

Government consumption preprocessor

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Contents

Sources

Series read into DataGovCon

Initializations

Defense

Series to potentially pull

AVC Dataset

IMF GFS Military Expenditure Data

Health

Education

R & D

Central vs. Total

Infrastructure

InfraOther

Output

Cap Infra spending

Sources

- WHO_Global_Health_Expenditure_Database
- IMF
- World Development Indicators (WDI)

Series read into DataGovCon

DataDict

Table	Source	Last IFs Update	UsedInPreprocessorFileName
SeriesGovtMil%GDP	ACDA www.state.gov/global/arms/bureau_ac/reports_ac.html + asst earlier volumes		GOVCON
SeriesR&D%GDPWDI	Constructed from multiple WDI vol;CD incl 01, 02, 04,05,06,07; 2006-2008 Update from UIS Website	2013/08/07	GOVCON
SeriesGovtCalcHealthTot%GDP	IMF GFS 2013 BATCH PULL	2013/12/20	GOVCON

SeriesGovtCalcHealthCen%GDP	IMF GFS 2013 BATCH PULL	2013/12/20	GOVCON
SeriesGovtCalcEdTot%GDP	IMF GFS 2013 BATCH PULL	2013/12/20	GOVCON
SeriesGovtCalcEdCen%GDP	IMF GFS 2013 BATCH PULL	2013/12/20	GOVCON
SeriesGovtMil%GDPSIPRI	SIPRI, Stockholm International Peace Research Institute	2016/06/29	GOVCON
SeriesGovtEdPub%GDP	UIS	2016/06/14	GOVCON
SeriesR&DGovt%GDP	UNESCO	2016/06/30	GOVCON
SeriesGovtHI%GDP	WDI BATCH PULL	2015/07/14	GOVCON
SeriesHealthExpTot%GDP	WHO Global Health Expenditure Database	2016/06/21	GOVCON
SeriesHealthExpPriv%Tot	WHO Global Health Expenditure Database	2016/06/21	GOVCON

Initializations

Defense

- Initialize defense expenditures using **SeriesGovtMil%GDPSIPRI**.
- **Source:** SIPRI, Stockholm International Peace Research Institute
- **Definition:** Military expenditures as percent of GDP (SIPRI)
- **Original source:** <http://milexdata.sipri.org/>
- **Last Update in IFs:** 2013/06/13 (data through 2012)
- Most Recent Source Update: Exact date unknown; Data through 2015
- Year Coverage: 1988-2015 (Consistent); 1957-1987 (May be inconsistent with current data)
- Country Coverage: 172
- Data Link: [Link](#)
- Source Definition: [Link](#)
- “Where possible, SIPRI military expenditure data include all current and capital expenditure on:
 - (a) the armed forces, including peacekeeping forces;
 - (b) defense ministries and other government agencies engaged in defense projects;
 - **Note:** *This would seem to indicate inclusion of the more “civilian” activities of defense department*
 - (c) paramilitary forces, when judged to be trained and equipped for military operations; and
 - (d) military space activities
 - Such expenditures should include:
 - (a) military and civil personnel, including retirement pensions of military personnel and social services for personnel;
 - (b) operations and maintenance;
 - (c) procurement;
 - (d) military research and development; and
 - (e) military aid (in the military expenditure of the donor country).
- Civil defense and current expenditures on previous military activities, such as veterans' benefits, demobilization, conversion and weapon destruction are excluded.”

- **Note:** The data from 1957-1987 may have issues when compared over time with the more recent years. Caution will need to be taken should those years be imported into the IFs database. WDI data is derived from this source. SIPRI data is hosted on the WDI databank. Also, might be problematic that this includes R&D spending, capital investments, and military spending in foreign countries
- If null, then use **SeriesGovtMil%GDP**
- **Definition:** Military expenditures as percent of GDP (ACDA)
- **Source:** ACDA www.state.gov/global/arms/bureau_ac/reports_ac.html + asst earlier volumes
- **Last Update in IFs:** Unknown
- Most Recent Source Update: Unavailable
- Year Coverage: N/A
- Country Coverage: N/A
- Source Definition: Unavailable
- **Note:** The ACDA is no longer a functional office at the State Department, their data appears to no longer be hosted on any official department site. The newly created office AVC has created a similar dataset covering 2002-2015.
- **If still null estimate using GDPPCP:** $TbName\$ = "GDP/Capita (PPP) \text{ Versus Govt Exp Mil as \% of GDP (" \& CStr(BaseYear) \& ") - linear}"$
 - **This equation is using:** GDP/Capita (PPP) Versus Govt Exp Mil as % of GDP (2000) - linear

