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November 13, 2017

Approved By
Middle East and Central Asia and Legal Departments

Prepared by Lodewyk Erasmus, Arz El Murr, and Gabriel Presciuttini.

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CONSUMER SUBSIDIES[1]

1. Sudan maintains a number of consumer subsidies which ostensibly are aimed at protecting socially vulnerable groups. These primarily include subsidies on energy (fuel products and electricity) and wheat products.[2] However, there is a large body of international experience showing that subsidies are an inefficient policy instrument to protect lower income groups, particularly since most of their benefits accrue to higher income groups who consume higher percentages of these commodities, and through the diversion of limited public resources away from more productive spending. Subsidies distort the allocation of resources as they support over-consumption of subsidized goods and under-investment in their production. Finally, subsidies can also lead to substantial leakages of scarce public resources to neighboring countries if the subsidies result in prices that are lower than in the neighboring countries and goods are smuggled across borders. In Sudan, there is an additional cost arising from subsidies in that—being provided largely as preferential access to foreign currency at an overvalued exchange rate—they are an important factor underlying the reluctance of the authorities to adopt an appropriate exchange rate regime. At end-August 2017, the premium between the official and parallel exchange rates was 216 percent, and moving to a unified and more flexible exchange rate regime would therefore imply either a substantial increase in the budget cost of subsidies or an increase in the retail prices of these commodities.

2. Consumer subsidies in Sudan are delivered through three main channels:

- Direct budgetary transfers to producers;
- Tax exemptions to producers and consumers of subsidized commodities; and
- Preferential access to an overvalued exchange rate by importers of subsidized commodities.

3. The total cost of subsidies in Sudan is high (Table 1). While the direct budgetary cost of consumer subsidies currently appears to be quite low (-0.9 percent of GDP for energy subsidies, and only 0.3 percent of GDP for wheat subsidies), the total cost is very high.[3,4] The most recent FAD TA mission found that lost fiscal revenues arising from fuel tax exemptions could be as high as 3.8 percent of GDP.[5] Moreover, staff estimates that the fiscal cost of providing access to an

[1] Prepared by Lodewyk Erasmus (MCD).

[2] There are subsidies on pharmaceutical products, but staff have no data on their size or distribution.

[3] Currently net fuel subsidies are negative 1.0 percent of GDP reflecting that domestic fuel prices are higher than the cost of providing oil to the state-owned refinery at the official exchange rate, and the way in which fuel-related public expenditure is recorded in the budget. Specifically, all price adjustments after 2010 are recorded as revenues collected in a stabilization fund while the difference between pre-2011 retail prices and actual cost of fuel products is recorded as a subsidy.

[4] Current limited direct cost of energy subsidies stems from a recent increase in fuel prices in Sudan of on average (40 percent) and the fact that the government had previously not passed to consumers any of the decline in international oil prices over the past two years.

[5] This estimate is likely to have changed in view of movements in international oil prices since then.

overvalued exchange rate for fuel and wheat imports is expected to be close to 5 percent of GDP in 2017.

Table 1. Sudan: Fiscal Cost of Consumer Subsidies (2016–17)

	Direct budget transfers	Tax exemptions	Exchange rate subsidy
		(Percent of GDP)	
Energy products	-0.9	3.8[1]	4.2
Wheat	0.3	n/a	1.0

1/ Based on 2014 estimates.

Sources: Authorities' data and staff estimates.

4. Subsidies are a costly and inefficient policy instrument to protect low income groups (Figure 1).

- Assessments by IMF staff in 2012 and 2014 of the fuel subsidy regime in Sudan found that households in the top income quintile receive 68 percent of the benefits from the subsidization of gasoline prices compared with only 1 percent for households in the bottom income quintile.[6] In the case of electricity subsidies the top quintile receives 58 percent of the benefits compared with only 2 percent for the lowest quintile. On average, households in the top 2 income quintiles receive around 74 percent of the direct benefits of subsidies on fuel products and 66 percent of the estimated indirect benefits.[7] The average monthly benefit for each person in the bottom quintile is only SDG 1, compared for SDG 11 for households in the top quintile. This is consistent with cross country evidence: a recent assessment of the distribution of the benefits arising from consumer subsidies on fuel products in developing countries found that on average the top income quintile received 6 times more benefits from generalized energy subsidies than the bottom quintile.[8]

- To date, no assessment has been made of the distributional impact of wheat subsidies, but anecdotal evidence suggests that they are regressive, as wheat is mostly consumed in urban and relatively higher income areas, with poorer rural areas consuming more sorghum. In addition, Sudan is self-sufficient in sorghum production but wheat production is more limited (and hence

[6] These assessments were based on the 2009 National Baseline Household Survey.

[7] Impact of fuel subsidies on electricity, transportation and food.

[8] This study also found that the concentration of subsidy benefits in the hands of the top income groups is even more pronounced for gasoline and LPG, where the top income quintile receives 27 and 12 times that of the bottom quintile, respectively (Coady, Flamini & Sears: The Unequal Benefits of Fuel Subsidies Revisited: Evidence for Developing Countries, WP/15/250).

the need to import wheat). The low domestic wheat prices caused by the subsidy penalize the producers of wheat and close substitutes such as sorghum. Thus, removing the subsidy could have a beneficial impact on farmers and rural incomes.

- No assessment to date has been done on the distribution of subsidies on pharmaceutical products, but it is likely also to be skewed in favor of the top income quintiles, with specific reference to the urban-rural divide.

