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Wheat Subsidies, Wheat Markets and Food Security in Sudan

SCAN ME

Current State and Options for The Future

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This policy note summarizes the key findings from the following four research papers prepared by the International Food Policy Research Institute with financial support by the United States Agency for International Development (USAID):

1. Bottlenecks in Sudan's Wheat Value Chains: Insights from Surveys
2. Evaluating Cereal Market (Dis)Integration in Sudan
3. Distributional Consequences of Wheat Policy in Sudan: A Simulation Model Analysis
4. Political Economy of Wheat Value Chains in Post-Revolution Sudan

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Affordable wheat products are critical for Sudan to achieve political and economic stability

Wheat and bread have played a central role in Sudan throughout the country's post-independence history. Wheat and wheat bread are not only the major food staples of urban households in Sudan, but they are also politically important as evidenced by large-scale protests following changes in the subsidized price of flatbread in recent years. In the past, the causes of high wheat flour prices and bread shortages have been multi-faceted, including foreign exchange shortages that limited wheat imports, low productivity of domestic wheat production, and increases in bread production costs for bakeries. Recognizing the important role that wheat plays, wheat policies in Sudan have tried to meet the multiple objectives of stabilizing wheat prices, providing incentives for domestic production, securing imports, and subsidizing poor consumers through interventions along the wheat value chain, including controls on

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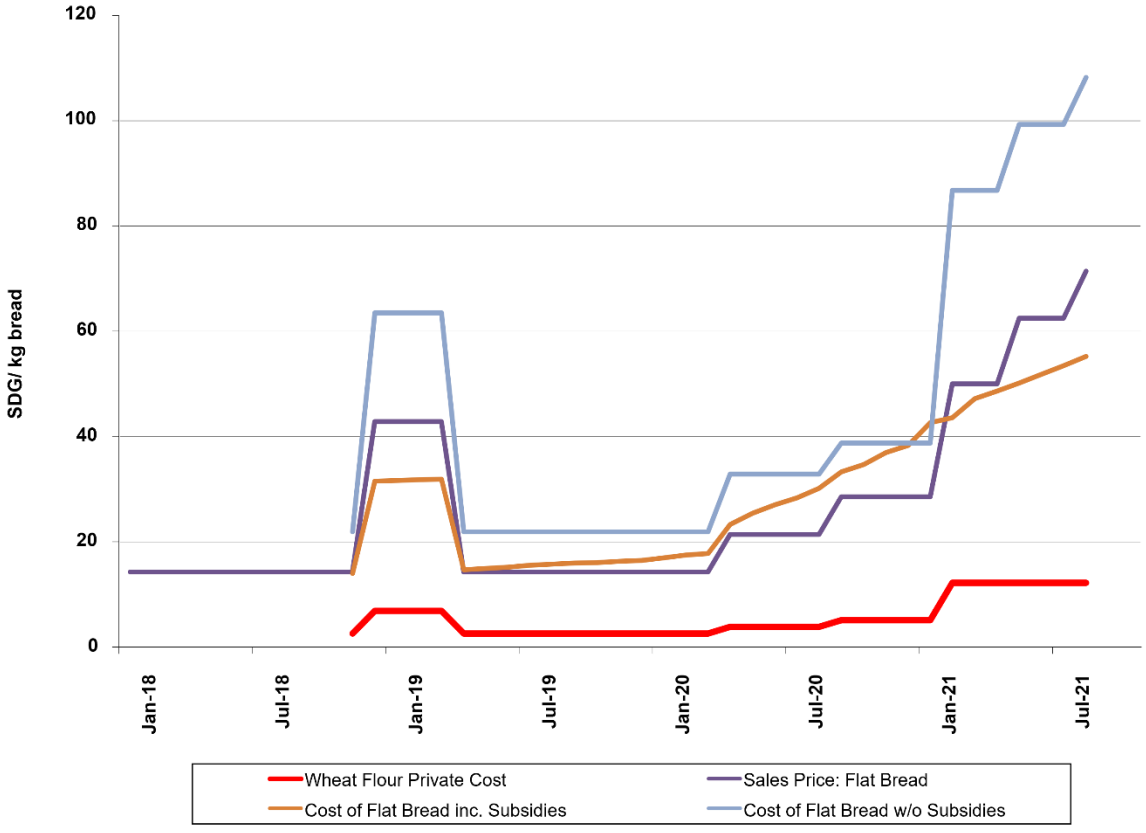
imports and on prices of wheat grain, wheat flour, and flatbread (D'Silva and Elbadawi 1988; Shugeiry 1990; Faki and Taha 2009). These policy objectives continue to be high priorities, and addressing these challenges is perhaps more crucial than ever for Sudan to achieve political and economic stability.