Series to potentially pull

AVC Dataset

- Source: State Department – ACV
- Last Update in IFs: N/A
- Most Recent Source Update: 2015
- Year Coverage: 2002-2012
- Country Coverage: 170
- Data Link: Link
- Source Definition: Link

NATO Definition: (Referred to in State Department Report; Their link doesn't lead to a definition, however.)

- Excluded/Adjusted Data:
 - (a) civilian-type expenditures of the defense ministry are excluded and military-type expenditures of other ministries are included; **Note:** SIPRI seems to include this

- (b) grant military assistance is included in the expenditures of the donor country; and
- (c) purchases of military equipment on credit are included at the time the debt is incurred, not at the time of payment. **Note:** SIPRI doesn't specify when it is included

Note: While all of the countries covered in this dataset are included in the SIPRI data, this dataset includes more recent years for some countries (notably, North Korea)

IMF GFS Military Expenditure Data

Health

- Initialize **public** health expenditures using **SeriesGovtHI%GDP**
- Source: World Bank - WDI
- Original Source: WHO Global Health Expenditure Database
- Last Update in IFs: 2015/07/14 (data through 2013)
- Year Coverage: 1995-2014 (in source)
- Country Coverage: 223 (includes some regional groupings; likely 194)
- WDI Data Link: [Link](#)
- Source Definition: [Link](#)
- "Public health expenditure consists of recurrent and capital spending from government (central and local) budgets, external borrowings and grants (including donations from international agencies and nongovernmental organizations), and social (or compulsory) health insurance funds."
- If null estimate using GDPPCP: $TbName\$ = "GDP/Capita (PPP) \text{ Versus Govt Exp Hlth as \% of GDP (" \& CStr(BaseYear) \& ") - log"$
 - **This equation is using:** $GDP/Capita (PPP) \text{ Versus Govt Exp Hlth as \% of GDP (2000) - log$
- Initialize private health expenditures using **SeriesHealthExpPriv%Tot.**
- Initial Source: WHO Global Health Expenditure Database
- Alt Source: World Bank - WDI
- Last Update in IFs: 2014/04/22
- Most Recent Source Update:
- Year Coverage: 1995-2014
- Country Coverage: 194
- WHO Data Link: [Link](#)
- WDI Data Link: [Link](#)
- Source Definition: [Link](#)
- "Private health expenditure includes direct household (out-of-pocket) spending, private insurance, charitable donations, and direct service payments by private corporations."

- Notes: The World Bank seems to only provide this series as a percent of GDP now, see links. Additionally, our data appears to be one year behind.
- If no data, but there is data on total health expenditures (**SeriesHealthExpTot%GDP**) then set private as the difference between total and public.
- Initial Source: WHO Global Health Expenditure Database
- Alt Source: World Bank - WDI
- Last Update in IFs: 2014/04/22
- Most Recent Source Update:
- Year Coverage: 1995-2014
- Country Coverage: 194
- WHO Data Link: [Link](#)
- WDI Data Link: [Link](#)
- Source Definition: [Link](#)
- "Total health expenditure is the sum of public and private health expenditure. It covers the provision of health services (preventive and curative), family planning activities, nutrition activities, and emergency aid designated for health but does not include provision of water and sanitation."
- Notes: Our data appears to be one year out of date (missing 2014).
- If no data on total health expenditure then estimate private using:

'Estimate Private

```
Call AnalFunc("Private Health Expenditures % of GDP (2012)", _
  Array(CGDPPCP(ICount%), CEDYRSAGE25T(ICount%)), cVal, _
    Array("GDP2005PCPPP(MOSTRECENT)/ 1000 (Log)",
"EdYearsAge25(MOSTRECENT) (Linear)"))
```

- If no data on total expenditures, then it is the sum of private and public.

