Macroeconomic Management for Poverty Reduction:

CHAD, MALI, NIGER

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SPRING 2016

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PREFACE

I am glad to introduce the first edition of a series of reports aimed to discuss macroeconomic developments in Central African Republic, Chad, Mali, and Niger. This series intend 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 get the regional trends and analysis quickly, even if the presentations are less than fully polished. In short, this new series is a new vehicle for the Bank to pitch priority policy reforms not yet properly tackled or even debated in these countries. The findings, interpretations, and conclusions expressed in this report are entirely those of the World Bank staff and do not necessarily represent the views of the World Bank Group and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

The three countries covered in this first report—Mali, Chad and Niger—share a number of common characteristics and face a similar set of challenges, which provides the foundation for this joint-review approach. All three are low-income landlocked economies. Each relies heavily on the agricultural sector as its primary source of income and livelihoods, and each has a large livestock subsector that is based in part on traditional nomadic pastoralism. All countries have important natural resource industries—gold for Mali, uranium and oil for Niger, and oil for Chad—which represent the bulk of export earnings and public revenue. This dependence on the primary sector renders these economies highly vulnerable to weather-related shocks and volatile commodity prices. Each is struggling to overcome a legacy of instability and violence, which is complicated both by the fragility of domestic socio-political conditions and the severity of regional security challenges. Finally, all three countries are members of a monetary union that uses a regional currency pegged to the euro and exercises significant influence over the macroeconomic policies of its member states.

Despite their commonalities, presented in Section I, each country faces unique development challenges as well as opportunities to accelerate economic growth, poverty reduction and shared prosperity, as discussed in Section II. In Chad the collapse of global oil prices is severely straining the public finances. In Mali governance issues have emerged as a fundamental constraint to growth. And in Niger the authorities' ambitious development plans entail substantial borrowing, exposing the country to debt-sustainability and absorption-capacity risks.

PREFACE (continued)

At the center of the trade-off between stabilization and development lies public investment management, at macroeconomic and financial management levels. Faced with repeated negative shocks, countries tend to cut ongoing and planned public investment projects which are often designed to reduce drivers of fragility and strengthen the resilience of economies, thus perpetuating risks of falling into fragility traps. Hence, Section III discusses the impact of public investment volatility on its quality in Chad, Mali and Niger, and explores possible options in terms of macroeconomic and public financial management to smooth public investment budget execution.

Finally, I also want to express our gratitude for the cooperation and multiple contributions of our government counterparts and development partners in these countries during the many years of working together side by side. Their encouragement and technical advice on development-related policies have created an exceptional atmosphere for knowledge exchange. It is my hope that this new series will further contribute to this exchange of views, and bring some of the important topics discussed between Governments and the World Bank to the public domain for information to and feedback from citizens.

Paul Noumba Um
Country Director
Mali, Niger, Chad and Central African Republic

I. Common Challenges and Recent Development Outcomes

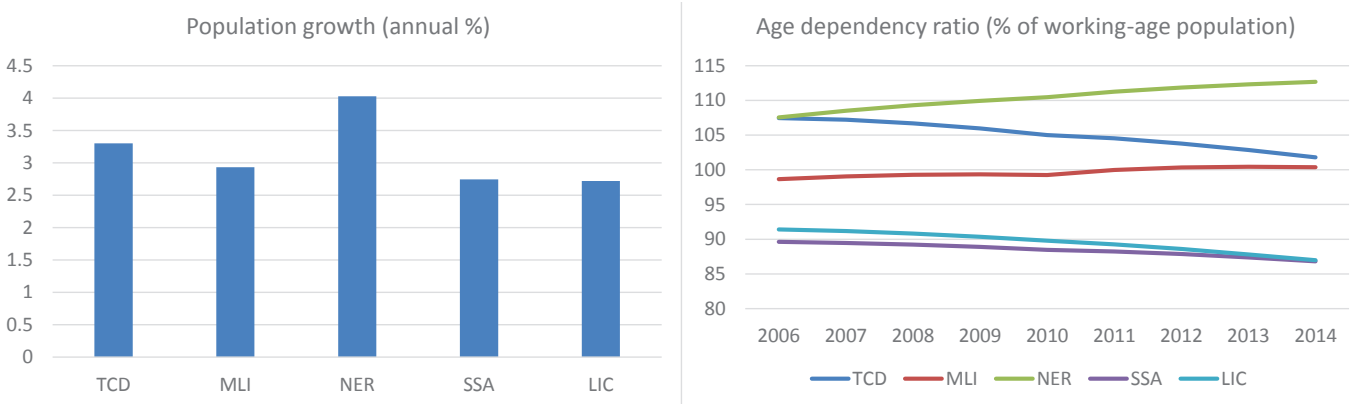
Common Structural Challenges

Macroeconomic management in Chad, Mali and Niger needs to account for a number of specific parameters. Very rapid population growth exerts immense pressure on the demand for education and health services. Economic activity and prices are strongly influenced by climatic variations, and exports and government revenues depend on a few commodities whose price widely fluctuate. Security threats complicate budget planning and divert public resource from developmental uses. Belonging to monetary unions strengthens macroeconomic stability, but limits as well the range of policy instruments at the disposal of countries' authorities to address the many developmental challenges they face.

1. **Besides being neighbors of broadly the same geographic (from 1.2 to 1.3 million km2) and population sizes (from 13 to 17 millions), Chad, Mali and Niger share a number of commonalities which have direct bearings on macroeconomic management.**

2. **First is their demographic structure and related growth in populations.** In all three countries, the process of demographic transition (from high birth and death rates to low birth and death rates) is engaged, with the decline in mortality rates, thanks to improved health services. However, the decline in birth rates has not yet started, and this is resulting in extremely rapid population growth rates, above 3 percent every year. Such growth is exerting huge pressure on the environment (land and water in particular), demand for public services, and labour markets given the high proportion of new entrants every year. Besides, at this stage of the demographic transition, age dependency ratios in Chad, Mali and Niger are among the highest in the world. In Niger, for every person in age of working (15-64), there is 1.1 person not supposedly in age of working as too young or too old. Such dependency puts a heavy burden on breadwinners (and similarly on governments), which face the difficult trade-off between supporting their dependents on the one hand, and saving to grow and be safer in the future on the other hand.

Figure 1: Rapid Population Growth and High Age-Dependency

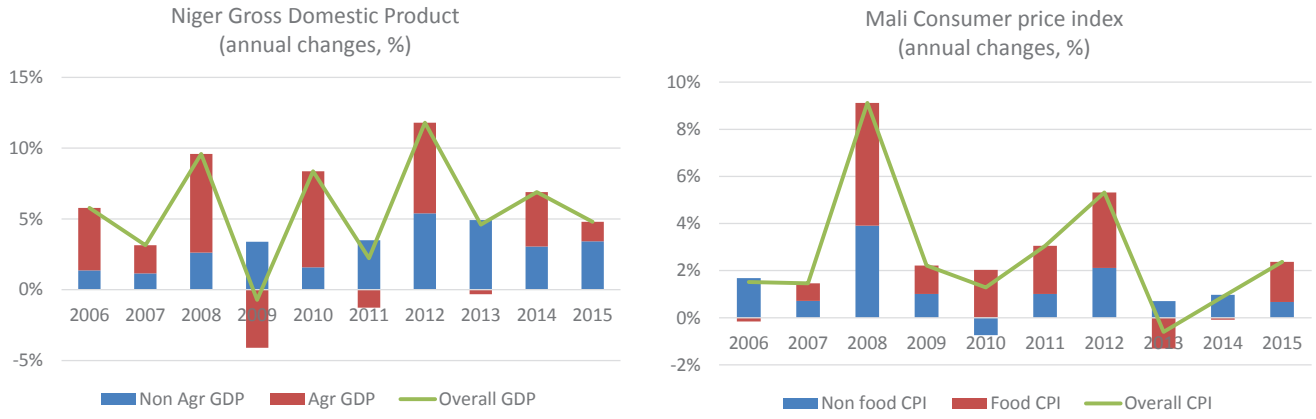


Source: World Development indicators.
Note: SSA: Sub-Saharan Africa ; LIC: Low Income Countries

3. **Second is their geography and climate.** Being all Sahelian countries, Chad, Mali and Niger are increasingly vulnerable to climate change, which, through the growing unpredictability of rains and occurrence of droughts and floods, exacerbate food security issues stemming from structural lack of water and poorly integrated food markets. Being land locked further compounds the problem of food security, as rendering costly the import of food and other products. Between 2012 and 2015 and out of 109 countries (first being best, last being worst), Chad ranked between 107th and 108th in terms of food security; Mali ranked between 86th and 103rd; and Niger between 93rdand 102nd.[1]

4. **Weather – related variability in agricultural production has a very strong impact on two key macro-economic variables,** Gross Domestic Product (GDP) and Consumer Price Inflation (CPI). Between 2005 and 2015, variations in agricultural GDP growth rates contributed respectively in Chad, Mali and Niger for 79, 84, and 84 percent to variations in overall GDP growth rates. Likewise, between 2005 and 2015, variations in food CPI contributed respectively in Chad, Mali and Niger for 90, 85, and 89 percent to variations in overall CPI.[2] The transmission of agricultural volatility to macroeconomic aggregates can be visualized in the following charts, which depict the contribution of agricultural and non-agricultural GDP growth to overall GDP growth in Niger, and that of food inflation and non-food inflation to total inflation in Mali. Given the very high degree of informality of the agricultural sectors in Chad, Mali, and Niger, fiscal and monetary policies can hardly smooth such variations in output and prices, with important consequences for the poor households who derive most of their incomes from agriculture and spend most of it on food.

Figure 2: The Impact of Agriculture on Macroeconomic Volatility



Source: World Bank staff calculations based on authorities' data.

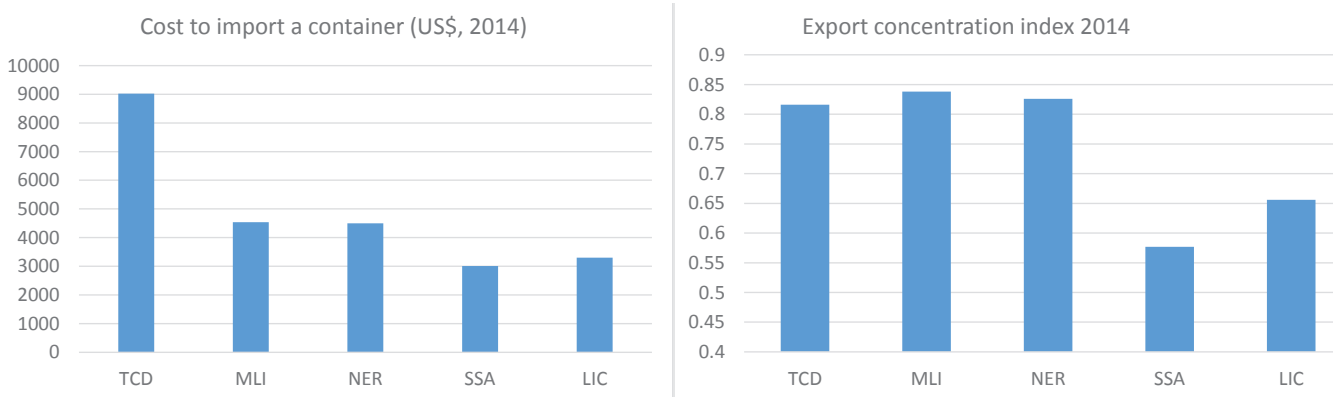
5. **More generally, if land-locked Chad, Mali and Niger are relatively immune to some of the global financial shocks (but not commodity or security shocks, as discussed below), it also means that their economies can hardly rely on global markets to grow faster,** except for high-value goods for which transport costs represent only a small share of the price (for instance gold and uranium, but also drugs.). Low economic development (with subsistence farming still being the first source of livelihood and employment) and related **lack of economic diversification and**

[1] Source: Economist Intelligence Unit (2015). The food security index combines indicators of food availability, affordability and quality and safety.

[2] The contribution of agriculture is measured by the adjusted R-square of the regression of the GDP growth rate on the agricultural GDP growth rate. Likewise, the contribution of food is measured by the adjusted R-square of the regression of the inflation rate on the food inflation rate. This method allows to measure both direct and indirect impacts of agriculture (food) on larger aggregates.

high trading costs has resulted in a high concentration of exports in a few products: gold for Mali; uranium for Niger; oil for Chad. Consequently, Mali and Chad have been particularly exposed to large terms of trade variations resulting from global commodity price volatility.[3] Niger is on the other hand less exposed given the singularity of the uranium market, where prices are generally locked in long term contracts.