5. Removing subsidies on energy and wheat will have an adverse impact on household real income in all segments of the population. Phasing out the subsidies currently provided through access to overvalued foreign exchange will result in an increase in retail prices of at least 216 percent in fuel product prices, subsidized bread prices, and electricity tariffs, and will therefore significantly impact the income of especially those in the lowest income groups.[9] The real income loss from the removal of subsidies on fuel products and electricity was estimated by IMF staff in 2014 at, on average, close to 16 percent if both direct and indirect effects are considered. Mirroring the unequal distribution of the subsidy benefits, the income loss will fall more than proportionally on the richer households. However, for the 20 percent of the households in the lowest income distribution, eliminating fuel subsidies without offsetting measures could still imply an income loss of near 9 percent, which they have no room to absorb.[10] The increase in wheat prices corresponding to the removal of the subsidy will further reduce the incomes of poor households. The ultimate impact of the removal of subsidies will depend however on mitigating measures, including direct support for the poor and phasing/timing of the removal of the subsidies.

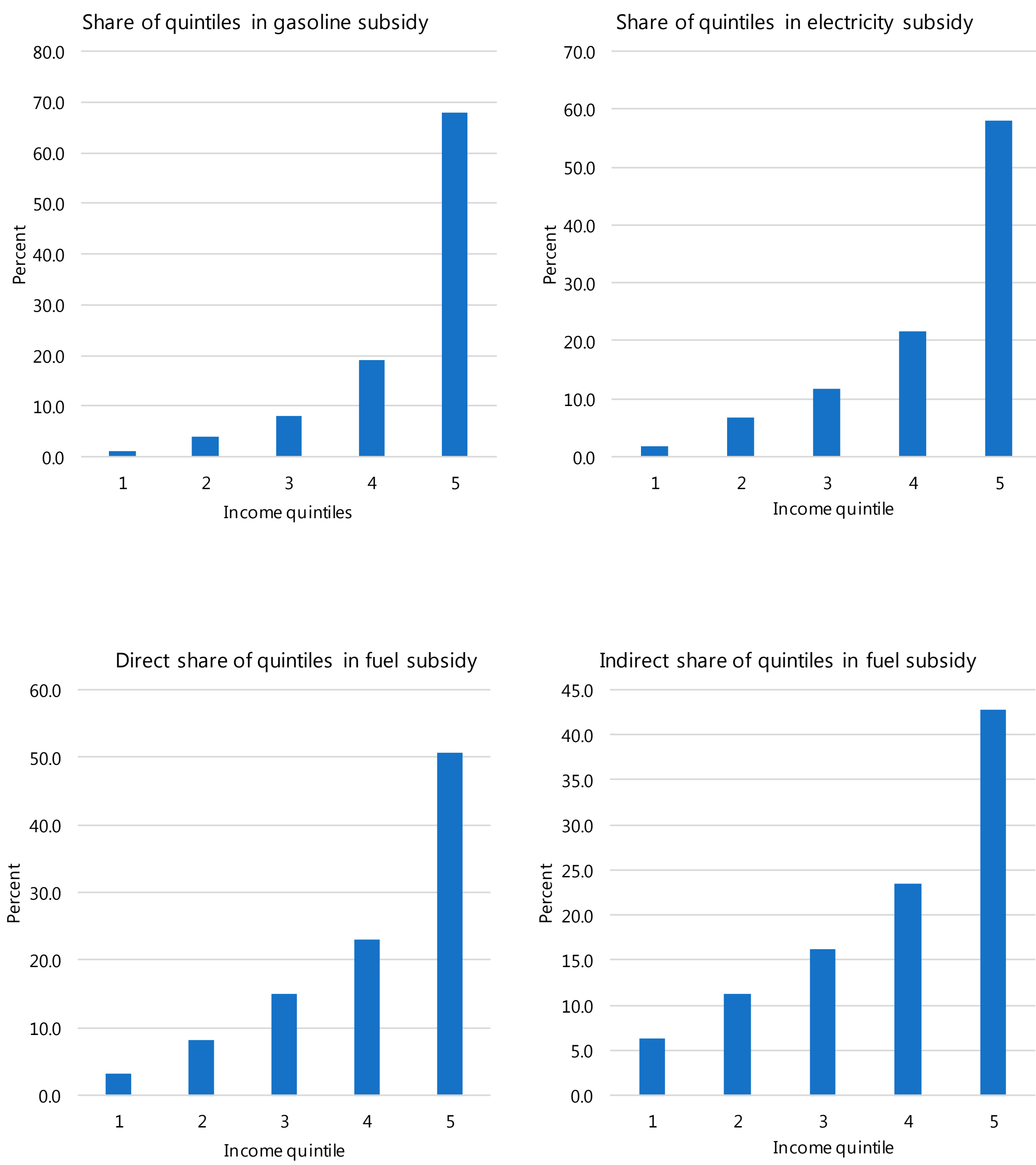
6. Successful subsidy reform will require a comprehensive policy framework. Cross-country evidence suggests six key ingredients for successful subsidy reform.[11] These include an energy sector reform plan, communications strategy, phasing and sequencing of price increases, improving efficiency of state-owned enterprises, targeted mitigating measures, and depoliticizing price setting of so-called strategic commodities.

[9] These increases would be required just to eliminate the subsidy conferred via the overvalued exchange rate used to import these commodities. Further increases would be required to address the subsidies conferred through tax exemptions and special tax rates.

[10] According to the 2009 National Baseline Household Survey, almost 50 percent of the population was below the poverty line.

[11] Energy Subsidy Reform: Lessons and Implications, IMF, 2013.

