AFCW3 ECONOMIC UPDATE

ENABLING THE DIGITAL REVOLUTION IN SUB-SAHARAN AFRICA:

What Role for Policy Reforms?

COUNTRY FOCUS: MALI

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FOREWORD

I am glad to introduce the third edition of a series of reports aimed at discussing macroeconomic developments in the Central African Republic, Chad, Guinea, Mali, and Niger. This series intends to foster public debates on key macroeconomic and fiscal policy options in support of poverty reduction. It disseminates the findings of work in progress to encourage the exchange of ideas about development issues. One of the objectives of the series is to appraise regional trends and analysis quickly, even if the presentations are less than fully polished. In short, this new series is a novel vehicle for the Bank to pitch priority policy reforms not yet properly tackled or even debated in those countries. The findings, interpretations, and conclusions expressed in this report are entirely those of World Bank staff and do not necessarily represent the views of the World Bank Group or its affiliated organizations nor those of the Executive Directors of the World Bank or the governments they represent.

The five countries covered in this report share a number of characteristics and are facing similar challenges that justify their being monitored jointly. First, they face critical demographic issues that require immediate action to enable them to experience a population dividend rather than a population burden that might foreshadow interminable political and social conflicts in the future. Second, with the exception of Guinea, these are landlocked, low-income Sahelian economies, heavily reliant on the agricultural sector, their main source of revenue and means of subsistence, with a significant livestock sub-sector based in part on traditional pastoral nomadism. Third, they are economically non-diversified. These five countries rely on natural resources exploitation industries—gold for Mali, uranium and oil for Niger, bauxite for Guinea, diamonds for the Central African Republic, and oil for Chad—that account for a crucial portion of their output, export income, and public revenue. This dependence on the primary sector makes these

economies highly vulnerable to climate-related shocks and to volatility in the price of raw materials. Fourth, each one is struggling to overcome a legacy of political instability and violence, exacerbated by fragile sociopolitical conditions and the severity of regional security issues. Fifth and finally, four of the five countries are members of a monetary union that uses a regional currency tied to the euro and exerts considerable influence on the macroeconomic policies of its Member States.

In terms of the economic outlook, I am especially pleased to report that the news is promising. All of these countries, with the exception of Chad, are looking at positive growth rates of around 4–6 percent in 2017, and with the exception of the Central African Republic and Guinea, at downward-trending inflation rates well below the 3 percent targeted by their regional monetary institutions.

This performance deserves to be underscored since despite their common characteristics and ongoing external shocks, these countries continue to come up against unique structural constraints in terms of development and opportunities for speeding up economic growth, reducing poverty, and sharing prosperity. Because economic diversification is slow and ongoing electoral processes are complex, joint efforts are currently underway to construct new development strategies. In this regard, this report analyzes the status of the "digital revolution," i.e., the rapid penetration of information and communication technologies (ICT) services in these countries. Such services weigh heavily on future growth and poverty reduction prospects. However, complex regulation and heavy taxation by international standards are placing major obstacles on ICT development and the industry's competitiveness in these countries that need to be removed. In addition, our special section entitled "Country Focus" addresses a common regional problem in these agriculture-based economies, namely Mali's low agricultural productivity. Many lessons are learned from its major determinants, and multiple policies to accelerate it are proposed.

Finally, I would like to express my gratitude to our governments and technical and financial partners for their cooperation and multiple joint contributions over the past few months. Their encouragement, inputs, and technical advice have made it possible to create an environment particularly well suited to a rich and regular exchange of views on development policy. I hope that this series will continue making it possible to deepen these discussions and get them out into public space in order to inform citizens and allow them to express their views.

Paola Ridolfi
Acting Director of Operations
Central African Republic, Chad, Guinea, Mali, and Niger

ACRONYMS AND ABBREVIATIONS

ACFPE	Central African Professional Training and Employment Agency *(Agence Centrafricaine pour la Formation Professionnelle et l'Emploi)*
AFCW	Central and West Africa
AFI	Alliance for Financial Inclusion
ANR	National Radiation Protection Agency *(Agence Nationale de Radio-Protection)*
ARPT	Postal and Telecommunications Regulatory Authority *(Autorité de Régulation des Postes et Télécommunications)*
ART	Telecommunications Regulatory Authority *(Autorité de Régulation des Télécommuncations)*
BB	Broadband
BCEAO	Central Bank of West African States *(Banque Centrale des États de l'Afrique de l'Ouest)*
CAR	Central African Republic
CEMAC	Central African Economic and Monetary Community *(Communauté Économique et Monétaire de l'Afrique Centrale)*
CFU	Unique Property Tax *(Contribution Foncière Unique)*
CNSS	National Social Security Fund *(Caisse Nationale de Sécurité Sociale)*
DPO	Development Policy Operation
ECOWAS	Economic Community of West African States
EMI	Electronic Money Institution
FNE	National Environmental Fund *(Fonds National de l'Environnement)*
gbps	Gigabits per Second
GDP	Gross Development Product
GICA	CAR Interprofessional Group *(Groupement Interprofessionnel de Centrafrique)*
GNF	Guinean Franc
GNI	Gross National Income
GNP	Gross National Product
GSM	Global System for Mobiles
GSMA	Global System for Mobile Communication (Groupe Spécial Mobile)
HH	Household
HHI	Herfindahl-Hirschman Index
HS	Harmonized System
ICT	Information and Communication Technology
IP	Internet Protocol
ITU	International Telecommunication Union
kbps	Kilobit per Second
LAAICO	Libyan Arab African Investment Company
M2M	Machine-to-Machine
MAG	Midway Alfa Group

ACRONYMS AND ABBREVIATIONS

mbps	Megabit per Second
MEDD	Ministry of Environment and Sustainable Development *(Ministère de l'Environnement et du Développement Durable)*
MFN	Most-Favored Nation
MPTNT	Ministry of Postal Services, Telecommunications, and New Technologies *(Ministère des Postes, des Télécommunications, et des Nouvelles Technologies)*
MTN	Mobile Telephone Network
OGP	Guinean Advertising Authority *(Office Guinéen de la Publicité)*
OTT	Over-the-Top
PPP	Purchasing Power Parity
R&D	Research and Development
SDG	Sustainable Development Goal
SIM	Subscriber Identxity Module
SMS	Short Message Service
SOGEM	Manantali Energy Management Corporation *(Société de Gestion de l'Énergie de Manantali)*
SSA	Sub-Saharan Africa
TAP	Payroll Tax
TARTEL	Telecommunication Network Access Tax *(Taxe sur l'Accès au Réseau des Télécommunications)*
TATTIE	End-User Incoming International Tax *(Taxe sur la Terminaison du Trafic International Entrant)*
TCT	Telecommunication Tax
ToE	Terms of Reference
TURTEL	Telecommunication Network Usage Tax *(Taxe d'Utilisation des Réseaux de Télécommunication)*
USD	United States Dollar
USF	Universal Service Fund
VAT	Value-Added Tax
VoIP	Voice over Internet Protocol
VSAT	Very Small Aperture Terminal
WAEMU	West African Economic and Monetary Union
WB	World Bank
WDR	World Development Report
WHT	Withholding Tax
WTO	World Trade Organization
XAF	Central African CFA Franc
XOF	CFA Franc
ZTE	Zhongxing Telecommunication Equipment

SPECIAL TOPICS

Addressing the Challenges of ICT Development in Sub-Saharan Africa

A Lagging Reform Agenda for Achieving Affordable Universal Access

By Xavier Decoster, Arthur Foch, Boutheina Guermazi, Charles Hurpy, Marc Lixi, and Michel Rogy[1]

WHY ICT MATTERS FOR DEVELOPMENT

Today's digital developments in Information and Communication Technologies (ICT) requires affordable universal access beyond voice or text messages (short message service – SMS) carried over mobile phones, such as mobile money and the internet at broadband speeds. The World Development Report 2016 on Digital Dividends[2] argues that first-generation supply-side policies for the ICT sector, which aimed at universal access and affordability, have proved highly successful for voice services and selected applications such as mobile payment services using the same 2G platform as the voice service.[3] With the growth of the ICT sector and the development of bandwidth-heavy applications, the policy focus is progressively shifting from solving supply-side challenges (such as how to ensure affordable universal access to networks) to addressing demand-side challenges (such as how to ensure that networks are open

1 This article grew out of a longer technical note entitled "The Challenges of ICT Development in SSA" by the same authors. The authors would like to acknowledge valuable peer reviewing by Tim Kelly and Vandana Chandra.

2 World Bank. 2016. World Development Report 2016: Digital Dividends. Washington, DC: World Bank. doi:10.1596/978-1-4648-0671-1. License: Creative Commons Attribution CC BY 3.0 IGO. Available at: http://www.worldbank.org/en/publication/wdr2016

3 WDR 2016, p. 200.

and safe). This will allow individuals, governments, and enterprises to ta ke full advantage of the digital revolution and reap the Digital Dividend.

Improved access to mobile phone services (voice, text, mobile money and banking, internet) benefits households – and specially the poor – in multiple ways. ICT can improve access to and use of information, thereby reducing search costs, improving coordination between different parties, and increasing market efficiency. This is the most obvious benefit of mobile phones. As mobile phones greatly reduce communication costs, they allow individuals and firms to send and receive information quickly and cheaply. An emerging body of research shows that the reduction in communication costs associated with mobile phones has tangible economic benefits, including improving agricultural and labor market efficiency as well as producer and consumer welfare.[4;5] Another benefit of mobile phones is that increased communication improves productive efficiency by allowing firms and service providers to better manage their supply chains and service delivery. For example, fishermen who can choose where to land their catch are known to first enquire about prices in different markets before deciding where to sell. Mobile phones facilitate services directly or indirectly, including motor-taxi services, which can be requested by people living remotely by simply beeping the driver. Such services can be life-saving, for example when someone urgently needs to be taken to a healthcare facility. ICTs also facilitate communication between social networks and geographic areas in response to shocks. For example, ICT platforms recently played a central role in improving the effectiveness of healthcare institutions and emergency coordination centers fighting Ebola in contaminated countries by improving information flows and electronic payments for emergency response teams as well as the public. In Sierra Leone, the World Bank's social protection team used mobile payments successfully to issue USD 450,000 in payments to 6,000 community workers.

Yet AFCW3[6] countries, home to approximately 69 million people living in environments affected by the challenges of fragility, conflict, and violence (CAR, Chad, Guinea, Mali, Niger) or post-Ebola recovery (Guinea, Mali),[7] still lag behind in terms of affordable universal access to networks. Mobile network penetration in those countries is just 38 percent, compared to 43 percent for Sub Saharan Africa (SSA) and a population coverage of 84 percent compared to 90 percent for SSA, while as few as 5 percent are internet users compared to 22 percent for SSA (Figure 1). Boosting access to ICT networks and services is therefore key to fostering inclusive growth and supporting pro-poor decentralized transfers and social protection.

This article reviews the state of the sector's performance in AFCW3 countries and highlights a lagging reform agenda along with risks of the emergence of a cozy oligopoly market structure, issues related to distressed state-owned operators, ineffective implementation of universal access and service policies and programs, and inappropriate taxation of the sector. The note makes the case for governments to tackle the unfished reform agenda if the sector is to achieve better development outcomes in terms of faster growth, more jobs as well as better services.

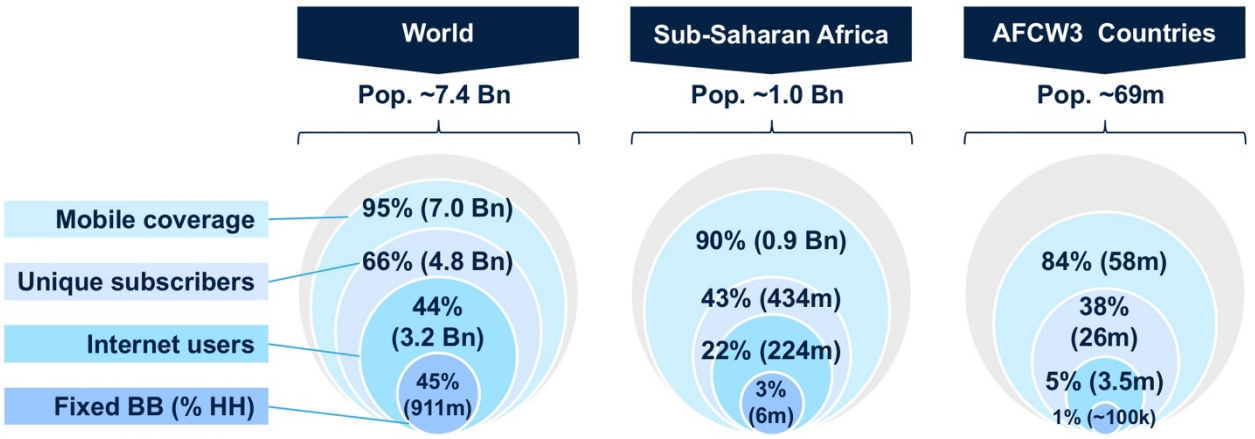
4 Robert T. Jensen. (2007). The Digital Provide: Information (Technology), Market Performance, and Welfare in the South Indian Fisheries Sector. *Quarterly Journal of Economics*, 122(3): 879–924.

5 Jenny C. Aker. (2010). Information from Markets Near and Far: Mobile Phones and Agricultural Markets in Niger. *American Economic Journal: Applied Economics*, 2(3): 46–59.

6 AFCW3 countries are the Central African Republic, Chad, Guinea, Mali, and Niger.

7 The official end of Ebola in Mali was January 18, 2015 and in Guinea December 29, 2015.

Figure 1: Access to ICTs in world, Sub-Saharan Africa, and AFCW3 countries (2016 or most recent data)



Source: WB ICT Practice based on World Development Indicators, International Telecommunications Union, GSMA Intelligence, Telegeography, and national regulatory authorities. *Note: (i) "Mobile coverage" refers to the population covered by a mobile signal; (ii) "Unique subscribers" represents the total number of users who have subscribed to mobile services, excluding Machine-to-Machine (M2M) options. Subscribers differ from connections in that a unique user may have multiple connections; (iii) Fixed broadband (BB) represents the total number of fixed broadband lines as well as penetration as percentage of households (HH).*

AFCW3 COUNTRIES ARE BEHIND IN AFFORDABLE UNIVERSAL ACCESS TO MOBILE NETWORKS

The world is in the third wave of the ICT revolution.[8] However, it has yet to reach most people in AFCW3 countries, where only 64 percent of the population has an active mobile connection compared to 71 percent in SSA and 95 percent worldwide (Table 1). In many low-income countries, the overall growth trajectory can be attributed in part to rapid expansion in affordable cellular services. However, success does not follow simply because people use mobile phones; success follows when users have productive opportunities through their access to telecommunications. This is the first wave of ICT expansion. Arguably, the second wave came with access to financial services through mobile money. Here, what is at stake is not simply traditional communications services but other value-added services also. Today, we are in the midst of the third wave of ICT expansion, with broadband internet allowing for a true digital revolution. Unfortunately, this revolution is yet to reach 56 percent of the world's people, 78 percent in SSA, and 95 percent in AFCW3 countries, who are still offline through lack of broadband connections and therefore outside the digital economy.

8 World Bank Group, Handshake Magazine, Connectivity October 2014.

Table 1: ICT access in AFCW3 countries (2016 or most recent data)

Data	Unit	World	SSA	AFCW3	CAR	Chad	Guinea	Mali	Niger
Population	m	7,347	1,001	69.0	4.9	14.0	12.6	17.6	19.9
GDP/capita	$/capita	10,058	1,587	566	323	776	531	724	359
2G Mobile coverage	% pop.	95%	90%	82%	59%	86%	85%	85%	80%
Uncovered population (2G)	*m*	*367*	*100*	*12.5*	*2.0*	*2.0*	*1.9*	*2.6*	*4.0*
Active connections (all)	% pop.	95%	71%	64%	36%	51%	85%	100%	36%
Active connections (all)	*m*	6,953	*707*	*44.5*	*1.8*	*7.1*	*10.7*	*17.6*	*7.2*
Unique mob. subscribers (all)	% pop.	66%	43%	38%	22%	28%	46%	60%	25%
Unique mob. subscribers (all)	*m*	4,832	*434*	*26.4*	*1.1*	*4.0*	*5.8*	*10.6*	*4.9*
Mobile money accounts	% pop. 15+	2%	12%	6%	0%	6%	1%	12%	4%
Mobile money accounts	*m*	*109*	*66*	*2.0*	-	*0.4*	*0.1*	*1.1*	*0.4*
Internet users	% pop.	44%	22%	5%	5%	3%	5%	10%	2%
Internet users	*m*	3,232	*224*	*3.5*	*0.2*	*0.4*	*0.6*	*1.8*	*0.4*
3G mobile coverage	% pop.	83%	57%	28%	40%	22%	36%	36%	18%
Uncovered population (3G)	*m*	1,285	*432*	*49.4*	*3.0*	*10.9*	*8.0*	*11.2*	*16.2*
Mobile broadband Cx (3G)	% pop.	31%	11%	7%	1%	3%	10%	17%	1%
Mobile broadband Cx (3G)	*m*	2,305	*111*	*4.9*	*0.1*	*0.5*	*1.2*	*2.9*	*0.2*
Fixed broadband	% HH	45%	3%	1%	0.1%	0.1%	0.3%	2.7%	0.5%
Fixed broadband	*m*	*911*	*6*	*0.10*	*0.00*	*0.00*	*0.01*	*0.08*	*0.01*

Source: WB ICT Practice based on: WB World Development Indicators, WB Financial Inclusion Index (2014), International Telecommunications Union, *GSMA Intelligence, Telegeography, Afrobarometer Infrastructure Survey, and national regulatory authorities.* Note: 2G Mobile coverage for SSA extrapolated from ITU data. Weighted average by population for AFCW3 cluster. Mobile money accounts = Respondents aged 15+ personally using a mobile phone to pay bills or to send or receive money in the past 12 months; Fixed BB = Fixed broadband penetration, measured by household penetration (% HH).

Voice and Text

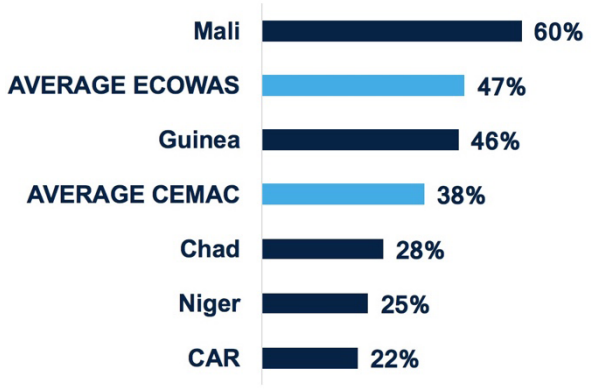
Whereas voice and text are standard ICT services, only 38 percent of the population in AFCW3 countries has access to these compared to 43 percent in SSA and 66 percent worldwide. Contrary to Mali (60 percent) and Guinea (46 percent), market penetration rates (expressed in terms of unique subscribers correcting for the multi SIM card[9] effect) are much lower than sub-regional averages in CAR (22 percent), Chad (28 percent) and Niger (25 percent) (Table 1). Based on their per capita GDP, these three countries should achieve at least a 45 percent penetration rate (Figure 3). In the case of Niger, a 25 percent penetration rate implies that in practice, only 1 Nigerian aged 15+ has access to a mobile network. Recent research by GSMA's Connected Women Program suggests that women in Niger are 45 percent less likely to own a mobile phone than men. The main reason for such low universal access is unlikely to be low geographic coverage of the mobile networks, as it is fairly good at 86 percent in Chad, 85 percent in Guinea.[10] 85 percent in Mali, and 80 percent in Niger (Table 1). Meanwhile, population coverage in lowest in CAR, where it is estimated at 59 percent.[11] Yet achieving full coverage of the population remains a key policy objective in order to prevent the unavailability of telecommunications services from affecting the most vulnerable, poor, and isolated households.

9 A SIM card is a smart card that gives a mobile phone its unique phone number and customer identity. In most African countries, subscribers tend to own several SIM cards as intra-networks ("on-net") calls are cheaper than calls between networks ("off-net").

