

	GDP (current LCU)	Gross fixed capital formation, private sector (current LCU)	Labor force, total	Gross capital formation (current LCU)
2010	1,239,645,000.0	–	1,270,655.00	375,719,910.00
2019	1,691,903,429.8	–	1,433,004.00	389,350,892.80

Source: World Development Indicators. Click on a metadata icon for original source information to be used for citation.

Table

Chart

Map

Metadata

Download options

Excel

CSV

Tabbed TXT

Data on this page only - formatted

Metadata

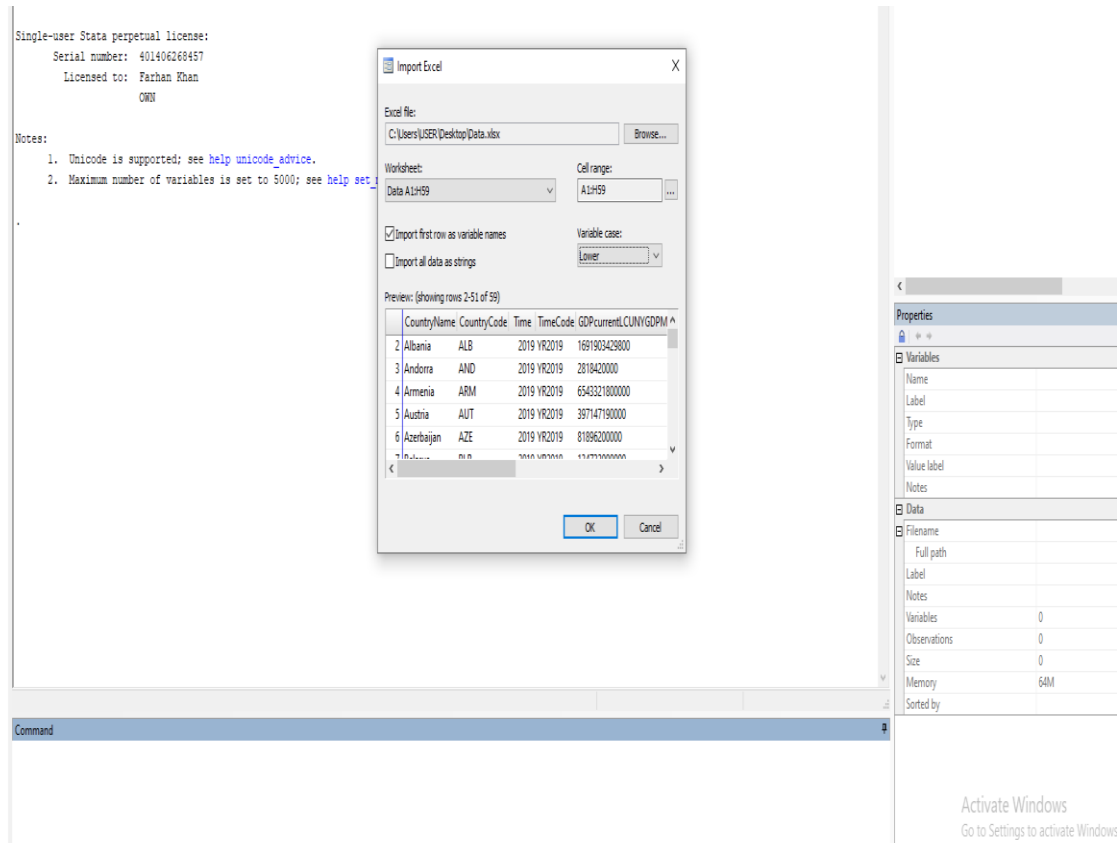
Advanced options

- Open the excel file. You will see dots (two dots) where data is missing. Remove the dots since STATA reads dots as string variables (non-numerical) when Excel is imported. Also, remove the data description as well. While running regression, STATA will automatically remove the missing data. However, be careful! Your data should not be too small (try to keep above 30)