Figure 1. Sudan: Distribution of Fuel Subsidy by Income Quintile



Source: Reducing Fuel Subsidies and Expanding Social Assistance: The Way Forward, IMF 2012.

7. In Sudan, the public information campaign should be launched as early as possible following a decision to phase out subsidies. This campaign should comprise wide-ranging consultations with all stakeholders, and should inform the public about the high costs and unequal distribution of the subsidy benefits. It should clearly note measures that will be taken to protect lower income groups, as well as the government's intention to allocate a large part of the budgetary savings realized through subsidy reforms to other public expenditures that benefit growth and human capital formation, such as education and health expenditures. To further secure support for this policy, the government should also adopt a rules-based mechanism for setting prices for these strategic commodities. Publishing the key parameters of the pricing formulas for all previously subsidized commodities can help to demonstrate the dependence of domestic retail prices on movements in international prices. Support for automatic pricing mechanisms can also be enhanced by adoption of smoothing mechanisms to avoid sharp adjustment of domestic prices in response to global price shocks. Some countries have experienced reversals of subsidy reforms when international price developments have required substantial adjustments in domestic retail prices. Adoption of such smoothing mechanisms though will imply volatility in government revenue since suppliers will always receive prices reflecting actual import and distribution costs.

8. Cash transfers could be used to mitigate the impact of fuel subsidy removal on the lowest income groups. In the case of the removal of subsidies on fuel products, it is estimated that the cost of compensating the lowest income groups could be achieved at a cost of less than 1 percent of GDP a year. The median loss of consumption would be about SDG 14 per capita per month for the poorest 50 percent of the population, which could be offset at a cost of 0.8 percent of GDP per annum. This amount is significantly less than the estimated positive impact of exchange rate liberalization on budgetary revenues. For the removal of all subsidies, around 2 percent of GDP could be allocated to protect the lowest income groups, through raising the current cash grant and increasing its coverage. Sudan has some experience with social safety net measures: currently 750,000 households receive a monthly cash transfer from the budget of SDG200 per household, while around 1 million households receive support from the Zakat Chamber.[12] Support though will have to be scaled-up significantly as the number of people considered to be poor was estimated at 15.4 million in 2009.[13] The authorities could also complement the direct cash transfer program with introduction of a productive safety net, such as a public works program. Such a program would not only address concerns regarding dependency, but could be structured to support higher economic growth. The authorities could use proxy means testing to help determine eligibility for cash compensation. In the absence of information on the income of individual households, this approach helps to select qualifying households by using more readily-observed indicators such as location and quality of dwelling, demographic structure and ownership of durable goods.

[12] The Zakat Chamber provides support to qualifying households with contributions from Muslim households who have a religious obligation to donate to charitable causes a fortieth of wealth over and above essential needs.

[13] Sudan: National Household Baseline Survey.

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CHALLENGES FACING CORRESPONDENT BANKING WITH SUDAN[1]

- Two decades of economic sanctions led to the exit of most Correspondent Banking Relationships (CBRs) from Sudan, and weighed heavily on trade, investment, growth, and humanitarian relief. In 2017, the United States revoked trade and financial sanctions, while sanctions imposed by the UN, and other countries, including the EU, remain applicable.
- CBRs are likely to be gradually reestablished. Larger domestic banks are likely to attract most CBRs, which may further accentuate concentration.
- Despite the lifting of U.S. sanctions, establishing a new CBR may continue to pose challenges to correspondent banks, including continued U.S. enforcement actions against violations of remaining sanctions.
- Policy efforts should pursue the removal of Sudan from the U.S. state sponsors of terrorism list (SSTL), remaining U.S. sanctions (related to the Darfur region and the measures on trade administered by the Department of Commerce), and sanctions by the UN and other countries.
- The authorities should focus on strengthening the AML/CFT framework, the compliance by respondent banks, communication with correspondents, and facilitate a balanced return of CBRs to preserve competition.

A. The Roll Back of Economic Sanctions against Sudan

1. Since 1997, economic sanctions (see box 1) weighed heavily on CBRs[2] with Sudanese banks. The U.S. imposed sanctions on Sudan that include arms and trade embargoes, a prohibition on the provision of financial services and of transactions related to the oil industry, and the freezing of assets of designated persons. The European Union (EU), the United Nations (UN), and others followed, mostly by imposing an arms embargo and targeting the assets of designated persons. The cost of compliance with these sanctions led U. S. and global financial institutions to stop dealing with Sudanese banks. Central Bank of Sudan (CBOS) data for the period 2012–2015 indicates that 168 correspondent banking relationships have been restricted (e.g., limitation of account activity; exclusion of categories of customers), and 248 have been terminated. A 2012–2016 Financial Stability Board[3] survey covering 150 correspondent banks (See Figure 1) revealed that Sudan is one

[1] Prepared by Arz El Murr (LEG).

[2] Correspondent banking is a bilateral arrangement, often involving a reciprocal cross-border relationship in multiple currencies. A correspondent banking arrangement involves one bank (the correspondent) providing a deposit account or other liability accounts, and related services, to another bank (the respondent), often including its affiliates. The arrangement requires the exchange of messages to settle transactions by crediting and debiting those accounts.