Figure 3: High Trading Costs and Trade Concentration



Sources: World Development indicators and UNCTAD.
Note: SSA: Sub-Saharan Africa ; LIC: Low Income Countries

6. **Third are their drivers of fragility.** Youth bulges and unemployment, poor governance and weak State legitimacy, and external destabilizing factors are commonly considered as important factors of fragility in Chad, Mali, and Niger. In recent years, they have been reflected in violent transitions in power (Niger 2010, Mali 2012, and alleged coups attempts in Niger and Chad in 2014 and 2015), internal conflicts (Mali since 2013), deadly riots (Niger 2015), and terrorist attacks (Niger 2013, Mali 2014-15, Chad 2015). Fragility is further compounded by the contagion effects of open conflicts in Libya, Nigeria and Central African Republic, the protracted presence of large refugee and internally displaced populations (IDP), cross-(porous) border drug trafficking and increasing flows of migrants transiting through the Sahel to reach Europe.

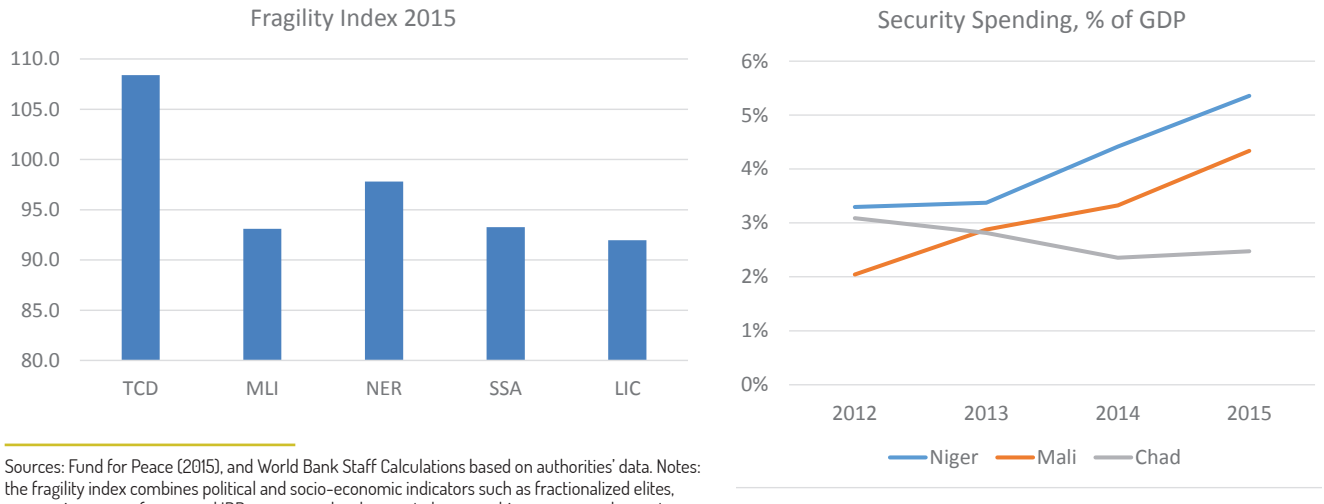
7. **From a macroeconomic and fiscal management perspective, such fragility has been reflected in all 3 countries in high (and increasing in Mali and Niger) security spending.**[4] While necessary and strengthened by the presence of UN-backed international military forces, increased security spending nonetheless reduces fiscal resources available for poverty reduction programs, complicates budget management (as often translating into significant within-year adjustments in budget composition and levels), and has raised concerns in terms of governance. In 2014, important

[3] Between 2009 and 2014, Niger's terms of trade volatility has been 3 times higher than that of low income countries on average; Mali's has been 6 times and Chad's 10 times higher. Such volatility stems mostly from export price volatility. In all three countries, imports are mostly constituted of manufactures and equipment goods, whose prices, expressed in euros/CFA have been relatively stable in the last decade. In 2012, oil represented about 20% of Mali's imports, and about 17% of Niger's total imports. Chad is a net oil exporter.

[4] Security spending may not be strictly comparable across the three countries, as not necessarily encompassing the same institutions (e.g. defense, police, and customs) and functional classifications. In some cases, security spending is also not monetized, as for instance when executed through in-kind assistance from partners. The difficulty to properly assess the impact of security campaigns on fiscal accounts creates a challenge for budgetary planning and overall macroeconomic management.

off-budget expenditures were uncovered in Mali, revealing severe public financial management irregularities in the procurement of military expenditures, and prompting donors to delay their financial support to the budget.

Figure 4: Fragility and Cost of Security



Sources: Fund for Peace (2015), and World Bank Staff Calculations based on authorities' data. Notes: the fragility index combines political and socio-economic indicators such as fractionalized elites, group grievance, refugees and IDP, or uneven development, demographic pressure and poverty among others. According to this index, Mali and Niger were classified in 2015 in the "Alert" category and Chad in the "High Alert" category.

8. **Fourth is their membership to a monetary union.** Mali and Niger belong to the West Africa Economic and Monetary Union (UEMOA) and Chad belongs to the Economic and Monetary Community of Central Africa (CEMAC). In both unions, Mali and Niger on the one hand, and Chad, on the other hand, share a common currency with several other union members; and that currency is pegged to the Euro. Monetary policy is thus relinquished to regional central banks (BCEAO and BEAC respectively), whose principal mandate is to maintain price stability. Over the years, BCEAO, and to a lesser extent BEAC, have established strong track records in terms of price stability, in part because they have contained fears of devaluation through the credible protection of the peg with the Euro. The downside of these arrangements is however for Chad, Mali and Niger to be left with fiscal policy as the sole instrument to address many, and sometimes contradicting, challenges ranging from macroeconomic stability to economic development and competitiveness. The influence of fiscal policy on economic outcomes – often referred to as "fiscal dominance", is reinforced by the shallowness of financial sectors, as well as by the lack of economic integration between members of the monetary unions,[5] making monetary policies relatively ineffective.

Recent Development Outcomes

Starting from higher levels, poverty incidence has declined more rapidly in the last decade in Niger than in Mali and Chad. In all three countries, inequalities rose at the expense of the poorest, including in Mali in the recent years with the security crisis. Given different growth patterns, the impact of GDP growth on poverty widely differs across the three countries.

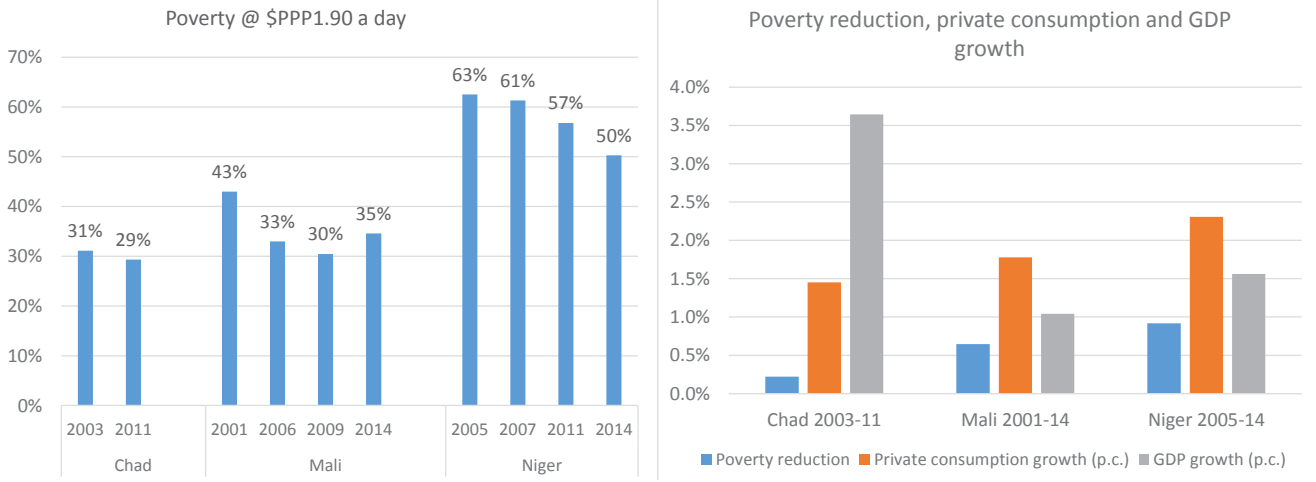
[5] See also Section III, in which is discussed the asymmetric nature of shocks in UEMOA, making it impossible for the BCEAO to address simultaneously a negative and a positive shock in two of its member countries.

In 2015, Niger and Mali went back close to their long-term growth trajectory of approximately 5 percent per year (1 to 2 percent in per capita terms). Inversely, Chad's per capita growth was negative and the non-oil sector entered into a severe economic recession, given the poor agricultural harvest, the security-induced inflated costs of doing business, and the fiscal adjustment imposed by the sharp decline in oil revenues.

9. **In recent years, Chad, Mali and Niger recorded different poverty reduction trends.** Comparison of poverty patterns between countries and over time is made difficult by the use of different methodologies to collect information on households' consumption (sample, questionnaires, etc.), and efforts are now underway to encourage all UEMOA (and Chad) countries to adopt similar methodologies. Nonetheless, poverty estimates for all three countries using indirect methods to ensure comparability over time and across countries suggest a number of interesting findings. Using a comparable poverty line for all three countries (the purchasing power equivalent of what could be bought with US$1.9 a day in the United States in 2011), Niger' share of population in poverty in 2011 (57 percent) was higher than that of Chad (29 percent); and Mali was probably in between – around 30-35 percent, based on the available observations for 2009 and 2014. Starting from higher incidence of poverty, Niger's poverty reduction trend (2005-14) was more pronounced than that of Mali (2001-2014), or Chad (2003-11). In Mali, part of the gains recorded in poverty reductions between 2001 and 2009 were also reversed in the very recent years, probably to some extent because of the political and security crisis which erupted in 2012 and led to massive population displacements and negative per capita GDP growth in 2012 and 2013.

10. **The comparison of poverty reduction (measured by the annual change in percentage points) with per capita private consumption growth allows to measure how consumption growth was distributed between poor and non-poor households.** Chad, Mali and Niger recorded broadly similar annual per capita private consumption growth, comprised between 1.5 and 2.3 percent. Yet, Chad (0.2 percent) recorded much lower annual poverty reduction than Mali (0.6 percent) or Niger (0.9 percent). This is consistent with the observation made in recent analyses (World Bank 2015b), that the poorest in Chad saw their consumption actually decline between 2003 and 2011, mostly in rural areas; and that the poorest in Mali saw on the contrary their consumption grow more rapidly than the richest over the period 2001-9 (World Bank, 2015a). The most recent years (2009-14), however, witnessed a significant rebound in inequality in Mali, somewhat weakening this argument. In Niger, poor households saw their consumption increase over the period 2005-14, though less rapidly than the non-poor: poverty declined, but inequality increased.