10 Figure extrapolated from the Afrobarometer Infrastructure Survey (2016). According to ITU, the population coverage is 99%. The national regulatory authority does not provide information on population coverage. However, its 2015 annual report states that all 334 prefectures and sub-prefectures in Guinea are covered by at least one mobile service provider.

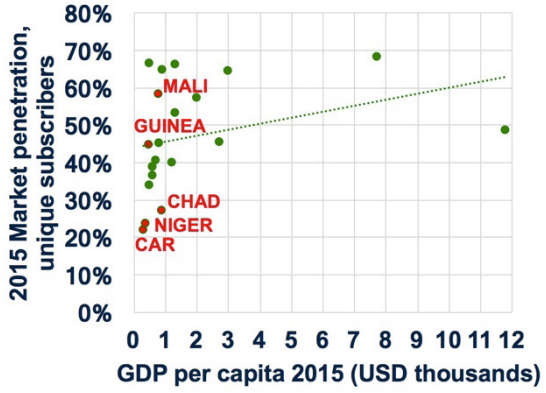
11 2015. Source: Sector Regulator

Figure 2: Mobile Connection penetration rate in AFCW3 countries (unique subscribers, end 2016)



Data source: GSMA Intelligence

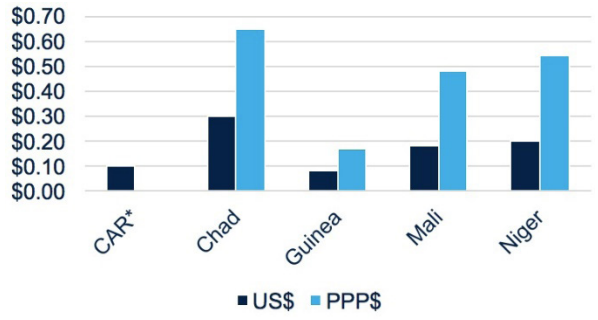
Figure 3: Market penetration rate in relation to per capita GDP in ECOWAS and CEMAC countries 2015 (unique subscribers, end 2015)



Data source: GSMA Intelligence and Telegeography

The main reason for a lack of universal access to mobile phones is affordability. Average monthly mobile services costs as a share of overage monthly Gross National Income (GNI) range between 50 percent in CEMAC and 30 percent in ECOWAS (2014) (Figure 3). However, while mobile voice tariffs in AFCW3 countries seem reasonable in absolute terms when compared to other countries in the sub-region (Figure 4), they are high relative to the purchasing power of the poorest households, especially in CAR and Niger. For an average CAR consumer, a standard basket of mobile services represents over 90 percent of per capita GNI, and almost 50 percent in Niger (Figure 5). Given the low purchasing power of customers, prices have not decreased sufficiently to allow for the large-scale expansion of standard voice and text services, thus further limiting the creation of productive opportunities associated with the use of mobile payments. This becomes apparent when comparing average revenue per user, which is estimated at GNF 24,898 (including VAT; USD 3.30/month) in 2015[12] for 45 percent market penetration in Guinea and at merely XAF 1,200 (including VAT; USD 2.30/month) in 2015[13] for 22 percent market penetration in CAR.

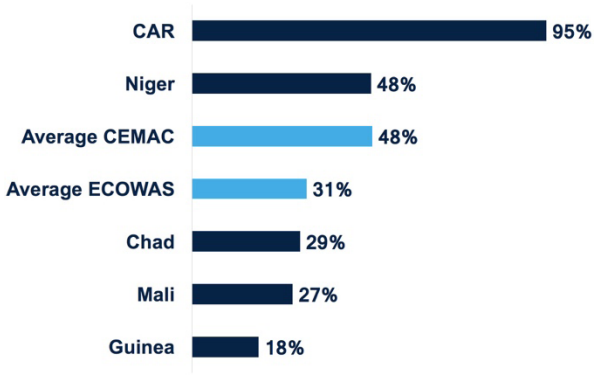
Figure 4: Cost of a local mobile phone call in AFCW3 countries (price of an off-net minute, peak time, USD and purchasing power parity)



Note: (*) PPP$ data not available for CAR

Data source: ITU, Measuring the Information Society, 2016.

Figure 5: Monthly mobile cost as a share of monthly GNI per capita (2014)



Note: Simple averages for CEMAC and ECOWAS cluster limited to countries with available data.

Data source: GSMA, Deloitte, Digital inclusion and mobile sector taxation in Niger, January 2017.

12 2015. Source: Sector Regulator
13 2015. Source: Sector Regulator

Mobile Money

Mobile money services using a mobile phone to transfer money and make payments to the unbanked have been mainstreamed by all large pan-African groups[14] and are therefore available in all AFCW3 countries (1 service in CAR;[15] 2 each in Guinea, Mali, and Chad; 3 in Niger). For Mali and Niger, the West African Economic and Monetary Union's (WAEMU)[16] 2015 instructions[17] established two types of models for the issuance of e-money:[18] (i) the banking model, where e-money issuance is the responsibility of a credit or microfinance institution, whether or not in partnership with a technical operator; and (ii) the non-bank model, implemented within the framework of a non-banking institution, called an Electronic Money Institution (EMI) and approved for issuing e-money. For CAR and Chad, Central African Economic and Monetary Community (CEMAC)[19] regulations stipulate that a mobile partner can only offer a mobile money service in partnership with a bank and that banks can partner with no more than one mobile operator. In Guinea, mobile operators offer mobile banking services by partnering with one or more local or international banks established in the country.

Progress with mobile money services reaching people, especially in rural areas, has been far from uniform in AFCW3 countries. Mobile money services are taking off in Chad and Mali but are still nascent in Niger and Guinea (Figures 6 and 7). In Mali, both active operators Orange Mali and Malitel offer a large array of services including domestic transfers, sub-regional and international transfers, bill and merchant payment, airtime top-up, etc. The particularly rapid uptake of mobile payments in Mali (with 2.7 million users of mobile payment services at the end of 2015) suggests high growth potential, similar in fact to more advanced East African countries such as Kenya or Tanzania, if the potential of mobile money services in public services is to be tapped. The 2015 GSMA report on Mobile Money[20] showcases Mali and Niger as countries where mobile money has been successful in reaching rural areas, including through specific profiles for the agents operating the mobile money's physical cash-in and cash-out points (rural agents tend to be older, with more established businesses and a broader portfolio of products), and through agents offering mobile payments services for all the mobile operators.

14 Orange Group, Maroc Télécom Group, Airtel Group, MTN Group.

15 In CAR, Orange launched its mobile money service in the first half of 2016 in partnership with Ecobank, first in the Bangui area, where 16 percent of the country's population lives. The Central Bank rejected the partnership proposed by Telecel with another commercial bank active in CAR, causing Telecel to search for another commercial Bank acceptable to the Central Bank.

16 Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo.

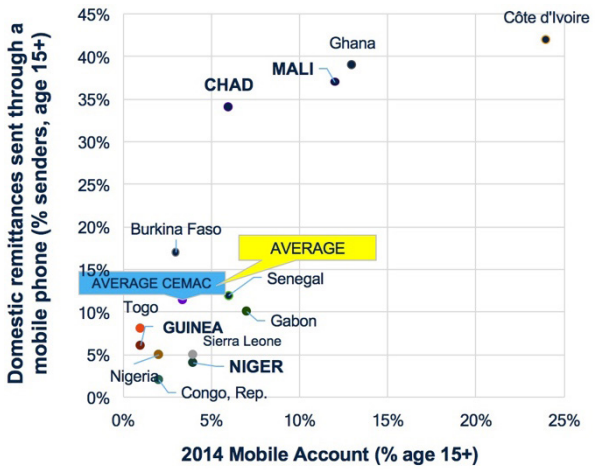
17 BCEAO, Instruction No. 008-05-2015 régissant les conditions et modalités d'exercice des activités des émetteurs de monnaie électronique dans les États Membres de l'Union Monétaire Ouest Africaine (WAEMU).

18 Alliance for Financial Inclusion (AFI), Overview of Digital Financial Services in the West African Economic and Monetary Union, 2016.

19 Gabon, Cameroon, Central African Republic (CAR), Chad, Republic of the Congo, and Equatorial Guinea.

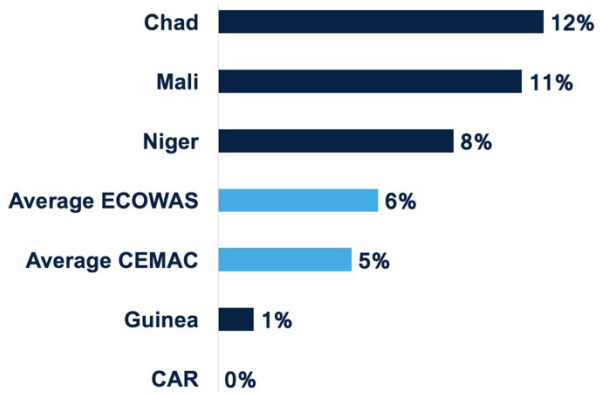
20 GSMA, State of the Industry Report – Mobile Money, February 2016.

Figure 6: Mobile money access and transactions (2014)[21]



Source: World Bank, Financial Inclusion Index, 2015.

Figure 7: Active mobile money accounts as percentage of unique subscribers (2014)



Source: Calculation based on GSMA Intelligence, *WB Financial Inclusion Index and World Development Indicators*

Note: Weighted average by population for ECOWAS and CEMAC cluster.

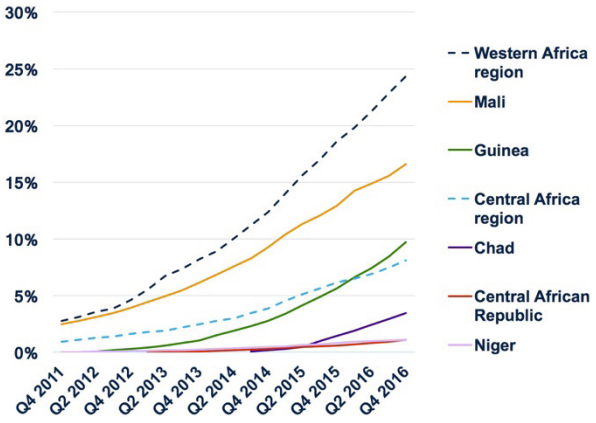
Mobile Broadband Internet

Mobile broadband internet is still in its infancy in AFCW3 countries, with the penetration rate for 3G-enabled SIM[22] cards well below the regional average despite a 3G take off in coastal Guinea and landlocked Mali and Chad (Figure 8). Given current population coverage by 3G networks (18 percent in Niger, 22 percent in CAR, 36 percent in Guinea and Mali, 40 percent in Chad (Table 1), access to broadband services in not offered beyond urban areas. Average international internet bandwidth per user is very low (less than 1kpbs in Chad and CAR, and less than 5kbps in Guinea, Mali, and Niger), reflecting bottlenecks in access to cheap international broadband connectivity, a key component of retail mobile broadband internet prices. Rapid mobile broadband Internet development in Guinea was fueled by a Bank-financed project allowing direct access to the international capacity on the sub-marine cable linking the African Coast to Europe. This led to an enormous increase in international capacity to 9.5 gbps. As a result, internet capacity per user has increased from 5 kbps in 2010 to an average of 86 kbps in 2016 despite a significant increase in the number of users. CAR has no international fiber optic connectivity in place (operators rely on satellite links and microwave installations to access the global internet network). Meanwhile, international capacity is severely controlled in other AFCW3 countries due to the duopoly of existing mobile operators in Mali and a de facto monopoly by state-owned operators in Niger and Chad. Without more significant reductions in retail prices, only limited expansion in broadband internet is likely in AFCW3 countries, further limiting productive opportunities associated with the use of ICT.

21 Domestic remittances sent through a mobile phone: Denotes, among respondents reporting personally giving or sending any of their money in the past 12 months to a relative or friend living in a different area of their country, the percentage who sent it through a mobile phone, using their own account or someone else's. Mobile accounts: respondents personally using a mobile phone to pay bills or to send or receive money in the past 12 months.

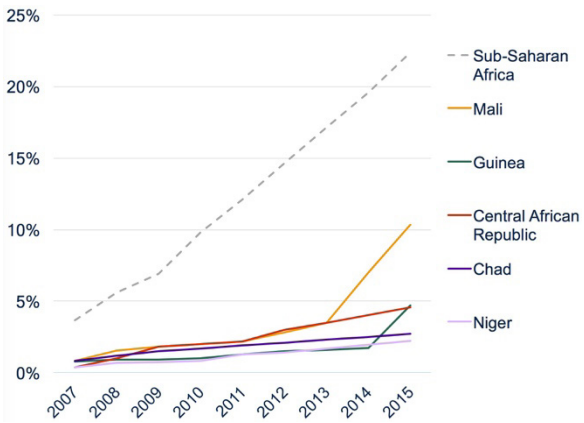
22 Thus far, 4G has been launched only in Chad. This occurred at the end of 2014.

Figure 8: 3G-enabled SIM cards per capita (active and inactive, M2M excluded, 2011-2016)



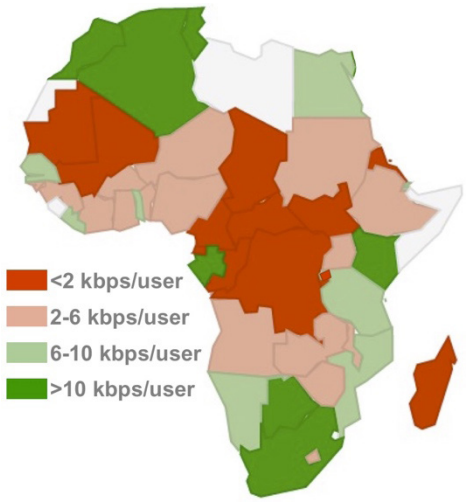
Source: GSMA Intelligence; World Bank World Development Indicators

Figure 9: Internet penetration (2007-2016)



Source: GSMA Intelligence; World Bank World Development Indicators

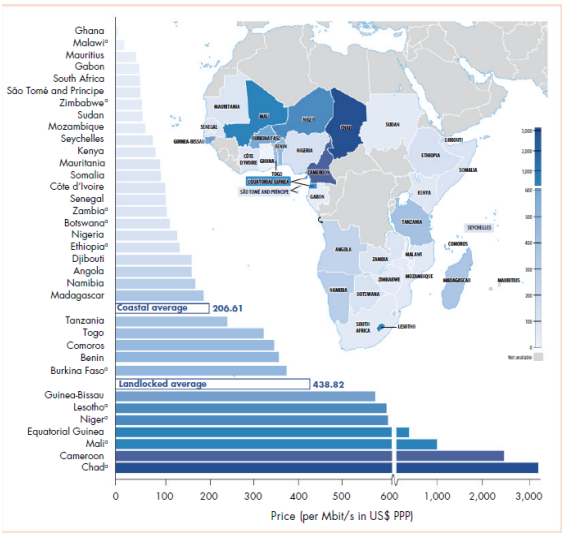
Figure 10: Average international Internet bandwidth per Internet user, Africa (2015)



Note: kbps/user = kilobits per second per internet user

Source: ITU, Measuring ICT Society, 2016; map based on Google spreadsheet visualization

Figure 11: Price per mbps in PPP USD/month for fixed residential broadband service (2014)



Note: mbps = megabits per second; PPP = purchasing power parity; (a) = Indicates landlocked country; gradient indicates higher cost.

Source: *World Bank, World Development Report* 2016.

AFCW3 COUNTRIES URGENTLY NEED TO TACKLE THE LAGGING ICT REFORM AGENDA

All AFCW3 countries have embarked on the first wave of urgently needed supply-side policy reforms to the ICT sector. Independent regulators have been established under the first phase of ICT reforms, which aimed at separating the policy function (which remain with the Minister in charge of ICT), the operations function (transferred to private sector, with the State remaining as a strategic investor in incumbent operators after privatization), and the regulatory function, transferred to sector regulators). Sector regulators should work primarily in the consumer's favor by addressing market failures, fostering effective competition, protecting consumer interests, and increasing access to technology and services.[23] All AFCW3 countries embarked on revamping their legal and regulatory frameworks for telecoms between 2011 and 2015 in order to bring them up to date with technological development, including broadband internet, virtual mobile operators, "over-the-top" (OTT) service providers,[24] and best regulatory practices (technological neutrality). 2G ICT laws covering data protection, e-commerce, and cybersecurity have also been introduced (Table 2).

Table 2: Status of first-generation ICT reforms in AFCW3 countries – legal and regulatory framework

	GUINEA	MALI	NIGER	CHAD	CAR
Independent regulator established (date)	2005 (effective end of 2008)	2000	1999	1998	1996
Latest revision of telecoms law	2015	2011 (Decrees revamping the regulatory framework)	2015	2014	2016 (under discussion in the National Assembly)
Existence of G2 ICT laws	YES	YES	YES	YES	YES

Source: WB ICT Practice

However, poor sector performance as regards affordable universal access to mobile networks is largely explained by a significant lag in reforms and remaining reform priorities around market competition, private participation, effective implementation of universal access and service policies and programs, and appropriate taxation of the ICT sector.

23 Blackman, Colin, and Lara Srivastava. 2011. Telecommunication Regulation Handbook: Tenth Anniversary Edition. Washington, DC: World Bank.

24 OTT is the delivery of audio, video, and other media over the internet without the involvement of a multiple-systems operator in the control or distribution of the content. For telephony, Voice over Internet Protocol (VoIP) services such as Skype or Viber substitute paid voice calls with calls made "free of charge" over the internet. For text, which had been highly profitable for mobile operators, instant messaging OTT services such as WhatsApp or WeChat provide a more attractive substitute at a fraction of the price.

Reversing Decreased Market Competition

Mobile networks need spectrum to transmit voice, text, and mobile payments to the end user. As traffic volume increases due the development of broadband services, fiber optic infrastructure is increasingly becoming the technology of choice in several aspects of the internet connectivity value chain. This applies to international connectivity, i.e., the point where the traffic enters or leaves a country (the "first mile"), and national connectivity, i.e., when the traffic passes through that country (the "middle mile"). However, wireless mobile remains the dominant technology with the new 3G and 4G technologies for reaching the end user (the "last mile"). As frequencies are a scarce resource, best practice for introducing competition has been through competitive bidding for nationwide mobile licenses for over a decade.

As a result of limited frequency, the number of active mobile operators is also limited, ranging from 2 in Mali to 4 in CAR (Table 3). Moreover, based on the Herfindahl-Hirschman Index (HHI), mobile operators in CAR, Guinea, and Niger are relatively more competitive than in Chad and Mali (Figures 12 through 16). However, market structures in all AFCW3 countries are becoming more oligopolistic in nature, with a private duopoly in Mali and Chad, a dominant private operator with a competitive fringe[25] in Guinea and in Niger, and a private duopoly with a competitive fringe in CAR.

Table 3: Status of first-generation ICT reforms in AFCW3 countries – market competition (2016)

	GUINEA	MALI	NIGER	CHAD	CAR
Number of active mobile operators (of which subsidiaries of large pan-African groups) *	4 (2)	2[26] (2)	4 (3)	3 (2)	4 (2)
Mobile market Herfindahl-Hirschman Index (HHI)	3,890	5,450	3,927	4,964	3,332

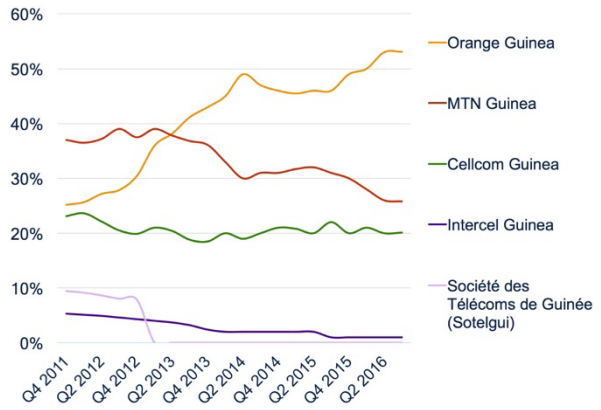
Source: Telegeography, country reports, 2017. Note: The HHI is the sum of the squares of the market shares of all firms in a given market. A score of 0 indicates perfect competition, while 10,000 denotes a complete monopoly. For more on the HHI see European Commission, 2004.[27]
* = Orange Group, Maroc Télécom Group, Airtel Group, MTN Group.