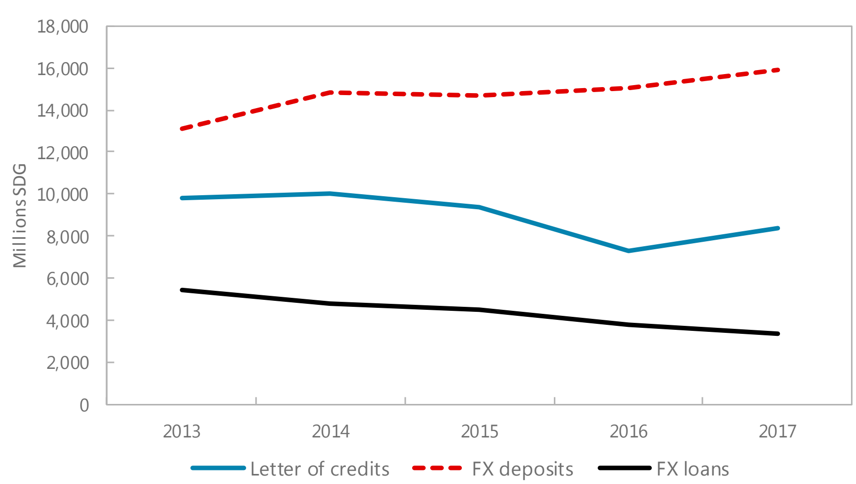
[3] http://www.fsb.org/wp-content/uploads/P040717-4.pdf

of the world's 10 most affected jurisdictions, in terms of the absolute number of complete exits and the number of restrictions

Figure 1. Sudan: Surveys in CBRS (In Percent)		
	2012–2016	2015–2016
Volume (average received-sent)	-26.3	-13.8
Value (average received=sent)	3.6	6.6
Number of CBRs	-39.8	-15.5

2. The enforcement of U.S. sanctions in the private sector affected significantly global transactions in U.S. dollars (USD) with Sudan. Starting 2009, forfeitures and fines imposed on financial institutions operating in the United States for breaching the economic sanctions regime against Sudan multiplied and amounted in hundreds of millions of USD, and continued to increase significantly as with the 2012 HSBC case. However, it was not until the 2014 settlement with BNP Paribas[4] that Sudan began to lose most of its CBRs. Since then, correspondents have generally refused transactions involving Sudan or Sudanese entities or individuals, including those covered by licenses issued by the Office of Foreign Assets Control (OFAC), to avoid potential sanctions. The impact of such decisions on Sudanese economy has been significant (see Figure 2).

Figure 2. Sudan: LCs Positions in Foreign Currency



Source: Central Bank of Sudan.

[4] ($8.833 billion in forfeiture & $140 million in fines).

3. **Sudan was also subject to enhanced monitoring by the Financial Action Task Force (FATF), but managed to address its AML/CFT concerns by October 2015.** In February 2010, the FATF identified Sudan as a jurisdiction with strategic AML/CFT deficiencies. Two years later, Sudan was placed under monitoring due to remaining deficiencies, and agreed with the FATF on an action plan with a timetable to address these deficiencies. IMF technical assistance to Sudan on AML/CFT started in December 2013, and helped in reforming the legal, regulatory, and institutional frameworks. Consequently, Sudan met its commitments to the FATF by end 2015 and is no longer subject to enhanced monitoring. This development prompted foreign governments to encourage Sudan to pursue reforms that can help reconnect its economy with the rest of the world.

Box. 1. Economic Sanctions Against Sudan

The European Union: adopted in 2004 a regulation prohibiting military support. In 2007, a regulation imposed measures against designated persons impeding the peace process and breaking international law in the conflict in the Darfur region (travel ban and freeze of funds and economic resources). In 2011, a regulation prohibited any financing connected to military activities.

The United Nations Security Council (UNSC): In March 2005, the UNSC resolution 1591 imposed travel restrictions, with exemptions, and an asset freeze on designated individuals impeding the peace process in Darfur. A Committee was established to designate targets of the travel restrictions and assets freeze.

The United States: In 1993, Sudan was designated by the U.S. as a state sponsor of terrorism. In November 1997, presidential Executive Order (E.O.) 13067 established a trade embargo and blocked the Government of Sudan's assets. In 2006, E.O. 13400 imposed further sanctions related to persons in connection with the conflict in Sudan's Darfur Region. and E.O. 13412 blocked property of and prohibited transactions with the Government of Sudan. Prohibited transactions generally included the import and export of goods, technology, and services, the extension of credit or loans, and all transactions related to the petroleum and oil industries in Sudan. Anyone who willfully violates, attempts to violate, conspires to violate, or causes a violation of the E.O.s faces criminal fines of up to $1 million and imprisonment of up to 20 years. In conjunction with the E.O.s, the U.S. Treasury's Office of Foreign Assets Control (OFAC) monitors and enforces the economic sanctions against those who are targeted in the E.O.s. In 1998, OFAC issued the Sudanese Sanctions Regulations (SSR) to implement E.O. 13067. The SSR were amended to reflect changes to E.O.s. OFAC publishes a list of individuals and companies called "Specially Designated Nationals" or "SDN". The assets of SDN are blocked and U.S. persons[1/] are generally prohibited from dealing with them. U.S. financial institutions do not process financial transactions related to the trade of non-U.S. persons with SDN.

Other countries: (e.g.: Australia, Canada, the United Kingdom) adopted similar measures, generally including a prohibition on the export of arms, a travel ban and an asset freeze against those designated persons.

1/ Any U.S. citizen, permanent resident alien, entity organized under the laws of the United States. or any jurisdiction within the United States. (including foreign branches), or any person in the United States.

