Term Paper Discussion

Consider the following Cobb-Douglas production function:

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

Where,

i =1, 2, 3…, n

Y_i= GDP of ith country.

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

L_i= Total Labour force

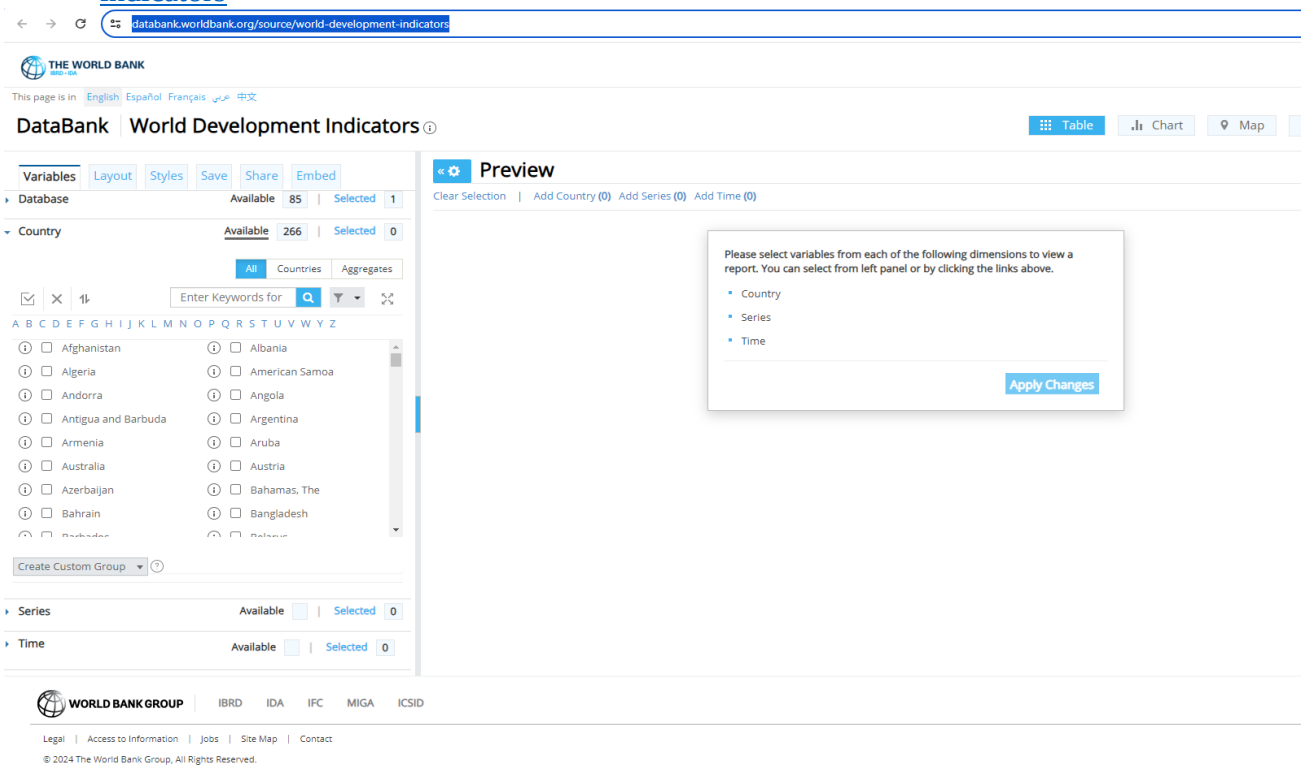
α = Share of capital

b = Share of labour

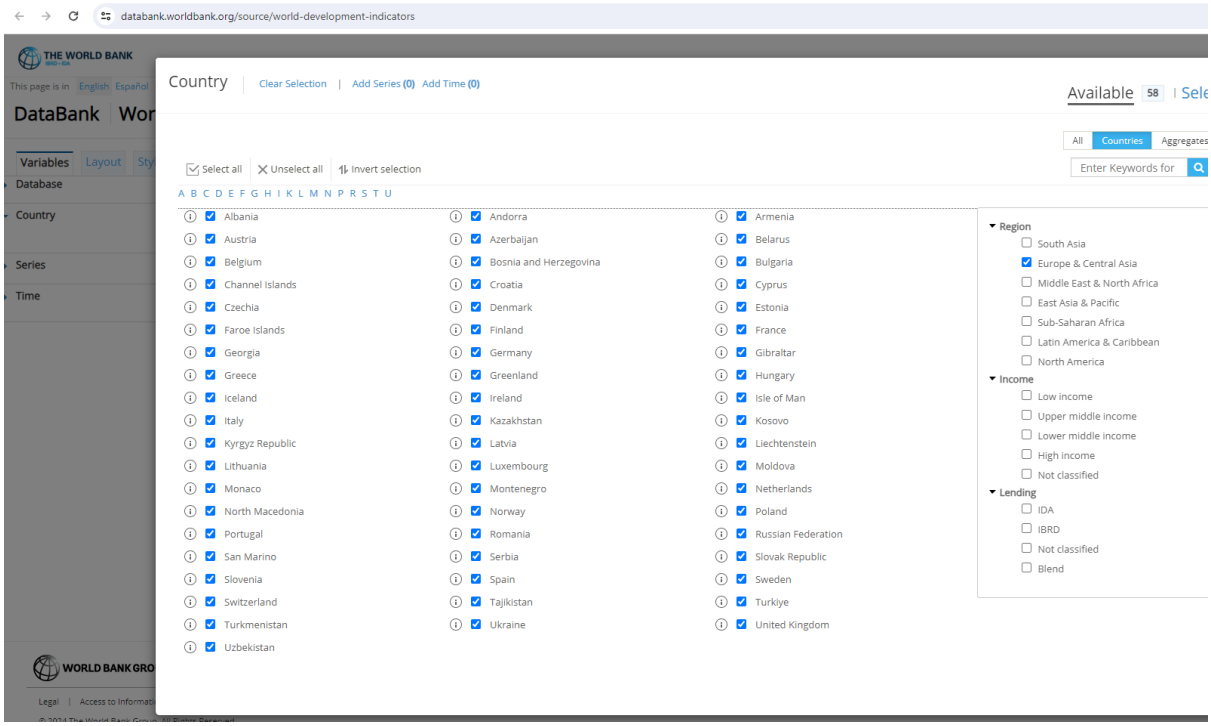
Consider current (inflation-unadjusted) and constant (inflation-adjusted) local currency unit (LCU) and for GDP and GCF/GFCF (use GFCF or GCF depending on the data availability). Data can be downloaded from World Development Indicators (WDI). Each group will work with a group of countries.