Stabilizing wheat prices and securing imports has become more complicated by challenging macroeconomic conditions

Approximately 85 percent of Sudan's wheat supply has come from imports over the last decade, costing the country about half a billion US dollars a year (FEWS NET 2015; World Bank 2020a). The cost and profitability of wheat imports have fluctuated enormously, however, due to high macro-economic inflation, rapid depreciation of the Sudanese pound, and substantial instability in the real exchange rate. In February 2021, Sudan abandoned its fixed exchange rate regime and unified the official rate with the black market rate, which was 370 SDG to 1 USD at the time (Mohiedeen 2021). This represented a 580 percent devaluation of the currency, fueling concerns about further inflation, which at the time was already more than 300 percent for all consumer goods (Baldo 2021). The full removal of fuel subsidies in June 2021, which preceded Sudan's receipt that month of debt relief from the IMF under the Highly Indebted Poor Country (HIPC) scheme (Radio Dabanga 2021a), further increased production costs for farmers and bakeries for non-subsidized items such as water, yeast, cooking gas, labor, and oil. As a consequence, farmers faced higher input costs, including gasoline for machinery. Many bakeries went out of business as the production costs increased more than the official sales price of flat bread (Figure 1).

Figure 1: Flat bread costs and sales prices in Khartoum, 2018-2021



Source: Dorosh 2021 based on Khartoum Bakers Association data, various news articles and authors' calculations.

Demand for wheat will continue to increase, but wheat growing potential remains limited

Wheat is the second largest source of calories in Sudan (530 calories/person/day), accounting for 20.6 percent of the estimated 2,576 total calories consumed daily. Demand for wheat has grown rapidly in the last 15-20 years, mainly driven by population growth, urbanization and changing consumer preferences for bread and other wheat products. Khartoum is the largest center for wheat consumption, but even rural farm households consume wheat-based food, often selling sorghum and millet to buy wheat.

Domestic wheat production accounts for only about 15 percent of wheat supply in most years. Almost all of Sudan's domestic wheat is irrigated and production is predominantly concentrated in El Gezira state in the Gezira Scheme, the world's largest irrigation scheme encompassing about one million hectares of land (Goelnitz and Al-Saidi 2020). Over time, land intensification, silt accumulation, and increased water use has caused the performance of the El Gezira Scheme to deteriorate. Wheat is cultivated in Sudan in the cooler winter months (planted November-December and then harvested in March). The average national yield is low, around two tons per hectare (MoAF, 2021), and can frequently be lower (ICARDA, 2015). Increasing area cultivated of wheat is possible but would have important trade-offs with other higher-value agricultural goods.

Wheat markets are often not well integrated requiring improvements in institutions and infrastructure

The functioning of markets plays a key role for affordable food prices and food security. However, in Sudan, agricultural markets are often adversely impacted by fragile political and economic circumstances, a weak business environment, and a lack of market infrastructure, institutions, and information (FEWS NET, 2015; IFAD, 2017; Dorosh, 2021; Resnick, 2021).[2] Port Sudan is the country's main entry point for imported wheat and most milling companies have storage facilities there. Imported wheat is typically transported to Khartoum where 80 percent of it is used by large processing firms, while the remaining 20 percent is transported to the other milling firms elsewhere in the country.