25 The competitive fringe refers to the group of small competitors challenging the dominant firm in a given market.

26 One telecommunications license holder does not yet have an operational network, leaving a de facto duopoly between Sotelma/Malitel and Orange Mali.

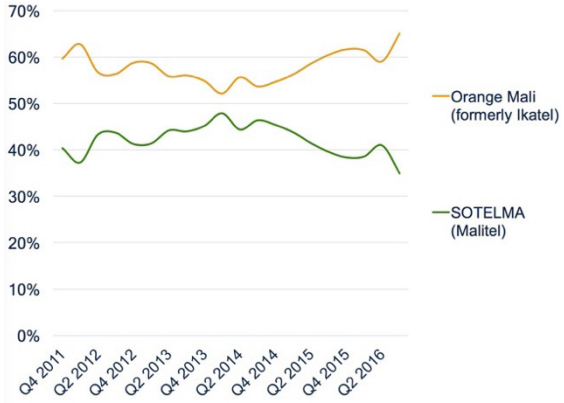
27 European Commission, Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings, 2004/C 31/03

Figure 12: Guinea – wireless market shares in volume (2011–2016)



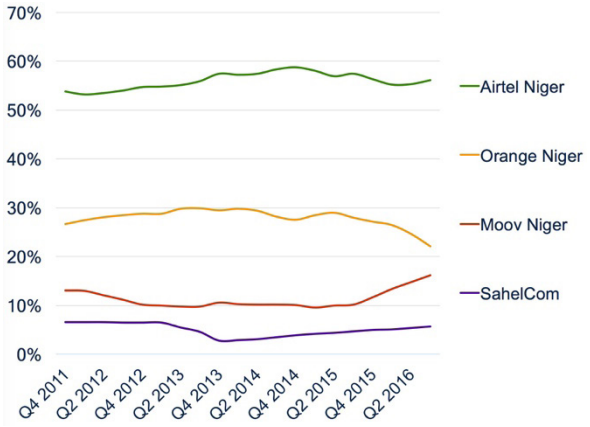
Data source: *Telegeography*, 2016

Figure 13: Mali – wireless market shares in volume (2011–2016)



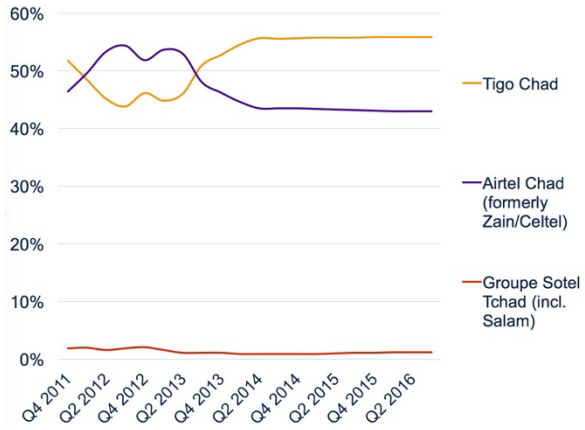
Data source: *Telegeography*, 2016

Figure 14: Niger – wireless market shares in volume (2011–2016)



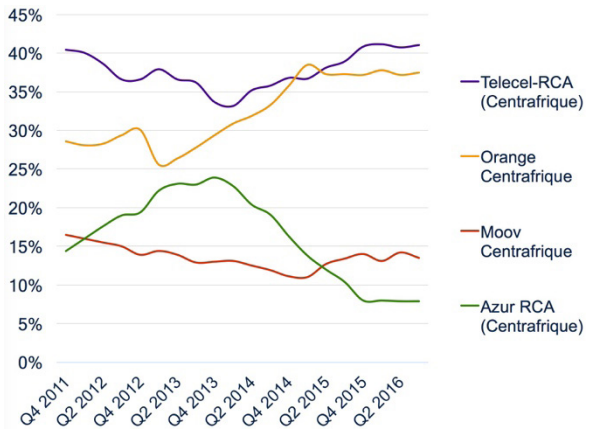
Data source: *Telegeography*, 2016

Figure 15: Chad – wireless market shares in volume (2011–2016)



Data source: *Telegeography*, 2016

Figure 16: CAR – wireless market shares in volume (2011–2016)



Data source: *Telegeography*, 2016

Fostering Private-Sector Participation

Worldwide experience with ICT access offers a consistent lesson, namely that managing and competing with large and fiercely competitive global telecom operators is difficult to sustain without draining the State's Treasury and should be left to the private sector. Among AFCW3 countries, Mali is the only country to have successfully privatized the incumbent operator, Sotelma, in 2009, selling 51 percent of the company's stock to Maroc Télécom for XAF 185 billion. This move provided additional financial and technical resources that helped Sotelma compete with Orange Mali, which entered the market in 2003 with aggressive and successful expansion and marketing plans. Following privatization, Malitel ramped up its investment in coverage and services significantly to eventually close the gap on Orange, though its competitive edge has been deteriorating since 2015.

Like most government-owned incumbents in Africa, government-owned telecom incumbents in AFCW3 countries have been unsuccessful in entering the mobile market and sustaining the level of competition seen from private mobile operators. They are in serious distress and thus constrain the development of the ICT sector.

- **Guinea.** In October 2014, the Government announced plans to revive Sotelgui. However, to date, this has not happened. In January 2017, Guinea's Minister of Telecommunications announced new plans to relaunch the incumbent operator, but this will be very challenging as the mobile market is highly competitive, with 4 operators and a new state-owned entity (SOGEB) with a monopoly on the wholesale market segment and the management of the national backbone still under construction. International capacity is managed by a Public Private Partnership entity (GUILAB).

- **Niger**. In December 2011, the Libyan Arab African Investment Company (LAAICO) and Chinese equipment vendor ZTE formed a joint venture (Dataport) to acquire a 51 percent stake in Sonitel and its wireless arm SahelCom. However, in 2009, the Government renationalized Sonitel from Dataport due to alleged poor management and failure to meet the terms of the privatization agreement. In 2012, the National Assembly decided that Sonitel would remain fully public. For now, SahelCom is unable to compete globally. In its 2014 annual report, the Postal and Telecommunications Regulatory Authority (ARTP) highlighted its view that SahelCom was close to bankruptcy and had failed to repay its debts and other liabilities. At the end of 2016, the Government finalized the merger between Sonitel and SahelCom in a move aimed at streamlining the technical and financial resources of the two companies to make the combined entity more appealing to potential investors.[28]

- **Chad**. Affordable universal access to mobile and internet services has stalled in Chad for the last 7 years because of the Government's lack of a clear vision and political commitment to implement it. The privatization of Sotel Chad led to the launch of its Salam mobile service in 2009 and its TawaLi fixed broadband service in 2010, but with little success. In 2014, Sotel rebranded these services and rolled them into Groupe Sotel Tchad alongside its traditional fixed line telephony business. In 2010, the Government sold a 60 percent stake in SOTEL to a Libyan holding company (GreenN) for USD 90 million. However, due to complications related with the civil war, in Government renationalized Sotel. In 2014 the Government again announced its intention to re-privatize Sotel, but because of political and social resistance linked to employee management and deep suspicion of government intentions, the plan failed. In June 2015, an agreement was finally reached between Sotel, the Telecom Ministry, and Midway Alfa Group (MAG), a Romanian company, to cede control of the administrative, technical, and financial management of Sotel and a share of the company's net earnings for five years in exchange for an investment of USD 50 million in the company. However, employee protests since late 2015 seem to have stalled progress.

- **CAR.** Socatel launched a mobile subsidiary, Centrafrique Télécom Plus, in 1995, but it closed in 2005 due to its small subscriber base and inability to renew its mobile license. The country has only 1,000 fixed telephone subscribers and roughly the same number of fixed broadband subscribers, mostly business consumers. Fixed telephone and fixed broadband services reached about 0.1 percent of households in CAR in 2015, well below the SSA average of 2.2 percent.[29] Socatel is in an advanced state of disrepair as it operates at a huge financial deficit and its infrastructure is severely inadequate for operating the remaining elements of the fixed-line network. Restructuring the operator will be a challenge because it has 190+ employees and a net social debt of about XOF 5.3 billion. The proposed social plan would cost about USD 2 million.

Political leverage and vested interests among unionized employees have led state-owned telecoms operators to stall reform and become a major obstacle to the growth of the ICT sector. The overall negative impact of such decisions on the overall sector is significant (Table 4). Some governments believe

28 Telegeography, Niger, 2017.
29 Telegeography, 2016.

that since incumbents were historically in charge of the provision of fixed telephone infrastructure, they are entitled to provide the fiber optic broadband infrastructure required to develop mobile broadband internet. In Chad and CAR, incumbents still have exclusive rights for fixed telephony. In Niger, a de facto monopoly operates the fiber optic infrastructure for the international and national backbone funded by the Government. In Guinea, a public company (SOGEM) has been established to build and operate a national fiber optic backbone funded by the Government. However, it is unclear whether or how private participation might be envisaged. In Chad, Sotel operates the N'Djamena Moundou fiber optic link that connected it to Cameroon. A new 1,500 km link between N'Djamena and Adré has been funded by the Government and is envisaged to be operated by a public private partnership. Governments have also engaged in policy reversals to alleviate the financial burden of distressed incumbents. In Niger, the incumbent operator was given the exclusive right to operate the international gateway.

Table 4: Status of first-generation ICT reforms in AFCW3 countries – private participation

	GUINEA	MALI	NIGER	CHAD	CAR
Privatization of incumbent operator	NO	YES	NO	NO	NO
Has there been a failed attempted to privatize?	YES	NO	YES	YES	NO
Incumbent fixed operator also active in mobile market	NO	YES	YES	YES	NO
Incumbent operator with exclusive rights	NO	NO	International gateways (de facto fiber optic backbone)	Fixed telephony	Fixed telephony
Current status of incumbent operator	Bankrupt	Relatively competitive: 35% market share in mobile telephony (December 2016)[30]	Uncompetitive: 6% market share in mobile telephony, fewer than 13,000 fixed broadband subscribers (September 2016)[31]	Dysfunctional	Advanced state of disrepair
Number of employees	0 (social plan fully implemented)	n/d	Around 1,200[32]	Around 450	Around 190

Source: WB ICT Practice

Effective Implementation of Universal Access Service Policies and Programs

Mobile network coverage remains out of reach for about 12.5 million people in AFCW3 countries, which represents 18 percent of the total population.[33] However, the situation is far worse for mobile broadband as 72 percent of the population (49.4 million people) is out of reach of a 3G signal.[34] Even where it is

30 TeleGeography
31 TeleGeography
32 Discussion with Nigerian authorities held in September 2016.
33 1.9m in Guinea, 2.6m in Mali, 4.0m in Niger, 2.0m in Chad, and 2.0m in CAR.
34 8.0m in Guinea, 11.2m in Mali, 16.2m in Niger, 10.9m in Chad, and 3.0m in CAR.

technically viable to serve these populations, firms may have little commercial incentive to do so because the costs of reaching them are high as most of them live in rural locations with low population density or in geographically remote areas. However, as the social costs of remaining unserved are high and growing, there is a need to bridge the connectivity gap through universal service policies and programs designed to increase the coverage and penetration of mobile networks.

Due to economies of scale in mobile networks and services, marginal costs in densely populated urban centers tend to be significantly lower than in far-flung rural areas that may also lack key complementary infrastructure such as reliable electricity, which further increases the cost of supply. On the demand side too, urban households are often more attractive customers because they are wealthier than their rural counterparts. For example, 16 percent of CAR's population live in only 0.1 percent of its territory—the capital city, Bangui—and almost 60 percent live in less than 20 percent of its territory. As a result, mobile services are heavily concentrated in Bangui and the small number of cities in the central and western regions of the country. At the end of 2014, the number of sites for each mobile operator ranged from 44 (Azur) to 105 (Telecel), a very low value by international standards given the extent of the territory. Moreover, mobile operators deactivated mobile sites in four localities in 2014 because of difficulties with maintenance and the security situation. There are only about 100 sites in CAR covering an ostensible 59 percent of the population, in comparison with global standards of at least 400 sites needed to achieve a 60 percent population coverage with an acceptable quality of service. Covering over 90 percent of the population would require at least 1,500 sites.

To extend affordable access, over 70 countries around the world have established Universal Service Funds (USF) to channel payments by operators to fund infrastructure in rural areas or to provide access to libraries, schools, and hospitals. Some USFs have performed well, notably those that use competitive mechanisms to distribute funds, such as least-cost subsidies in Pakistan or reverse auctions in rural Chile. If well-managed and transparent, USFs can be powerful tools for providing ICT to under-served communities.[35] However, USFs have not been made operational in any of the AFCW3 countries. While fees have been collected from operators, unspent USFs in AFCW3 countries amount to over USD 100 million (Table 5).

Table 5: Status of first-generation ICT reforms in AFCW3 countries – independent regulation: implementation of Universal Access and Service Funds

	GUINEA	MALI	NIGER	CHAD	CAR
Effective implementation of universal access and service policies	NO	NO	NO	NO	NO
Undisbursed amount in Universal Service Fund	USD 30 million (December 2016)	USD 36.9 million (December 2014)	USD 35 million (September 2016)[36]	Unknown[37]	No fees collected[38]

Source: WB ICT Practice

35 A4AI, 2017 Affordability Report, 2017.

36 Discussion with the Nigerian authorities held in February 2017. This amount is currently available. The fund has an additional USD 52 million in accounts receivable.

37 A fee was introduced in 2014 representing 2.5% of the total sales of wireless operators. However, no information is available on the actual amounts collected or available.

38 The Universal Service Fund is mentioned in the telecom law in CAR, but its operationalization is subject to an implementing decree that has still not been issued as of today.

Appropriate Taxation of the ICT Sector

WDR 2016 on Digital Dividends[39] advised countries to look at the digital economy as a source of growth and jobs and not just of revenue. However, revenues from telecoms, such as customs duties on hardware, auctioning and managing spectrums, and value-added tax (VAT) or sales taxes on services have been one of the fastest growing sources of revenue in many developing countries. While license fees typically cover the value of scarce frequencies (a public good) and are paid to the Treasury, sector-specific taxes and fees are included in the license in order to: (i) cover the costs of the regulatory function, such as numbering administration fees or frequency administration fees; and (ii) contribute to the USF (see above). All AFCW3 countries reflect such standard sector-specific taxes and fees in their legal and regulatory frameworks and in the license obligations of the mobile operators. Furthermore, in recent years, sector-specific taxes and fees have proliferated in AFCW3 countries, particularly in the form of excise and sales taxes (Table 5). In response, there is an urgent need for a coherent and reasoned approach to additional taxes and fees specific to the ICT sector.

Excise taxes are per unit taxes, costing a specific amount for a unit of the specific ICT service purchased.[40] In AFCW3 countries, a multiplicity of excise taxes have been introduced: on domestic retail voice and text services (Guinea), domestic retail internet (Guinea) or domestic revenues (Niger), international incoming wholesale voice service (Guinea, Niger, CAR), and SIM cards (Niger). In 2015, Guinea also introduced TARTEL, a sales tax set at 3 percent of revenues of mobile operators.

Furthermore, all AFCW3 countries levy a 10 percent import tax on computers and mobile phones. In countries where the penetration level is very low, high import tariffs on entry-level phones may constrain the ability of the poorest to access mobile networks. In CAR, entry-level mobile phones cost around XAF 6,900 (about USD 10), which represent 3.7 percent of per capita GDP. In Niger, entry-level mobile phones cost around XOF 7,000 (about USD 10), estimated to be more than 20 days of income for the bottom 20 percent of the population.[41] The affordability threshold for an entry-level mobile phone in countries such as CAR and Niger is generally considered to be not more than XOF-XAF 5,000 (about USD 8).

39 WDR 2016, p. 255.

40 Typical examples of excise taxes are taxes on gasoline, alcohol, or tobacco, as the rationale for the imposition of such excise taxes is often public safety and health, public morals, or environmental protection (consequently, funds collected are often earmarked, as in tobacco tax revenues unding government anti-smoking campaigns).

41 GSMA, Inclusion Numérique et Fiscalité dans le Secteur de la Téléphonie Mobile au Niger, January 2017.

Table 6: Status of first-generation ICT reforms in AFCW3 countries – independent regulation: ICT taxation

	GUINEA	MALI	NIGER	CHAD	CAR
Mobile operators' revenues (share of GDP)	USD 397 million in 2016 (5.9%)	USD 720 million in 2014 (11%)	USD 348 million in 2015 (5%)	USD 297 million in 2015 (2.8%)	USD 46.9 million in 2014 (2.7%)
Overall sector taxation as % of mobile operators' revenues	62%[42]	Not available	40%	48%	37.41%
Sector-specific excise taxes on access to retail services	YES	YES	YES SIM cards	NO	Since 2011, total surtax on domestic wireless services capped at 3.5% for a 5-year period[43]
Sector-specific excise taxes on use of retail services	YES Domestic voice and text Domestic Internet	YES	YES Domestic revenues (access and usage)	NO	
Sector-specific excise taxes on wholesale services	YES Incoming international voice USD 0.12/ min	NO	YES Incoming international voice USD 0.11/min. (XOF 67.5/min)	YES Incoming international voice USD 0.08/min. (XAF 50/min)	YES Incoming international voice USD 0.06/min. (XAF 40/min.)
Sector-specific sales taxes on ICT services	YES (3% of revenues)	NO	YES	YES 7% of revenues (3.5% for regulatory and administrative fees, 2.5% for universal service, 1% for public R&D)	YES (2% of revenues)
Amount of custom duties on entry-level mobile phones[44]	10%	10%	10%	10%	10%

Source: WB ICT Practice based on audit commissioned by the Government (Guinea), information provided by local stakeholders (CAR) and Deloitte study for GSMA (Niger)

- **Guinea.** The overall ICT tax rate in Guinea increased from 21 percent in 2014 to 70 percent of declared gross revenues in 2016.[45] An excise tax on incoming voice traffic has been in place since September 2009. A series of new ICT sector-specific taxes were introduced in 2015: one was TARTEL, a 3 percent tax on the revenues of the mobile operator. The second was a tax on specific domestic retail mobile services (Table 7).[46] In 2016 a new sector-specific tax of 5 percent of the value of internet packages was introduced. In 2015, ARPT collected approximately 3.95 percent of mobile operators' revenues to

42 Ideaconsult, October 2016.

43 There is legal uncertainty as to what will happen in 2017.

44 Most recent data from World Trade Organization (WTO) Tariff Download Facility for Most-Favored Nation (MFN) tariffs for mobile phones (Harmonized System HS 6-digit code: 851712).

45 An excise tax on incoming voice traffic was introduced in September 2009, initially at USD 0.28/min., of which USD 0.03.5 was collected by ARPT, USD 0.07/min. was used to pay the private sector provider of the traffic monitoring system, and USD 0.015/min. was used to contribute to the financing of future broadband infrastructure (submarine cable, fiber optic backbone).

46 TCT: GNF 1 per second of voice communication; GNF 10 per text message.

cover its costs as sector regulator, while this was expected to rise to 7.72 percent in 2016.[47] In addition, taxes are levied by other actors alongside traditional stakeholders such as the Ministry of Economy and Finance, the sector regulator, and local authorities ("rights of ways"). The Guinean Advertising Office (OGP), established in 2015, has introduced a mobile marketing fee applied to bulk SMSs sent by mobile operators to their client bases.