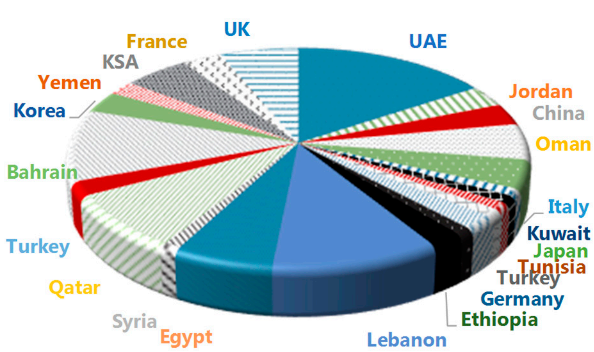
4. **In October 2017, the U.S. revoked its sanctions on trade and financial flows against Sudan following their suspension in early 2017.** The suspension of sanctions in January 2017 generally authorized U.S. persons to transact with individuals and entities in Sudan, and unblocked the property of the Government of Sudan subject to U.S. jurisdiction. U.S. banks were authorized to process transactions in relation to Sudan and finance trade in USD. In October 2017, following a review period, the U.S. revoked E.O.s 13607 and 13412, having assessed continued positive

cooperation with Sudan on internal conflicts, regional stability and humanitarian issues.[5] Therefore, SDN list related to these E.O.s is now revoked, which allows U.S. persons to deal with those designated persons and entities.

5. **Other sanctions imposed by the U.S., the UN, and other countries are still applicable.** Sudan remains on the U.S. SSTL, and subject to the Darfur related sanctions and SDN list under the E.O. 13400. The property and interests in property of persons designated pursuant to E.O. 13400 remain blocked. Moreover, the October revocation does not have effect on other measures[6] against Sudan administered by the Commerce Department's Bureau of Industry and Security. Similarly, sanctions adopted by the UN and other countries remain in effect.

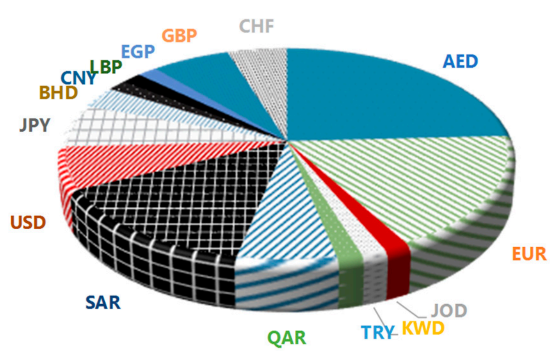
6. **Data are scarce but suggest the existence of a number of CBRs, albeit limited and fragile.** CBOS and commercial banks do not publish information on CBRs, but the Bankers' Almanac provides some data on CBRs reported by Sudanese banks. As of October 2017, 17 out of the 37 Sudanese commercial banks reported having CBRs. A total of 155 CBRs are reported in 15 different currencies (See Figures 3 and 4). More than half of the CBRs are in currencies of GCC countries. Four banks report CBRs in USD however, it is not clear to what extent these are active. None of these USD CBRs are with U.S., EU, or global banks, but involve instead MENA banks and one Ethiopian bank, which is a factor of vulnerability and cost. 11 banks report CBRs in EUR, and some of these with banks headquartered in the Euro area (e.g., France, Italy, Germany, Austria).

Figure 3. Sudan: CBRS by Country



Source: Bankers' Almanac
CBRs as reported by banks as of October 2017

Figure 4. Sudan: CBRS per Currency



Source: Bankers' Almanac
CBRs as reported by banks as of October 2017

[5] https://www.state.gov/r/pa/prs/ps/2017/10/274659.htm

[6] Main prohibitions apply on the export or reexport to Sudan of items destined to military end users or for military end use and certain specified items destined to any end-user.

B. Prospects for Re-connecting Sudanese Banks with the International Financial System

7. Banking relationships between Sudanese banks and foreign correspondents are likely to be gradually reestablished. CBOS officials and commercial banks interviewed by the mission reported that negotiations with correspondent banks started since early 2017; however, they did not report material change to CBRs yet. CBOS officials also indicated that foreign banks have expressed interest for dealing with Sudan again. European and Middle-East banks are reportedly waiting for U.S. banks to begin operating in Sudan before taking action, and expect delays in resuming transactions between 6 to 12 months, despite the lifting of US sanctions, due to the need for compliance reports from the requesting bank.

8. Due to challenges of compliance with regulatory requirements, larger domestic banks are likely to attract new CBRs, which may further accentuate the banking concentration in Sudan. In May 2011, OFAC removed two designated entities from the Sudan SDN list, one of which was the largest bank in Sudan. Since then, this bank has reportedly developed its access to Euro-denominated transactions through relationships with banks in Sweden, Switzerland, Belgium, Turkey, and France, but not yet to USD denominated ones. CBOS officials consider that the near-exclusive access to CBRs by this bank contributed significantly to further enhance its growth and market dominance (In Figure 1, the decreasing number of CBRs coupled with an increasing average value could be interpreted as increasing concentration). From a correspondent banks' perspective, dealing with a large bank would probably be more substantial and lucrative, less costly, and supported by a better risk management and compliance with the AML/CFT requirements. A large domestic bank with a satisfactory ability to understand prevailing risks and identify and review transactions and individuals represents, obviously, a good entry point for foreign correspondents.

9. Even with the lifting of sanctions, establishing a new CBR with a Sudanese bank may continue to pose challenges to a potential correspondent bank. Due to remaining sanctions by the U.S., UN, and other countries, banks engaging in trade with Sudan should still exercise necessary due diligence to ensure that no transactions are connected to the SDN list under the Darfur related sanctions, and comply with other applicable measures outside the scope of the SSR. It was observed that even for transactions where sanctions have been revoked, U.S. financial institutions conducted enhanced and lengthy due diligence, to ensure compliance with the remaining sanctions. Although Sudan is no longer under the FATF's enhanced monitoring, it has been called to improve the effectiveness of its AML/CFT regime, including in the implementation of its mechanism for targeted financial sanctions. Addressing these challenges would mean, for a correspondent bank, enhancing due diligence on CBRs thus increasing the budget for compliance, and expecting no compliance failures from respondent banks.