Figure 5: Poverty Trends and Patterns



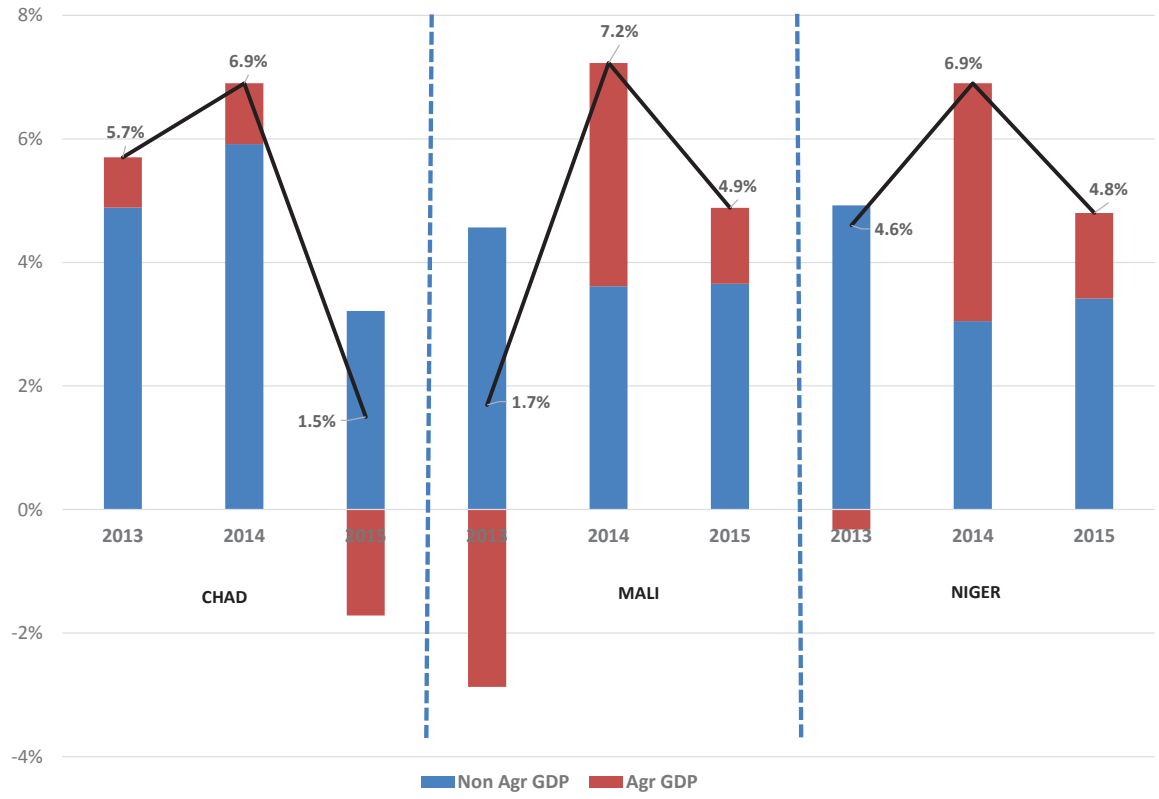
Source: World Bank staff calculations based on authorities' data and World Development Indicators. Notes: Poverty, private consumption and GDP aggregates are measured in Purchasing Power Parities (PPP) terms, at 2011 prices. P.c.: per capita.

11. **Different growth models in Chad, Mali and Niger produced different poverty outcomes.** Comparing per capita GDP growth with per capita consumption growth suggest different patterns of growth and contribution to poverty reduction across countries. In Chad, per capita GDP growth was rapid between 2003 and 2011, as pulled in particular by the inception of the oil industry in 2004. GDP growth, however, did not translate into correspondingly rapid private consumption growth. Most of the fruits of growth were absorbed by the public sector, in the form of consumption or investment. But related additional public services and infrastructure did not generate high returns in terms of households' private consumption, given their poor effectiveness and efficiency (World Bank 2015b). In Mali and Niger, a larger share of GDP growth accrue directly to households (agriculture, services) and is consumed, even if Niger increasingly encouraged in the recent years a growth model driven by public investment and financed by extractive industries. Thus, combining GDP-consumption and consumption-poverty nexuses allow to better measure and understand the contribution of GDP growth to poverty reduction: In Chad, GDP growth contribution to poverty reduction was very modest, though starting from a low level of poverty. In Mali and Niger, it was broadly similar, with one percentage point of GDP growth per capita translated into 0.6 percentage point decline in poverty. In the absence of regular households' surveys, these computations may provide some insights on to the impact of recent macroeconomic developments on poverty.

12. **In 2015, GDP growth caught back its long term trend of about 5 percent in both Niger and Mali,** following exceptional agricultural output growth in 2014. GDP Growth in Mali was driven by improved security conditions and continued high financial support from the international community, and was led by private services on the supply side and by investment on the demand side. In contrast, gold mining, and thus exports receipts (-9.8 percent, see Table 4) suffered from delayed opening of new fields and declining commodity prices. GDP growth in Niger followed the same pattern, with investment and growth in services offsetting decelerating growth in natural resource sectors and exports, see Table 5.

13. **Chad's non-oil economy entered in recession in 2015, with a negative growth of about 4 percent** (i.e., minus 7 percent in per capita terms). This negative performance resulted from the combination of three factors reinforcing each other. First was the strong decline in oil revenue, translating into reduced public demand for domestic goods and services, particularly affecting the administration and construction sectors. Second was the negative impact of deteriorated security conditions on trade and transport, as well as on private investment given growing uncertainties about Chad's economic prospects. And third was the drop in agricultural production (-12 percent compared with 2014), the result of erratic rains. Overall GDP growth nonetheless remained barely positive, at 1.5 percent, as new oil fields opened and led to increased production.

Figure 6: GDP growth, 2013-15



Source: World Bank staff calculations based on authorities' data.

II. Macroeconomic and Fiscal Management for Poverty Reduction

14. **Systematic Country Diagnostics conducted for Mali and Chad (World Bank 2015a, 2015b) similarly conclude that prospects for rapid poverty reduction through structural transformation out of agriculture remain modest in the foreseeable future.** A weak investment climate (often linked to governance issues), high dependency ratios, high transport costs and low economic and social mobility (given low levels of education and the difficulties faced by cities to provide economic opportunities to the poor) call for concentrating efforts and resources to secure livelihoods of poor rural households, through improved rural development and stronger redistribution efforts towards poor rural households. Specifically, SCDs underline that poverty reduction will necessarily result from improved cereal yields and production (in regions where currently grown) and trade (mostly within countries, even if greater integration to international value chains should certainly be sought when possible), as well as from the ability of these countries to complement accelerated pro-poor rural development with increased effective transfers of public resources to the poor, in the form of cash transfers for instance. From a macroeconomic and fiscal management perspective, this calls for the preservation of macro-economic stability, as well as from the expansion of key public programs for poverty reduction. In this section we discuss how Chad, Mali and Niger performed on these fronts in 2015, in light of a number of indirect indicators.

Macroeconomic Stability

Given their belonging to CEMAC and UEMOA monetary unions, Chad, Mali and Niger and relatively immune to ample price variations and balance of payments crises. Budget execution, on the other hand, concentrates and absorbs most of the shocks to which countries are exposed, in the absence of stabilization mechanisms. In 2015, improved tax collection efforts and lower oil prices helped Mali to clear arrears, accommodate large security expenditures and build up its fiscal buffers. Confronted with unexpected security needs and realizing the negative impact of expenditure arrears on the private sector, Niger undertook significant within-year budget adjustment. With unprecedented decline in oil revenues, Chad was forced to drastically cut its public expenditures, with severe consequences on service delivery and the non-oil economy, and to take on new debt, undermining gains just achieved in terms of debt sustainability with the attainment of the HIPC completion point. In Chad and Niger, the credibility of the fiscal policy stance could be significantly improved with greater budget transparency.

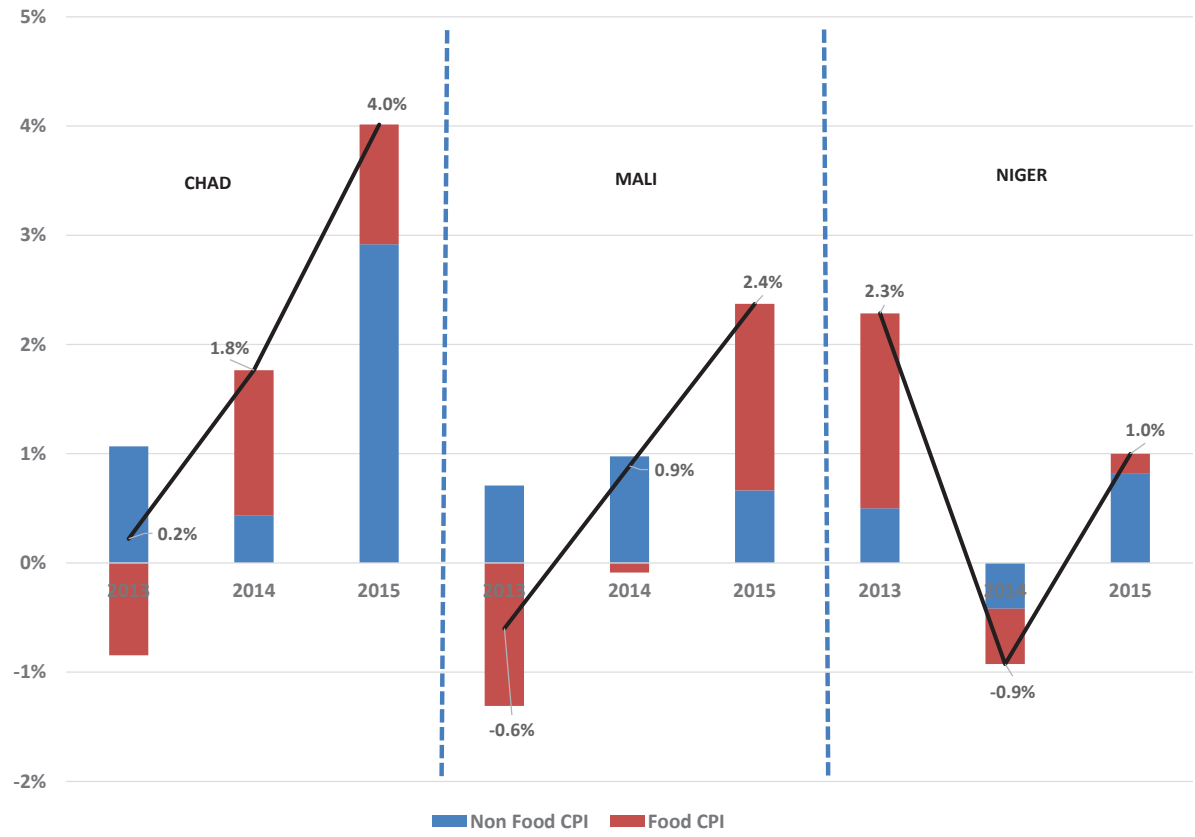
15. **A number of macroeconomic indicators are often used to measure the stability of the macroeconomic framework** (i.e. the avoidance of sudden disruptions in economic relationships between agents, which could take the form of abrupt changes in prices, defaults, or market failures). For the poor and vulnerable households' welfare in Chad, Mali and Niger, sudden changes in the price of goods produced and consumed[6] can be extremely harmful, as well as can be the discontinuation of key public programs, if effective and well targeted to the poor. In contrast, disruptions in the financial sector (but maybe in micro finance, which is the first source of access to finance of the

[6] In Chad, Mali and Niger, poor households are net food consumers, i.e. they consume more food than they produce and are thus negatively exposed to food price increases.

poor, even if limited) or in the balance of payments may be less damaging to the poor and only felt through indirect effects. Macroeconomic stability results in large part from Governments' efforts to maintain fiscal sustainability (i.e. the ability to finance its expenditures) and transparently communicate about it to build positive expectations, as well as from its ability to neutralize the economy from the many exogenous shocks to which it is exposed.

16. **In 2015, consumer price inflation accelerated in all three countries.** While food inflation accelerated in Mali and Niger with decelerating agricultural production growth, overall inflation also accelerated under the influence of central banks accommodating monetary policies, as well as from the depreciation of the Euro (and thus the CFA) against the US dollar. In all three countries, the decline in world oil prices was not passed through to the administered pump prices or electricity tariffs, and thus did not impact consumer price inflation. Compared with Mali and Niger, the acceleration of non-food inflation was more pronounced in Chad (despite the recession of the non-oil sector, as discussed previously), most likely because of the deterioration of the security situation on the main trade corridor Doula / N'Djamena, from which about 90 percent of Chad's imported manufactured goods transit. These security conditions forced traders to reduce the number of convoys and to use longer and more costly routes. The reduced price of meat products (-19 percent compared with 2014) stemming from security-related difficulties to export livestock in Nigeria and Cameroon only partially contained the overall increase in consumer prices.

Figure 7: Consumer Price Inflation, 2013-15



Source: World Bank staff calculations based on authorities' data.

17. **In 2015, fiscal management in Chad, Mali and Niger was driven by very different considerations, leading to different outcomes in terms of fiscal and debt sustainability.**

18. Confronted with the sharp decline in oil prices (leading to a 46 percent deterioration in its terms of trade in 2015), **Chad** also benefited from the increase in its oil production (stemming from past investment decisions), as well as from attaining the Highly Indebted Poor Countries (HIPC) Completion Point in March, thanks to renewed efforts in public financial and macroeconomic management since 2013. The former somewhat contained the decline in oil revenues, while the latter reduced Chad's debt service vis-à-vis traditional donors (writing-off total of US$1.1 billion to be reimbursed over the next 40 years). Nonetheless, these positive developments were largely insufficient to protect public expenditures and debt sustainability. Public expenditures dropped by 22 percent in nominal terms (and by 28 percent in real per capita terms) compared with 2014, and the public deficit, on a cash basis, widened to 6.0 percent of GDP. Chad's external debt (entirely public), which was still considered at high risk of debt distress after HIPC, became de facto unsustainable later in 2015 when authorities renegotiated with a private company the schedule to repay over the next years a total of US$1.4 billion, under the mutual understanding that it could not honor its debt service of US$400 million in 2015. In 2015, Chad also benefited from exceptional advances from the BEAC (US$240 million), a practice that had been de facto abandoned in the last decade given the risk that it can generate anticipations of accelerated inflation. Thus, while actions taken by Chadian authorities in 2015 have likely prevented further macroeconomic instability, fiscal and debt sustainability worsened in 2015, as the risk of an oil price slump that had been identified in past analyses effectively materialized.