<div> <div> <div>FILE</div> <div>HOME</div> <div>INSERT</div> <div>PAGE LAYOUT</div> <div>FORMULAS</div> <div>DATA</div> <div>REVIEW</div> <div>VIEW</div> <div>XL TOOLS</div> <div>TECHNOLOGY</div> </div> <div> <div> <div>Clipboard</div> <div>Cut</div> <div>Copy</div> <div>Format Painter</div> </div> <div> <div>Calibri</div> <div>11</div> <div>A</div> <div>A</div> <div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> <div>Wrap Text</div> <div> <div>General</div> <div>\$</div> <div>%</div> <div>123</div> </div> <div>Conditional Formatting</div> <div>Format as Table</div> <div>Check Cell</div> <div>Explanatory...</div> </div> <div> <div>Normal</div> <div>Bad</div> <div>Good</div> <div>Neutral</div> <div>Calculation</div> </div> <div> <div>Insert</div> <div>Delete</div> <div>Format</div> <div>Fill</div> <div>Sort & Filter</div> <div>Find & Select</div> </div> <div> <div>Cells</div> <div>Editing</div> </div> </div> </div>													
	A	B	C	D	E	F	G	H	I	J	K	L	
		Country	C	Time	GDP (current LCU) [NY.GDP.MKTP.CN]	Gross fixed capital formation, private sector (current LCU) [NE.GDP.PRIV.CN]	Labor force, total [SL.TLT.TOTLN]	Gross capital formation (current LCU) [NE.GDP.TOTLN.CN]					
1		Albania	ALB	2019	2019YR2019	1.6915E+12 ..		1433004					
2		Andorra	AND	2019	2019YR2019	2818420000						
3		Armenia	ARM	2019	2019YR2019	6.54312E+11 ..		1413724					
4		Austria	AUT	2019	2019YR2019	3.9747E+11 ..		4608940					
5		Azerbaijan	AZE	2019	2019YR2019	81896200000 ..		5193177					
6		Belarus	BLR	2019	2019YR2019	1.34732E+11 ..		5679798					
7		Belgium	BEL	2019	2019YR2019	4.78676E+11 ..		5194405					
8		Bosnia and Herzegovina	BIH	2019	2019YR2019	35784870000 ..		1344543					
9		Bulgaria	BGR	2019	2019YR2019	1.26342E+11 ..		3391878					
10		Channel Islands	CHI	2019	2019YR2019	8133000000 ..		84417	..				
11		Croatia	HRV	2019	2019YR2019	5490995834 ..	9288249419	1781597					
12		Cyprus	CYP	2019	2019YR2019	23177857000 ..		650331					
13		Czechia	CZE	2019	2019YR2019	5.79151E+12 ..		5421467					
14		Denmark	DNK	2019	2019YR2019	2.31095E+12 ..		3032098					
15		Estonia	EST	2019	2019YR2019	2.776472E+09 ..		703307					
16		Faroe Islands	FRO	2019	2019YR2019	21783300000						
17		Finland	FIN	2019	2019YR2019	2.39858E+11 ..		2758855					
18		France	FRA	2019	2019YR2019	4.24704E+12 ..		3065229					
19		Georgia	GEO	2019	2019YR2019	49523657900 ..		1856196					
20		Germany	DEU	2019	2019YR2019	3.47411E+12 ..		44483744					
21		Gibraltar	GIB	2019	2019YR2019			..					
22		Greece	GRC	2019	2019YR2019	1.81347E+11 ..		4684352					
23		Greenland	GLR	2019	2019YR2019	19999400000 ..							
24		Hungary	HUN	2019	2019YR2019	4.76742E+13 ..		4748584					
25		Iceland	ISL	2019	2019YR2019	3.0261E+12 ..		220983					
26		Ireland	IRL	2019	2019YR2019	3.56357E+11 ..		2446760					
27		Israel	ISR	2019	2019YR2019	5730870000					
28		Italy	ITA	2019	2019YR2019	3.79665E+12 ..		2590740					
29		Kazakhstan	KAZ	2019	2019YR2019	6.95326E+13 ..		9220693					
30		Kosovo	XKK	2019	2019YR2019	7056172000 ..	1456958000 ..						
31		Kyrgyz Republic	KGZ	2019	2019YR2019	6.54015E+11 ..		2733412 ..					
32		Latvia	LVA	2019									

50	Slovenia	SVN	2019	YR2019	48582307000	..	
51	Spain	ESP	2019	YR2019	1.24551E+12	..	
52	Sweden	SWE	2019	YR2019	5.04962E+12	..	
53	Switzerland	CHE	2019	YR2019	7.16879E+11	..	
54	Tajikistan	TJK	2019	YR2019	79109800000	..	
55	Turkiye	TUR	2019	YR2019	4.31781E+12	..	
56	Turkmenistan	TKM	2019	YR2019	1.58315E+11		29685300000
57	Ukraine	UKR	2019	YR2019	3.9772E+12	..	
58	United Kingdom	GBR	2019	YR2019	2.23392E+12	..	
59	Uzbekistan	UZB	2019	YR2019	5.32713E+14	..	
60							
61							
62							
63	Data from database: World Development Indicators						
64	Last Updated: 03/28/2024						
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8. Import this excel file to STATA.
 - a. Open STATA.
 - b. From the File dropdown select **Import** and then select **Excel spreadsheet**
 - c. A dialog box will open. **Browse** and select the Excel file
 - d. Select in which sheet Stata look for data
 - e. Click “**Import the first row as variable names**”
 - f. Select Variable case **lower**
 - g. Press **OK**



After creating the STATA file:

1. Estimate the production function with logarithmic transformation.
2. Explain the results econometrically and intuitively.
3. Run relevant tests to check whether your estimations are Okay.
4. Add relevant variables to extend the model for further analysis. Some examples are (I encourage you to find other interesting variables too and check how the model behaves):
 - a. Exports of goods and services (in LCU)
 - b. Imports of goods and services (in LCU)
 - c. Literacy rate, mortality rate
 - d. Other relevant variables