Unlike imported wheat, locally produced wheat typically is traded between adjacent markets. However, markets are often not well integrated (prices in different markets do not closely follow one another) and production potential varies significantly among states (Table 1). Improving the functioning and efficiency of markets requires region-specific market interventions and investments. In states with limited spatial market integration, interventions may focus on developing market infrastructure, including connecting markets with major cereal trading centers. These types of investments can also benefit remoter markets such as markets in the Darfur region. In high production potential states, investments to boost wheat productivity can only benefit households residing outside these states if complemented by additional investments to facilitate market sales by wheat producers.

There is scope, however, to increase investments in infrastructure and agriculture. The 2021 fiscal year budget only allocated 10 percent of expenditures toward economic affairs, inclusive of agriculture, industry, and mining (MoFEP 2020). Additional investments in the broader agricultural sector would also

[2] Agricultural markets in Sudan are also characterized by limited marketing opportunities, high transaction costs, and inequities in profit margins across value chain actors, which collectively limit smallholders' bargaining power (IFAD, 2017).

benefit wheat production and wheat markets. This includes irrigation investments as well as in fertilizers, seeds, pesticides, and agricultural extension.

Table 1: Wheat Production Potential and Market Integration in Sudanese states

Production Potential	Market Integration: High	Market Integration: Low/None
High	Damer	Dongola
		Madani
Low	Khartoum	Kadugli
	Kassala	Damazin
	Obeid	El Fasher
	Kosti	Gedarif
	Sennar	Nyala
		Zalingei
		Singa

Source: Abay et al. 2021

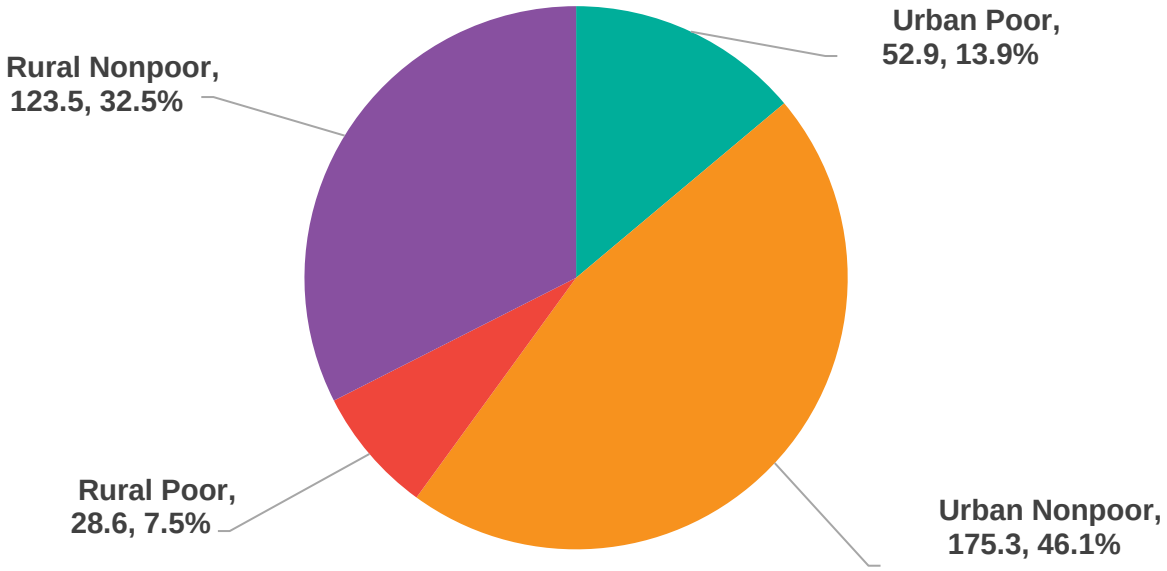
Perceptions as to how to improve the wheat value chain differ among farmers, traders and bakeries

Farmers report that lack of irrigation water and lack of finance were the most pressing and binding constraints that limit their capacity to increase wheat production. On the other hand, wholesalers report that lack of finance (89 percent) and lack of credit (67 percent) were the most binding constraints for them while retailers report that lack of finance (74 percent) and limited farmers' access to additional land (51 percent) were the most binding constraints. Furthermore, our policy preference survey clearly shows important differences in preferences and priorities of various actors in the wheat value chain in Sudan. While those engaged in the domestic value chain (farmers, wholesalers, and retailers) prefer policies and investments that improve domestic wheat production, those operating in the imported value chain (milling companies, flour agents and bakeries) additionally prefer policies that improve the supply chain and regulation of imported wheat. These differences in policy preferences are important and hence should be considered in the design of policies aiming to improve the functioning and efficiency of wheat value chains in Sudan.