10. Continued U.S. enforcement actions against banks breaching the remaining sanctions regimes or AML/CFT requirements may discourage some correspondent banks. The risk of civil and criminal sanctions remains significant, discouraging banks from potential exposure to sanctions. Due to compliance costs and challenges, correspondent banks may perceive a low profitability of CBRs in Sudan and have less appetite for them.

C. Possible Remedial Measures for a Balanced Recovery of CBRS in Sudan

11. Efforts that lead to the removal of Sudan from the SSTL, remaining U.S. sanctions, and sanctions by the UN and other countries should be pursued. Banks intending to process transactions in relation to Sudan would incur less compliance costs, time, and risks when no specific or enhanced due diligence is necessary to avoid violations of the various sanctions regimes.

12. The effectiveness of Sudan's AML/CFT framework should be further strengthened to improve compliance with international standards and comfort correspondent banks. Efforts to develop and share the understanding of ML/TF risks by authorities and the private sector should be continued, especially considering the sanctions that are still in place. Using the improved understanding of risks, supervisors should establish a strong regulation and oversight that is supported by effective sanctioning regime, and sharing risk and compliance related information with domestic and foreign stakeholders. The availability of information on beneficial ownership, through a national registry or other mechanisms covered by FATF standards, would assist domestic and correspondent banks in identifying transactions connected to designated persons and in managing risks more generally.

13. Sudanese banks should further develop their AML/CFT compliance programs. Improved understanding of risks and beneficial ownership should be used in managing business relationships with customers. Investment in monitoring systems, especially solutions to filter transactions for SDN, are of primary importance. These investments are to be coupled with the updating of customer due diligence information and the training of staff. When a respondent bank hosts nested relationships benefiting other domestic banks, enhanced due diligence measures are required.

14. Domestic stakeholders should maintain an ongoing communication with correspondent banks. The availability of information on risk to correspondent banks can help them taking informed decisions in relation to the initiation, management or continuation of CBRs with Sudanese banks. Sudanese banks should consider seeking feedback from correspondent banks regarding the sufficiency of compliance measures, and technical assistance if available.

15. Finally, CBOS should continue to monitor the development of CBRs, and help facilitate a balanced return of CBRs to Sudanese banks to maintain competition in the processing of international transactions. Having a concentration of CBRs in Sudan in one or two banks could undermine competition, raise the cost of international financial services, and possibly encourage moving some international transactions to less transparent channels. Supervisors should pay special attention to nested correspondent relationships and expect heightened due diligence measures by respondent banks. Moreover, promoting the implementation of effective AML/CFT programs at smaller scale banks could assist them in obtaining, individually or collectively, direct access to relationships with a foreign correspondent. CBOS can benefit from the IMF's monitoring framework[7] for a practical and ready to implement approach to monitor the development of CBRs in Sudan.

[7] https://www.imf.org/~/media/Files/Publications/WP/2017/wp17216.ashx.

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REVISION OF GDP DATA FOR STAFF ANALYSIS[1]

A. Introduction

1. **Sudan's national accounts have been plagued by significant weaknesses in quality and timeliness.** This has long been pointed out by Technical Assistance (TA) experts.[2] The base year is 1981, based on 1968 SNA methodology and the data are published with a 2-year lag.[3] Moreover, lack of financing and insufficient staff at the CBS complicate the task at hand, slowing the progress in implementation of TA recommendations.

2. **The secession of South Sudan highlighted this challenge by showing the inability of the CBS to properly capture the shock.** The performance of the economy in the period 2011–12 based on official data looks implausible given the size of the shock faced by the economy. Although Sudan lost three-quarters of its oil fields (about 15 percent of GDP), a large portion of its land and an equally significant share of population, the official data shows positive GDP growth rates in both years (3.8 and 0.7 percent, respectively).

3. **Given these problems, staff has for several years constructed its own GDP series using a bottom-up value-added approach from sectoral data.** Sectoral data from the Ministry of Agriculture (crops), Ministry of Animals (livestock), and other official sources was used to come out with GDP figures. However, policy analysis was constrained by the lack of an accurate time series of expenditure-side GDP to facilitate the assessment of the impact of fiscal and monetary policies on economic activity.

4. **With US sanctions now revoked and the authorities intending to embark on significant economic reforms, the need for adequate expenditure side GDP data is pressing**. Thus, staff has conducted a review of the authorities and IMF GDP data, comparing also with other available datasets such as the BOP, fiscal, and monetary data, and prepared a revised series of expenditure side GDP to guide its analysis.

B. Compiling Revised Estimates of Expenditure-Side GDP data

5. **Official data and IMF estimates of nominal and real GDP are broadly in line until 2008.** Thus, the headline GDP for the years up to 2008 was taken to be the official data. However, BOP data appeared more stable and reliable than the official national accounts data for exports and imports, so these were used in place of the original national accounts data for that period. Nominal domestic demand was then estimated using the national accounts identity. Real GDP was then

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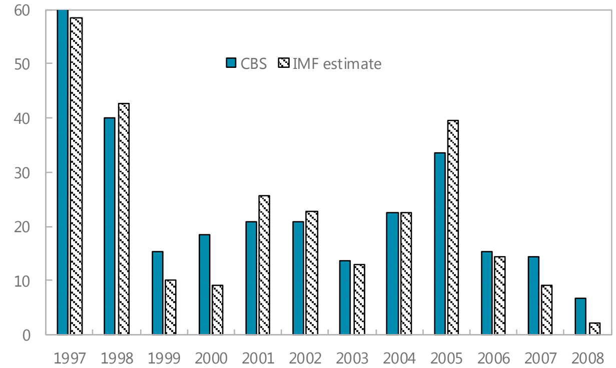
[1] Prepared by Gabriel Presciuttini (MCD).