19. In contrast, **Mali** benefited from declining international oil prices to increase tax revenues and reduce subsidies to the electricity utility, and improved tax administration (VAT and direct tax) further created some fiscal space. Part of this fiscal space was used to clear expenditure arrears audited in 2014/15 and to narrow the fiscal deficit (to 2.5 percent of GDP on a commitment basis), strengthening the financial sector soundness and lowering risks of external debt distress. Besides, efforts to deepen the transparency and executive accountability in public financial management were accelerated in 2015, in the following domains: external controls and accountability (through performance contracts) of local governments, census of civil service, officials' assets declaration, mining contracts, and procurement. These efforts are expected to reduce the governance risks which undermined budget execution in 2014, and to reinforce the credibility in budget execution at a time when plans for greater fiscal decentralization (in support of the implementation of the Algiers peace accords signed in 2015) could generate new fiduciary risks.

20. In 2015, **Niger** revised twice its Finance Law, reflecting the need for continuous adjustments in the face of shocks and the related structural vulnerability of the fiscal framework. While additional security and humanitarian spending was to be accommodated (+1.1 percent of GDP) and domestic revenue mobilization increased (+0.7 percent of GDP), budget execution was also affected by the continued increase in salaries and operational expenditures (which grew by 3.3 percent of GDP between 2012 and 2015, and by 1.0 percent of GDP in 2015 alone) reflecting to a large extent the rapid growth in the payroll of civil servants and contractual teachers. It was also affected by the urgent need to clear expenditure arrears (1.5 percent of GDP) accumulated in previous years given. Thus, given the continued high priority given to public investment (16.3 percent of GDP in 2015), the overall fiscal deficit on a cash basis widened from 6.8 percent of GDP in 2014 to 8.8 percent in 2015, while it dropped from 8.3 percent to 7.3 of GDP over the same period on a commitment basis. In turn, external public debt reached 33 percent of GDP in 2015, up from 27 percent a year before. Risks of debt distress continue to be assessed as moderate should authorities pursue their fiscal consolidation efforts, and strengthen debt, public investment and natural resource management.

21. **As representing respectively 15, 13, and 8 percent of the total GDP of their monetary unions, Chad, (CEMAC), Mali and Niger (UEMOA) can count on a much larger pool of foreign currency reserves to smooth temporary Balance of Payments (BoP) misalignments,** as well as on the credible commitment of the regional central banks to maintain the peg with the Euro. Risks of being unable to import key products (refined petroleum, food, drugs, fertilizers, etc.) are thus structurally low, and in recent years large variations in the current account balance were offset by symmetric variations in the capital account, as mostly driven by imports of equipment financed by foreign direct investment in extractive industries. Nonetheless, if Mali, which accumulated some reserves, and Niger, to a lesser extent, comforted in 2015 their external positions in a larger monetary union where external stability is assessed as broadly sustainable (IMF 2015a),[7] Chad saw its currency reserves plummet to 1.5 month of imports in 2015, down from 2.5 months in 2013 before oil prices started to drop. This resulted from the deterioration of the trade balance as terms of trade turned strongly negative, and from the acquisition of oil fields by Chad in 2014 (US$1.4 billion), leading to a deterioration of the capital account. Furthermore, these developments are taking place within a monetary union where most of its members, as oil exporters, are being affected by similar shocks.[8] In its last surveillance report of the union, IMF (2015b) points to important risks of external unsustainability, with reserves projected to decline to the low end of the optimal reserves range comprised between 5 and 13 months of imports by 2016 (excluding intra-regional trade).

22. **The shallowness of the financial sectors in Chad, Niger and to a lesser extent Mali,**[9] **and their weak inclusivity limit the overall exposure of poor households to financial crises.** In Mali, financial soundness indicators continued to improve in 2015 with decreasing Non-Performing Loans (NPLs, 17 percent of gross loans, down from 21 percent at the peak of the crisis in 2012), even if still concentrated in a few banks and with a few borrowers. The situation of the micro finance sector, however, remains of serious concern for poverty reduction prospects: since the cessation of activities in 2009 from two major microfinance institutions (MFIs) a protracted crisis unfolded, generating a general loss of confidence from the banks and clients in the sector, and leaving a number of MFIs technically bankrupt and an untold number of depositors having lost their savings. In Niger, NPLs to gross loans reached 20 percent in mid-2015, prompting the government to clear arrears. Capital adequacy and liquidity ratios nonetheless remain comfortable. In Chad, the financial sector situation is ultimately linked to the fate of the public sector, given its high exposure to the latter. As public revenues fell since mid-2014, the government began to significantly delay the payment of invoices, which degraded the quality of bank loans to government suppliers, and pushed the share of NPLs to 14.5 percent of total loans by mid-2015, up from 12.7 percent a year earlier.

[7] This assessment is predicated on continued fiscal consolidation in UEMOA, absent of which gross international reserves could decrease from above 4 months of imports in 2015 to less than 2 months in 2018

[8] The risk of common shocks across UEMOA countries is much lower than in CEMAC, see Section III.

[9] Bank deposits represented 8, 30 and 18 percent of GDP respectively in Chad, Mali and Niger in 2015.

TABLE 1. FINANCIAL INCLUSION INDICATORS: MALI 2014

	Ownership of any account	Ownership of account in a bank	Ownership of postal account	Ownership of account in MFIs	Savings rate	Credit access rate
Poorest	1.2	0.1	0.2	0.7	16.8	10.1
Poor	3.6	0.6	0.6	1.8	26.0	12.3
Middle	5.6	2.8	1.0	2.4	27.8	12.9
Better-off	12.0	7.0	1.2	4.6	33.5	12.0
Richest	21.8	17.8	1.0	4.6	41.4	20.2
All	7.6	4.6	0.7	2.6	27.5	12.8

Source: World Bank staff calculations based on Mali LSMS 2014.

23. **Chad, and Niger to a lesser extent, lag behind regional averages in terms of budget transparency.** Budget transparency is an important contributor to fiscal credibility, and progress was recorded on this front in all three countries since 2010. However, such progress was slower than in Sub-Saharan Africa, and by 2015, only Mali could compare favorably with regional peers. Overall, budget transparency is relatively better at budget formulation and approval stages than at the budget execution and oversight stages, in spite of the fact that budget execution reports are regularly produced for internal use. Besides, scores of Chad, Mali, and Niger in terms of public participation in the budget process do not exceed 5 (out of 100), and compare poorly with the regional average of 25.

TABLE 2. OPEN BUDGET INDEX 2010-15

	Score (out of 100)	Change 2010-15
Chad	5	5
Mali	46	11
Niger	17	14
Sub Saharan Africa	45	17

Source: Open Budget Index.

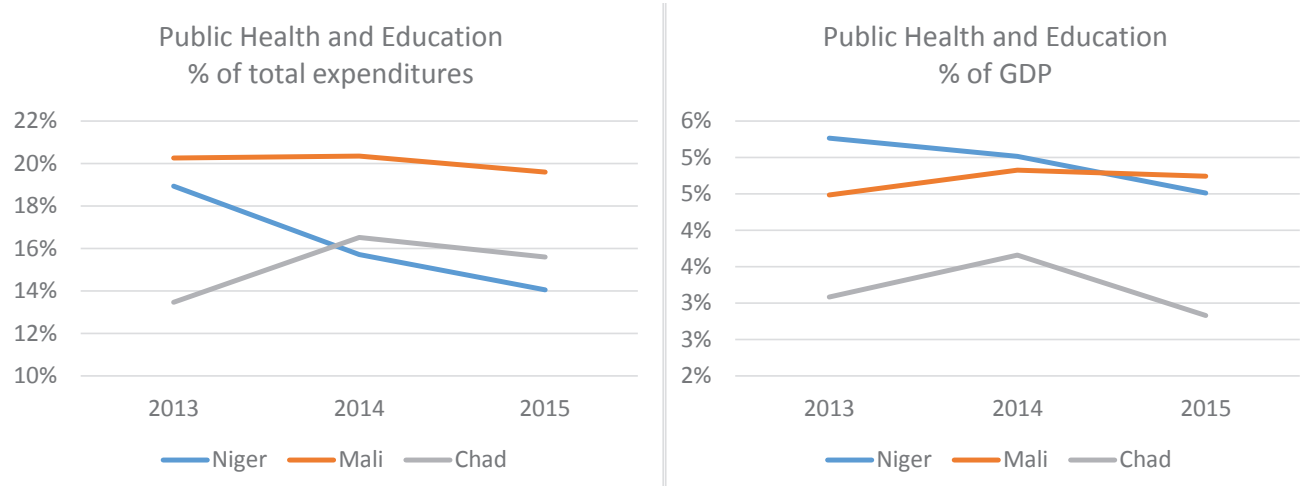
24. **Fiscal stabilization mechanisms are largely absent in Chad, Mali and Niger,** forcing often countries to renounce to budgeted expenditure, or to delay their payments through the accumulation of arrears. In the case of Chad, the use "emergency" procedures, bypassing the legal chain of expenditure, further affects the quality of budget execution. While on the decline since 2012 (when it peaked at 20 percent), emergency procedures could have still represented about 9 percent of total discretionary expenditures in 2015, excluding the security sector which is a frequent user of such procedures. Furthermore, beyond the difficulties to protect budget execution in volatile environments, fiscal policies in Chad, Mali and Niger are unable to act counter-cyclically, that is to stimulate aggregate demand during negative shocks while mitigate it during inflationary periods, as discussed in Section III.

Provision of public goods and services

In Chad, and to a lesser extent in Mali and Niger, public resources devoted to pro-poor programs remain largely insufficient with regard to basic human development needs and poverty reduction objectives. And in the three countries the public resources allocated to health and education stagnated or declined in 2015 with respect to total expenditure and GDP. In Chad, increased allocations to pro-poor programs will necessarily and primarily require improving tax collection, which remain well below potential. In Mali and Niger, where tax collection performance is comparatively better, the review (and possible reallocation or improvement) of the efficacy of the large tax exemptions and subsidies could help create the needed fiscal space. In all three countries, the development of scalable social protection programs would help channel freed public resources to the poorest households.

25. **Beyond ensuring macroeconomic stability, fiscal policy is expected to ensure the provision of public goods (e.g. security, primary education and healthcare), mobilize positive externalities (e.g. connectivity, vaccinations) and combat negative ones (e.g. environmental degradation).** From a poverty reduction perspective, this boils down primarily to Government capacity to allocate an adequate share of public resource to programs benefiting the poor, education and health in particular. In Chad, Mali and Niger, this objective is rendered difficult by the fact that (i) per capita demand for primary education and primary (including maternal) health care is extremely high given the demographic structure of these countries, where about half of the population is aged 14 or less,[10] against 43 percent on average in Sub-Saharan Africa and among low income countries, and (ii) that the vast majority of poor reside in rural areas[11] where service delivery is made more difficult given the lower density and the difficulty to attract and retained staff (teachers, nurses). Another important difficulty lies in countries' capacity to mobilize domestic resources through taxation, given the large degree of informality of the three economies.

Figure 8: Public Health and Education Expenditure 2013-15



Source: World Bank staff calculations based on authorities' data.

[10] Chad: 48 percent; Mali: 47 percent; Niger: 50 percent.

[11] Chad: 82 percent: Mali 90 percent; Niger 96 percent.

26. **All three countries in 2015 recorded a decline in the relative efforts put by governments to health and (primary and secondary) education.** Be it measured with respect to total public expenditures (that is, reflecting choices in the allocation of public resources), or with respect to GDP (that is, reflecting choices in the allocation of national resources), health and education expenditures declined in Chad, Mali and Niger in 2015. These developments nevertheless reflect different conditions in the three countries. In Chad, such a decline took place within the context of a sharp contraction of non-interest public expenditures (-4.9 percentage points of GDP between 2013 and 2015, see Table 3). In this context, and starting from low levels, Chad broadly managed to protect the share of health and education expenditure in total expenditure, even if this was insufficient to protect them with respect to GDP. At the other extreme, Niger's decline took place within the context of strong fiscal expansion (+3.9 percentage points of GDP between 2013 and 2015, see Table 5). Clearly, such an expansion favored public investment (+2.2 percentage points of GDP) and security spending (+2.0 percentage points of GDP), at the expense of health and education.[12] In between stands Mali which broadly managed to protect health and education expenditure with respect to total expenditure and GDP, while creating some fiscal space to accommodate for larger security spending (+1.5 percentage point of GDP between 2013 and 2015). Accounting for population growth and inflation, real per capita public expenditure in health and education increased by 14 percent in Mali between 2013 and 2015, but declined by 1 percent in Niger and by 10 percent in Chad.