Steps for Downloading Data from WDI

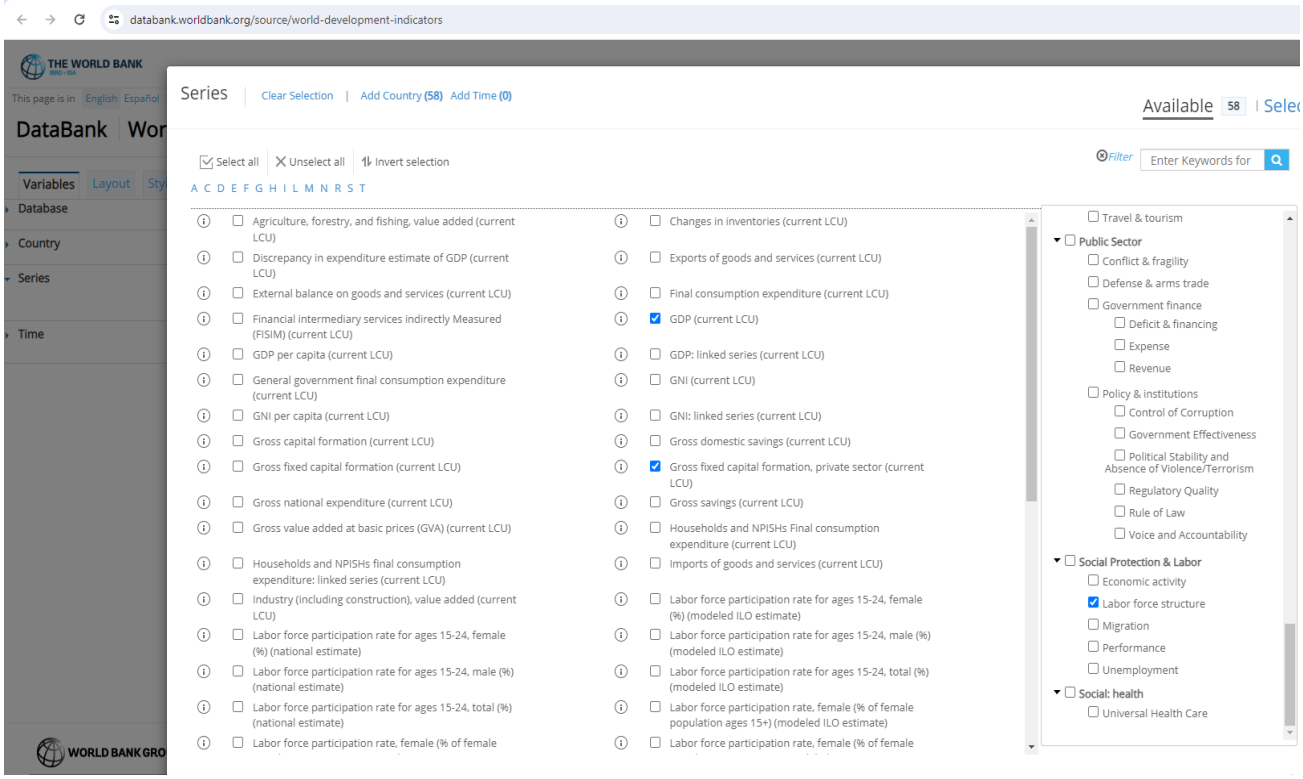
1. Go to the WDI website: https://databank.worldbank.org/source/world-development-indicators