[2] METAC has provided technical assistance to the Central Bureau of Statistics (CBS) to improve the methodology, accuracy and reliability of Sudan's national accounts. After the 2012 multi-sector statistics mission, several TA missions on national accounts were held in January 2013, August 2014 and November 2015 and April 2017 to assist in implementing the recommendations.

[3] The current actual GDP figures correspond to 2014.

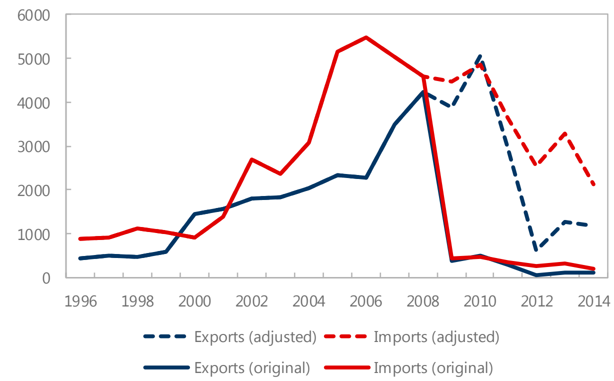
estimated by deflating each of the components of nominal GDP by an appropriate deflator; CPI index for final consumption, export and import price indices, and a simple average of CPI and import prices for investment). As earlier indicated, official and Fund estimates are broadly in line over this period. The average nominal GDP growth for this period was 23.6 percent based on the official data compared to 22.4 percent for the IMF estimate, with no tendency for either series to be higher or lower than the other.

Sudan: Nominal Domestic Demand
growth, in percent



6. However, official data quality for 2009-14 appears particularly weak. For instance, the export and import series from the official national accounts suddenly shrunk in 2009 and remained at very low levels until 2014. Closer inspection of the data suggested a misplaced decimal point as the culprit. Adjusting the placement of the decimal point yields more plausible exports and imports data (dotted lines in chart), but raised other questions about the accuracy of the domestic demand data. Another concern about the quality of the official GDP series was a large revision of the 2013-2014 real GDP growth rates in early 2017. The CBS raised the growth rates from 5.3 and 1.6 percent to 6.8 and 7 percent, respectively, and the reasons for these revisions were not adequately explained by the staff of the CBS.

Sudan: Exports and Imports at Constant Prices
in millions of SDG



7. Thus, the official data for 2009-14 was significantly adjusted, building on data from other sources (notably the BOP) and empirical estimations. To calculate the nominal GDP series, BOP data and proxies that correlate with components of domestic demand (Private and public sector consumption and investment) were used. This was a challenge as there are not many alternative indicators available in Sudan.

8. The following specification was used to estimate private consumption growth:

$$\Delta \text{LOG}(\text{Private\_Cons}_t) = \beta_0 + \beta_1 \Delta \text{LOG}(\text{Agric}_t) + \beta_2 \Delta \text{LOG}(M_t) + \varepsilon_t$$

Agriculture production was used as a proxy for household income as a large share of population depend on this economic activity. In addition, imports are another variable that should be correlated to domestic demand. As expected, estimates show that agriculture production and imports growth are positively correlated with private consumption growth.

Dependent Variable: DLOGPRIV_CONS				
Method: Least Squares				
Date: 08/08/17 Time: 09:20				
Sample (adjusted): 1997 2014				
Included observations: 18 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.06	0.03	1.70	0.11
DLOGAGRIC1	0.64	0.15	4.19	0.00
DLOGM	0.18	0.11	1.72	0.11
R-squared	0.64	Mean dependent var		0.21
Adjusted R-squared	0.59	S.D. dependent var		0.12
S.E. of regression	0.08	Akaike info criterion		-2.11
Sum squared resid	0.09	Schwarz criterion		-1.96
Log likelihood	21.98	Hannan-Quinn criter.		-2.09
F-statistic	13.1	Durbin-Watson stat		1.87
Prob(F-statistic)	0.00			

9. The following specification was used to estimate investment growth:

$$\Delta \text{LOG}(\text{Private\_Inv}_t) = \beta_0 + \beta_1 \Delta \text{LOG}(\text{Credit}_{t-1}) + \beta_2 \Delta \text{LOG}(\text{Oil\_price}_t) + \varepsilon_t$$

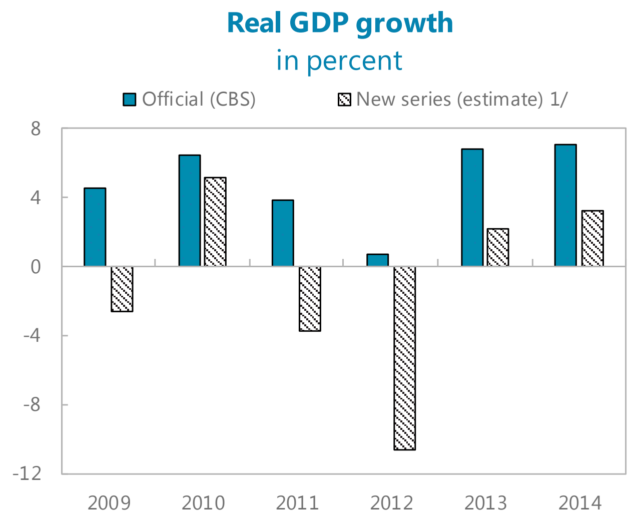
Here the main explanatory variables are credit to the private sector (lag 1 period) and the oil price. Both variables have the correct sign, though only credit to the private sector is statistically significant. However, and owing to the small sample, we should be mindful of the implications for such analysis.