Education

- Initialize public spending on education using **SeriesGovtEdPub%GDP**
- Source: World Bank - WDI
- Original Source: United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
- Last Update in IFs: 2015/07/14
- Most Recent Source Update: 2015
- IFs Coverage: 1960-2014
- Year Coverage: 1998-2014
- Country Coverage: 154
- UNESCO Data Link: [Link](#)

- WDI Data Link: [Link](#)
- Source Definition: [Link](#)
- “Current expenditure is expressed as a percentage of direct expenditure in public educational institutions (instructional and non-instructional) of the specified level of education. Financial aid to students and other transfers are excluded from direct expenditure. Current expenditure is consumed within the current year and would have to be renewed if needed in the following year. It includes staff compensation and current expenditure other than for staff compensation (ex. on teaching materials, ancillary services and administration).”
- If null then use:
 - Call XYTABL("GDP/Capita (PPP) Versus Govt Exp Educ as % of GDP (2002) - log", Amin(40, CGDPPCP(ICount%)), GExpEd(ICount%))
- Bound as 1.5% as a minimum. Set Uzbekistan to 3%.

R & D

- Initialize public R&D spending using **SeriesR&DGovt%GDP** (GExpRandD)
- Variable: GDS (Rand)
- Source: UNESCO
- Definition: Gross R&D expenditure by government
- Alt Source: World Bank - WDI
- Last Update in IFs: 2013/09/07
- Most Recent Source Update: 2015
- IFs Coverage: 1996 - 2011
- Year Coverage: 1996 - 2014
- Country Coverage: 109
- UNESCO Data Link: [Link](#)
- WDI Data Link: [Link](#)
- Source Definition: [Link](#)
- “Expenditures for research and development are current and capital expenditures (both public and private) on creative work undertaken systematically to increase knowledge, including knowledge of humanity, culture, and society, and the use of knowledge for new applications. R&D covers basic research, applied research, and experimental development.”
- **Note:** *Pulled from UNESCO currently, may want to switch to inclusion in WDI batch.*
- If ExpRandDTot is null then estimate using:
 - TbName\$ = "GDP/Capita (PPP) Versus R&D Total as % of GNI (" & CStr(BaseYear) & ") - linear"
 - **This equation is using:** GDP/Capita (PPP) Versus R&D Total as % of GNI (2000) -

linear

- **SeriesR&D%GDPWDI** (ExpRandDTot)
- Variable: RANDDEXP
- Initial Source: UNESCO
- Alt Source: World Bank - WDI
- Original IFs Source: Constructed from multiple WDI vol;CD incl 01, 02, 04,05,06,07; 2006-2008 Update from UIS Website
- Last Update in IFs: 2013/08/07
- Most Recent Source Update: N/A
- IFs Coverage: 1980 - 2011
- Year Coverage: N/A
- Country Coverage: 132
- UNESCO Data Link: [Link](#)
- WDI Data Link: [Link](#)
- Source Definition: [Link](#)
- “Expenditures for research and development are current and capital expenditures (both public and private) on creative work undertaken systematically to increase knowledge, including knowledge of humanity, culture, and society, and the use of knowledge for new applications. R&D covers basic research, applied research, and experimental development.”
- **Note:** *This series should probably be disused and combined with the UNESCO-sourced WDI data as that series (SeriesR&DGovt%GDP) is the most recent version of both of our current series.*
- If ExpRandDTot is null then estimate using:
- If GExpRandD is null then estimate using: $TbName\$ = "GDP/Capita (PPP) \text{ Versus Govt Exp R\&D as \% of GNP (" \& CStr(BaseYear) \& ") - linear}"$
 - **This equation is using:** GDP/Capita (PPP) Versus Govt Exp R&D as % of GNP (2000) - linear

Central vs. Total

- Initialize central government health expenditures (GExpHICen) using **SeriesGovtCalcHealthCen%GDP**
- Source: IMF - GFS
- Last Update in IFs: 2013/12/20
- Most Recent Source Update: 05/07/2016
- IFs Coverage: 1989 - 2011
- Year Coverage: 1990-2014
- Country Coverage: 189