Improving the administration and targeting of bread subsidies

Managing the current wheat bread subsidy system requires periodic adjustments in administrative prices and quantities of wheat imports, domestic wheat grain, wheat flour, and flatbread. Moreover, in recent years, substantial macro-inflation has made the task even more difficult, requiring more frequent changes, not only to prices along the wheat value chain, but also to exchange rates. However, as long as there is a fixed administrative price for flatbread, further regular adjustments in the prices along the wheat value chain will be necessary. Greater transparency regarding open market and administratively set prices along the value chain could improve the efficiency of wheat and wheat product markets. In this regard, publishing administrative prices, along with quantities of grain and flour bought and sold would be a major first step. Regulations on wheat flour extraction levels and granulation properties are also important options, in addition to enforcement of consumer protection and competition laws against monopolies. There may also be a need for a more institutionalized monitoring system of wheat flour distribution to prevent smuggling and improve the quality of regulation. In addition, there is scope for improving the targeting of the bread subsidy as over half of the value of wheat subsidies is estimated to be captured by non-poor households (defined as the upper 60 percent of the per capita expenditure distribution). Calculations based on 2009 national household survey data and current 2021 prices and wheat supply show that urban poor households annually receive slightly less from this subsidy than urban

non-poor households (18,900 and 20,800 SDG/capita). Rural poor households receive only 2,700



SDG/capita (Figure 1).

Figure 2: Distribution of flatbread subsidies by household group, 2021 baseline (model estimates)

Source: Dorosh, 2021

Note: The values in the labels are the value of subsidy in SDG billion and the percentage share of the total subsidy received by the household group.

Supporting wheat imports and the food aid dilemma

Model simulations show that increased wheat imports, such as those financed by food aid, add to supplies for processing into wheat flour, flatbread, and other wheat products, resulting in lower prices for consumers and increased consumption, but also disincentives for production. A 300 thousand ton increase in wheat imports, as occurred in early 2021, results in an estimated 8 percent increase in wheat consumption and a 35 percent decline in the market price of non-flatbread wheat products. Hence, production falls by 12 percent. Since flatbread prices are unchanged, wheat consumption of the urban poor, for whom flatbread is the major wheat product consumed, increases by only 4 percent. The arguments in favor of consumers in this classic tradeoff, known as the “food policy dilemma” (Timmer 2010), may be even stronger in the future, however, as water shortages and climate change make cultivation of wheat less profitable than alternative higher-value crops, such as vegetables and fruits.

Gradual shift away from bread subsidies to broader food security and cash transfers

A longer-term effort requires shifting the narrative about wheat and bread. Food security in Sudan long has been equated with wheat sufficiency, discounting the important role of other cereal grains, particularly sorghum, which can be more advantageously cultivated in Sudan’s drylands (World Bank 2015). Just as

changing consumer tastes drove greater demand for wheat bread, marketing and information campaigns may encourage consumption of less-expensive, locally grown alternatives to wheat (Global Panel 2017). In addition, replacing some of the flatbread subsidy with cash transfers[3] and better targeting of the subsidy to needy households is likely to be more efficient in terms of costs and poverty reduction impact.[4] The size of the cash transfer would need to be carefully calibrated and perhaps adjusted frequently, as simulations show that raising flatbread prices by 30 percent without an offsetting cash transfer would sharply reduce wheat consumption and real incomes of the urban poor. The urban poor would experience the largest decline in total consumption of wheat (14 percent) and in total income (11 percent). Reducing the flatbread subsidy without a compensating income transfer would significantly reduce the welfare of the urban poor and likely threaten political stability. In addition, in the current high inflation environment any effective cash transfer program would require regular increases in the size of the cash transfer to offset the effects of inflation.