Table 7: Overview of ICT taxation in Guinea (2016)

Tax Name	Tax rate or value	Tax base	Value	% revenues
Total sales			3410	100%
VAT	18% / 20%	Gross sales	664	19.47%
TCT	GNF 1/s.	Traffic	642	15.40%
TCT SMS	GNF 10/SMS	Traffic	30.85	0.90%
TARTEL	3%	Sales	107.4	3.17%
Research & Training	1.5%	Net sales	25.7	0.75%
Contribution Foncière Unique (CFU)	3%	Net sales	38.5	1.13%
Microwave	Scale	Network	115.52	3.39%
USF	2.5%	Network	63.68	1.87%
GSM VSAT	Scale	Network	20.85	0.61%
OGP	-	-	8	0.23%
Total main taxes	-	-	1716.54	46.69%
Taxes on benefits	35%	NET INCOME	491.8	14.42%
Total taxes and duties	-	-	2143.15	62.85%
Regulator fee	-	-	255.07	7.48%

Source: Ideaconsult, October 2016

- **Niger.** Mobile services yielded USD 348 million in revenues in 2015, representing 5 percent of Niger's GDP. Preliminary consolidation of sector taxation made by Deloitte[48] and to be confirmed by the ongoing study commissioned by the Government indicates that in 2015, overall taxation was estimated at 42 percent of mobile operators' revenues. ARPT collected approximately 6.5 percent on revenues to cover its duties as sector regulator (license fees, USF, R&D fund, numbering). A specific tax (called the fixed component of TURTEL) was levied on SIM cards. Among AFCW3 countries, only Niger levies a tax amounting to XOF 250 (USD 0.40) for each new SIM card worth XOF 1,000, thereby increasing the cost of access to mobile networks for new customers. As most of the population with access is wealthier and lives in urban areas, the fixed-component TURTEL tax is an additional barrier to the poor having access to mobile networks. In fact, USD 0.40 is only slightly less than the

47 Ideaconsult, October 2016.

48 GSMA, Deloitte, Digital inclusion and mobile sector taxation in Niger, January 2017.

daily income of the bottom 20 percent of the population (or USD 0.50). The variable component of TURTEL amounts to 3 percent of the domestic revenues of the mobile operators. The effect of the 20 percent (TATTIE) tax imposed on the mobile operator's revenues in 2015 caused a 37 percent drop in international incoming voice traffic (Table 8). If such an excise tax on incoming voice traffic had not been introduced, stable traffic volumes combined with rising incoming traffic prices in the sub-region (caused by African operators increasing their share of the revenues from incoming international traffic) would have brought the same amount of revenues for the Government.

Table 8: Impact of excise tax on international incoming traffic in Niger (2013–2015)

INCOMING INTERNATIONAL TRAFFIC	Unit	2013	2014	2015	2015 (est.) without TATTIE
Traffic volume	Min.	718,559,888	568,670,348	447,289,976	718,559,888
Unit price billed to foreign operators	XOF	78.71	125.00	169.04	150.00
Revenues	XOF	56,557,848,784	71,083,793,500	75,610,643,026	107,783,983,200
Unit cost for Nigerien op. (TATTIE excl.)	XOF	23.00	22.00	21.00	21.00
Average amount of TATTIE	XOF	-	25.00	64.79	-
Net revenues	XOF	40,030,971,360	44,356,287,144	37,236,890,502	92,694,225,552
Income tax	%	30	30	30	30
Income tax (only profitable operators)	XOF	7,882,872,934	9,900,649,886		27,808,267,666
Tax by TATTIE	XOF	-	14,216,758,700	28,980,663,028	-
Total taxes	**XOF**	**7,882,872,934**	**24,117,408,586**	**28,980,663,028**	**27,808,267,666**
Total taxes	**US$ eq.**	**15,765,746**	**48,234,817**	**57,961,326**	**55,616,535**
Incoming international call for the 2 market leaders					
TATTIE: XOF 25/min. (January 1, 2014), XOF 35/min. (January 1, 2015), XOF 67.5/min. (February 1 2015), XOF 88/min. (July 1, 2016)					

Source: WB ICT Practice

- **CAR.** Mobile services yielded USD 46.9 million in revenues in 2014 while fixed-line broadband generated merely USD 3 million,[49] representing 2.7 percent of CAR's GDP. Preliminary consolidation of sector taxation made by the CAR Inter-professional Group (GICA) and to be confirmed by the ongoing study commissioned by the Government indicates that overall taxation is estimated at 37.41 percent of mobile operators' revenues in 2016 (Table 9). Of particular concern are the very high amounts of revenue retained by the Telecommunications Regulatory Authority (ART), the sector regulator, and caused by the introduction of an excise tax on incoming voice traffic as well as the multiplicity of stakeholders raising taxes on mobile operators. ART is currently collecting a very high amount of taxes to perform its duties (17.64 percent of revenues).[50] According to a Ministerial Decree of December 2016, the tax collected by ART was raised to XAF 260/min. (equivalent to USD 0.43), which will impact

49 ART, 2014.

50 According to a convention signed in 2007, a ceiling of 3.5% of revenues was set for levying such duties, including numbering and IP addresses (art. 43, Law 07.020), contribution to universal service/access fund (art. 47, Law 07.020), and frequencies (Art. 5, Ministerial Decree 488/MPTNT).

the taxation level in 2017. ART has canceled its contract with the private sector provider operating the traffic monitoring system and is in the process of selecting a new private sector provider. Taxes in CAR are also levied by several other agencies alongside the traditional stakeholders (Ministry of Economy and Finance, the sector regulator, and local authorities) to monitor alleged radioactivity emissions by mobile networks or negative environmental impacts of electromagnetic waves used by mobile operators to transmit communications. Finally, the 2017 Finance Law introduced a new sales tax of 2 percent of mobile operators' revenues.

Table 9: Overview of ICT taxation in CAR (2015)

Nature of tax	% revenues	Recipient
Parafiscal levies	**22.12**	
Use of public domain		
Regulatory fee	3.5	ART
3G usage award	3.06	ART (50%) / MPTNT (50%)
License (depreciation)	1.94	Public treasury
International traffic	12.64	ART
Others		
Environmental tax	0.07	FNE (60%)/MEDD (40%)
Radioactivity tax	0.55	ANR
Local tax	0.36	Municipality
Taxation	**14.52**	
Direct tax	4.24	Public treasury
Indirect tax	10.28	Public treasury
Social contribution	**0.77**	ACFPE/CNSS
Total	**37.41**	

Source: Groupement Interprofessionnel de Centrafrique (GICA), 2017

TACKLING REFORM PRIORITIES: THREE AXES OF AN AGENDA FOR IMMEDIATE ACTION

The supply side of the mobile network services is conditioned by rules for market competition shaped by the respective roles of the public and private sectors and mediated by the degree to which regulation of the sector is independent of both government and the operators. AFCW3 countries urgently need to address the unfinished agenda of the first wave of ICT sector reforms aimed at achieving affordable universal access to mobile voice and text services as a key enabler in the successful development of mobile money and broadband internet services. Priority reforms should focus on: (i) improving competition ahead of the takeoff of broadband internet markets; (ii) using USF resources to serve the uncovered; and

(iii) implementing a transparent and efficient fiscal policy regime to generate a fair share of revenues for the public authorities under a pro-growth agenda. These reforms are better tackled by Development Policy Operation (DPO) instruments and related technical assistance activities to accompany governments in their reform efforts.

Improving competition ahead of the takeoff of broadband internet markets

The experience of the past decade has shown that competition is the driving force behind accelerated and sustainable telecoms market development. Despite pro-competition policies that have encouraged infrastructure competition away from fixed incumbent operators' monopolies, mobile markets in AFCW3 countries are becoming increasing oligopolistic in nature, with a private duopoly in Mali and Chad, a dominant private operator with a competitive fringe in Guinea and Niger, and a private duopoly with a competitive fringe in CAR. In addition, in all AFCW3 countries except Mali, the incumbent fixed operator is in a distressed situation. Given the limited penetration of broadband internet services, governments should seek to revitalize competition ahead of the takeoff of the third wave of ICT expansion through the following key measures:

- Promoting market entry when the HHI is high by awarding 4G licenses to new market entrants;

- Maintaining or creating a level playing field by: (i) imposing proportionate obligations on incumbent operators for wholesale broadband offers as well as for facility sharing through regulation or provisions in their 4G terms of reference (ToR); and (ii) effective regulatory oversight of such obligations;

- Leveraging excess fiber optic capacity along electricity grids, pipelines, and roads to provide competitors to the incumbent mobile operators with alternative access to the global internet;

- Fostering broadband public private partnerships to roll out infrastructure the private sector alone would not put in place in the near future, either on a stand-alone basis or by engaging voluntarily into some form of infrastructure sharing to reduce investment costs (e.g., through public-private partnerships for international fiber connectivity in the form of a submarine cable landing station) the private sector is unable to finance on its own. In Guinea, a public-private partnership for national fiber optic connectivity to all provincial capitals and borders is helping to create a national backbone designed to support broadband traffic throughout the territory; and

- Dealing with distressed incumbent fixed operators while carefully handling the social dimension of the process by transferring the government-funded infrastructure to the broadband public-private partnerships (international fiber optic capacity, national fiber optic backbone capacity, local loop fiber, ducts and technical sites) and selling off the client base to other operators active in the retail market.

Using universal service fund resources to serve the uncovered

Markets fail where the private sector underinvests because the private return is less than the social return. In AFCW3 countries, there is market failure in the provision of affordable access to ICT services for poor people in remote or rural areas and those with very low purchasing power, who find the cost of mobile phone services prohibitive. However, as the social costs of remaining underserved are high and growing, there is a role for governments to take corrective action to offset this market failure. Universal service funds (USF) established in AFCW3 countries are underutilized, remain unspent, or are used for unintended purposes. Reform to existing universal service or access funds for mobile networks and services should focus on the following key measures:

- Establish and make operational a transparent and accountable governance structure for USFs;
- Ensure quick disbursements from USFs to expand the coverage of mobile networks in rural and remote areas, using competitive mechanisms to distribute funds; and
- Repurpose USFs to focus on accelerating broadband internet penetration.

Implement a transparent and efficient fiscal policy designed to generate a fair share of revenues for the public authorities as part of a pro-growth agenda

The proliferation of taxes makes it increasingly difficult governments to estimate the total fiscal and parafiscal levy on mobile operators. Governments in AFCW3 countries such as Guinea, Niger and CAR have therefore started to commission independent fiscal audits and studies as inputs with a view to striking a more appropriate balance between generating a fair share of fiscal revenues that would facilitate growth of the ICT sector. As most local mobile operators are subsidiaries of large pan-African groups and have thin capitalization, transfer prices may reduce local profits as well as the income tax base. Recent studies conducted by GSMA, the mobile industry lobbying group,[51] claim that: (a) in emerging markets, mobile operators are often the largest tax contributors; (b) mobile operators and consumers are often subject to sector-specific taxes and fees over and above general taxation; (c) taxes and fees on mobile services appear misaligned with best practice tax principles; and (d) economic modeling suggests that mobile tax reductions can support connectivity and fiscal sustainability in the medium term.

51 Between 2011 and 2016, a number of studies of taxation conducted by Deloitte/GSMA presented an in-depth analysis of mobile taxation and the impacts of potential reform on sector specific and macroeconomic variables.

WDR 2016[52] recommends avoiding excessive import and excise taxes in digital emerging economies such as the AFCW3 countries. Reforms of the existing fiscal and parafiscal regimes for mobile networks and services should focus on the following key measures:

- Ensure that independent sector regulation is run on a cost-recovery basis based on the duties to be performed by sector regulator and an audit and benchmarking of the underlying costs and incorporated in a legislative instrument. Among the duties to be performed are verification of traffic data and hence revenues generated by mobile operators. A much-needed robust traffic monitoring system should be procured according to international transparent and competitive bidding processes, and the financing of such a system should not be harmed by an ongoing levy on incoming international traffic;

- Reduce the proliferation of fiscal and parafiscal taxes by numerous stakeholders, and provide transparency regarding the total amount by consolidating all taxes in a single legislative instrument;

- Substitute all excise taxes levied on individual access to and usage of mobile services (voice, text, mobile money, broadband internet) by non-service specific sales taxes collected by the Treasury to avoid distortions in market prices and impact on customer preferences; and

- Lower import tariffs on mobile phones in countries with low mobile penetration to boost access to mobile networks for the poorest.

From a region-specific perspective, the findings that mobile phones influence inclusive development imply that SSA governments should put mobile phones at the heart of policy making in respect of issues such as the alleviation of poverty, women's empowerment, and bridging the gap between rural poor and urban rich.[53] However, sector reforms in a fast growing and highly transformative ICT sector are not always easy, and a deep understanding of political and economic considerations is required if governments are to design reform packages that can deliver tangible, significant, and lasting results as regards affordable universal access to mobile voice, texting, and mobile payment services.

While AFCW3 countries are in urgent need of remaining focused on completing first-generation reforms, they also need to start thinking about other reforms needed to move to the next level of digital development while aiming at affordable universal access to a safe broadband internet. The recently approved Sustainable Development Goals (SDG) underscore the need to ensure affordable universal access to the internet in low income countries by 2020. Thus, to successfully develop their digital economies by enabling digital technologies, including digital identity and mobile banking, as well as cross-sector synergies with ICTs, including e-Agriculture, e-Education, e-Health, and e-Government, AFCW3 countries must embark on a journey of continual learning and evolution.

52 WDR 2016, p. 210.

53 Asongu et al., Mobile Phone Innovation and Inclusive Human Development: Evidence from Sub-Saharan Africa, MPRA Paper No. 75046, March 2016.

Mali: Conditions for Reaching Full Potential in Dryland Agriculture

By Joanne Gaskell, Mansur Ahmed and Madhur Gautam[54]

BACKGROUND

Mali's agriculture-focused development strategy offers valuable lessons for other African countries, particularly those that are seeking to diversify their economies in the wake of falling commodity prices. Mali pursues an agriculture-led growth strategy that appears to have paid off. Between 1994 and 2009, reported agricultural GDP growth exceeded 10 percent per year. Accelerating agricultural productivity growth remains key to stimulating rural demand, creating jobs, adapting to climate change, and ending poverty in Mali.

54 This article grew out of World Bank Report No. P156684. The authors acknowledge valuable comments from peer reviewers Vandana Chandra, Johannes Hoogeveen, Christopher L. Delgado, Krista Isaacs, Michael Morris, and Renganaden Soopramanien.

Mali's agriculture sector has been a powerful driver of economic growth and poverty reduction. However, recent trends suggest that the sector may be running out of steam. Between 1994 and 2009, as the total factor productivity (TFP) growth rate in the agriculture sector[55] was 2.2 percent per year, Mali's poverty rate declined from 85 percent to 49 percent. The increase in agricultural productivity growth was impressive, being high relative to neighboring Sahel countries and on par with India's. However, since 2010, growth in agricultural inputs has exceeded growth in agricultural output, leading to a slowdown in productivity growth. This article argues that there is scope for reversing this premature slow-down in agricultural productivity growth by reallocating agricultural inputs more efficiently and promoting the use of improved technologies.

Strategies aiming at reviving agricultural productivity growth in Mali need to be sensitive to differences in livelihoods across geographic and target areas with high concentrations of poverty. One third of Mali's poor live in the dryland zone, a region that stretches west to east from Kayes through Mopti to the border with Niger and south of Gao and includes Koulikoro in the south (Figure 1). Rainfall is low, averaging 300-800 mm annually depending on the sub-region. The region is a trade corridor, with grain moving from the south toward the food deficit region in the north, and livestock moving from north to south. As rainfall is too low to allow households to make a living based on incomes from crops alone, those in the dryland zone rely on a mix of incomes derived from transhumant livestock rearing,[56] remittances, and agriculture.

Climate-related shocks such as droughts are common in the dryland zone and are expected to become more frequent and more severe as a result of climate change. Historical records show a trend of increasing temperatures and declining rainfall in Mali. This trend is also likely to intensify given the long-term effects of climate change (Figure 2). Mali's dryland zone has both the lowest rainfall of any crop-producing zone and the highest rainfall volatility nationwide. To secure agriculture and food security in the drylands, interventions that can help farmers adapt to climate change are urgently needed.

Identification of policies and investments that can boost agricultural performance is a major challenge because of the lack of micro data that might be used to measure the impact of government policies on farmers' decision-making process. The findings presented here are derived from Mali's 2014 Living Standards Measurement Study – Integrated Surveys on Agriculture (LSMS-ISA), a nationally representative survey with a particular focus on agriculture.[57] To measure the drivers of farm productivity and efficiency, this study follows a stochastic production frontier (SPF) approach. This approach provides an assessment of the sensitivity of production to different inputs and other factors while simultaneously identifying the drivers of production efficiency. The detailed nature of the data permits rigorous estimates for different agro-ecological zones and crops. This study analyzed productivity trends, input use, and farm efficiency in the dryland zone with the aim of identifying policies and investments that could boost Mali's agricultural performance.

55 TFP consists of residual accounting for output growth over and above total input growth.

56 Transhumant livestock rearing refers to seasonal movement of people along with their livestock between wetlands in the south and drylands in the north.

57 The 2014 LSMS-ISA was carried out by the National Statistical Institute of Mali with technical assistance from the World Bank.

Findings

The first finding from the LSMS-ISA analysis is that, in contrast to other agro-ecological zones, Mali's dryland zone exhibits stagnant growth in yields and significant yield gaps. The crop portfolio in the dryland zone is skewed toward millet and sorghum, which have contributed relatively less to growth in Mali's agricultural GDP (1 and 2 percentage points, respectively, compared to 6 percentage points each for rice and maize). A breakdown of output growth by crop shows that the production value of dryland crops has been increasing largely due to price changes as opposed to yield increases (Figure 3). Meanwhile, the development and adoption of agricultural technologies has been uneven across crops.

There is enormous variation in yields across farmers within the dryland zone. Depending on the crop, farmers in the top quarter of the yield distribution are on average 10 times more productive than those in the bottom quarter (Figure 4). To some extent, wide variation in yields across farmers reflects agro-ecological variation, but it also suggests that knowledge of farming methods is unevenly distributed and that there are large potential gains to be made from extension and technology adoption.

Productivity analysis based on plot-level data indicates four farming practices and technologies that would boost monetary incomes if they were more widely adopted. The first is organic fertilizer. Over half of farming households in the dryland zone use organic fertilizer. Controlling for other factors, the SPF model's findings show that organic fertilizer has a large and positive effect on productivity for all crops in the dryland zone. In particular, in the dryland zone, where organic matter is lacking and the risk of drought is high, soil carbon build-up helps increase crop resilience to drought by improving soil water retention and soil fertility. The productivity benefits of organic fertilizer suggest there is an opportunity for climate smart "triple wins" in Malian agriculture. A strategy designed to increase soil carbon could include the reintegration of livestock into crop systems, afforestation, or no-till farming.

A second finding of the SPF model is that seed and improved cultivar-related technology are under-utilized. Farmers throughout Mali underspend on new seed technologies and improved cultivars, with an adoption rate for improved cultivars of only 6 percent for dryland farmers. These observed farming practices may be a response to weather-related risks or reflect a lack of technical knowledge on the part of farmers, or they may indicate that public and private seed systems are not reaching farmers. In addition to increasing the quantity of seed available to farmers, productivity would be enhanced by promoting access to improved seed varieties. Adoption of improved seeds is relatively high among irrigated rice farmers. Effort is needed to make improved varieties of maize, sorghum, and millet more readily accessible to farmers.

Third, the SPF model shows that, at the margin, pesticide use has a significantly positive impact on farm productivity in both the dryland and southern zones with that effect being highest in the dryland zone. Farmers in the southern zone typically use more pesticides than farm households in the dryland zone. Pesticide appears to be most effective for particular dryland crops such as maize and peanuts. Pesticide use in the dryland zone is highest for rice cultivation. Other crops, such as maize, have lower pesticide use and represent an opportunity to enhance productivity through pesticide application.

Finally, the SPF model indicates that irrigation increases the productivity of plots in the dryland zone. However, due to the small sample size of the LSMS-ISA (only 4 percent of the plots are irrigated), these results should be interpreted with caution. Irrigation levels are low due to a lack of irrigation potential

outside the irrigated zone. Cervigni and Morris (2016)[58] estimate that only 10 percent or less of African drylands have irrigation potential without even accounting for increasing water shortages under climate change. This suggests that despite the benefits of irrigation for agricultural productivity and resilience, the vast majority of dryland farmers must continue to rely on rain-fed plots.

Notably, inorganic fertilizer use shows no appreciable impact on productivity, a result that is robust in both the southern and dryland zones. Similarly, there is no productive impact of chemical fertilizer use across individual crops in the dryland zone. The marginal value of chemical fertilizer is generally lower than even the subsidized market price, and there is evidence that farmers who use chemical fertilizer overuse it (Figure 5). Non-urea fertilizer is more effective than urea fertilizer, at the margin. However, the key message is that current returns from fertilizer use do not justify significant expenditure on fertilizer subsidies. Negative returns from chemical fertilizer use may be due to fertilizer quality, delays in delivery and distribution affecting the timing of applications, insufficient knowledge on the part of farmers about application practices and plot-specific nutrient constraints, or lack of complementary inputs such as improved seeds and irrigation.