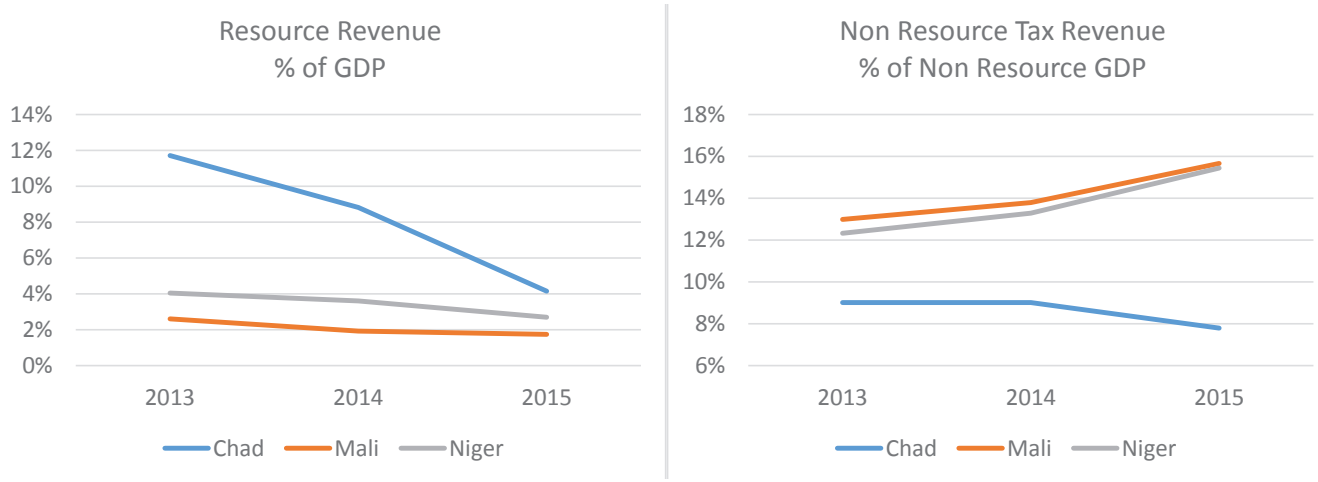
27. **These developments may be reviewed with respect to development needs.** Given current net enrollment rates and pupil teachers' ratio, enrolling all children of relevant age in primary education and bringing down the pupil teacher ratio to 30:1 in Chad, Mali, and Niger would alone raise the teacher's wage bill by 1.4-1.6 percent of GDP. Besides, Chad and Mali SCD underline that social transfers to poor (currently almost inexistent) in the range of 2 percent of GDP would necessarily need to complement efforts to accelerate pro-poor growth to maximize poverty reduction opportunities.

28. **Such developments may also be examined with respect to resource mobilization efforts.** Chad, and to a lesser extent Mali and Niger, saw their revenue from natural resource plummet in 2015, along with global commodity prices. Given the magnitude of the decline in oil prices (compared with gold, see following paragraphs) and the importance of oil in Chad's revenue structure, Chad lost the equivalent of 7.6 percent of GDP between 2013 and 2015. In comparison, Niger lost 1.3 percent of GDP and Mali 0.9 percent only. But while these losses were largely compensated by increased tax collection efforts (on the non-resource economy tax base) in Mali and Niger (+2.6 and +3.0 percent of GDP respectively), they were on the contrary aggravated in Chad by a poorer tax collection performance. Reports from the International Monetary Fund (2013, 2014) respectively estimated Chad, Mali and Niger's tax collection potential (excluding natural resource) at 24, 19.5 and 19.0 percent of non-resource GDP respectively.[13] At 15.7 (15.4) percent in 2015 against 13.0 (12.3) percent in 2013, Mali (Niger) managed to almost halve the distance to its potential in 2 years. In contrast, Chad's distance to its potential widened, as non-resource tax revenue over non-resource GDP dropped from 9.0 to 7.8 percent between 2013 and 2015. A plausible explanation of this poor performance lies in the dependency of the non-oil taxable base to public demand (e.g. construction services), as well as in the fact that a large share of indirect taxes are collected on imports (which dropped by 24 percent in nominal terms in 2015, see Table 3)

[12] Typically, health and education expenditure are not capital intensive and only receive a small share of public investment. Over the period 2011-14, an average of 14.5 percent of public investment expenditures went to health and education in Niger.

[13] Tax potential is a positive function of the GDP per capita, education level, trade and income distribution, and a negative function of the share of agriculture in GDP, corruption and inflation.

Figure 9: Resource Revenue and Tax Collection Efforts 2013-15



Source: World Bank staff calculations based on authorities' data.

29. **Beyond greater resource mobilization, efforts can also be steered towards improving fiscal equity.** Given the potential for improvement, Chad's efforts engaged in 2015 to widen the tax base should be further accelerated.[14] In Mali and Niger, where tax collection efforts amount to 80 and 81 percent of their respective potentials, probably more emphasis now need to be put of reviewing the efficacy of various subsidies and tax exemptions with respect to their intended objectives. In Mali, tax exemptions to encourage private investment and donors' activities amounted to 4.4 percent of GDP in 2014, but the efficacy of such provisions remains to be evaluated. Likewise, Mali's subsidies to electricity and agriculture, which represented 1.4 percent of GDP in 2015 could be assessed with regard to their intended objectives, possibly to reduce them or improve their efficiency. In Niger, but also in Chad, the first step would be to assess and make transparent the extent and efficacy of exemptions and subsidies, as they could, as in Mali, constitute potential areas to improve fiscal equity. Another important step, should fiscal space be found, will be in all 3 countries to avail the possibility to scale-up well targeted social transfer programs.

Outlook and potential policy implications

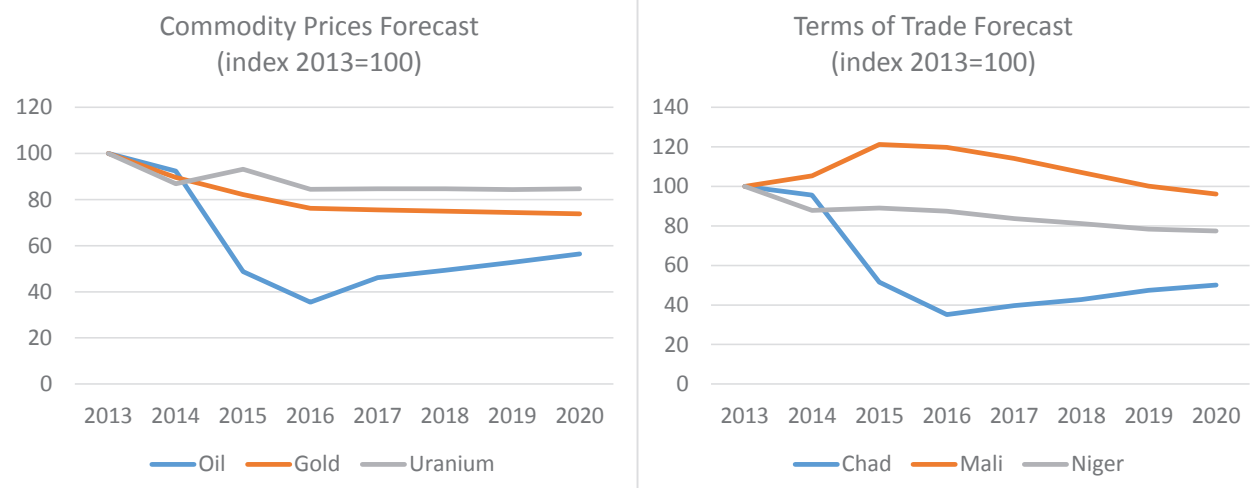
Commodity prices and security threats will strongly influence the fiscal and external outlook of Chad, Mali and Niger in 206-17. Continued depressed oil prices will strongly impact the fiscal and external accounts of Chad, which should consider this shock as quasi permanent and encourage the diversification of its economy. This shock could also conduct prompt Niger to revisit its medium term development plans based on the emergence of an oil industry, and more generally, to further strengthen its public investment, debt and natural management to mitigate the negative impacts of commodity price variations currently experienced in Chad. Mali, on the other hand, shall continue to benefit from favorable terms of trade, and use this opportunity to consolidate its efforts to restore peace, through effective fiscal decentralization. In all three countries, GDP and inflation forecasts range within large intervals of confidence given the strong influence of unpredictable climate vagaries.

[14] In 2015, Chad undertook reforms to update it census of firms potentially taxable, and to simplify its tax code.

30. **A number of exogenous factors will influence the macroeconomic outlook of Chad, Mali and Niger in 2016 and 2017.**

31. **The first ones are global commodity prices, oil in particular.** Chad, Mali and Niger are price takers, and the main impact of reduced demand for commodities (from China notably) is felt though price changes. The growing imbalances between global commodities supply (e.g., from Iran) and demand is also felt though price changes. In 2016, the price of crude oil, expressed in US$, is forecasted to further decline compared with 2015, as recording throughout the full year 2016 the low price levels observed in the last months of 2015. Gold prices are also forecasted to decline in 2016 and 2017, though at a much more moderate pace, while uranium prices are projected to stagnate from 2016 onwards. From a terms of trade perspective (the price of exports over the price of imports), these projections have differentiated implications for Chad, Mali and Niger. Mali should continue in 2016 and 2017 to benefit from low oil prices compared with gold prices, and Niger should not either expect abrupt changes in its terms of trade. This contrasts sharply with Chad, which could see its terms of trade further decline by 32 percent in 2016 compared with 2015. Such a projection bears major implications for Chad, as it likely mean that prices at which Chad can now sell its oil are below cost-recovery levels. Given the very high costs of setting up and dismantling production facilities, companies were (by January 2016) intending to continue drilling existing dwells (while stopping all exploration efforts), under the assumption of a progressive rebound in oil prices from 2017. However, there remains considerable uncertainty on the oil price outlook and the persistence of low oil prices beyond 2016 would further affect Chad's macroeconomic outlook. It would also affect Niger's plans to become a net exporter of crude oil by 2017, through the development of a pipeline connecting to the existing Chad-Cameroun pipeline.

Figure 10: Commodity prices and terms of trade, 2013-20



Source: World Bank (2016).

32. **The second one is security.** In 2016, all three countries will continue to be exposed to important security threats which would emanate from armed groups based in Libya, Northern Mali, Nigeria, and Central African Republic. While security shocks can obviously not be predicted, one immediate cost of the continued security threats is the high

level of security expenditure retained in the Finance Law 2016 in Chad, Mali and Niger (2.7, 4.5 and 3.9 of percent of GDP respectively). The second cost that can be anticipated is on private investment (and thus future growth), which becomes riskier and less remunerative in unsecure environments. In Chad and Niger, security and stability in 2016 might be further stressed by the planned presidential elections which may ignite domestic tensions.

33. **The third one is climate.** All GDP growth projections for 2016 and 2017 assume normal weather conditions (which can only be verified during the harvest season by the end of the year). But climate is volatile, and weather-related variations in agricultural outputs have led to standard deviations in GDP growth rates of 3.5, 1.5 and 3.2 percent respectively in Chad, Mali and Niger. Thus, a projected GDP growth rate of 5 percent in Niger should be understood as likely ranging between 1.8 and 8.2 percent. Likewise, consumer price projections should also be understood as ranging within wide intervals of confidence. Weather related volatility, on the other hand, has little impact on fiscal and external accounts, given that agriculture only constitutes a modest source of fiscal and export revenues. The main channel of influence may stem from the need to cover an unexpected food deficit through additional imports. Traditionally, the additional cost has been shared between the Governments and donors in all three countries.

