

Dear All,

To accurately reconstruct the **six macroeconomic variables** used in the GVAR model, we would like to request the underlying raw data that was used prior to transformation. Specifically, for COUNTRY DATA we are aiming to reproduce the following variables:

Symbol	Economic Meaning	Formula
y_{it}	Log of real GDP	$y_{it} = \ln(GDP_{it})$
dp_{it}	Inflation rate (based on CPI)	$dp_{it} = p_{it} - p_{it-1}$, where $p_{it} = \ln(CPI_{it})$
r_{it}	Short-term interest rate	$r_{it} = 0.25 \cdot \ln(1 + R_{it}^S/100)$
lr_{it}	Long-term interest rate	$lr_{it} = 0.25 \cdot \ln(1 + R_{it}^L/100)$
ep_{it}	Log of real exchange rate	$ep_{it} = \ln(E_{it}/CPI_{it})$
eq_{it}	Log of real equity prices	$eq_{it} = \ln(EQ_{it}/CPI_{it})$

All macroeconomic variables are transformed before estimation. Most series (GDP, CPI, equity prices) are expressed in log terms based on index numbers with base year 2010 = 100, ensuring comparability across countries. Interest rates are expressed as quarterly log interest rates derived from annualized percentage rates, adjusted by a factor of 0.25 to match the quarterly frequency of the dataset.

The data structure looks as follows. But you can neglect it because we can do the preprocessing so only the raw data is required.

date	y	Dp	eq	r	lr	ys	Dps	eps
1979Q2	3.960503	0.03373	0.68467	0.022407	0.021804	3.724107	0.027294	-2.38386
1979Q3	3.967677	0.032477	0.69907	0.023084	0.021781	3.737468	0.029189	-2.42258
1979Q4	3.970622	0.028823	0.640953	0.027982	0.024841	3.756137	0.028865	-2.4425
1980Q1	3.973806	0.038217	0.615193	0.031335	0.028302	3.767488	0.039942	-2.46683
1980Q2	3.953413	0.035451	0.609975	0.022955	0.024909	3.769179	0.033241	-2.50018

(For example, this country has all data for all 6 domestic variables and 6 foreign variables)

A	B	C	D	E	F	G	H	I	J
date	y	Dp	ep	r	ys	Dps	eqs	rs	lrs
1979Q2	4.231579	0.130564	-1.43683	0.064628	3.627372	0.036085	0.549271	0.028609	0.023802
1979Q3	4.258492	0.138227	-1.51464	0.064628	3.642219	0.037158	0.566209	0.029541	0.024249
1979Q4	4.24685	0.11001	-1.57523	0.064628	3.660942	0.033968	0.528345	0.031317	0.026613
1980Q1	4.280185	0.120917	-1.64007	0.064628	3.671582	0.041632	0.522444	0.033794	0.029563

(But for Peru, only 4 domestic country variable is what we have. So missing columns is accepted.)

In order to construct these variables, we would need the following raw quarterly series, the unit is not required to be unified since we will preprocess the data to make it unified, specifically described as below:

1. The raw data [GDP CPI E EQ RS RL] for 33 countries for recent years from 2020-2024. It would be perfect if the data is quarterly based. But it is ok if the data is collected based on the years. The 0.25 when calculating the lr is transforming yearly based data to quarterly based data. $lr_{it} = 0.25 \cdot \ln(1 + R_{it}^L/100)$ And it is acceptable if there are missing columns since you might noticed not all the country data was filled with all 6 variables.
2. We want to take a deeper look at these three countries. But we are currently lacking all data regarding these three countries. They are: Colombia, Egypt, and Kenya

The Raw data we need is listed below:

Raw Variable Symbol	Description
GDP_{it}	Real Gross Domestic Product
CPI_{it}	Consumer Price Index (All items)
E_{it}	Nominal Exchange Rate (local currency per USD)
EQ_{it}	Nominal Equity Price Index (local currency)
RS_{it}	Short-term Nominal Interest Rate
RL_{it}	Long-term Nominal Interest Rate

TRADING DATA:

The trading data used in this model refers to the **bilateral trade flows (exports and imports)** between countries. It is sourced from the **GVAR Toolbox**, using **annual trade data**.

For each country, its trade with all other countries is used to compute **country-specific trade weights**, which are then used to construct the external ("star") variables in the VARX* or GVAR framework.

The resulting trade matrices are based on the 2013 vintage and are supplemented with the 2014–2016 average.

The unit of the trading_data does not matter, as long as it is consistent across all countries, since we will normalize the values later.

	Argentina	Australia	Austria	Belgium	Brazil
Argentina	NaN	3,375,316	902,985	3,457,292	113,512,600
Australia	3,769,428	NaN	7,305,697	11,317,940	6,780,079
Austria	1,101,041	6,405,585	NaN	26,679,960	3,961,676
Belgium	4,686,045	13,479,812	30,215,041	NaN	28,553,901
Brazil	114,876,200	6,696,186	4,487,628	24,143,430	NaN

We truly appreciate your support. While the IMF provides some useful data, we've found it quite difficult to access consistent quarterly series for exchange rates and interest rates in particular.

That said, if you believe there are alternative variables that would be more suitable than the ones we are currently using, we would really appreciate your suggestions.

Thank you very much for your help!