The weak links between chemical fertilizer use and agricultural productivity suggest that there are significant fiscal and productivity gains to be made from reforming Mali's national input subsidy system. It may be possible to reduce the subsidy without affecting production levels among recipients who are familiar with the technology and use sufficient quantities of fertilizer. Importantly, heavy subsidies on fertilizer appear to promote their overuse since the marginal returns at current use levels are below the marginal cost (price) of fertilizer (Figure 6). In addition, the LSMS-ISA data also provide evidence of leakage. About 6 percent of farmers who receive the national fertilizer subsidy do not use fertilizer on their plots. The unsubsidized value of this fertilizer is USD 5 million, implying a misallocation (and potential savings) of USD 2.5 million in subsidies.[59]

In addition to looking at the relationship between agricultural inputs and farm productivity, the analysis also identifies factors that explain farm inefficiency, that is, characteristics of farmers that allow them to do more with a given set of inputs. Technical efficiencies are widely dispersed and higher in the southern zone compared to the dryland zone, even controlling for agro-ecological differences. Within the dryland zone, the technical efficiency of maize producers is higher than that of sorghum, millet, and peanut farmers (Figure 7). The high dispersion of technical efficiencies for primary dryland crops suggests substantial scope for improving production efficiency. Mean technical efficiency in the dryland zone is 50 percent, that is, the average farmer in this zone is only half as productive as the best farmer. This large difference suggests that increasing access to technology and technical advisory services may be critical in helping lagging farmers to do more with the inputs they have, with the potential to increase productivity by as much as 50 percent.

Aside from geographic location and crop choice, other factors that determine farm efficiency include farm size, gender, education, health, and access to motorized transport. Small farms are significantly more efficient than large farms. This effect is true across agro-ecological zones and across crops within the dryland zone. It should be noted that as the SPF specification controls for land and soil quality as well as agro-ecological conditions by zone, this result is robust to the usual concern that the inverse relationship between efficiency and farm size may be due to varying land quality.

58 https://openknowledge.worldbank.org/bitstream/handle/10986/23576/9781464808173.pdf?sequence=4

59 This calculation assumes that these farmers are of average size (larger farmers receive a bigger subsidy), that subsidized farmers used the entire subsidized amount of fertilizer, and that the total subsidy cost is CFAF 24 billion.

Gender gaps reduce agricultural productivity, particularly in the dryland zone. The negative effects of gender inequality on agricultural production are significant across the country. Female-headed households are less efficient than male-headed households in the dryland zone but not in the southern zone. This difference may be due to cultural factors. The disparity, as measured in this study, is not in access to inputs per se but in the efficient use of those inputs.

Households with workers who have attended formal schooling are less efficient at crop production. This effect is significant for all rural households and for households in the dryland zone, but not for households in the southern zone. Household workers who have attended formal schooling may have more off-farm employment opportunities relative to unschooled workers, and the result may represent a loss of skilled capacity due to non-farm work, perhaps representing an opportunity cost of education for household crop production.

Transportation is a bottleneck for farmers in the dryland zone. Improved access to markets through motorized transport improves production efficiency for farmers in the dryland zone. However, the same relationship does not hold in the southern zone, where travel times tend to be shorter. Dryland farmers who produce peanuts and maize are more strongly affected by transport bottlenecks than farmers who produce sorghum and millet, probably because peanut and maize crops rely on shippers and traders whereas millet and sorghum are more likely to be consumed within the household or the village.

Investing in farmers' health would boost agricultural productivity. Farmers who have experienced a health shock in the past year are significantly less productive. Health shocks, likely due to malaria, have the largest effect in the southern zone, where returns from agricultural labor tend to be higher. In the dryland zone, health risks are only one of the many types of risk that threaten livelihoods.

Finally, an important finding relates to extension and advisory services. Neither distance to an agricultural guidance center nor the mode of transport to the center are found to increase farm efficiency. This result is important because it suggests the lack of effective advisory services despite significant scope for improvement in farmers' technical efficiency as well as in their use of heavily subsidized fertilizers. The policy implication is to carefully review and strengthen the agricultural advisory services for a potentially large payoff.

Conclusion and Policy Lessons

While this analysis has focused on maximizing productivity, a successful poverty reduction strategy in arid zones also rests on stabilizing yields and reducing risk. A key priority in areas without irrigation potential will be to reduce the risk of crop failure in drought years through improved land husbandry and water harvesting coupled with the multiplication of palatable, drought-resistant, early-maturing millet and sorghum varieties. Social safety nets and support for leaving agriculture are additional resilience strategies that may be judged necessary.

Productivity gaps in the dryland zone represent policy opportunities. By implementing appropriate, evidence-based policies and investments, Mali has an opportunity to make its agricultural sector more resilient, inclusive, and successful. Yield rates for major crops in the dryland zone (millet and sorghum) have remained nearly stagnant for three decades, even though our findings suggest potential payoffs from interventions designed to promote soil improvements (organic fertilizer), better seeds, extension

advice, pesticides, and market access. The analysis of strategies designed to increase crop productivity and the role of Mali's input subsidy program shows how a relatively small investment in data and research can lead to millions of dollars in efficiency savings in public expenditures. Mali has a strong agricultural economy and a significant agricultural public spending program. Continuous investments in learning, innovation, availability of new farm technologies, and agricultural infrastructure will be necessary if Mali is to maintain its position as a leader in the region and expand the benefits of agricultural productivity growth to all regions of the country. Specific key policy lessons follow.

- *There are big opportunities for "triple wins" from "climate-smart" agriculture strategies.* First, helping farmers increase organic fertilizer use would make farms both more productive and more resilient (through higher soil water retention) while also contributing to climate mitigation through soil carbon sequestration. Second, evidence shows that subsidized maize and rice producers overuse chemical nitrogen fertilizer, and reversing such overuse would improve both environmental sustainability and fiscal sustainability. Third, mechanization-related technology appears not to provide significant productivity benefits, similar to the experience in countries such as Brazil.

- *Farmers who use chemical fertilizer overuse it, implying economically wasteful use of subsidized fertilizer***.** Although use of non-urea is more effective than that of urea at the margin, current returns from fertilizer use do not justify the significant expenditure on subsiding them.

- *Better access to extension and technology could double productivity in the dryland zone.* The average farmer in this zone is only half as productive as the best farmer, which suggests that increasing access to information and technology may help lagging farmers do more with the inputs they have.

- *Farmers could achieve higher economic returns through higher planting density, increasing the quantity of seed available to farmers, and enhanced access to improved seed varieties*.

- *Improved access to markets through motorized transport would improve production efficiency for farmers in the dryland zone***.** Dryland farmers who produce peanuts and maize are more strongly affected by transport bottlenecks than farmers who produce sorghum and millet, presumably due to the absence of shippers and traders. Transportation is a main bottleneck for farmers in the dryland zone but not in the southern zone.

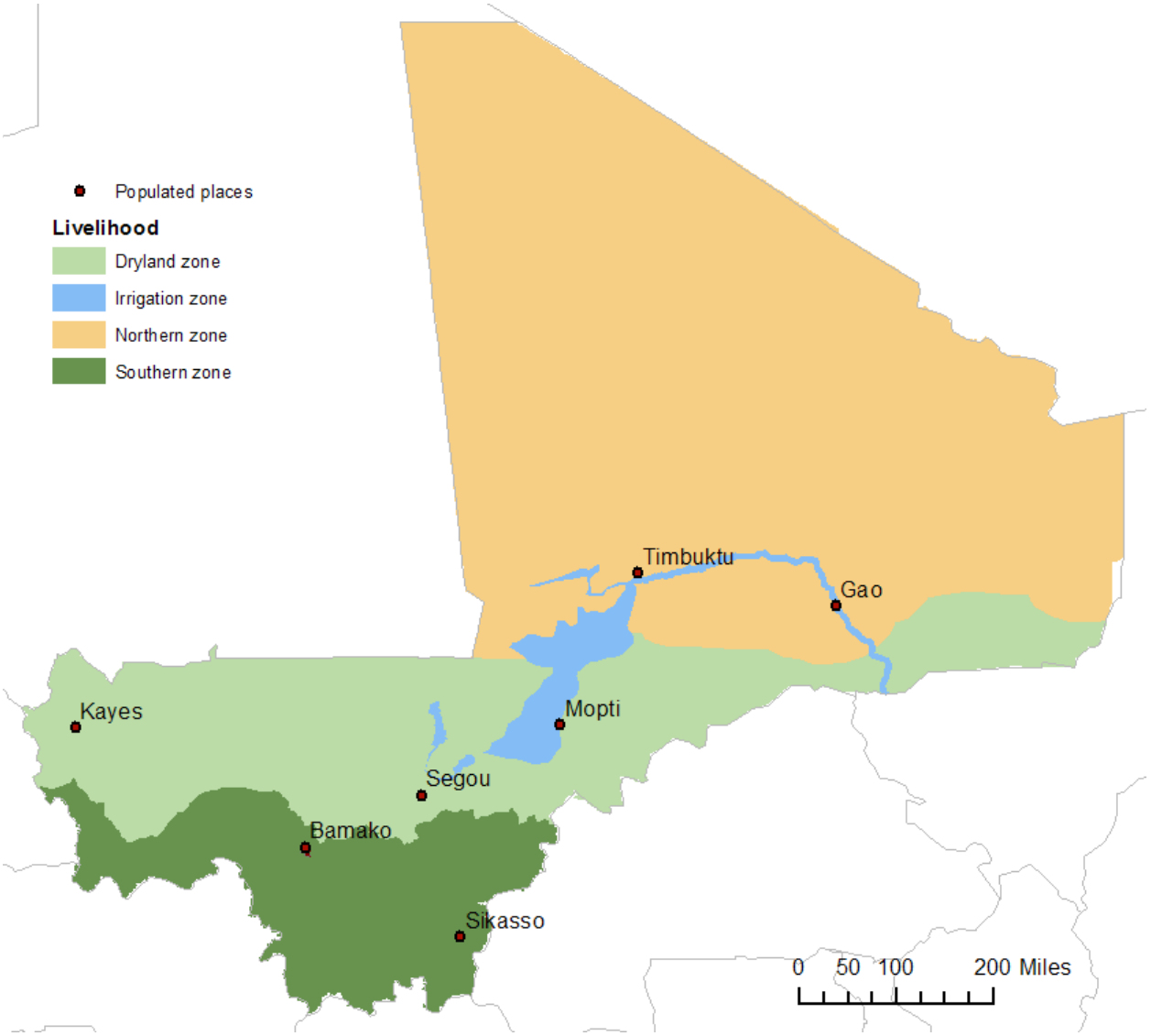
- *Investing in health would boost agricultural productivity***.** Health shocks have the largest effect in the southern zone, where returns from agricultural labor tend to be higher. In the dryland zone, health risks are one of many types of risk that threaten livelihoods.

- *Reducing gender disparities would improve agricultural production, particularly in the dryland zone.* Female-headed households are less productive than male-headed households in the dryland zone but not in the southern zone, and this may be due to cultural factors.

- *The national fertilizer subsidy is partially misallocated to farmers who do not use fertilizer on their plots. The value of subsidized fertilizer that is not applied (by its intended recipient) is approximately USD 5 million, corresponding to six percent of subsidized households.*

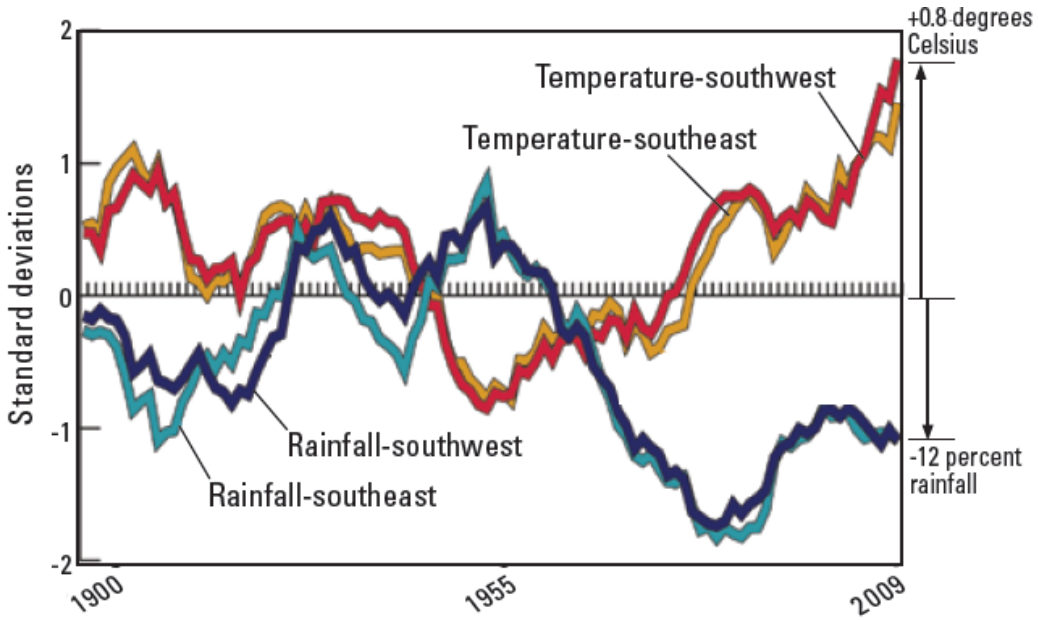
- *Continuous investments in learning and innovation are necessary to maintain Mali's position as an agricultural leader in the region.* Poor access to information and technology is a constraint at the farm level, and even small investments in agricultural data and research can lead to millions of dollars in efficiency savings in public expenditure.

1. Number of Poor by Livelihood Zone



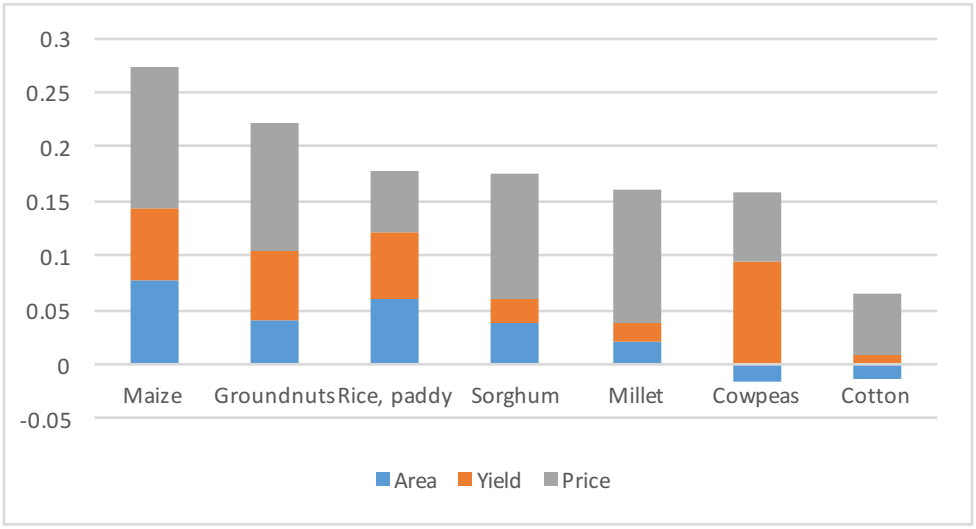
Source: Authors based on FEWS NET livelihood zone classification

2. Observed Trends for Higher Temperatures and Lower Rainfall in Mali (USGS)

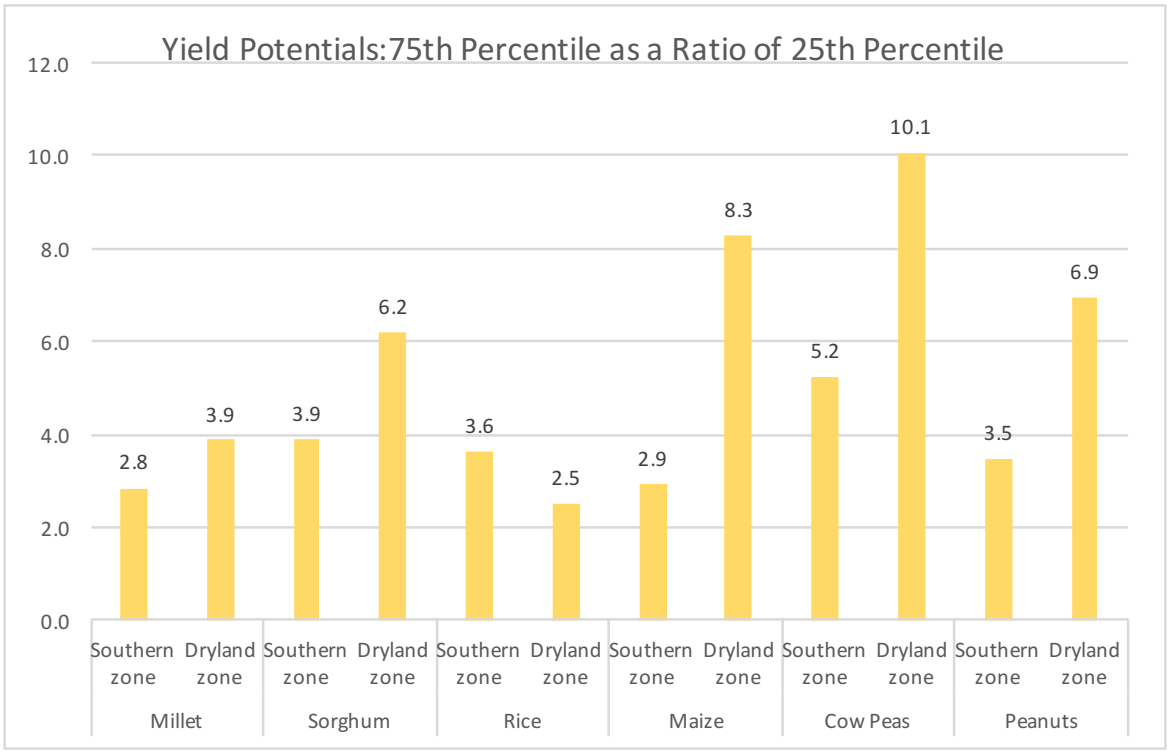


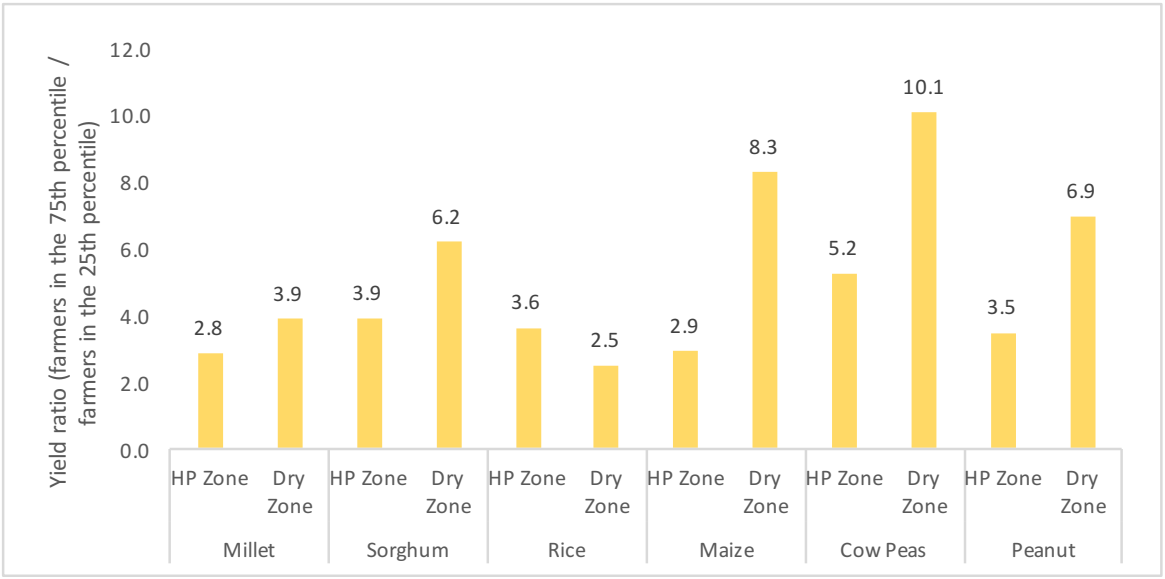
Source: United States Geological Survey (USGS)

