Michael Ross
UCLA Department of Political Science
Paasha Mahdavi
Georgetown University, McCourt School of Public Policy
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Codebook for Ross-Mahdavi Oil and Gas Dataset

These data are based on the best available information about the volume and value of oil and natural gas production in all countries from 1932 to 2014. The volume figures are from the documents listed below; to calculate the total value of production, we multiply the volume by the world price for oil or gas. Since these are world prices for a single (benchmark) type of oil/gas, they only approximate the actual price – which varies by country according to the quality, the terms of contracts, the timing of the transactions, and other factors.

These figures do not tell us how much revenues were collected by governments or companies – only the approximate volume and value of production.

Our data are almost complete for all sovereign countries with populations that exceeded 200,000 in the year 2000. We also include data for the following oil or gas producing countries before they became sovereign:

- Algeria (1944-1961)
- Angola (1956-1974)
- Azerbaijan (1985-1990)
- Bahrain (1933-1970)
- Brunei (1932-1983)
- Croatia (1984-1990)
- Czech Republic (1960-1992)
- Gabon (1957-1959)
- Germany pre-unification (1960-1990)
- India (1932-1946)
- Indonesia (1932-1948)
- Kazakhstan (1985-1990)
- Kuwait (1946-1960)
- Kyrgyz Republic (1983-1990)
- Lithuania (1971-1981)
- Malaysia (1932-1956)
- Morocco (1944-1955)
- Myanmar (1934-1947)
- Nigeria (1958-1959)
- Oman (1964-1969)
- Pakistan (1959-1970)
- Qatar (1949-1970)
- Russian Federation (1932-1990)
- Serbia (1992-2005)
- Slovak Republic (1990-1992)
- Slovenia (1978-1990)
- Sudan pre-dissolution (1992-2011)
- Trinidad and Tobago (1932-1961)
- Turkmenistan (1978-1990)

- United Arab Emirates (1969-1970)
- Uzbekistan (1985-1990)
- Yemen pre-unification (1986-1989)

Oil and Gas Production
Data on oil production from 1932 to 1969, and gas production from 1955 (when it first was reported) to 1969, are from the US Geological Survey *Minerals Yearbook,* for various years. Production figures for 1970-2000 are from the World Bank's 'Wealth of Nations' database (http://data.worldbank.org/data-catalog); for 2001-2013, data are drawn from the US Energy Information Administration website for international energy statistics (http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm); for 2014, data for oil production are drawn from the US EIA while data for gas production are drawn from the International Energy Agency's Natural Gas Information 2015 database (http://data.iea.org/ieastore/product.asp?dept_id=101&pf_id=303).

These should be regarded as approximations. The USGS data has been converted from a measure of volume (barrels) to a measure of weight (metric tonnes) using a standard formula, even though the weight of oil varies according to quality. The joining of the three datasets, across 1969-70 and 2000-01, creates an artificial change in some countries, since the two sources disagree slightly. This may be due to whether or not they count products associated with oil production, like 'field condensate.'

Data missing from the original World Bank source has been filled in for the following states:

Bahrain (1970-00)
Brunei (1970-00)
Equatorial Guinea (1994-00) Finland (1986-00)
Ghana (86-00)
Portugal (95-00)
Qatar (70-00)
Sudan (89-00)
Surinam (86-00)

For these cases, we took figures for the quantity of oil production from the US Energy Information Administration; and for Sudan, from the BP Statistical Yearbooks.

Oil and Gas Prices
Data on oil prices are taken from the BP Statistical Review 2015, and on gas prices from the Energy Information Administration database on US natural gas prices from 1932-2012, and from BP for 2013-2014. These two sources – the BP Statistical Review and the EIA – are used for the entire continuous period, 1932-2014. Values are in nominal dollars per million British Thermal Units of natural gas priced at the Henry Hub in Louisiana.

Oil and gas exports
Data on oil and gas exports are taken from the EIA International Energy Statistics for 1984-2013 (oil) and 1990-2013 (gas). Net exports are calculated by subtracting imports, which are also taken from the EIA. Values for oil exports are in thousands of barrels per day, metric tonnes per year, real US dollars (2000) per year (price times net exports), and real dollars per capita. Values for gas exports are in billions of cubic feet per year, millions of barrels of oil equivalent per year, real dollars per year, and real dollars per capita. Values for 2014 are not yet available.

Population
Data on population are taken from the World Bank World Development Indicators ("Population, total") and

for pre-1950 years, from the Andus Maddison database. The lone exception is Taiwan, for which population data are drawn from the CIA World Factbook.

Sovereign

The 'sovereign' dummy is drawn from Cheibub, Gandhi, and Vreeland, supplemented by the CIA World Factbook.

Inflation multipliers

We also include the multipliers used to convert from nominal to constant 2000 and constant 2014 US dollars. These are drawn from the BP Statistical Review 2015.

Country-specific corrections

Brunei

Prior to 1968, Brunei is listed as "Brunei and Sarawak." Our strong impression is that all or almost all of the pre-1968 production nonetheless comes from Brunei.

