Global Shocks and their Impact on the Tanzanian Economy

In this note, I briefly describe the data and model specification underlying the empirical analysis to facilitate replication of the key results of the paper by interested readers. Details of the model specification are provided for each of the three models. Specifically, details on lag length, cointegration rank, exogenous vs endogenous variables, deterministic terms (trends and broken trends), and dummy specifications (notably including step and impulse dummies). These details are presented below on a model-by-model basis (China's economic slowdown and commodity prices, volatility in global financial markets, and currency movements and inflation). The main empirical results are also shown in a separate file– "Results."

Model 1: China's economic slowdown

Model 1 includes time-series data on the following variables:

- Tanzania's exports (current USD)
- China's domestic investment (henceforth CDI) (constant 2010 USD) or alternatively China's GDP (constant 2010 USD)
- Export price index (henceforth *price*)
- World GDP (constant 2010 USD)

OLS: The baseline OLS specifies the log of Tanzania's exports as a function of the aforementioned explanatory variables (in logs) and allows for a linear trend and broken linear trend. This is based on data for 1990-2014. As mentioned in the paper, the empirical estimates were computed using the statistical software *OxMetrics*.

Interested readers can reproduce the OLS results in Table 1 using the following steps (see 'Results' for more details):

- Launch OxMetrics and choose the PcGive module. Next, select the category 'Models for time-series' data and under model class select 'Single-equation dynamic modelling using PcGive.'
- Specify all variables in natural logarithms and allow for a constant term, a linear trend, and a broken linear trend.

Cointegrated VAR: The Cointegrated VAR (CVAR) model is a multi-equation system and specifies all variables in logs. Export, CDI, and price are specified as endogenous variables. World GDP was specified as a weakly exogenous variable. This is based on data for 1990-2014. The empirical estimates were computed using the statistical software *OxMetrics*.

Interested readers can reproduce the CVAR results in Table 1 using the following steps (see 'Results' for more details):

- Launch OxMetrics and choose the PcGive module. Next, select the category 'Models for time-series' data and under model class select 'Multiple-equation dynamic modelling.'
- Specify all variables in natural logarithms
- Specify export, CDI, and price as endogenous variables
- Set lag length equal to 1
- Specify the following as unrestricted terms (constant term, Dp09, Dp97, DLWorld_GDP (first difference of world GDP), DLWorld_1 (lagged first difference of GDP)).
- The following terms should be specified as restricted: LWorld (log of world GDP), linear trend, and broken linear trend (in 2002).

Model 2: Volatility in global financial markets

Model 2 includes time-series data on the following variables:

- Tanzania's GDP (constant 2010 USD)
- Net capital inflows (henceforth NCI) (USD)
- Gross domestic investment (GDI) (henceforth GDI)
- Exports of goods and services (constant 2010 USD)

OLS: The baseline OLS specifies the log of Tanzania's GDP as a function of the aforementioned explanatory variables (in logs) and allows for a linear trend and broken linear trend (in 2001). This is based on data for 1980-2014. The empirical estimates were computed using the statistical software *OxMetrics*.

Interested readers can reproduce the OLS results in Table 2 using the following steps (see 'Results' for more details):

- Launch OxMetrics and choose the PcGive module. Next, select the category 'Models for time-series' data and under model class select 'Single-equation dynamic modelling using PcGive.'
- Specify all variables in natural logarithms and allow for a constant term, a linear trend, and a broken linear trend (in 2001).

Cointegrated VAR: The CVAR model is a multi-equation system and specifies all variables in logs. All variables are specified as endogenous variables. The analysis is based on data for 1990-2014. The estimates were computed using the statistical software *OxMetrics*.

Interested readers can reproduce the CVAR results in Table 3 using the following steps (see 'Results' for more details):

- Launch OxMetrics and choose the PcGive module. Next, select the category 'Models for time-series' data and under model class select 'Multiple-equation dynamic modelling.'
- Specify all variables in natural logarithms and as an endogenous variables

- Set the lag length equal to 1
- Specify the following as unrestricted terms (constant term, Dp83, Dp85, Dp87, and Dp90)
- The following terms should be specified as restricted: linear trend and broken linear trend (in 2001).

Model 3: Currency movements and inflation

Model 3 includes time-series data on the following variables:

- Consumer price inflation
- Nominal effective exchange rate (NEER)
- World oil price inflation (henceforth *oil*)
- World food price inflation (henceforth *food*)
- Broad money (M2) or alternatively narrow money (M1)

OLS: The baseline OLS specifies the inflation rate (the first difference of the log of consumer price index) as a function of the aforementioned explanatory variables (in logs) and allows for a linear trend and broken linear trend (in 2013(7) (denoting the seventh month of 2013) and 2014(8)). This analysis is based on data for 2013(1) to 2015(9). The empirical estimates were computed using the statistical software *OxMetrics*.

Interested readers can reproduce the OLS results in Table 3 using the following steps (see 'Results' for more details):

- Launch OxMetrics and choose the PcGive module. Next, select the category 'Models for time-series' data and under model class select 'Single-equation dynamic modelling using PcGive.'
- Specify NEER and M2 as endogenous variables, and world oil and food price inflation as weakly exogenous variables
- Specify all variables in natural logarithms and allow for a constant term, a linear trend, and a broken linear trend (in 2013(7) and 2014(8)).

Cointegrated VAR: The CVAR model is a multi-equation system and specifies all variables in logs. Inflation, NEER, and M2 are specified as endogenous variables and world oil and food price inflation as exogenous variables. This analysis is based on data for 2013(1) to 2015(9). The empirical estimates were computed using the statistical software *OxMetrics*.

Interested readers can reproduce the CVAR results in Table 1 using the following steps (see 'Results' for more details):

- Launch OxMetrics and choose the PcGive m3odule. Next, select the category 'Models for time-series' data and under model class select 'Multiple-equation dynamic modelling.'
- Specify all variables in natural logarithms

- Specify inflation, NEER, and M2 as endogenous variables
- Set the lag length equal to 2
- Specify World oil price inflation (Doil) and food price inflation (Dfood) as exogenous variables
- Specify the following as unrestricted terms (constant term, Dp13(1), Dp13(4), DDLfood (second difference of the log of world food price index), and DDLoil (second difference of the log of world oil price index).
- The following terms should be specified as restricted: DLoil (the first difference of the log of world oil price index), DLfood (the first difference of the log of world food price index), linear trend, and broken linear trend (in 2013(7) and 2014 (8)).