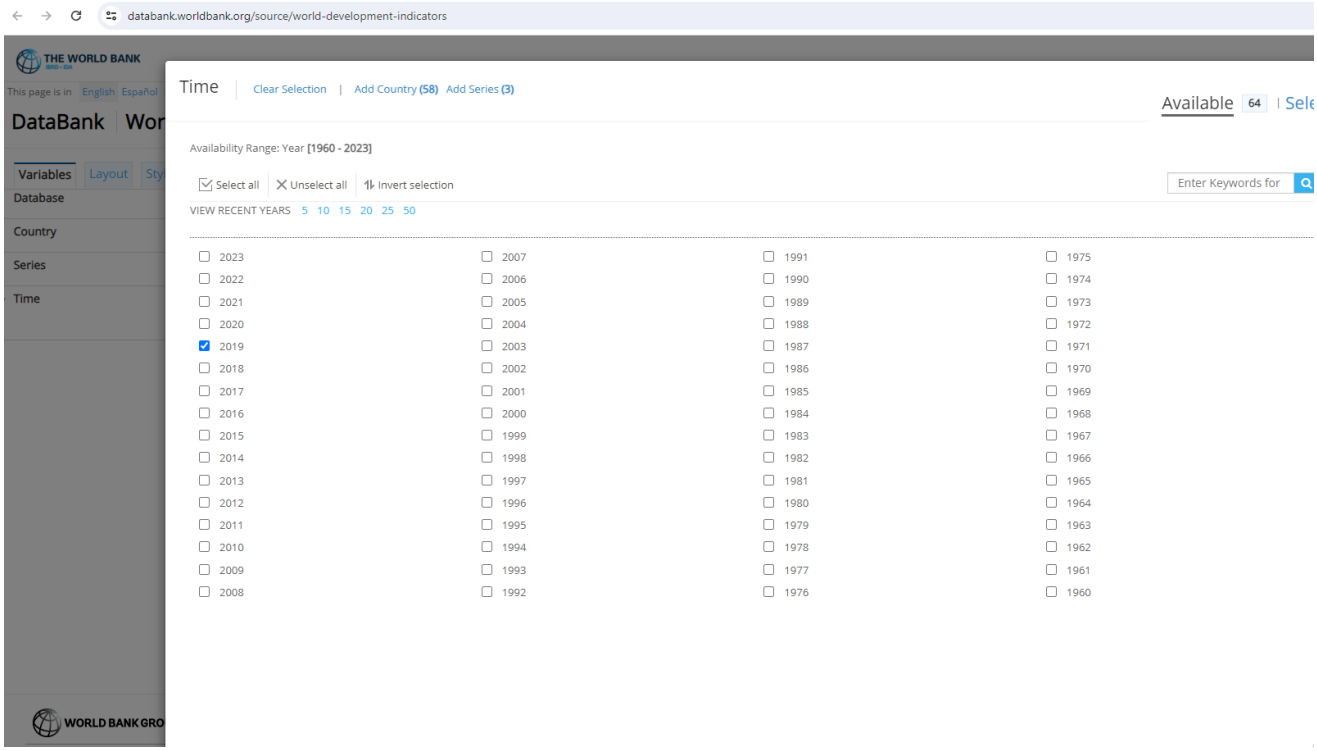
2. First select the **<u>Country</u>** and use **<u>detail view</u>**. You can see Europe and Central Asian countries are selected.