34. In light of these likely exogenous factors, **Chad's macroeconomic outlook for 2016-17 will remain highly challenging.** Oil revenue would continue to decline and growth in the non-oil economy to be hampered by the lack of public demand and the difficulty to trade with the rest of the World. In this depressed environment, the authorities intend to pursue their fiscal consolidation efforts engaged in 2015, while protecting to the extent possible critical expenditures and not accumulating new arrears. One important factor of fiscal stability will be the divesture of oil assets owned by Chad, whose proceeds would be used to finance the fiscal deficit, projected at 7 percent of GDP. Nonetheless, downward risks materializing through persistently low oil prices and a further deterioration of the security situation would force Chad to proceed to further fiscal adjustment. Whether these downwards risks materialize or not, Chad's macroeconomic and fiscal stance need to support the progressive reduction of the country dependency to oil. This may call for bold domestic resource mobilization efforts, efficiency gains in public spending (procurement, planning), and economic diversification - starting within the agricultural sector where comparative advantages mainly lie (World Bank 2015a).

35. In contrast with Chad, **Mali's outlook compares relatively favorably.** External factors, such as terms of trade, appear positive, while domestic security risks should be contained thanks to substantial security spending and expected progress in the implementation of the peace accords signed in 2015. The challenge here lies in Mali's ability to transfer larger shares of public resource to local governments while improving at the same time local governments' public financial management capacity. A second challenge will be to pursue domestic resource mobilization efforts to finance its large development needs and constitute the buffers needed to confront the next negative exogenous shock. The next section discusses options to better protect public investment programs in the future.

36. **Niger's capacity to implement its development plans will hinge on continued improvements in public investment management and stable financing from extractive industries.** Niger's ambitious public investment plan should continue to stimulate GDP growth, both on the demand side (construction services in particular) and on the supply side through greater productive capacity and economic diversification (agriculture, energy, transport). Nonetheless, poorly managed public investment projects and a decline in commodity prices (uranium and oil) from 2016 would rapidly put public debt sustainability at risk, with important consequences for service delivery. Continued efforts to improve public investment, debt, and natural resource management would help mitigating these risks, as also discussed in the next section.

TABLE 3. CHAD: SELECTED MACROECONOMIC INDICATORS

	2013	2014	2015	2016	2017
			Annual percentage change		
National income and prices					
GDP at constant prices	5.7	6.9	2.6	1.9	4.1
Consumer price index	0.2	1.7	4.6	3.3	3.0
External trade					
Imports of goods and services (FCFA)	-7.7	9.9	-23.6	-9.3	4.6
Exports of goods and services (FCFA)	-8.6	1.4	-32.5	-23.7	21.7
Terms of trade (deterioration -)	8.1	-4.4	-46.1	-31.8	13.0
			Percent of GDP		
Money and credit					
Credits to the Government (net)	0.8	3.0	6.9	7.6	7.1
Credits to the economy (net)	6.1	7.8	8.4	8.9	8.5
Money Supply (M2)	13.3	15.7	16.8	18.2	17.8
Government finances					
Domestic Revenue	18.5	15.9	10.4	9.5	11.3
Grants	1.7	1.6	2.9	3.5	2.4
Wages and salaries	5.2	4.9	5.7	6.1	5.6
Goods and services	2.1	2.1	1.0	1.1	1.2
Interest payments	0.5	0.7	0.6	0.8	0.8
Other current expenditures	5.1	4.8	3.7	4.3	2.3
Foreign financed capital expenditures	2.3	2.2	3.2	3.6	4.0
Domestically financed capital expenditures	7.7	7.4	3.9	4.3	3.3
Overall fiscal balance (commitment basis)	-2.6	-4.7	-4.8	-7.0	-3.4
Changes in arrears (clearance -) and float	-2.5	0.2	-1.2	0.0	0.0
Overall fiscal balance (cash basis)	-5.2	-4.4	-6.0	-7.0	-3.4
Public debt	30.1	39.9	45.7	48.9	43.4
			FCFA Billions		
Memorandum items					
Nominal GDP	6,397	6,883	6,526	6,131	6,790
Current account balance	-589	-613	-720	-702	-624
Total External Debt	1,356	2,234	2,116	1,973	1,898

Source: World Bank Staff calculations based on Authorities' data.

TABLE 4. MALI: SELECTED MACROECONOMIC INDICATORS

	2013	2014	2015	2016	2017
			Annual percentage change		
National income and prices					
GDP at constant prices	1.7	7.2	4.9	5.4	5.1
Consumer price index	-0.6	0.9	2.1	2.9	1.9
External trade					
Imports of goods and services (FCFA)	33.7	5.6	-17.8	5.4	7.8
Exports of goods and services (FCFA)	-1.3	-2.2	-9.8	1.1	2.9
Terms of trade (deterioration -)	-0.7	5.3	7.9	-2.6	-0.5
			Percent of GDP		
Money and credit					
Credits to the Government (net)	-1.8	-1.4	0.5	2.0	2.5
Credits to the economy (net)	22.4	24.4	24.5	24.9	25.2
Money Supply (M2)	33.6	33.0	34.7	36.2	36.9
Government finances					
Domestic Revenue	17.3	17.7	18.8	20.0	20.6
Grants	3.4	2.6	2.9	2.4	2.4
Wages and salaries	5.3	5.2	5.7	5.8	5.8
Goods and services	4.4	4.0	4.5	4.3	4.3
Interest payments	0.6	0.7	0.8	0.8	0.7
Other current expenditures	6.2	6.1	5.2	5.6	5.5
Foreign financed capital expenditures	2.9	3.2	3.2	3.6	4.2
Domestically financed capital expenditures	4.2	4.5	4.9	5.5	5.7
Overall fiscal balance (commitment basis)	-2.8	-3.4	-2.5	-3.1	-3.3
Changes in arrears (clearance -) and float	0.0	0.6	-1.8	-0.3	0.0
Overall fiscal balance (cash basis)	-2.9	-2.8	-4.3	-3.6	-3.3
Public debt	31.4	32.4	36.5	35.6	36.0
			FCFA Billions		
Memorandum items					
Nominal GDP	5,490	5,987	6,479	6,990	7,491
Current account balance	-189	-331	-182	-276	-391
Total External Debt	1,407	1,485	1,838	2,005	2,169

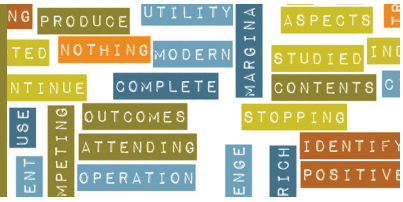
Source: World Bank Staff calculations based on Authorities' data.

TABLE 5. NIGER: SELECTED MACROECONOMIC INDICATORS

	2013	2014	2015	2016	2017
			Annual percentage change		
National income and prices					
GDP at constant prices	4.6	6.9	4.4	5.0	6.9
Consumer price index	2.3	-0.9	1.0	1.6	1.5
External trade					
Imports of goods and services (FCFA)	2.6	12.5	7.5	8.2	4.6
Exports of goods and services (FCFA)	6.5	-9.6	-1.6	7.2	19.4
Terms of trade (deterioration -)	-3.1	-12.1	1.4	-1.8	-4.4
			Percent of GDP		
Money and credit					
Credits to the Government (net)	-2.3	-1.9	-1.0	0.8	-0.4
Credits to the economy (net)	14.0	14.5	15.6	15.6	15.6
Money Supply (M2)	23.9	28	30.7	32.3	32.2
Government finances					
Domestic Revenue	17.0	18.0	18.7	18.6	19.2
Grants	8.2	5.6	6.1	5.6	4.4
Wages and salaries	5.1	5.4	5.8	5.4	5.2
Goods and services	2.9	3.2	4.0	3.1	3.1
Interest payments	0.3	0.4	0.7	0.9	1.0
Other current expenditures	5.4	6.0	5.3	5.6	5.3
Foreign financed capital expenditures	5.3	9.6	8.4	7.3	6.2
Domestically financed capital expenditures	8.8	7.3	7.9	9.4	7.5
Overall fiscal balance (commitment basis)	-2.6	-8.3	-7.3	-7.5	-4.7
Changes in arrears (clearance -) and float	-0.6	1.5	-1.5	-0.2	-0.1
Overall fiscal balance (cash basis)	-3.2	-6.8	-8.8	-7.8	-4.7
Public debt	27.1	35.8	43.1	52.2	53.5
			FCFA Billions		
Memorandum items					
Nominal GDP	3,703	3,961	4,205	4,515	4,898
Current account balance	-567	-602	-764	-1,027	-1,047
Total External Debt	837	1,069	1,386	1,847	2,123

Source: World Bank Staff calculations based on Authorities' data.

III. Special Topic: Protecting Public Investment Against Shocks



Introduction

Macroeconomic volatility can have a deeply negative impact on the quality of public investment and its long-term contribution to growth. In UEMOA and CEMAC countries, public investment projects and strategies have been repeatedly disrupted by unpredictable exogenous shocks ranging from natural disasters and commodity prices volatility to violent conflict. In many of these countries a rigid macroeconomic framework combined with onerous public investment management procedures have exacerbated the adverse effect of volatility on the quality of public investment.

37. **High-quality public investment is fundamental to effective development policy, and public investment projects are often the centerpiece of poverty reduction strategies and national development plans.** Among UEMOA and CEMAC member states, where monetary policy is managed by regional central banks, fiscal policy is by far the most crucial instrument for macroeconomic and development policy available at the national level, further underscoring the importance of sound public investment management. Public investment is instrumental to providing public goods and overcoming coordination failures in the private sector. Public investment can also help to stabilize the business cycle by stimulating aggregate demand when economic activity is below its long-run potential, and it can transfer resources to targeted groups through public works programs.

38. **Nevertheless, there is no clear consensus in the empirical literature regarding the precise impact of public investment on economic growth**. An econometric analysis by Warner (2014) using a large set of countries suggests that the impact of public investment on economic growth is temporary. Warner argues that Keynesian effects, i.e. increased demand for investment goods and services such as construction equipment and labor, dominate the productivity effects which could be expected after the infrastructure is being built and start to be operated. However, Gupta et al (2014) find a positive and lasting impact of public investment projects on growth in developing countries when controlling for indirect indicators of the quality of public investment management in each country. The results show that quality-adjusted public capital (the sum of past public investments, until they get fully depreciated) in developing countries grew much slower than GDP between 1960 and 2010, explaining the weak contribution of public investment to overall growth beyond the immediate Keynesian effects of the investment expenditure itself. Besides, the relationship between public investment and GDP growth is further complicated by the indirect effects of the financing mode of public investment - such as taxation, inflation, indebtedness, or public private partnerships - on private sector investment and macroeconomic stability more generally.

[15] Gupta et al. use a country-specific index computed by the IMF, which aims to capture the quality of public investment management at its various stages: appraisal – where projects are being selected based on their intended net social and commercial benefits and consistency with broader development strategy; selection – where projects are retained in budget laws, based on multi-year forecasts of available financing resources to complete the project and human resources to operate it once completed (say for instance the future availability of teachers to run a school that was just built); implementation – where procurement processes influence the ultimate cost and time needed to complete the project; and evaluation – where lessons are being learned and used in next projects on what worked/did not work during the previous stages.

39. **Disruptions in public investment can increase costs, undermine project quality and inhibit coordination between projects and sectors.** Interruptions in the implementation of public investment projects can prove enormously expensive, and in some cases they may even force projects to be abandoned and restarted from scratch. Payment delays can threaten the solvency of contractors, and governments with a history of payment irregularities or arrears may face a risk premium on future contracts. This can limit competition for public projects, increasing costs and reducing quality. In developing countries with low rates of domestic private investment these effects are often magnified by the dependence of key sectors—such as construction—on public demand. In extreme cases the accumulation of public sector arrears can cause government contractors to default on their loans, destabilizing the banking sector. Finally, an erratic public investment schedule makes it difficult to plan complementary recurrent expenditures, further eroding the overall quality of public spending.