- IMF Data Link: [Link](#)
- Source Definition: [Link](#) - See GFSM 2014
- Health - “Government expenditure on health includes expenditure on services provided to individual persons and services provided on a collective basis. Expenditure on individual services is allocated to groups (7071) through (7074); expenditure on collective services is assigned to groups (7075) and (7076). Collective health services are concerned with matters such as formulation and administration of government policy; setting and enforcement of standards for medical and paramedical personnel and for hospitals, clinics, surgeries, etc.; regulation and licensing of providers of health services; and applied research and experimental development into medical and health-related matters. However, overhead expenditure connected with administration or functioning of a group of hospitals, clinics, surgeries, etc. is considered to be individual expenditure and is classified to groups (7071) through (7074) as appropriate”
- Central Government - “The central government subsector consists of the institutional unit(s) of the central government plus those nonmarket NPIs that are controlled by the central government. The political authority of the central government extends over the entire territory of the country. Central government has, therefore, the authority to impose taxes on all resident institutional units and on nonresident units engaged in economic activities within the country. Its political responsibilities include national defense, the maintenance of law and order, and relations with foreign governments. It also seeks to ensure the efficient working of the social and economic system by means of appropriate legislation and/or regulation. It is responsible for providing collective services for the benefit of the community as a whole, and for this purpose incurs expenditure on defense, public administration, etc. In addition, it may incur expenditure on the provision of services, such as education or health, primarily for the benefit of individual households, and it may make transfers to other institutional units, including other levels of government”

- Initialize total government health expenditures (GExpHITot) using **SeriesGovtCalcHealthTot%GDP**

- Source: IMF - GFS
- Last Update in IFs: 2013/12/20
- Most Recent Source Update: 05/07/2016
- IFs Coverage: 1989 - 2011
- Year Coverage: 1990-2014
- Country Coverage: 189
- IMF Data Link: [Link](#)
- Source Definition: [Link](#) - See GFSM 2014

- Initialize central government education expenditures (GExpEdCen) using **SeriesGovtCalcEdCen%GDP**

- Source: IMF - GFS

- Last Update in IFs: 2013/12/20
- Most Recent Source Update: 05/07/2016
- IFs Coverage: 1989 - 2011
- Year Coverage: 1990-2014
- Country Coverage: 189
- IMF Data Link: [Link](#)
- Source Definition: [Link](#) - See GFSM 2014
- Education - "Government expenditure on education includes expenditure on services provided to individual pupils and students and expenditure on services provided on a collective basis. Expenditure on individual services is allocated to groups (7091) through (7096); expenditure on collective services is assigned to groups (7097) and (7098). Collective educational services are concerned with matters such as formulation and administration of government policy; setting and enforcement of standards; regulation, licensing, and supervision of educational establishments; and applied research and experimental development into education affairs and services. However, overhead expenditure connected with administration or functioning of a group of schools, colleges, etc. is considered to be individual expenditure and is classified to groups (7091) through (7096) as appropriate. The breakdown of education is based upon the level categories of the 1997 International Standard Classification of Education (ISCED-97) of the United Nations Educational, Scientific and Cultural Organization (UNESCO). This division includes military schools and colleges where curricula resemble those of civilian institutions, police colleges offering general education in addition to police training, and the provision of education by radio or television broadcasting. Expenditure so incurred is classified to groups (7091) to (7095) as appropriate."
- Initialize total government education expenditures (GExpEdTot) using **SeriesGovtCalcEdTot%GDP**
- Source: IMF - GFS
- Last Update in IFs: 2013/12/20
- Most Recent Source Update: 05/07/2016
- IFs Coverage: 1989 - 2011
- Year Coverage: 1990-2014
- Country Coverage: 189
- IMF Data Link: [Link](#)
- Source Definition: [Link](#) - See GFSM 2014
- **Note:** *These initializations should probably be moved to health and education*

Infrastructure

-- Infrastructure Expenditure : Build up from components calculated in DataInfra: for historical and regular base--

'switch to turn infrastructure finance on and off

- **Note:** default setting of infrastructure finance is on (1) - changing this to off (0) in global parameters (IFs.mdb) means that infrastructure spending is initialized at zero.
- If infrastructure finance is on (default) then sum up new construction and maintenance from all sub-types of infrastructure. Cap at 10% of GDP.

InfraOther

'non-core or 'other' infrastructure as a % of GDP - using function estimated by DSR

- $GExpInfraOther(ICount\%) = 1.8162 + 0.061 * \text{Log}(CGDPPCP(ICount\%))$

Output

- Read everything to GovConsumptionOutput

Cap Infra spending

- Private Function CalcInfraPubSpendCap

'procedure for capping infrastructure fund demand as a % of GDP;

'uses inverted V suggested by BBH

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