3. Decomposition of Output Growth by Crop, 2004-2013



4. Yield Gaps in the Dryland Zone Compared to the Southern Zone

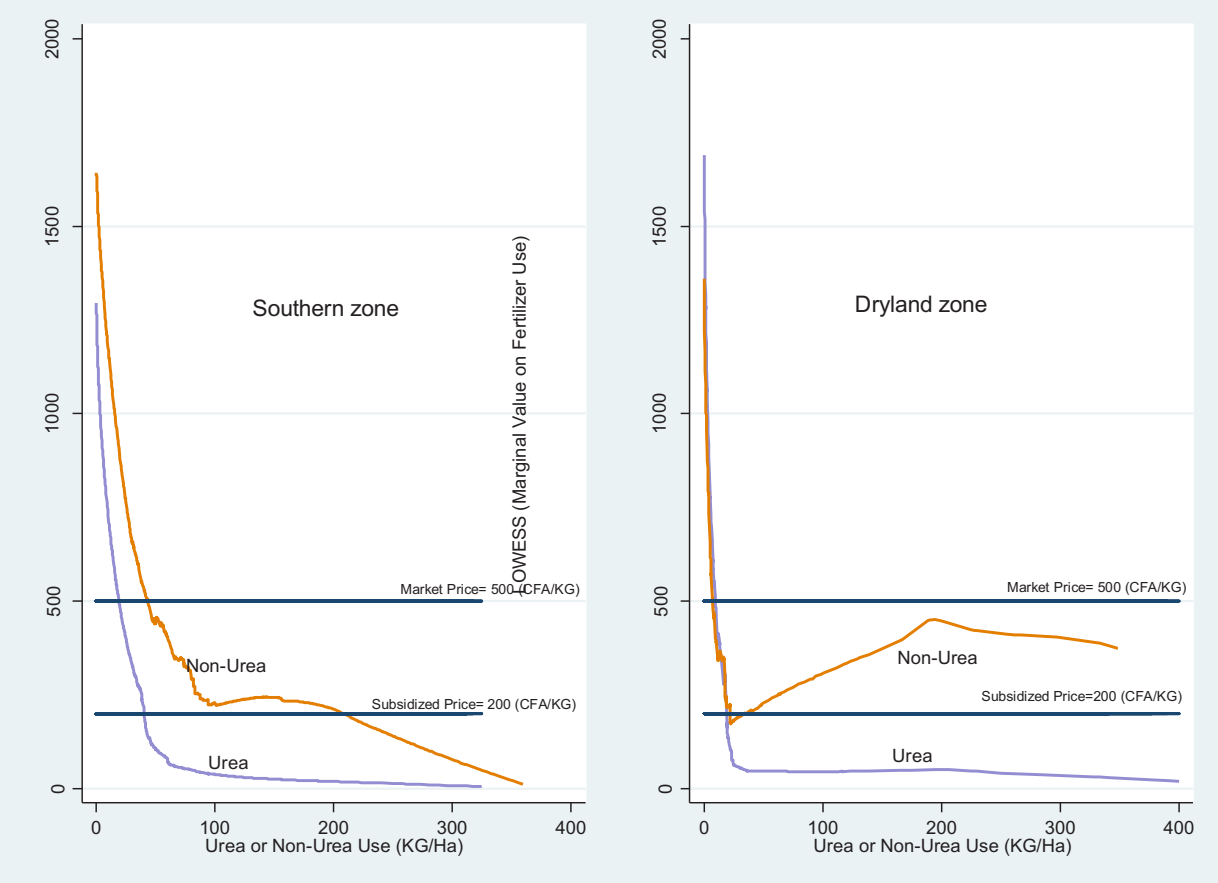




Note: This figure shows the ratio of yields for the 75th percentile farmers compared to yields for the 25th percentile of farmers across crops and zones. The high dispersion in yields among dryland farmers suggests opportunities for improvement.

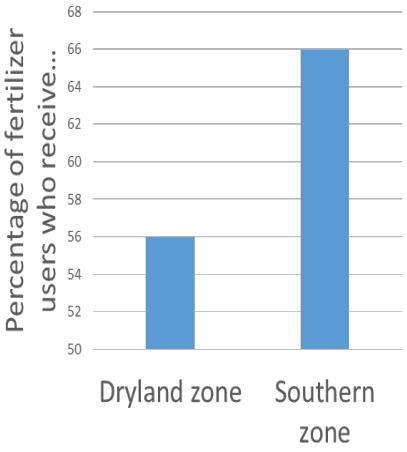
Source: Authors based on LSMS-ISA

5. Non-Parametric Relationship between Marginal Returns from Chemical Fertilizer (CFAF/Kg) and the Quantity of Chemical Fertilizer Applied (Kg/Ha), by Fertilizer Type

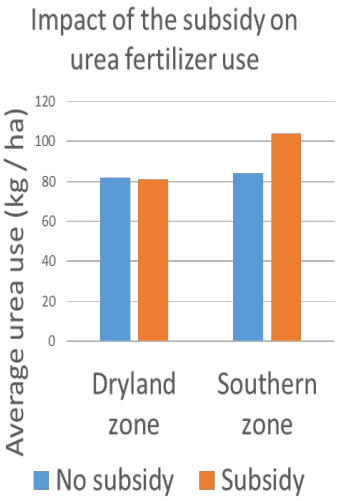


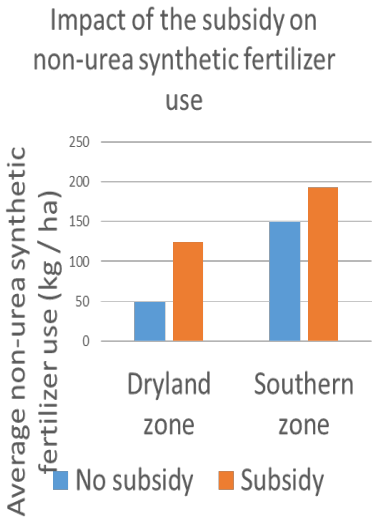
6. Impact of the Subsidy on Fertilizer Use

Access to the subsidy by zone

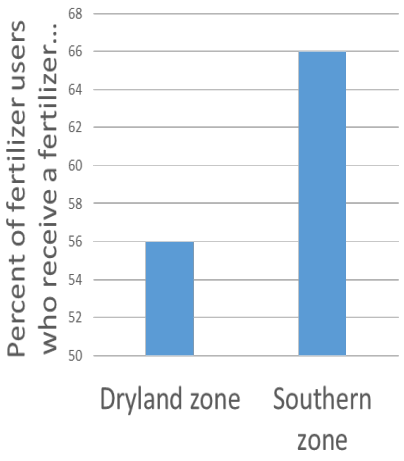


Impact of the subsidy on fertilizer use

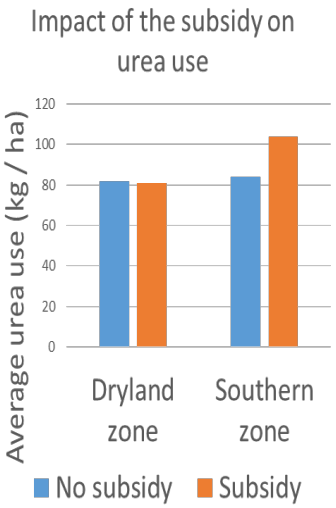


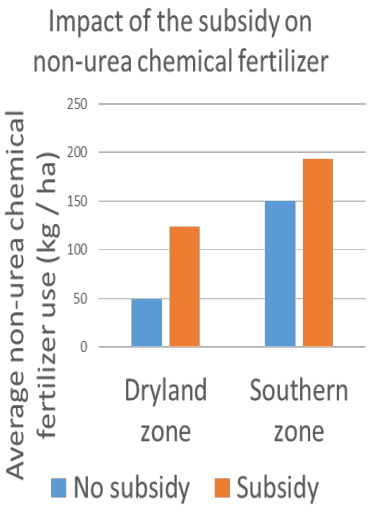


Access to the subsidy by zone



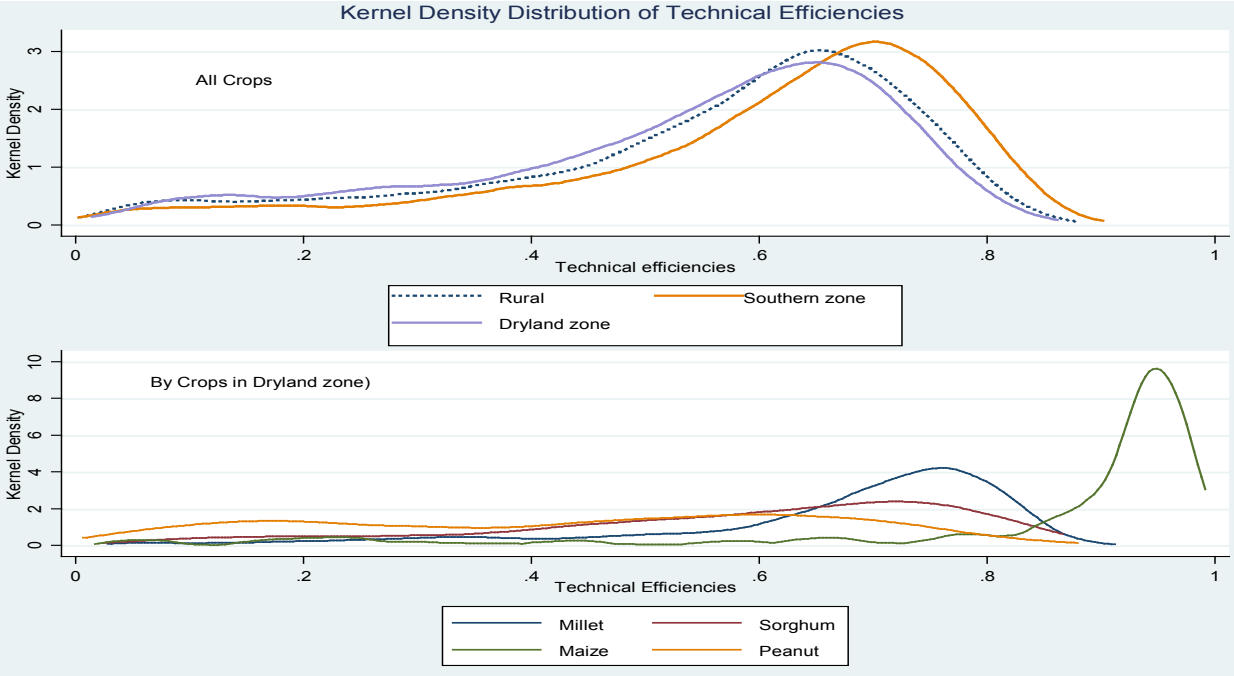
Impact of the subsidy on fertilizer use





Source: Authors based on LSMS-ISA

7. Technical Efficiencies by Zone and across Crops in the Dryland Zone

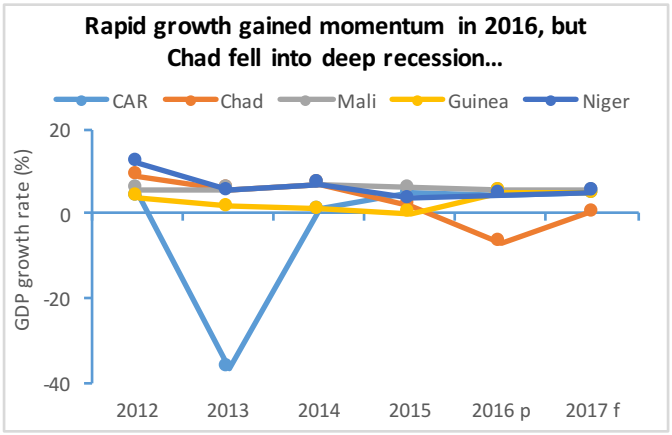


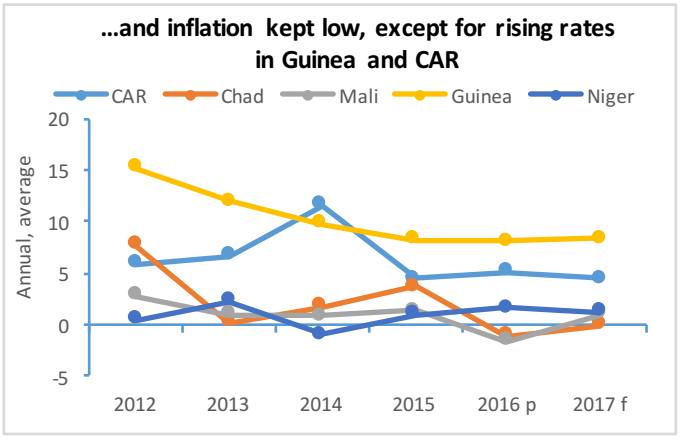
Source: Authors based on LSMS-ISA

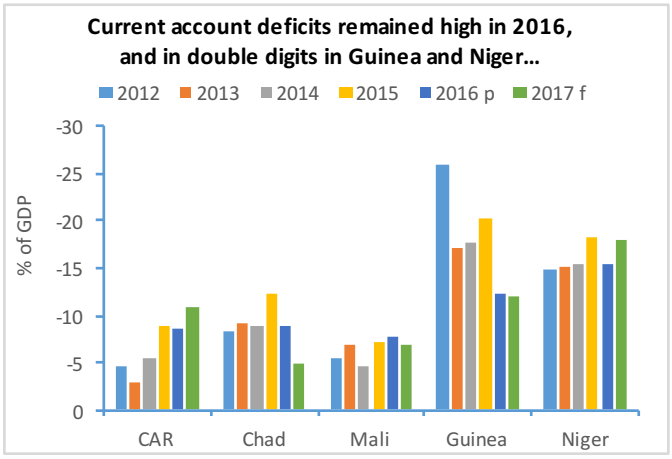
COUNTRY ECONOMIC FOCUS

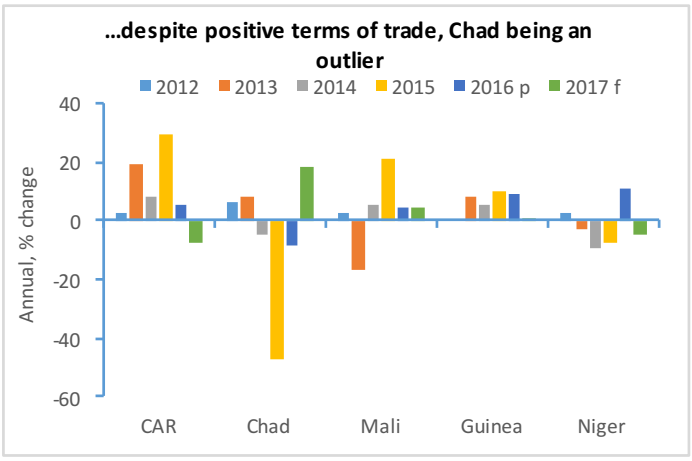
AFCW3 Economies at a Glance

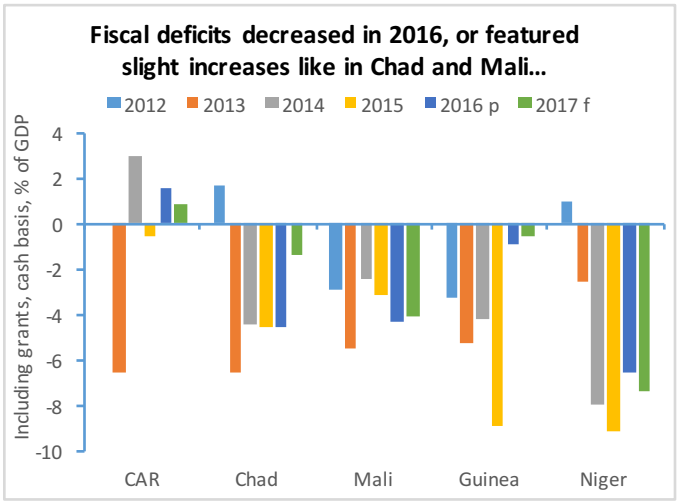
MACROECONOMIC INDICATORS OF AFCW3 COUNTRIES AT A GLANCE, 2012-2017

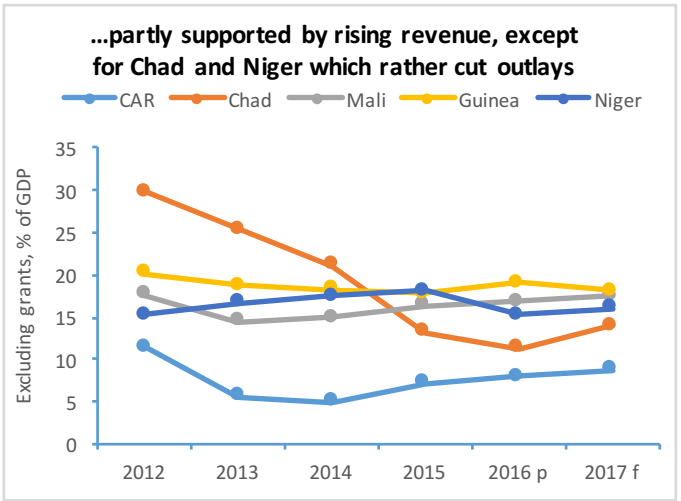












Source: IMF and World Bank staff estimates; IMF AIV, several years. Note: data for 2016 are revised projections, and 2017 are forecasts. Fiscal deficits include grants and are on cash basis; they may slightly differ from some reported in the text done on a commitment basis.

CENTRAL AFRICAN REPUBLIC

Central African Republic (CAR)

Table 1	
Population, million	5.0
GDP, current US$ billion	1.8
GDP per capita, current US$	352
Poverty rate ($1.9/day 2011PPP terms)[a]	66.3
Poverty rate ($3.1/day 2011PPP terms)[a]	82.3
Gini Coefficient[a]	56.2
Life Expectancy at birth, years[b]	49.9

Sources: World Bank WDI and Macro Poverty

Outlook:

Notes:

(a) Most recent value (2008)

(b) Most recent WDI value (2014)

Democratic elections in February 2016 put an end to years of political volatility and eased violence in Central African Republic. Real GDP has begun to recover gradually following its 2013 collapse. Donors responded by pledging over US$ 2 billion at the Brussels Donor Conference in November 2016 to support the government's new Recovery and Peace-Building strategy. However, the short-term outlook remains vulnerable to a temporary deterioration in the security environment, which, together with delayed public investments, translated into slower growth for 2016. While the government, with IMF program support, continues to make progress on tackling imbalances in the external and fiscal accounts, CEMAC's very weak external position may further increase consolidation and structural reform pressures.

Recent Developments

Economic recovery in CAR is proceeding slower than expected, with real GDP growth in 2016 now estimated at 4.5 percent. The fact that the economy grew slower than in 2015 can be largely attributed to recent bouts of insecurity, disrupting economic activity, and delayed public investment. Private consumption continues to be the main contributor to GDP, while gross fixed capital formation remains hampered by a weak investment climate and limited public investment. After a subdued 2015, export growth appears to have been more pronounced in 2016 on the back of solid production increases of key export goods such as gold, wood, coffee, and cotton. This also shows on the supply side, where the primary sector has recently benefitted from stronger performances in the forest, coffee, and cotton subsectors, while industry continues to struggle. Services, in particular transport, have suffered from the volatile security environment but recently started to recover.

At the same time, transport disruptions resulted in a temporary decrease in the supply of key staples, which, together with increased demand from returnees, put upward pressure on consumer prices. As a result, annual average inflation for 2016 is projected at a persistent 4.6 percent and clearly above the CEMAC target of 3 percent. Against this backdrop, the relatively loose monetary policy stance of the regional central bank (BEAC), intended to support oil exporters suffering the consequences of low oil prices, made it difficult to contain inflation more in CAR.

A relatively stronger export performance paired with weaker import growth - driven by delayed investments and slower-than-expected recovery - have resulted in slightly reduced pressures on the current account. However, the estimated Current Account Deficit (CAD) remains at a sizeable 9 percent of GDP in 2016. The trade deficit is largely financed by official grants in the current account and direct investment on the capital and financial account side of the BOP. This leaves CAR with a foreign exchange reserve coverage of around 4 months of imports for 2016.