Czechoslovakia

Values for Czechoslovakia are explicitly provided for sovereign (pre-1993) years. In addition, where available we include oil and gas production data for Czech Republic and Slovak Republic for pre-1993 years from the USGS Minerals Yearbooks.

Estonia

For Estonia, oil production values for 1932-1937 are from the USGS Minerals Yearbooks; data available for oil shale production only.

Ethiopia

We code Ethiopia as two separate sovereign countries: Ethiopia including Eritrea (sovereign pre-1993) and Ethiopia (Eritrea is coded as a separate sovereign unit beginning in 1993 as well). Neither Ethiopia nor Eritrea produced petroleum throughout the entire period in our sample.

France

Prior to 1962, France included French Algeria and is listed in our data as "France including Algeria." Since both units were producing oil in the pre-1962 period, we simply add production figures from Algeria and France. The same is true for gas but only in the 1958-1961 years (Algeria began producing gas in 1958), and we combine these numbers as well. For population data, we rely on Maddison for France for all pre-1962 years, and for Algeria only for 1950-1961. For pre-1950 years, we use estimates for Algerian population from Populstat.info (http://www.populstat.info/Africa/algeriac.htm).

Germany

We include separate sovereign units for the Federal Republic of Germany (West Germany) and the German Democratic Republic (East Germany), which were sovereign for 1949-1990. Production data are drawn from the USGS Minerals Yearbooks and population data are drawn from Statistisches Bundesamt for West Germany and Populstat.info (http://www.populstat.info/Europe/germanec.htm) for East Germany. No export data were available for either country.

Ghana

There is apparently miscoding for Ghana in both the EIA and World Bank data, according to USGS reports. There was apparently no production after 1985 or 1986 until 1996, except for a test hole in 1992. A refinery operated part of the time in the intervening years, which might be the source of the confusion.

We have set production at zero for the years 1987-95.

Pakistan
Prior to 1971, Pakistan included Bangladesh and is listed in our data as "Pakistan including East Pakistan." Only Pakistan (referred to before 1971 as West Pakistan) produced oil in the pre-1971 period. Both countries produced gas prior to 1971 so we use production data for "Pakistan (including Bangladesh)" from the USGS Minerals Yearbooks.

Romania
The World Bank data on Romania before 1986 appears to be in error. We have corrected this by replacing pre-1986 Romania data with EIA data.

South Sudan
Neither the EIA nor BP reports production data for South Sudan (sovereign from July 2011 onwards). As such, we use data from the USGS Minerals Yearbooks. No export data were available for South Sudan separately as the EIA only reports the two countries together as "Sudan and South Sudan." Note that pre-2011, Sudan is referred to as "Sudan including South Sudan" and afterwards as "Sudan" and "South Sudan."

Tajikistan
World Bank figures for Tajikistan's oil production appear to be incorrect; we have replaced them with EIA data, which go back to 1992 only. The natural gas numbers look okay.

USSR/Russia
Values for the USSR are explicitly provided for sovereign years (pre-1991). In addition, we record values for individual republics where the data are available prior to 1991. For example, values for Russia before 1991 are for the Russian Federation (Russian Soviet Federative Socialist Republic) only. For Russia, the data prior to 1985 seem to be erroneous or missing. We've redone the 1932-86 data on oil production, using:

1. up to 1970: Goldman, Marshall. The Enigma of Soviet Oil. 1980
2. after 1970: USGS mineral yearbook

And for natural gas, pre-1987 data were missing, so we took the 1955-86 data from: Stern, Jonathan, *Soviet Natural Gas Development to 1990*, 1980; and USGS mineral yearbook.

For the Russia data, conversion based on conversion rates for liquified natural gas (1 metric ton = 48700 cubic meters LNG). The gas data includes gas formed as byproduct of petroleum production.

Vietnam
The World Bank data on Vietnam before 1986 appears to be in error. We have corrected these by replacing pre-1986 Vietnam oil data with zeros (in accordance with the EIA data). Pre-1976 Vietnam values correspond to both South and North Vietnam (which are included as separate sovereign units for 1945-1975), where USGS Minerals Yearbook reports that there was no oil or gas production in either country for the entire period of sovereignty (1954-1975). Therefore all values are recorded 0. This is also the case for post-independence Vietnam (1945-1954), when there was no production.

Yemen
The World Bank data are in error in reporting oil production in Yemen 1978-85. It reports large quantities of oil production, but according to both USGS and BP, there was little to none in either North or South Yemen (which are included as separate sovereign units for 1968-1989) in these years. We have coded production for these years as zero.

Yugoslavia, Serbia, and Montenegro

Both Yugoslavia and Serbia & Montenegro are included in the dataset despite no longer being sovereign countries in 2015. We include all Former Yugoslavia states as of 2015: Bosnia & Herzegovina, Croatia, Macedonia, Montenegro, Serbia, and Slovenia. We do not include Kosovo as a separate sovereign country.