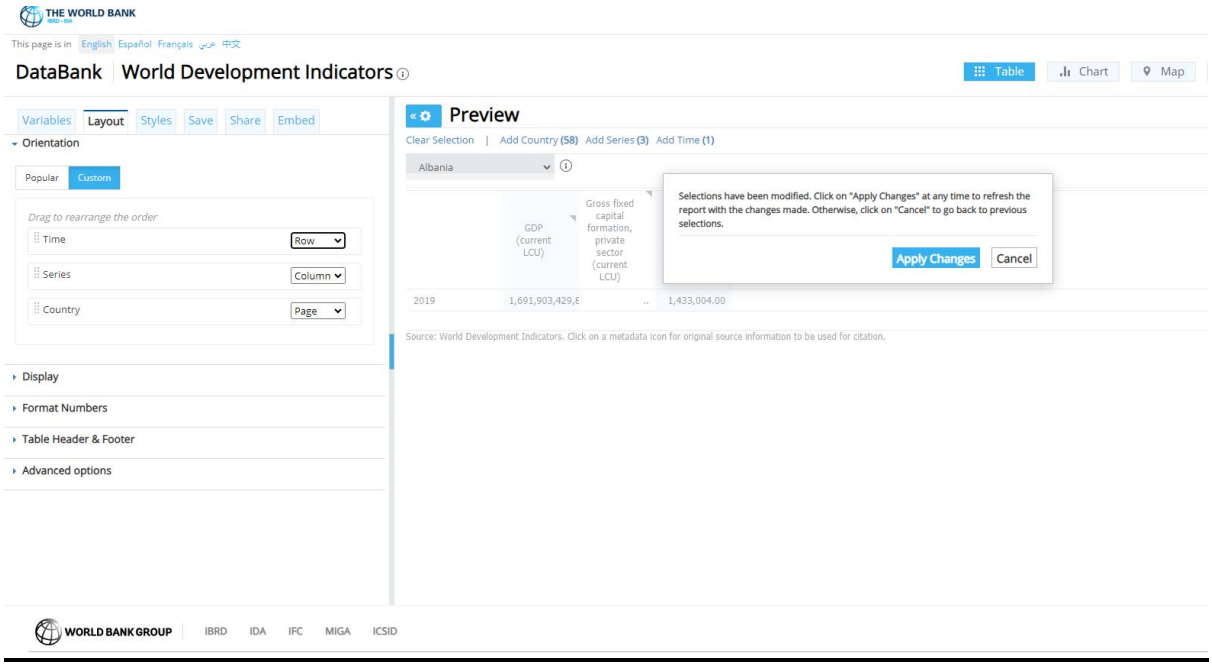
3. Cross the detailed view select **<u>Series</u>**. Similarly, use the **<u>detail view</u>.** Use the right hand side drop down items to search for data. **You** can see GDP, GCF, GFCF, Total Labour is selected.