40. **A fictional – but highly plausible – illustrative case study could unfold in the following manner:** The Government, based on its five-year development plan, decides to build a new hospital facility in a remote region in high need for better health services. Based on the overall resource envelope forecasted at that time, the Government retains the project in its finance law. The project is anticipated to be completed in 18 months, after which it would start becoming operational. Nurses are being enrolled in the Government health academy to be trained and ready to work when the hospital opens. In June, five months after the finance law is approved by Parliament (an optimistic assumption for UEMOA countries given average procurement delays, see below), a contract is signed between the Government and a selected contractor to build the said hospital. Against a bank guarantee provided by the contractor, 20 percent of the total amount to be eventually received by the contractor when the hospital is delivered is advanced by the Government. 20 percent is insufficient for the contractor to buy the services and goods needed to complete the work, and he decides to borrow from a local bank an additional 30 percent (which thus adds from the guarantee received from the Bank). In September, as the work is starting, the country gets hit by a sudden decline in the price of its main export commodity, which creates a significant financing gap in the budget. Left with the impossibility to rapidly raise alternative revenues or mobilize liquid savings, cut its current expenditures (wages, transfers, operational expenditures, debt service) or borrow without exceeding the public deficit hardly promised to the Monetary Union and donors, the Government decides to delay its payments to the contractor, generating "expenditure arrears". Given the unexpected shortfall in his revenues, the contractor gets bankrupted and sell its assets, but cannot reimburse fully its loan to the commercial bank. The commercial needs to provision such loss, which reduces its capacity to extend new loans to private firms. A year after, nurses have been trained and were put on the payroll, even if the hospital is not yet built. The earthmoving works initiated by the previous contractor also have to be re-started from scratch after having been flushed away by a full rainy season. The Government, which eventually benefited from a rebound in commodity prices, relaunches the procurement process from scratch while auditing the claims of the bankrupted contractor. But contractors still on the market are less interested to bid for the market, given their greater awareness of the risks involved. The few that do compete ask for a higher price to cover themselves against risks.

41. **Two recent studies explore options to reduce the volatility of public investment in UEMOA countries, through macroeconomic and public financial management reforms.** In the first study, volatility is measured by the change in public investment over GDP over time. In the second study, volatility is measured by the proportion of public investment projects retained in the initial Finance Law which were not executed. The two measures of volatility largely overlap, but are not strictly identical. Investment cuts with respect to Finance Law and in comparison with previous

years will be reflected in both measures of volatility. But a shock in a given year may prompt the Government to lower its investment ambition in the next Finance law while struggling to protect ongoing projects. In that case, volatility will only be captured with the first measure.

42. **Dessus et al. (2014) found that public investment is significantly more sensitive to economic shocks in UEMOA member states than in other low-income countries.** This is particularly true for negative shocks, which have repeatedly resulted in major investment cuts, while positive shocks are not associated with increased investment. Hence, the higher the occurrence of shocks, the lower the level of public investment. The study also found that the responsiveness of public investment to shocks has increased significantly since the establishment of UEMOA convergence criteria in 1995, which encourage member countries not to run public deficits in excess of a fixed ceiling.[16] Stricter budget constraints appear to have increased the volatility of public investment. Due to the difficulty of rapidly altering recurrent spending and the lack of country-level monetary policy options, expenditure cuts tend to fall hardest on the public investment budget. The study discusses several macroeconomic policy alternatives that could help to protect public investment against shocks at both the national and regional levels.

43. **World Bank (2014) found that the average UEMOA country executes fewer than 60 percent of its budgeted investment projects each fiscal year.** Low rates of investment-budget execution reflect the impact of macroeconomic shocks combined with weaknesses in public financial management. Poor project appraisal and selection is a major contributor to the under-execution of the capital budget. In some cases political considerations may supersede technical ones, while in other cases inadequate analytical capacity or a lack of funding for feasibility studies may undermine project appraisal. Inaccurate estimates of project costs can cause delays during the procurement cycle, and a lack of coordination between planning and financing agencies can cause the former to overestimate the financial resources available for public investment. Inadequate mechanisms to finance multiyear public investment projects across multiple annual budget cycles also creates uncertainty and inhibits swift project execution. Cumbersome procurement procedures can unduly delay budget execution and cause expenditures to cluster in the final months of the fiscal year, making projects especially vulnerable to shocks that occur during this period. Finally, inaccurate revenue and expenditure projections can make public investment susceptible to short-term treasury mismatches. The World Bank study discusses several policy options for increasing the execution rate for capital projects.

44. **This note explores the relevance of these findings and recommendations for Chad, Mali and Niger.** If Mali and Niger, as belonging to the UEMOA, were covered by these two studies, this is not the case for Chad. Yet the latter also belong to a monetary union (CEMAC) and can be thus subject to the same constraints,[17] given the very large shocks to which they are exposed. Besides, it is likely that they face public investment management issues of similar nature. Thus, the rest of this note first discusses the extent of public investment volatility in the three countries of interest, as well as the impact of such volatility on the real economy and the banking sector. Second, it discusses the feasibility of the main recommendations of both studies in light of country-specific situations.

[16] An extension of this analysis found similar effects for CEMAC countries, where the response of public investment to shocks increased after 1995. However, the asymmetry in the response to shocks (positive or negative) was not conclusive in the case of CEMAC countries.

[17] UEMOA and CEMAC both have similar primary convergence criteria of i) basic fiscal balance >= 0% of GDP, ii) consumer price inflation <=3%, and iii) level of public debt <=70%. New convergence criteria were adopted in 2014 for UEMOA, but should only be implemented from 2019.

The Impact of Public Investment Volatility on the Real Sector

In Chad Mali and Niger, public investment volatility has been high since 2005 and rising since 2011. Public investment patterns have also been generally procyclical. In all countries, episodes of large cuts in public investment were associated with severe and lasting downturns in construction activity, as well as increases in the NPL ratios of commercial banks.

45. **The fiscal policies of UEMOA and CEMAC countries target the budget-deficit convergence criteria of their respective monetary unions, and in each case historical trends reveal a marked procyclicality in public investment.** Procyclicality is the phenomenon by which GDP and public investment would expand or, on the contrary, contract, simultaneously. A comparison of various fiscal indicators across two periods, 2007-2010 and 2011-2014, highlights this phenomenon (Table 6). For example, the findings indicate that the slowdown in GDP growth rates in Mali between 2011 and 2014 has been associated with cuts in capital expenditures to compensate for widening deficits generated by increased current spending. In Niger, meanwhile, the deficit widened due to expansionary fiscal policies that boosted public investment as economic growth accelerated. Chad appears to be the only country to use capital spending to provide countercyclical stimulus during periods of slow growth.

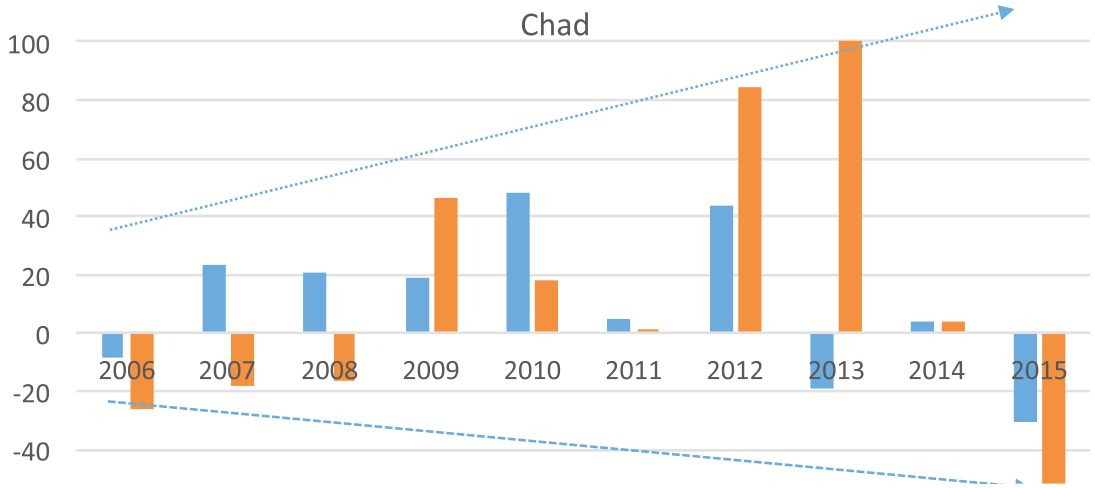
TABLE 6. SELECTED FISCAL INDICATORS

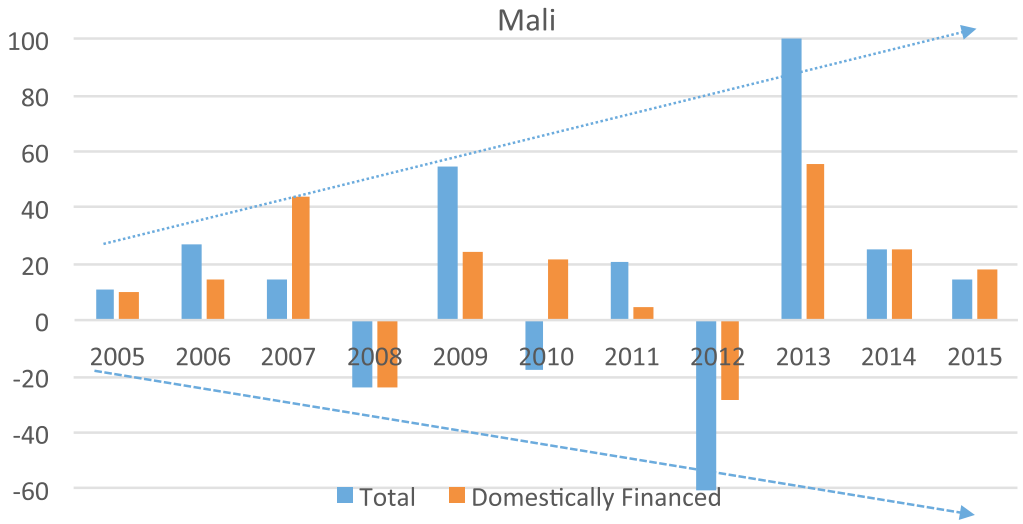
	CHAD		MALI		NIGER	
Average	2007-10	2011-14	2007-10	2011-14	2007-10	2011-14
Real GDP Growth (%)	6.0	5.4	4.9	2.8	5.1	6.4
Share of GDP						
Revenues	19.3	22.0	20.5	20.5	20.8	22.2
Current Expenditures	13.6	12.4	14.2	16.9	15.5	12.2
Capital expenditures	7.6	10.4	9.4	6.6	7.1	12.8
Budget Deficit	-1.8	-0.6	-3.1	-3.0	-1.8	-2.7
Volatility						
Primary Current Expenditures	2.1	0.7	1.0	1.5	2.6	1.2
Capital expenditures	1.5	2.2	1.6	1.9	1.9	4.8
Primary Deficit	4.7	2.4	2.4	2.1	2.6	2.8

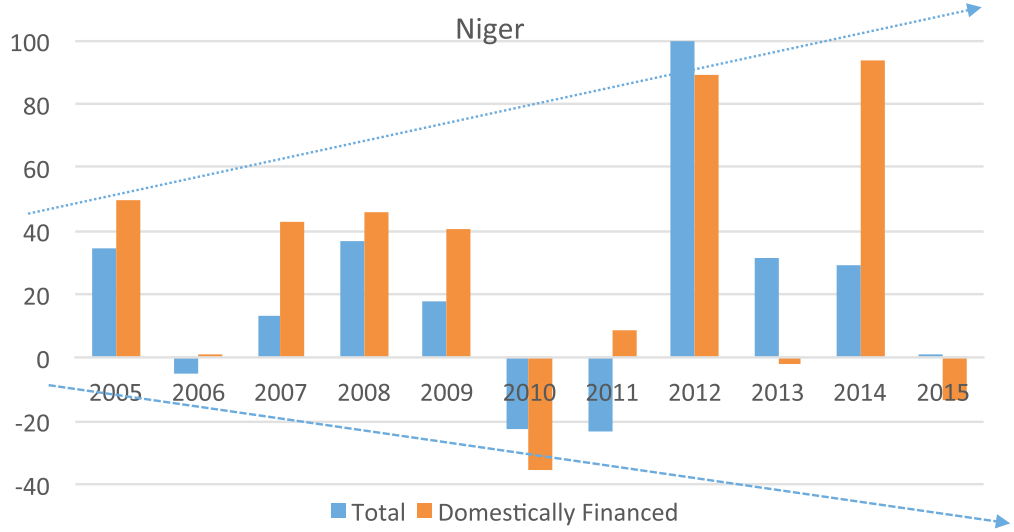
Source: World Bank Staff calculations based on Authorities' data. Note: volatility measure is computed as the absolute value of the deviation from the mean of public investment to GDP ratio for the considered period.

46. **Moreover, investment volatility has risen significantly in the recent years.** This trend has coincided with rising commodity prices, up to 2014, which have boosted domestic revenue in all three countries. The observed increase in volatility is also the result of political shocks, which affected Niger in 2010/11 and Mali in 2012 and led to massive cuts and rebounds in foreign and domestically financed public investment.