Dependent Variable: DLOGGCF2				
Method: Least Squares				
Date: 08/08/17 Time: 09:45				
Sample (adjusted): 1998 2014				
Included observations: 17 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.08	0.10	-0.85	0.41
DLOGCREDIT(-1)	0.97	0.31	3.16	0.01
DLOGOILPRICE	0.07	0.19	0.36	0.73
R-squared	0.42	Mean dependent var		0.19
Adjusted R-squared	0.34	S.D. dependent var		0.26
S.E. of regression	0.21	Akaike info criterion		-0.15
Sum squared resid	0.60	Schwarz criterion		0.00
Log likelihood	4.24	Hannan-Quinn criter.		-0.13
F-statistic	5.15	Durbin-Watson stat		1.68
Prob(F-statistic)	0.02			

10. Public consumption was calculated as the sum of wages and goods and services from the fiscal accounts.

11. The nominal GDP components were then deflated by their relevant deflators to calculate the real GDP series. The CPI was used to deflate final consumption (private and public), while a simple average of CPI and import prices was used to deflate investment (which uses imported goods).

12. The results show a real growth path that is consistently lower than official data suggests. On average, the official real GDP growth rate for 2009-2014 was 4.9 percent (median 5.5 percent) whereas our estimate shows an average of -1.1 percent (median -0.2 percent).



13. This approach was also used to estimate GDP for 2015-16, in the absence of published official data. Actual BOP data was used for exports and imports, while the estimating equations above were used to estimate the components of nominal domestic demand. Appropriate deflators were then applied to the various components to yield estimates of real GDP.

C. Projections for 2017–22

14. Projecting GDP over this period requires forecasting domestic demand, imports, and exports. The approach taken was as follows:

- Since the bulk of Sudan's exports are in a few large sectors (livestock, oil, and gold) forecasting exports is based on discussions with the key government ministries overseeing these sectors and staff's assessment of the outlook for the external environment.

- However, for domestic demand and imports, forecasting equations are estimated.

15. The following specification was used to estimate growth in domestic demand:

Explanatory variables used were agriculture production, total public expenditures, non-oil fiscal revenues, and credit to the private sector. Given the simultaneity bias between domestic demand and non-oil fiscal revenues, however, a restricted regression was estimated where the coefficient for non-oil fiscal revenue was assumed to be -0.2, broadly in line with the likely size of the fiscal revenue multiplier. Regression results indicate that the restriction is not rejected by the data. All estimated coefficients have the correct sign. Agriculture production is again the most significant variable with the largest coefficient, followed by public spending and credit.

Dependent Variable: DLOGDD_RESTR
Method: Least Squares
Date: 08/10/17 Time: 17:52
Sample (adjusted): 2000 2014
Included observations: 15 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.03	0.08	-0.39	0.70
DLOGAGRIC1	0.82	0.29	2.85	0.02
DLOGG	0.26	0.15	1.69	0.12
DLOGCREDIT	0.24	0.16	1.45	0.17

R-squared	0.48	Mean dependent var	0.21
Adjusted R-squared	0.33	S.D. dependent var	0.11
S.E. of regression	0.09	Akaike info criterion	-1.76
Sum squared resid	0.09	Schwarz criterion	-1.57
Log likelihood	17.23	Hannan-Quinn criter.	-1.77
F-statistic	3.35	Durbin-Watson stat	1.78
Prob(F-statistic)	0.06		

DLOGDD_RESTR= Domestic demand - 0.2*Non-oil revenues

16. **To project imports growth, we use domestic demand, credit to the private sector, nominal exchange rate and exports as explanatory variables**. While some coefficients are not statistically significant, they are of plausible size and sign and help improve the quality of the forecast.

Dependent Variable: DLOGM
Method: Least Squares
Date: 08/10/17 Time: 16:53
Sample: 1998 2014
Included observations: 17

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.13	0.10	-1.29	0.22
DLOGDD	1.18	0.42	2.80	0.02
DLOGCREDIT	0.23	0.24	0.93	0.37
DLOGNER	0.30	0.28	1.05	0.31
DLOGX	0.09	0.11	0.80	0.44

R-squared	0.55	Mean dependent var	0.19
Adjusted R-squared	0.40	S.D. dependent var	0.19
S.E. of regression	0.15	Akaike info criterion	-0.77
Sum squared resid	0.26	Schwarz criterion	-0.52
Log likelihood	11.54	Hannan-Quinn criter.	-0.75
F-statistic	3.62	Durbin-Watson stat	2.25
Prob(F-statistic)	0.04		

D. Conclusion

17. The estimated set of equations are relevant inputs for medium-term growth projection in Sudan. The aim of this note was twofold. First, to reconstruct a real GDP growth series of the Sudanese economy that better represent its actual economic performance. Second, to estimate a medium-term projection of real GDP growth from the aggregate demand side, which is necessary to assess the implication of monetary and fiscal policies on growth. Nevertheless, data quality and availability requires that staff judgement be a critical part of the process of macroeconomic projections.

References

International Monetary Fund, 2014. "Suriname: Selected Issues" (Washington: International Monetary Fund).