On the fiscal front, provisional government statistics for 2016 suggest total revenues of around 14 percent of GDP (of which around 40 percent are grants), outweighing total expenditures of 12.5 percent of GDP. This has led to a 2016 budget surplus of around 1.7 percent of GDP, or a deficit of 4.3 percent without grants. However, out of a relatively small FCFA 25b in capital expenditure in 2016, only a miniscule FCFA 2.9b was financed from own resources. This fact boldly underlines the major weakness in public investment and any sustainable structural policy effort going forward. The public debt to GDP ratio for 2016 is projected at 42.6 percent, down from 48.5 percent in 2015.

Poverty remains widespread and elevated. Projections based on GDP per capita growth indicate that an estimated 75 percent of the population lived on less than US$ 1.90 per day (2011 PPP) in 2016, up from 66 percent (US$ 1.90 a day, 2011 PPP) in 2008, when the last poverty survey was conducted. The livelihoods of the poor are predominantly in agriculture, and the continued fragility of the situation has constrained welfare improvements as many farmers have not fully returned to regular cultivation of their fields. Also, an estimated 10 to 15 percent of the population continues to be internally displaced with few to no assets to rebuild their livelihoods.

Outlook

The short- and medium-term growth outlook remains cautiously positive but characterized by significant uncertainty. Real GDP growth is projected to gradually accelerate to 4.75 percent in 2017 and 5 percent in 2018, with poverty declining slightly to 74 percent. This scenario is conditioned by continuously improving security, efficient implementation of the government investment (development) plan as well as a further strengthening of performances in the primary sector and related exports. The CAD is expected to again widen to above 10 percent of GDP in 2017, reflecting a pickup in demand for imports. FDI is expected to gradually pick up from an estimated 2.6 percent of GDP in 2016 to a projected 3.5 percent in 2017.

Following the first review in late 2016, the IMF program appeared to be broadly on track. The fiscal accounts are projected to show a surplus of 0.9 percent of GDP in 2017 and a deficit of 2.4 percent in 2018. But the decision by CEMAC members to maintain the peg in the face of a persistent terms of trade shock triggered by low oil prices may translate into potential adjustments to the program. Although CAR is a net oil importer, membership of a monetary and economic union such as CEMAC, consisting of mostly net oil exporters, may bring complex challenges. On the one hand, the nominal exchange rate is pegged

to the Euro[60] and both the NEER and REER have recently appreciated, thereby aggravating structural weakness in export competitiveness. BEAC's loose monetary policy stance, intended to ease the strong external headwinds, has finally run out of steam, leaving prospects of significant tightening also for CAR. On the other hand, the second and highly complementary pillar of regional macro stability - the fiscal convergence framework setting rules for revenue savings, budget deficit and debt ceilings, inflation and arrears - also faces significant challenges. Inexistent fiscal buffers, the need to clear arrears in the near term and capacity constraints to domestic bank lending will leave CAR dependent on international grants to close its financing gap.

Risks and Challenges

Risks to CAR's outlook remain clearly tilted towards the downside. Maintaining and solidifying security is a necessary condition for further recovery and poverty reduction. Managing fiscal consolidation in the context of tightening monetary policy and amid the expectation of it moving towards a structural growth agenda will be a formidable challenge for the government of CAR. Two specific risks to the growth and macro outlook are worth highlighting: First, projections regarding a key export good - diamonds - are conditional on swift progress with the Kimberly certification process. But expectations vary significantly and remain highly uncertain. Diamond revenues remain significantly below expectation. For example, a total of FCFA 350m was expected in 2016 but only 27m realized. Second, asymmetries across CEMAC countries in their coping and macro fiscal adjustment may give rise to free rider dynamics that could undermine optimal regional policy responses while threatening the stability of the monetary and economic union itself.

Shifting from fiscal stabilization to structural policy for growth will be the main medium-term challenge. To move towards a diversified economy able to deliver inclusive growth and jobs, it is vital that CAR increases agricultural productivity and strengthens public investment to gradually crowd in private investment while implementing a strong social policy component under the Recovery and Peace-Building Plan.

60 And guaranteed by the French Treasury

SELECTED ECONOMIC INDICATORS, INCLUDING PROJECTIONS FOR 2016-2019

	2012	2013	2014	2015	2016	2017	2018	2019
National income and prices	Annual percentage change, unless otherwise indicated							
Real GDP	4.1	-36.7	1.0	4.8	4.5	4.7	5.0	5.2
GDP deflator	2.7	7.0	11.1	6.2	6.9	6.2	5.7	5.2
CPI (EoP)	5.9	6.6	11.6	4.5	5.1	4.5	3.9	3.5
External sector								
Imports	12.2	-27.6	57.3	9.1	-2.4	10.2	4.0	8.4
Exports	7.4	-27.9	-8.8	0.5	7.6	12.8	3.6	11.9
Terms of Trade (deterioration -)	-0.7	10.9	3.5	14.2	7.0	-7.7	1.9	-0.3
Fiscal Accounts	% of GDP, unless otherwise indicated							
Expenditure	16.4	14.9	12.7	14.9	11.9	16.1	16.0	16.3
Revenue and grants	16.4	8.4	15.7	14.3	13.5	13.1	13.6	14.2
Central Government Balance (incl. grants)	0	-6.5	3	-0.6	1.7	0.9	-2.4	-2.0
Selected Monetary Accounts	Annual percentage change, unless otherwise indicated							
Base Money	1.6	5.6	14.6	5.3	12.2	13.0	11.0	10.9
Credit to the economy	30.2	-16.3	4	-0.5	7.5	11.3	11.0	10.6
Balance of Payments	% of GDP, unless otherwise indicated							
Current Account Balance	-4.6	-3	-5.6	-9.1	-9.0	-11	-10.0	-9.7
Imports	23.9	25.0	37.6	34.8	31.5	31.4	30.7	30.7
Exports	12.5	14.5	13.1	12.7	12.8	11.3	12.7	13.0
Foreign Direct Investment	3.2	0.1	0.1	0.3	1.6	3.5	3.3	2.8
Gross Reserves (in million US$, EoP)	172.1	199.4	279.1	199.1	206	232	263	276
In months of next year's imports	5.6	3.7	5.1	4.2	3.9	4.2	4.3	4.3
As % of short-term external debt	30.8	17.5	12.6	7.4				
Public Debt								
Total government (end of period)	23.5	38.5	51.1	48.5	42.6	31.2	26.6	22.6
o/w External debt	9.7	14.6	14.9	14.5	16.8	14.9	13.3	12.2
Memo								
GDP nominal (FCFA billions)	**1108**	**750**	**842**	**937**	**1046**	**1164**	**1292**	**1430**

Source: IMF (March 2017), Authorities and Bank staff forecast (MFMod simulations, February 2017).

CHAD

Chad's macroeconomic crisis was triggered by persistent low oil prices and led to a deep recession as well as seriously deteriorated fiscal and external positions. The Government has responded decisively with a substantial fiscal adjustment; however, the external and fiscal deficits remain high. This situation points towards an increase in the poverty rate. The medium-term outlook remains challenging, with a stagnation of real GDP growth in 2017 and a gradual recovery dependent on how oil prices evolve. Ambitious reforms in the areas of fiscal sustainability and economic diversification are needed to tackle this crisis.

Recent Developments

Chad's economy is experiencing its worst recession since it began exporting oil in 2003, due to exogenous shocks emanating from the oil sector and the deterioration of the security situation. Economic growth declined from 6.9 percent in 2014 to 1.8 percent in 2015 and the economy is estimated to have contracted by 7.0 percent in 2016. Oil GDP dropped by 11.5 percent in 2016 after oil-related investment was cut by more than 80 percent and production declined. Non-oil GDP decreased by 6 percent in 2016, mainly as a result of large reductions in public spending, which is the main driver of the non-oil sector. Security challenges have negatively impacted the economy, including livestock, commerce, communication, and cross-border trade. Trade activities at the Nigerian border in the agriculture and livestock sectors have largely halted following security concerns and the depreciation of the Naira. On the supply side, despite an increase in agricultural output of 12 percent thanks to good rainfall, the primary sector contracted by 6 percent due to the drop of the oil sector. The industry and service sectors were severely impacted by increased security risks, public spending cuts, and reduced liquidity in the public sector. As a result of the economic malaise and good harvest, prices fell by 1.1 percent in 2016 compared to inflation of 3.7 percent in 2015.

Despite a substantial fiscal adjustment, the external and fiscal deficits remain high. Oil-related fiscal revenue declined from 11.7 percent to 3.8 percent of non-oil GDP between 2014 and 2016. The Government responded by cutting drastically public expenditures by 11.4 percent of non-oil GDP during the same period. As a result, the fiscal balance (commitment basis) decreased from 4.6 percent of GDP in 2015 to 2.3 percent. On a cash basis, however, the overall fiscal deficit increased slightly, because of arrears, from 4.4 percent of non-oil GDP in 2014 to 4.6 percent in 2016. The deficit was financed through issuance of treasury bonds in the regional debt market and budget support from development partners. The recent increase in domestic debt results in a high risk of public debt distress. Hard currency rationing following the shortages and substantial fiscal consolidation have contributed to a reduction in the current account deficit from 12.4 percent in 2015 to an estimated 8.8 percent of GDP in 2016. A deteriorating financial and capital account reflects significantly lower foreign direct investment related to the oil and construction sectors and adverse security conditions.

As a member of the CEMAC monetary union, Chad's monetary and exchange rate policy is determined by the regional central bank, BEAC. Chad's international reserves continue to fall, representing barely 0.3 month of imports at end-2016. However, regional reserve coverage of 2 months is far below what is considered adequate (five months) for a resource-rich monetary union with a fixed exchange rate. Broad money growth contracted by 6.3 percent due to the spillovers in the financial sector, which is shallow and heavily dependent on central government.

The last household survey in 2011 showed that poverty had declined to 47 percent from 55 percent in 2003, as measured with the national poverty line. Using the international poverty line of $ 1.9 per day PPP, extreme poverty in Chad declined from 62.9 percent to 38.4 percent over the same period. The Gini coefficient, however, rose between 2003 and 2011, indicating growing inequality. Updated poverty measures are needed to evaluate the impact of the shocks described above, and a new survey is being prepared for 2017/2018.

Outlook

Chad's real GDP growth is projected to stagnate at 0.2 percent in 2017 but to start to gradually accelerate in 2018 and 2019 on the back of an expected recovery of oil prices and production. In 2017, oil sector growth is projected to contract by 0.6 percent, while the non-oil sector should expand slightly (0.3 percent) as the impact of the fiscal adjustment on the secondary and tertiary sectors moderates with the planned revenue reforms and more pronounced growth in agriculture. The oil sector is expected to expand in 2018-2019 by 8.0 percent as new oilfields become operational, leading non-oil GDP growth to recover slightly on average by 2.2 percent. The expected recovery would support positive price growth, increasing inflation to more than 2 percent. The overall fiscal deficit is projected to decrease to 1.4 percent of GDP in 2017 and shrink more the following years as oil revenues recover. On the external front, hard currency rationing is expected to ease the current account deficit to around 4 percent of GDP, financed by donor budget support, increasing projected FDI and changes in reserves. Broad money supply (M2) is expected to significantly increase from 2017 following the projected recovery.

Increasing poverty levels coupled with population growth will lead to more than one and a half million new poor by 2019. Since the last household consumption survey was conducted in 2011, poverty levels are projected on the basis of GDP and population growth data. Using the $1.90 per day international poverty line, poverty levels are expected to have risen slightly from 34.8 percent in 2014 to 38.7 percent in 2016. Under the current growth scenario, the poverty rate is expected to rise further to 39.8 percent by 2019. The changes reflect the continuing impact of reductions in public services due to austerity and income loss due the disruption of cross-border livestock trade. These trends were partially offset by modest increases in agriculture. The primary sector employs nearly three-quarters of the working-age population. The poverty rate and number of poor will continue to increase, however, due to one of the highest population growth rates worldwide at 3.3 percent annually. The absolute number of poor is projected to increase from 4.7 million to 6.3 million between 2012 and 2019.

Risks and Challenges

Chad has an urgent need to finance its external and fiscal deficits given the lower expected public revenues. Prospects for the short term are more difficult on account of lower oil prices and export volumes and the repayment of oil sales' advances. In addition to the expected budget support, the Government needs to significantly adjust spending and seek to improve liquidity by limiting tax and custom exemptions and simplifying the tax system.

In the medium term, instability in oil revenues complicates fiscal management, budgetary planning, and the efficient use of public resources. Large declines in revenues since 2014 have brought about sharp cuts in expenditure, which have been disruptive and costly. There is a lack of robust fiscal capacity that can provide a broader and more predictable set of instruments to ensure the sustainability of the macro framework in the face of volatile oil prices.

Growth diversification and structural transformation are the main challenges for a longer-term agenda. In 2013, before oil prices collapsed, the oil sector accounted for about 20 percent of the country's GDP, about 65 percent of government revenues, and 90 percent of total exports. The Chadian government has learned from the current crisis that the lack of economic diversification exposes the country's economy to exogenous shocks.

SELECTED ECONOMIC AND FINANCIAL INDICATORS

	2014	2015	2016 ((p)	2017 (p)	2018	2019
National income and prices						
Real GDP	6.9	1.8	-7.0	0.2	3.2	3.1
Oil GDP	5.7	32.2	-11.5	-0.6	9.6	6.0
Non-Oil GDP	7.1	-2.9	-6.0	0.3	2.0	2.5
Consumer price inflation (average)	1.7	3.7	-1.1	0.0	1.6	3.0
Money and Credit						
Credit to government (a/)	18.0	25.3	20.7	-6.2		
Credit to the private sector (a/)	17.3	0.3	-4.1	1.6		
Broad money (M2)	26.5	-4.7	-6.3	2.4		
External sector						
Exports volume of goods and services	5.9	29.2	-6.7	-1.2	8.4	5.2
Imports volume of goods and services	9.4	-21.4	-13.1	0.0	5.9	2.9
Overall balance of payments (% of GDP)	-1.2	-6.9	-8.1	0.6	0.5	1.4
Current external balance (% of GDP)	-8.8	-12.4	-8.8	-4.8	-5.2	-4.1
External Debt (% of GDP)	29.1	25.0	29.7	29.8	28.1	26.2
(percentage of non-oil GDP, unless otherwise specified)						
Central government finances						
Revenue and grants	23.2	17.1	15.5	18.7	19.2	19.1
Total expenditure and net lending	29.4	22.9	18.0	19.7	19.2	19.2
Non-oil Primary Balance (excl. grants) commit.)	-16.2	-9.7	-5.0	-5.9	-5.5	-4.7
Overall balance (incl. grants, cash basis)	-4.4	-4.5	-4.6	-1.4	-0.4	-0.2
Total Debt (percent of GDP)	40.9	46.3	57.0	53.4	51.2	49.2
Domestic debt	11.8	21.3	27.3	23.6	23.1	23.0
Memorandum items:						
Nominal GDP (FCFA billion)	**6,912**	**6,474**	**5,705**	**5,714**	**5,991**	**6,349**
Nominal non-oil GDP (FCFA billion)	**5,179**	**5,184**	**4,765**	**4,781**	**4,958**	**5,232**

Source: Chadian Authorities, IMF and Bank staff, February 2017.

GUINEA

The Guinean economy is slowly recovering from the Ebola pandemic and commodity price slowdown, which affected the country in recent years. Growth is estimated to have resumed to 5.2 percent in 2016 compared to 0.1 percent in 2015 and driven by mining and agriculture. Growth is expected to converge to its long-term average over the medium term. Key risks included continued low commodity prices, potential macroeconomic slippages, and challenges in protecting pro-poor spending.

Recent Developments

The Guinean economy is gradually recovering from the Ebola pandemic, which hit the country in 2014 and 2015 when the economy barely expanded. Economic growth is estimated to have reached 5.2 percent in 2016 compared to 0.1 percent in 2015. Positive supply shocks in the mining sector, a strong agricultural harvest, and higher electricity supply are supporting the recovery. Services and manufacturing are still lagging. A decline in commodity prices, especially iron ore, has also adversely affected Guinea's economy with the shelving by Rio Tinto of the $20 billion Simandou project.

Fiscal policy was tight in 2016 in order to adjust imbalances in 2015. Revenue increased from 17.8 percent of GDP in 2015 to 19.0 percent in 2016 due to higher indirect and direct tax revenues, including from telecom taxes and VAT. Total expenditures as a percent of GDP decreased from 28.3 percent of GDP in 2015 to 21.3 percent in 2016. The fiscal adjustment was significant due to the need to correct the spending incurred when the central bank (BCRG) issued guarantees during 2014 and 2015 to local and foreign banks on behalf of private companies executing public works contracts to help them secure commercial bank loans. The government instituted a system of cash rationing in 2016, limiting expenditures to available grant financing and revenues. Cuts to non-priority expenditures, including both capital and current expenditures, were the hallmark of the government's fiscal consolidation strategy. The fiscal deficit was reduced to 0.9 percent of GDP in 2016 compared to 8.9 percent in 2015. Guinea's debt dynamics will remain sustainable, as long as the government continues to give priority to concessional external loans and grants. The risk of external debt distress is moderate, according to the latest IMF-WB Debt Sustainability Analysis.

Monetary policy is conducted with the objective of replenishing international reserves and reducing the black-market premium. The central bank also reduced its interventions in the foreign exchange market, and the official and parallel market rates were unified. Guinea's international reserves were equivalent to 3 months of the country's imports in 2016. Guinea maintains a managed float exchange and an independent central bank whose goal is price stability. The inflation rate was 8.1 percent in 2016. The real effective exchange rate is competitive without being misaligned.

The current account deficit improved in 2016 to about 12.2 percent of GDP compared to 20.2 percent of GDP in 2015. This improvement mainly reflects strong bauxite export growth. The recovery in international gold prices and the full resumption of diamond exports also contributed. The increase in import volumes, driven by higher economic growth, was offset by lower international oil prices. The deficit was largely financed by FDI in the extractives sector amounting to $385 million, especially in bauxite and gold.

The extreme poverty rate, based on the $1.9 per day (PPP 2011) poverty line, was estimated at 35.3 percent in 2012, compared to more than 60 percent in the 1990s. Ebola has led to a worsening of

poverty and living standards since 2012. Simulations based on the 2014 census suggest a likely increase in poverty to nearly 58 percent in 2014 nationally, with both urban and rural areas experiencing increased poverty. In fact, a post-Ebola survey conducted in September 2015 and based on a mobile phone survey of 2,467 households suggested that poverty may have increased further.

Outlook

Over the medium term, Guinea is envisaged to maintain macroeconomic sustainability with the implementation of the reform agenda and the resumption of mining investment and economic activity. Over the medium term, growth is projected to reach more than 4 percent in 2017-19, driven by mining and agriculture. FDI inflows into the mining sector are envisaged in the next few years as several new projects come on board, especially in bauxite and gold. The services sector is expected to recover fully in three years to its pre-Ebola performance, while the expansion of manufacturing will continue to be constrained by poor infrastructure and lack of finances for firms. The fiscal deficit will exceed no more than 2.5 percent of GDP consistent with financing opportunities, macroeconomic stability, and growth. The authorities are attempting to achieve medium-term fiscal sustainability, while having growth-boosting private spending coupled with stronger revenue mobilization from both direct and indirect taxes. The fiscal policy stance of the authorities will be aligned closely with available financing, and monetization of the deficit by the central bank will be avoided. On the external side, the goal is to have a sustainable current account deficit (including grants) at below 15 percent. From 2016 to 2019, Guinea will continue to export bauxite and other metals while importing raw materials and capital goods. Risks also may stem from fiscal slippages and macroeconomic imbalances.

The poverty outlook for the post-2012 period was negatively affected by the Ebola crisis. In fact, the extreme poverty rate, based on the $1.9 per day (PPP 2011) poverty line, was expected to increase from 35.3 percent in 2012 to a peak of 38.1 percent in 2015, before declining gradually to 34.4 percent in 2019 thanks to the post-Ebola economic recovery.