Addressing data gaps and need for capacity building

Accurate targeting of either cash or in-kind transfer programs would also require updated household survey data – a high priority, not only for understanding wheat markets, but for better informed designs of development and poverty reduction policies and programs. In addition, greater transparency, including publication of quantities and prices of government purchases, sales of wheat and wheat flour, and quantities and prices of subsidized flatbread across the country has the potential to significantly increase the efficiency of the entire wheat sector.

A second major area of intervention involves public sector capacity building to increase the effectiveness of standards agencies to enforce regulations for monitoring of wheat flour quality, ensuring competition in wheat milling, and for the government to effectively manage a cash transfer program. Among other innovations, public sector reform efforts in other African countries have included the creation of delivery units that rely on a mandate from the chief executive to focus on a limited number of priority areas, address obstacles that block progress, and build learning. Concretely, delivery units consisting of small teams of experts located within the Office of the Chief Executive (e.g. president, prime minister, governor) or the Ministry of Finance can help ensure access to high level decision makers, enable the unit to identify bottlenecks and facilitate information flows and incentive structures (Barber, Kihn, and Moffit 2010; Lindquist 2007). In the Sudanese context, creating such a unit that has the buy-in from all parts of the government - and has goals for the agricultural sector that are mutually agreed upon and transparently shared with the public - could create constituencies for reform among a broad swath of actors in the political settlement.

[3] As part of the IMF agreement in 2021, the government introduced the Sudan Family Support Program (Samarat), a cash transfer program designed to serve as a safety net for poor households (FSTS 2021). The program provides transfers to selected families, including coverage of service and banking fees associated with electronic and mobile money mechanisms (World Bank 2020b). The World Bank and the Sudan Transition and Recovery Support Trust Fund (STARS), an umbrella of multiple bilateral donors, are the main funders of the initiative, which has received about $820 million (Radio Dabanga 2021b). Samarat was on hold at the time of writing.

[4] An example of the successful introduction of a cash transfer program is Egypt's Takaful and Karama program (Breisinger et al. 2018) that has shown that food subsidies and cash transfer programs can co-exist as a gradual shift towards cash-based transfers takes place (Breisinger et al. 2021).

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REFERENCES

Abay, K., Abdelfattah, L., Breisinger, C. and K. Siddig. 2021. Evaluating Cereal Market (Dis)Integration in Sudan. Washington, DC: International Food Policy Research Institute (IFPRI), Sudan Strategy Support Program Working Paper (3).

Baldo, Suliman. 2021. *Sudan's Exchange Rate: How to Sustain Progress and Preempt Risks*. Washington, DC. https://thesentry.org/reports/sudans-exchange-rate/

Barber, Michael, Paul Kihn, and Andy Moffit. 2010. *Deliverology 101: A Field Guide for Educational Leaders*. Thousand Oaks: Corwin Press

Breisinger, Clemens; ElDidi, Hagar; El-Enbaby, Hoda; Gilligan, Daniel; Karachiwalla, Naureen; Kassim, Yumna; Kurdi, Sikandra; Jilani, Amir Hamza; and Thai, Giang. 2018. Egypt's Takaful and Karama cash transfer program: Evaluation of program impacts and recommendations. IFPRI Policy Brief October 2018. Washington, D.C.: International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/9780896295964

Breisinger, Clemens; Kassim, Yumna; Kurdi, Sikandra; Randriamamonjy, Josée; and Thurlow, James. 2021. Food subsidies and cash transfers in Egypt: Evaluating general equilibrium benefits and trade-offs. MENA RP Working Paper 34. Washington, DC: International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/p15738coll2.134427

D'Silva, B., and I. Elbadawi. 1988. "Indirect and direct taxation of agriculture in Sudan: The role of government in agricultural surplus extraction", *American Journal of Agricultural Economics,* 70: 431-436.