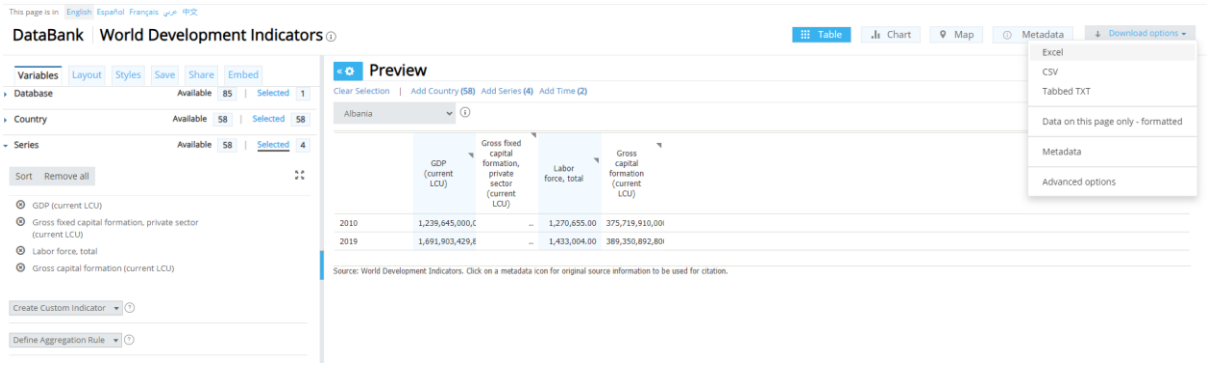
4. Cross the detailed view select **Time.** Choose any single period. You can see 2019 is chosen.



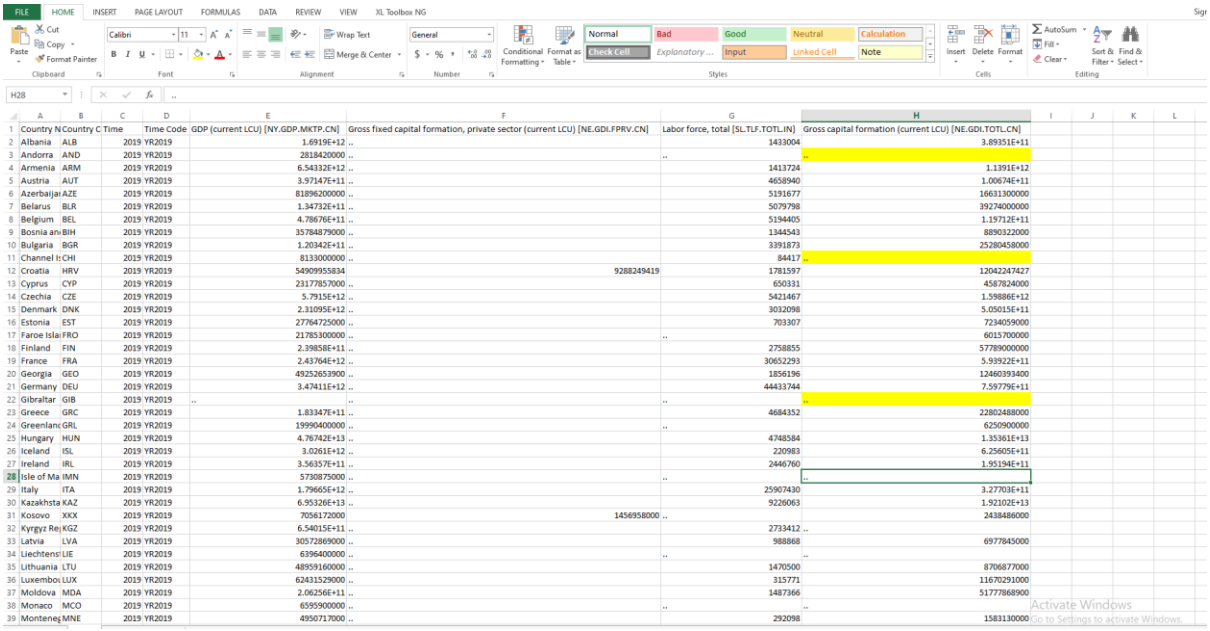
5. Cross the detail view go to **Layout**. Select **Custom** as **Orientation.** Make Time=Row, Series=Column, Country=Page. Press **Apply Changes**.