Risks and Challenges

The most important challenge for Guinea is to sustain economic growth and achieve greater poverty reduction amidst a tightening of global financial conditions. The mining sector remains a challenge, as the projected rebound in mining production will depend on several factors including the regulatory environment, investor perceptions of the market, and the outlook for international metal prices. The Simandou $20 billion iron ore project is currently shelved due to high infrastructure prices and low iron ore prices, but it has the potential to materialize if iron ore prices rebound. A second challenge for the Guinean economy is to maintain the pace of macroeconomic and fiscal reforms and to improve the efficiency of public spending. The country will try to navigate a challenging fiscal situation in the medium-term with a budget that aims to keep the fiscal deficit to less than 2.5 percentage points of GDP through a combination of increased revenue mobilization and a prudent expenditure management. The government will need to keep protecting the social sectors, especially as the share of health in total government spending increased from 2.5 percent in 2015 to 5 percent in 2016. Finally, the government will need to avoid borrowing imprudently for its infrastructure projects, including roads and dams, and maximize the grant element of its loans.

GUINEA: KEY ECONOMIC INDICATORS, 2014-19

	2014	2015	2016	2017 proj	2018 proj	2019 proj
(annual change in percent)						
National Accounts and Prices						
GDP at constant prices	1.1	0.1	5.2	4.6	4.9	5.7
GDP at current prices	10.9	7.6	15.6	13.6	11.6	11.4
GDP deflator	9.8	7.5	9.9	8.6	6.4	5.4
Consumer Prices						
Annual average	9.7	8.2	8.1	8.4	7.0	5.5
End of period	9.0	7.3	8.7	8.1	6.0	5.0
External sector						
Exports (in US$ terms)	4.7	-18.5	23.5	14.2	22.3	10.9
Imports (in US$ terms)	26.1	-6.7	4.0	2.7	5.0	9.4
Money and Credit						
Net foreign assets	-8.3	-11.0	7.4	9.9	7.3	3.5
Net domestic assets	20.6	31.2	4.1	10.9	3.7	8.0
Net claims on government	7.5	17.2	-0.6	1.9	0.4	-0.3
Credit to non-government sector	13.7	10.8	4.7	9.0	3.3	8.3
Broad money	12.3	20.3	11.6	20.8	11.0	10.4
Reserve money	14.5	2.6	10.4	16.2	12.2	4.4
Central Government Finances (% of GDP)						
Total revenue and grants	22.3	19.3	21.1	20.5	20.8	21.0
Revenue	18.2	17.8	19.0	18.1	18.3	18.5
Grants	4.1	1.5	2.1	2.4	2.5	2.5
Total expenditure and net lending	26.5	28.3	21.3	21.2	23.8	23.4
Current expenditure	17.9	18.4	15.6	15.8	15.5	15.3
Capital expenditure	8.4	9.9	5.6	8.2	8.3	8.1
Overall budget balance						
Excluding grants	-8.3	-10.5	-2.3	-3.1	-5.5	-4.9
Including grants	-4.2	-8.9	-0.9	-0.6	-3.0	-2.4
Current Account Balance						
Including official transfers	-17.6	-20.2	-12.2	-12.1	-10.3	-11.3
Excluding official transfers	-19.4	-20.4	-13.6	-12.6	-10.8	-11.8
Overall balance of payments	-0.9	-5.2	1.5	1.6	0.8	-0.6
Gross official reserves (months of imports)	3.7	2.2	3.0	3.2	3.4	3.7
External public debt	25.9	25.8	27.1	28.3	30.4	31.8
Total public debt	43.8	50.7	52.1	49.2	48.7	47.4
Nominal GDP (GNF billion)	**46,901**	**50,457**	**58,335**	**66,266**	**73,963**	**82,388**

Source: International Monetary Fund; Bank staff estimations and projections.

MALI

Growth remained robust in 2016 at 5.4 percent, driven by higher public investment and a solid performance in all sectors owing to favorable weather conditions and improvements in the business climate. The economic outlook is positive with projected robust GDP growth, a sizable decline in the fiscal and current account deficits, and subdued inflation. It is nonetheless subject to downside risks linked mainly to the fragile security conditions, governance issues, and climatic conditions.

Recent Developments

Growth has been robust since 2014. It reached 5.4 percent in 2016, driven by solid performances in all sectors. The primary sector grew by 5.4 percent due to favorable weather conditions, expanded access to inputs, and extension of agricultural land under cultivation. The tertiary sector expanded by 6.3 percent, led by renewed impetus in telecommunications. After a 1.1 percent contraction in 2015, the secondary sector rebounded by 4.5 percent thanks to vibrant agribusiness activities while gold mining production continued to decline following the closure of two mines.

On the demand side, private consumption and public investment supported economic activity. Private consumption grew by 5.3 percent, fueled by income earnings in rural areas and stable food prices in urban areas. Public investment rose by 36.6 percent, reflecting the government's efforts to bridge infrastructure gaps including investments related to the Peace Agreement, and increased acquisitions of defense equipment. One-third of public investment was financed by development partners. Conversely, private investment, mainly concentrated in the mining and telecom sectors, increased more moderately by 5.6 percent.

The external current-account deficit further deteriorated in 2016 to -7.7 percent of GDP, as higher public investment and household consumption outweighed a decline in fuel imports. It was partly financed by capital and financial account surpluses, mainly in the form of debt (3.6 percent of GDP), foreign aid (1.4 percent of GDP), and foreign direct investment (0.9 percent of GDP). As a result, Mali's net foreign assets at the central bank depleted by 18.7 percent and are equivalent 1.5 months of imports.

The overall fiscal deficit widened from -1.8 percent of GDP to -4.3 percent in 2016 due to substantial increases in public investment in spite of significant improvements in domestic revenues. Tax revenue accounted for 14.9 percent of GDP, up 0.9 percent of GDP compared with 2015. Nonetheless, tax revenues remained well below the WAEMU convergence criterion of 20 percent of GDP and the regional average. The marked increase in tax collection stemmed primarily from increased fuel taxation, implementation of reforms to broaden the tax base, and reduced tax exemptions. However, the debt-to-GDP ratio has slightly decreased from 30.9 percent to 29.7 percent, reflecting the moderate risk of debt distress incurred by the country.

Inflation remained subdued at -1.9 percent, well below the WAEMU convergence criterion of 3 percent, due to good crop production and lower international petroleum prices despite the depreciation of the CFA franc against the dollar. This was also the outcome of prudent exchange rate and monetary policy management at the regional level by the BCEAO, the central bank of West African states. Over the recent period, the BCEAO adopted an accommodative policy stance by increasing its refinancing to commercial banks to make up for the poor performance of the interbank market and promote lending to

support regional economic activity. However, in December 2016, the BCEAO started to tighten its policy in response to larger regional fiscal and current account deficits in order to secure the consistency of the CFA franc peg to the Euro.

The economic slowdown following the security and political crises in 2012-13 led to a 2.6 percentage point rise in the extreme poverty rate – to 50.4 percent in 2013 – compared to 2011. Nonetheless, exceptional agricultural output growth since 2014 coupled with the tertiary sector expansion led to strong GDP per capita growth and a decline in the poverty rate, estimated at 43.9 percent in 2016. Inequality is also likely to have waned, since the revenue increase would mostly benefit households working in the agricultural and tertiary sectors which are most affected by poverty.

Outlook

Mali's economy is projected to grow by around 5 percent annually over the period 2017-19, reflecting a return to normality and a gradual tapering off of the recent surge in international aid. All economic sectors are expected to have a positive contribution to growth, albeit, in varying magnitudes. The tertiary sector should be the most vigorous, with a growth rate averaging 6.6 percent, thanks to the momentum in telecommunications. The primary sector's growth will level off to around 5 percent, matching the growth rate of the economy as a whole owing to the good performance in agriculture (especially irrigated rice), while the secondary sector's growth rate is expected to slow down from 5.0 percent in 2016 to 2.2 percent in 2019, due to continued decline in gold production.

The current account deficit is projected to narrow down – though remaining sizeable – from -7.7 percent in 2016 to -5.3 percent in 2019 on account of fiscal consolidation and sustained tighter monetary policy by the regional central bank, which is expected to dampen imports. In the same vein, the fiscal position is expected to strengthen from -4.3 percent of GDP in 2016 to -3.0 percent in 2019 owing to improved domestic revenue mobilization and the maintenance of greater discipline in recurrent expenditure. As a result, public debt is expected to rise gradually to 31.6 percent of GDP. Inflation will remain below 1 percent, reflecting sustained food crop growth and low global inflation.

The poverty rate is also projected to decline steadily. The continuation of the robust expansion of the Malian economy over the period 2017-19 will result in rising per capita GDP and a concomitant reduction in the poverty rate to about 39.4 percent in 2019.

Risks and Challenges

Mali's solid economic outlook is subject to substantial and persistent downside risks. Slow implementation of the peace agreement and of the restoration of security throughout the country could dampen economy-wide growth. This would hamper sustained improvements in the welfare of households in conflict-affected areas and the return and reintegration of displaced households and refugees. Also, economic governance risks are affecting the efficiency of public financial management, the assistance of development partners and the creation of a more attractive business climate. Weather-related shocks pose a serious risk to agricultural production and global warming might intensify this threat over time. Finally, any further decline in global gold or cotton prices could destabilize the external accounts, as these commodities represent the bulk of Mali's export revenues.

MALI: SELECTED ECONOMIC AND FINANCIAL INDICATORS, 2014–19

	2014	2015	2016	2017	2018	2019
	(Annual change in percentage)					
National income and prices						
Real GDP	7.0	6.0	5.3	5.3	4.8	4.7
GDP deflator	1.6	2.8	1.5	1.7	1.1	0.8
Consumer price inflation (average)	0.9	1.4	-1.6	1.0	1.4	1.7
Money and credit (contribution to broad money growth)						
Credit to the government	0.8	1.6	8.6	7.3	2.9	0.0
Credit to the economy	12.4	14.6	17.2	10.2	5.2	5.0
Broad money (M2)	7.1	13.2	18.9	14.4	8.2	5.6
	(In % of GDP, unless otherwise indicated)					
National Accounts						
Private consumption	74.8	73.5	82.2	80.7	78.7	78.5
Public consumption	16.3	16.2	17.1	17.2	16.9	16.9
Private investment	11.2	10.1	10.1	10.1	10.1	10.1
Public investment	6.5	7.3	9.3	9.6	9.4	9.3
Exports of goods and services	22.5	22.0	21.7	22.1	21.3	20.7
Imports of goods and services	38.0	38.9	40.4	39.6	36.4	35.4
Central government finances						
Overall balance (payment order basis)	-2.9	-1.8	-4.3	-4.1	-3.5	-3.0
Overall balance (cash basis)	-2.4	-3.2	-4.3	-4.1	-3.6	-3.0
Domestic debt (end period)	6.3	7.5	6.8	7.0	7.0	7.0
Total debt	27.3	30.9	29.7	30.0	30.7	31.6
External sector	(In % of GDP, unless otherwise indicated)					
Current external balance, including official transfers	-4.7	-7.3	-7.7	-6.8	-5.3	-5.3
Current external balance, excluding official transfers	-12.7	-14.3	-17.0	-15.9	-13.3	-12.8
Exports of goods and services (annual change in percentage)	-1.9	6.7	5.2	8.9	2.5	2.2
Imports of goods and services (annual change in percentage)	3.4	11.5	11.2	4.9	-2.5	2.4
Debt service to exports of goods and services	3.5	6.3	4.1	5.2	3.8	4.3
External debt (end period)	21.0	23.4	22.9	23.0	23.7	24.6
Nominal GDP (FCFA billion)	**7,114**	**7,748**	**8,285**	**8,870**	**9,401**	**9,923**

Source: Malian authorities; IMF and Bank staff estimates.

NIGER

Growth gathered momentum in 2016, standing at 4.7 percent despite security threats, persisting low commodity prices, and trade shocks. While the economy gained strength in 2016 and fiscal and external current account deficits declined, challenges remain. This includes sustaining growth in spite of the presence of shocks while continuing the process of fiscal consolidation. Poverty is projected to decline only modestly over the medium term owing to moderate per capita growth.

Recent Developments

Niger's economy is gradually recovering but persisting shocks have kept per capita growth very low. Economic growth is estimated at 4.7 percent in 2016, compared with 3.5 percent in 2015, supported by the good performance of agriculture. On the demand side, the impact of a sharp decline in public investment, the persistent commodity price shock, disruptive security developments, and the spillovers from the Nigerian crisis on trade have kept growth under the potential output level. Inflation has remained subdued at around 2 percent of GDP.

The external current account deficit narrowed in 2016 due to cuts in high-import-content public investment. The deficit decreased from 18.1 percent in 2015 to 15.4 percent of GDP as imports significantly declined, offsetting lower uranium exports value and reduced net exports to Nigeria. The deficit was financed mainly by foreign direct investment and aid (9.5 percent of GDP). Niger's net foreign assets remained at a comfortable level, equivalent to 4.2 months of imports.

The Government adjusted cut capital spending by about 5 percentage points of GDP in 2016. As a result, the fiscal deficit (including grants) improved from 9.1 to 6.5 percent of GDP between 2015 and 2016, reversing the upward trend over the past three years. Although Niger's risk of debt distress is still deemed moderate (DSA in December 2016), public debt reached 47 percent of GDP in 2016 compared to 22.6 percent in 2013.

Domestic credit to government increased in 2016 due to a tax revenue shortfall and a delay in external support disbursement. This has contributed to a deceleration of credit to the private sector. Most of the banks meet the prudential requirements but key risks stem from growing exposure to the public sector, both through holdings of government bonds and the incurrence of domestic arrears. The share of non-performing loans increased from 17.5 to 18.5 percent of total loans between 2015 and 2016, above the WAEMU average of 16 percent in 2015.

Niger is a member of the WAEMU. Over the recent past, Niger has met the inflation convergence criterion of 3 percent as monetary policy is anchored in the regional policy. The nominal exchange rate is pegged to the Euro and the exchange rate remains broadly in line with fundamentals as suggested by an EBA-lite methodology. Regional reserve coverage declined, standing below 4 months for the first time in 20 years due to the widening current account deficit and delayed fiscal consolidation. The BCEAO decided to limit access to refinancing by banks to a maximum amount of twice a bank's capital in December 2016.

Based on the international poverty line (US$1.9 a day, PPP terms), Niger's poverty rate was 50.3 percent in 2011 and dropped to 45.7 percent in 2014. Income poverty fell faster in the capital city of Niamey and other urban areas between 2005 and 2014 thanks to food price subsidies and expansionary government spending on investment projects. Across all regions, population growth rates are high and as a result, the absolute number of people living in poverty continues to rise despite a 10 percentage point decline in the poverty rate over the last decade. The poverty outlook for the period 2016-19 is expected to decline by just 1.5 percentage points.

Outlook

The economic outlook remains positive. Growth is projected to rise to 5.2 percent in 2017 and to 5.5 percent during 2017-19, driven by the expansion of irrigated agriculture, increased oil and mining outputs from the Madaouela Mine and the development of the telecommunications sector. Inflation is expected to remain subdued at 2 percent, anchored in the regional policy and aided by a positive agricultural output.

The fiscal deficit is projected to decline between 2017 and 2019. The fiscal consolidation is expected to be sustained with a decrease in public investment (except in 2017 to finance already identified investments in infrastructure and the social sectors) and tax and customs administration efforts kicking in. The external current account deficit is projected to rise to about an average of 18.6 percent of GDP in 2017-19 to reflect increased public investment in 2017 and capital and intermediate goods imports associated with FDI. Gross official reserves are projected to stabilize at 4 months of imports of goods and services, aided by external support.

Risks and Challenges

While the outlook is broadly favorable, **Niger faces key challenges**. The first challenge is related to diversifying Niger's sources of growth. Agriculture is the main contributor to growth out of which most of the population and the poor earn their living. Niger also needs to strengthen its export base and competitiveness, including infrastructure development. The second challenge pertains to sustaining fiscal consolidation while ensuring that development needs are adequately financed. On the revenue side, Niger needs to strengthen its revenue mobilization capacity in order to allow sufficient room for absorbing the impact of security and commodity price shocks on the budget. Lastly, recurrent revenue shortfall has either increased fiscal deficit and domestic debt or resulted in significant cuts in public investment, thereby affecting the country's development outcomes. Stepped-up efforts at enhancing expenditures efficiency also feature among the priorities of the Government as fiscal consolidation entails reducing public investment for the coming years.

SELECTED ECONOMIC AND FINANCIAL INDICATORS, 2013-2020

	2013	2014	2015	2016	2017	2018	2019	2020
Population and Poverty								
Population, total (millions)	18.3	19.1	19.8	--	--	--	--	--
Poverty headcount US$1.9/day in PPP terms	■	45.7	45.8	45.6	45.4	44.9	--	--
Inequality - Income Gini	--	33.9	34.0	--	--			
Population Growth (annual %)	4.0	4.0	4.0	--	--	--	--	--
Life Expectancy	60.8	61.4	--	--	--			
Real Economy	**(annual percentage change, unless otherwise specified)**							
Real GDP	5.3	7.0	3.5	4.5	5.2	5.5	5.4	7.4
Non-resources GDP	4.2	7.9	4.1	4.3	5.0	5.6	5.5	6.0
Per Capita GDP (US$ Atlas Method)	372.7	382.7	380.5	383.7	388.2	395.3	402.4	...
Consumption	4.5	10.8	5.9	4.8	7.7	7.2	6.9	8.7
Government Consumption	24.5	14.8	20.7	-7.3	7.8	2.1	2.9	5.7
Private consumption	2.6	10.4	4.0	6.6	7.7	7.8	7.3	9.1
Investments	8.7	5.1	12.8	-3.0	14.3	9.9	7.9	1.7
Public Investment	31.6	28.9	8.7	-25.9	19.9	4.2	2.9	9.1
Private investment	-0.3	-7.1	15.8	12.5	11.8	12.6	10.1	-1.4
Imports	6.1	6.8	10.3	-6.2	16.2	9.7	8.2	10.3
Exports	10.6	-0.3	-7.8	-3.4	10.8	9.9	10.0	30.5
Consumer price inflation (average)	2.3	-0.9	1.0	1.6	1.2	2.1	2.0	2.0
Fiscal Accounts	**(Percent GDP, unless otherwise indicated)**							
Expenditures	27.2	31.0	32.7	26.5	28.1	27.3	26.4	26.0
Revenues	16.6	17.5	18.1	15.3	16.1	16.8	17.5	19.1
Overall bal.(commit.basis, incl.grants)	-2.6	-8.0	-9.1	-6.5	-7.4	-6.0	-4.7	-2.9
	(Annual change, in percent of beginning-of-period broad money)							
Selected monetary Accounts								
Base money	10.1	25.7	3.6	14.4	9.4	9.7	11.5	9.6
Credit to non-government	2.5	6.1	6.8	7.5	4.2	4.3	3.9	4.6
Balance of payments	**(Percent GDP, unless otherwise indicated)**							
Current Account Balance (excl. grants)	-15.1	-15.4	-18.1	-15.4	-18.0	-18.5	-18.1	-15.4
Imports of goods and services, f.o.b.	26.3	26.2	27.5	25.3	26.7	27.3	27.7	28.1
Exports of goods and services, f.o.b.	20.7	17.5	15.2	13.8	13.8	14.3	14.8	17.9
Foreign Direct Investment	8.1	8.9	6.9	7.7	8.8	10.5	10.9	8.9
Gross reserves (months of imp. Eq)	4.2	4.8	4.6	4.2	3.9	4.0	4.0	4.1
Total Public Debt	27.2	33.7	41.9	47.0	51.5	53.0	53.9	52.4
Public External Debt	22.6	25.1	30.4	34.1	35.8	37.1	36.8	38.5
Public Domestic Debt	4.6	8.7	11.5	12.9	15.3	16.0	15.8	14
Foreign aid	11.1	8.9	10.4	9.5	9.0	8.9	8.4	7.5
Terms of trade (percentage change)	-3.1	-9.4	-7.5	11.0	-4.9	1.2	-4.7	-4.7
Exchange rate (average)	494.2	536.8	596.9	596.9	596.9	...	...	...
Memorandum items:								
GDP (Nominal-LCU, billions)	3,703	4,077	4,242	4,430	4,761	5,130	5,504	5,993
GDP (current US$, billions)								

Source: Nigerien authorities; IMF and World Bank staff estimates, 2016.

AFCW3 ECONOMIC UPDATE

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What Role for Policy Reforms?

SPRING 2017

WORLD BANK GROUP