Dorosh, P., 2021. Distributional consequences of wheat policy in Sudan: A simulation model analysis. Washington, DC: International Food Policy Research Institute (IFPRI), Sudan Strategy Support Program Working Paper (2). Available at: https://doi.org/10.2499/p15738coll2.134867

Faki, H., and A. Taha. 2009. "Sudan." In K. Anderson and W.A. Masters, eds. *Distortions to Agricultural Incentives in Africa*. Washington, D.C.: World Bank.

FSTS (Sudan Federal Food Security Technical Secretariat). 2021. *Annual Crop and Food Supply Assessment Mission for Sudan*. Khartoum, Sudan.

FEWS NET, 2015. SUDAN Staple Food Market Fundamentals. Famine Early Warning Systems Network. Available at: https://fews.net/east-africa/sudan/special-report/june-2015

Global Panel. 2017. Policy Brief *Policy Actions to Support Enhanced Consumer Behaviour for High-Quality Diets*. London, UK.

Goelnitz, Anna, and Mohammad Al-Saidi. 2020. "Too Big to Handle, Too Important to Abandon: Reforming Sudan's Gezira Scheme." *Agricultural Water Management* 241(April): 106396. https://doi.org/10.1016/j.agwat.2020.106396

ICARDA, 2015. Raising Sudan's wheat production | The International Center for Agriculture Research in the Dry Areas (ICARDA). Available at: https://www.icarda.org/media/news/raising-sudans-wheat-production

IFAD, 2017. Republic of the Sudan: Integrated Agricultural and Marketing Development Project (IAMDP) Final project design report. The International Fund for Agricultural Development

Lindquist, Evert. 2007. “Organising for Policy Implementation: The Emergence and Role of Implementation Units in Policy.” In *Improving Implementation: Organisational Change and Project Management*, ed. John Wanna. Canberra, Australia: ANU Press

MoAF, 2021. Unpublished data by the Department of Agricultural Statistics, Ministry of Agriculture and Forests, Khartoum, Sudan

MoFEP (Ministry of Finance and Economic Planning). 2020. *Approved Budget for 2021*. Khartoum, Sudan. https://www.cabri-sbo.org/uploads/bia/Sudan_2021_Approval_External_EnactedBudget_MinFin_CEN-SADCOMESAIGAD_English.pdf

Mohiedeen, Naba. 2021. “Sudan Devalues Currency in Hopes of Righting Economy.” *Voice of America*. https://www.voanews.com/a/africa_sudan-devalues-currency-hopes-righting-economy/6202384.html.

Radio Dabanga 2021a. PM Hamdok Pledges to Address Obstacles to Sudan’s Economic Reforms.” *Radio Dabanga*. https://www.dabangasudan.org/en/all-news/article/hamdok-pledges-to-address-obstacles-to-sudan-s-economic-reforms

Radio Dabanga 2021b. “Additional Funding for Sudan’s Family Support Programme.” *Radio Dabanga*. https://www.dabangasudan.org/en/all-news/article/additional-funding-for-sudan-s-samarat-family-support-programme-1

Resnick, D., 2021. Political Economy of Wheat Value Chains in Post-revolution Sudan. Washington, DC: International Food Policy Research Institute (IFPRI), Sudan Strategy Support Program Working Paper (1). Available at: https://doi.org/10.2499/p15738coll2.134701

Shugeiry, S.A. 1990. *Wheat Subsidies in Sudan: Policy Implications and Fiscal Cost.* Famine and Food Policy Discussion Paper 3, Washington, D.C.: International Food Policy Research Institute

Timmer, C.P. 2010. “Reflections on food crises past”, *Food Policy* 35: 1-11.

World Bank. 2015. *Sudan Country Economic Memorandum: Realizing the Potential for Diversified Development*. Washington, DC

World Bank. 2020.a *Sudan: Agriculture Value Chain Analysis*. Washington, DC.

World Bank. 2020b. *Sudan Family Support Project*. Washington, DC. https://documents1.worldbank.org/curated/en/410701602468022759/pdf/Sudan-Sudan-Family-Support-Project.pdf

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