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

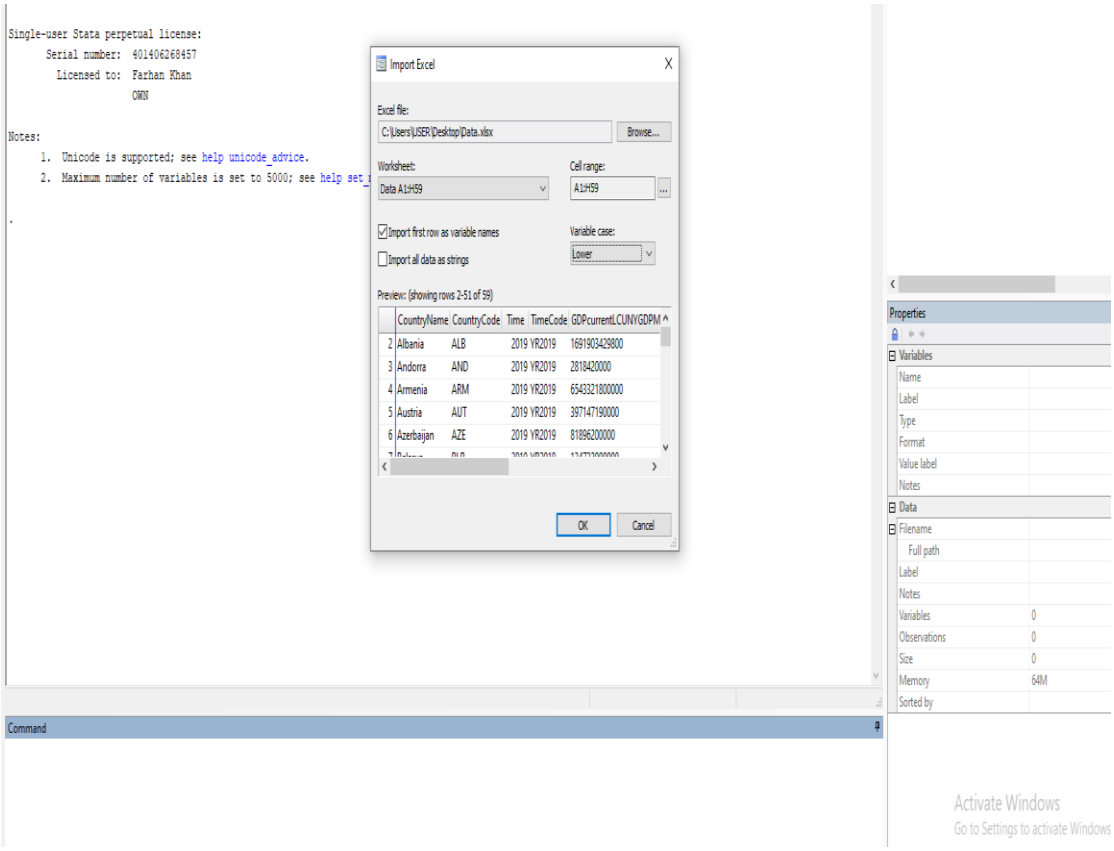


7. Open the excel file. You will see dots (two dots) where data is missing. Remove the dots since STATA reads dots as string variables (non-numerical) when Excel is imported. Also, remove the data description as well. While running regression, STATA will automatically remove the missing data. However,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



	A	B	C	D	E	F	G	H
1	Country N	Country C	Time	Time Code	GDP (current LCU) [NY.GDP.MKTP.CN]	Gross fixed capital formation, private sector (current LCU) [NE.GDI.FPRV.CN]	Labor force, total [SL.TLF.TOTL.IN]	Gross capital formation (current LCU) [NE.GDI.TOTL.CN]
2	Albania	ALB	2019	YR2019	1.6919E+12	..	1433004	3.89351E+11
3	Andorra	AND	2019	YR2019	2818420000	..	..	..
4	Armenia	ARM	2019	YR2019	6.54332E+12	..	1413724	1.1391E+12
5	Austria	AUT	2019	YR2019	3.97147E+11	..	4658940	1.00674E+11
6	Azerbaija	AZE	2019	YR2019	8189620000	..	5191677	16631300000
7	Belarus	BLR	2019	YR2019	1.34732E+11	..	5079798	39274000000
8	Belgium	BEL	2019	YR2019	4.78676E+11	..	5194405	1.19712E+11
9	Bosnia an	BIH	2019	YR2019	35784879000	..	1344543	8890322000
10	Bulgaria	BGR	2019	YR2019	1.20342E+11	..	3391873	25280458000
11	Channel I	CHI	2019	YR2019	8133000000	..	84417	..
12	Croatia	HRV	2019	YR2019	54909955834	9288249419	1781597	12042247427
13	Cyprus	CYP	2019	YR2019	23177857000	..	650331	4587824000
14	Czechia	CZE	2019	YR2019	5.7915E+12	..	5421467	1.59886E+12
15	Denmark	DNK	2019	YR2019	2.31095E+12	..	3032098	5.05015E+11
16	Estonia	EST	2019	YR2019	27764725000	..	703307	7234059000
17	Faroe Isla	FRO	2019	YR2019	21783300000	..	..	6015700000
18	Finland	FIN	2019	YR2019	2.39858E+11	..	2758855	57789000000
19	France	FRA	2019	YR2019	2.43764E+12	..	30652293	5.93922E+11
20	Georgia	GEO	2019	YR2019	49252653900	..	1856196	12460393400
21	Germany	DEU	2019	YR2019	3.47411E+12	..	44433744	7.59779E+11
22	Gibraltar	GIB	2019	YR2019	..	..	..	..
23	Greece	GRC	2019	YR2019	1.83347E+11	..	4684352	22802488000
24	Greenlanc	GRL	2019	YR2019	19990400000	..	..	6250900000
25	Hungary	HUN	2019	YR2019	4.76742E+13	..	4748584	1.35361E+13
26	Iceland	ISL	2019	YR2019	3.0261E+12	..	220983	6.25605E+11
27	Ireland	IRL	2019	YR2019	3.56357E+11	..	2446760	1.95194E+11
28	Isle of Ma	IMN	2019	YR2019	5730875000	..	..	..
29	Italy	ITA	2019	YR2019	1.79665E+12	..	25907430	3.27703E+11
30	Kazakhsta	KAZ	2019	YR2019	6.55326E+13	..	9226063	1.92102E+13
31	Kosovo	XKX	2019	YR2019	7056172000	1456958000	..	2438486000
32	Kyrgyz Re	KGZ	2019	YR2019	6.54015E+11	..	2733412	..
33	Latvia	LVA	2019	YR2019	30572869000	..	988868	6977845000
34	Liechtens	LIE	2019	YR2019	6396400000	..	..	..
35	Lithuania	LTU	2019	YR2019	48959160000	..	1470500	8706877000
36	Luxembou	LUX	2019	YR2019	62431529000	..	315771	11670291000
37	Moldova	MDA	2019	YR2019	2.06256E+11	..	1487366	51777868900
38	Monaco	MCO	2019	YR2019	6595900000	..	..	..
39	Monteneg	MNE	2019	YR2019	4950717000	..	292098	1583130000
50	Slovenia	SVN	2019	YR2019	48582307000	..		
51	Spain	ESP	2019	YR2019	1.24551E+12	..		
52	Sweden	SWE	2019	YR2019	5.04962E+12	..		
53	Switzerlar	CHE	2019	YR2019	7.16879E+11	..		
54	Tajikistan	TJK	2019	YR2019	79109800000	..		
55	Turkiye	TUR	2019	YR2019	4.31781E+12	..		
56	Turkmeni	TKM	2019	YR2019	1.58315E+11			29685300000
57	Ukraine	UKR	2019	YR2019	3.9772E+12	..		
58	United Kir	GBR	2019	YR2019	2.23392E+12	..		
59	Uzbekista	UZB	2019	YR2019	5.32713E+14	..		
60								
61								
62								
63	Data from database: World Development Indicators							
64	Last Updated: 03/28/2024							
65								
66								
67								
68								
69								

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