Figure 11: Public Investment Volatility (annual growth rates)





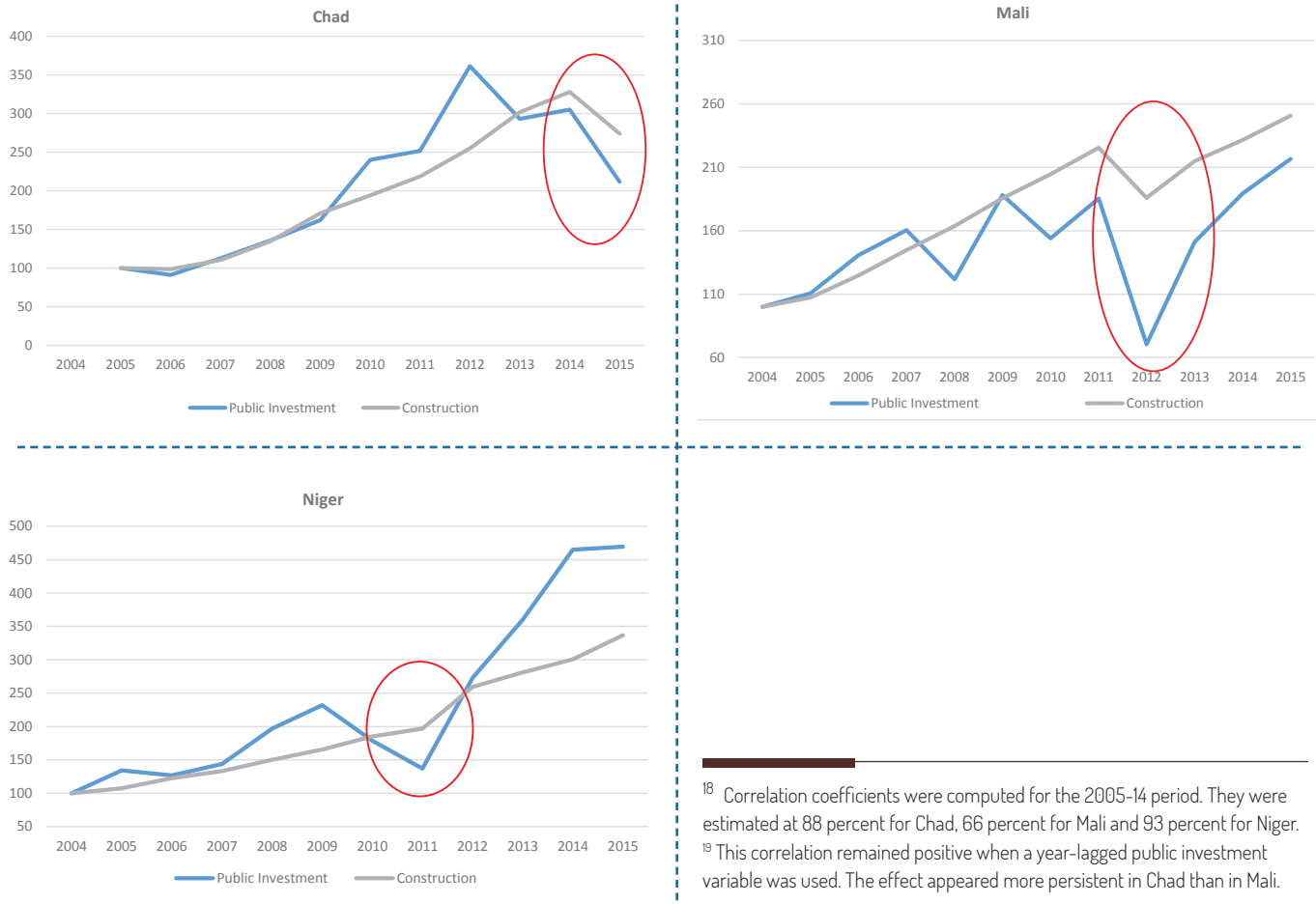


Source: World Bank Staff calculations based on Authorities' data.

47. **Public investment volatility in Chad Mali and Niger negatively affected the real economy at the macroeconomic and sector levels.** In addition to its long-term impact on growth, the disruption of investment projects has immediate adverse consequences for sectors directly involved in executing public investments. This includes both the domestic construction sector and the banks that pre-finance public works projects.

48. **This pattern is confirmed by a strong correlation between public investment and the growth of the construction sector.** National accounts data from Chad, Mali and Niger reveal that construction is highly dependent on public investment expenditures. The simple correlation coefficient between indexes of public investment and construction exceeds 66 percent for all countries.[18] Moreover, this correlation has an enduring effect across at least the next fiscal year.[19] This suggests that the recuperation of the construction sector following downturns is not immediate. Indeed, it takes considerable time for contractors to mobilize machinery and workers, finalize logistical plans and complete all necessary procurement to restart construction once investment projects resume. The deterioration of contractors' financial situations during downturns may also limit their ability to rapidly recover. In all three countries, the impact on construction activities of public investment cuts was more pronounced that the impact of public investment rebounds. This can be visualized in 2015 for Chad, in 2012 for Mali and in 2011 for Niger. In contrast, periods of accelerated public investments in Chad (2009-12), Mali (2013-14), and Niger (2012-14) did not generate corresponding accelerations in construction GDP.

Figure 12: Public Investment and construction activity



Source: World Bank Staff calculations based on Authorities' data.

[18] Correlation coefficients were computed for the 2005-14 period. They were estimated at 88 percent for Chad, 66 percent for Mali and 93 percent for Niger.
[19] This correlation remained positive when a year-lagged public investment variable was used. The effect appeared more persistent in Chad than in Mali.

49. **In Niger, severe droughts in 2004 and 2009 were accompanied by a drop in public investment and a dramatic slowdown in construction activity as growth slowed markedly**.[20] However, HIPC debt relief in 2006 gave the authorities greater latitude over capital spending in the years that followed, prompting a boom in infrastructure investment. Finally, the period of high oil prices from 2011 to late 2014 offset the revenue impact of the third major drought of the decade, again boosting public investment and spurring construction sector growth. Finally, the slump in commodity prices in late 2014 through 2015 prompted major cuts to capital spending, which are expected to have negative implications for the construction sector. Public investment in Niger is also subject to efficiency concerns, which may explain the relative weakness of the correlation between investment levels and construction activity. Public investment averaged 9.2 percent of GDP in 2004-2014, while the construction sector averaged just 2.6 percent. This could indicate serious leakages in the capital budget.

50. **Mali is highly vulnerable to both external economic shocks and violent conflict.** The separatist insurgency in 2012 caused severe social and economic disruptions resulting in major contractions across most economic sectors, including construction.[21] Moreover, an increase in international food prices in 2008 underscored Mali's sensitivity to external market conditions. The country's inadequate fiscal buffers drove it to cut public investment by 24 percent, and a substantial deceleration was observed in all investment-related economic sectors.

51. **Chad also suffers from domestic and regional insecurity, and its dependence on oil revenues exacerbates its fiscal volatility.** Capital spending and construction activity increased substantially between 2006 and 2009, and average inflation rates rose to over 8 percent. However, the outbreak of conflict in 2008-10 brought this period of rapid growth to a halt, and a sharp drop in public investment disrupted the growth of the construction sector. The subsequent commodity-price boom in 2011-13 caused a renewed surge in public investment, but procyclical fiscal policies contributed to a dramatic collapse in investment in 2014 and 2015 as oil prices fell and revenues dwindled.

52. **Each country's domestic financial sector has also been affected by erratic capital spending.** All have accumulated arrears as a result of procyclical public investment policies and poorly functioning public investment management systems. Unpredictable financial flows have left contractors without adequate liquidity to service or repay bank loans. This in turn has forced banks to write off debts, and the share of NPLs on their balance sheets has increased. In some cases banks have been compelled to raise provisions, thereby reducing lending to the private sector.

[20] During these two years the economy contracted by 0.8 and 0.7 percent, respectively.

[21] GDP grew by just 0.02 percent, while construction contracted by 17.5 percent in real terms and public investment was cut by 62 percent.

Figure 13: Public Investment and Non-Performing Loans (2005-2014)

Source: World Bank Staff calculations based on Authorities' data.

53. **The data on NPLs and public investment presented in Figure 13 confirm this finding: NPLs tend to rise in the wake of capital spending cuts.** The correlation coefficients for Chad, Mali and Niger were estimated at -56, -46, and -73 percent, respectively. This strongly indicates that the adverse effects of public investment volatility are not restricted to the construction sector, but have broader implications for domestic financial markets and the economy as a whole.

Options to Reduce Public Investment Volatility

Introducing a clearly defined contingency-based budget line and strengthening revenue forecasting could mark important first steps toward reducing the volatility of public investment to macroeconomic shocks in Chad, Mali and Niger. In UEMOA this could be complemented by simple regional risk-sharing mechanisms, while in CEMAC hedging mechanisms could prove to be a superior alternative. In Mali and Niger newly adopted institutional frameworks for independent and centralized project selection must be fully implemented, while a similar framework for Chad still needs to be adopted.

54. **Numerous policy options could help reduce the volatility of public investment in Chad, Mali and Niger.** These range from macroeconomic policies at both the national and regional levels to systemic improvements in public financial management. The following paragraphs explore these options and examine their feasibility given each country's unique circumstances.

55. **Devise savings mechanisms.** Due to the inherent variability of revenue inflows, ensuring the stability of the investment budget over time requires accumulating savings in anticipation of future shortfalls. Several mechanisms can be used to achieve this:

- **Contingency line.** Governments could use an annual budget line that would only become active under certain predetermined conditions, such as a natural disaster, a security crisis, or a deterioration in the terms of trade. These conditions would need to be precisely defined in the budget legislation. Should they fail to materialize, the unspent funds would be rolled over to finance the same budgetary line in the following fiscal year.

- **Stabilization Fund.** Chad, Mali and Niger are all resource-rich countries, and the volatility of commodity revenues translates directly into investment volatility. Establishing a stabilization fund would enable the countries to save surplus commodity revenues and smooth spending patterns over time. Stabilization funds require clear rules for depositing excess revenue when commodity prices (or total revenues) rise above a benchmark price (or revenue level), as well as for withdrawing funds when prices (or revenues) fall below a certain threshold. A number of countries have established stabilization funds, ranging from Ghana to Chile or Norway. The international experience underscores the importance of using a formula that is not overly dependent on past price trends, but that also incorporates projected future prices. As a result, effective stabilization funds require a strong capacity for price forecasting. In addition, stabilization funds tend to function best when they are managed by an independent technocratic committee that determines when benchmarks have been crossed and ensures transparency. Conversely, political interference can lead to the misuse of these funds.

- **Automatic fiscal stabilizers.** The imperative to comply with UEMOA and CEMAC convergence criteria may inhibit the use of countercyclical stimulus by imposing a limit on primary fiscal deficits. While these criteria may improve fiscal discipline, they tend to favor procyclical spending by failing to encourage restraint when revenues are high. Moreover, excluding expenditures financed through the accumulation of foreign debt does not reinforce external debt sustainability.[22] Fiscal rules based on the structural deficit would address the issue of procyclicality, though this would require the capacity to accurately distinguish actual revenue from long-run potential revenue. A simpler method would be to exclude public investments from the deficit target in accordance with the so-called "golden rule" of public investment management.

56. **In the current environment these three countries may wish to prioritize the introduction of contingency-based budget lines grounded in simple and transparent rules.** Over time, building revenue-forecasting capacity will facilitate efforts to smooth investment expenditures. The establishment of stabilization funds will require even greater capacity-building efforts, as well as the creation of new institutions. Any country that established a stabilization

[22] The convergence criterion capping the external debt-to-GDP ratio partially corrects this shortcoming, yet this effect is partial as it does not consider the debt-service profile or the overall fiscal outlook.

fund would also be faced with the immediate difficulty of capitalizing it during a period of low commodity prices. Whatever method policymakers use to accumulate savings, they will face strong political pressures to spend these resources immediately, regardless of whether the disbursement conditions have been met. Public discussions in the legislature would be necessary to build consensus on the importance of using fiscal savings to protect public investment and increase its quality. The UEMOA and CEMAC convergence criteria would need to be revised to allow greater use of automatic fiscal stabilizers. In 2015, new convergence criteria were approved in UEMOA, after three years of discussions.

57. **Adopting countercyclical fiscal rules would require greater capacity to assess business cycles and forecast long-run potential GDP and revenues.** In Niger and Chad, improving the accuracy of forecasts will require consolidating the different sources and uses of oil revenues. Mali's revenue forecasts are generally sound, but distinguishing between temporary shocks (including fluctuations in official development assistance) and structural vulnerabilities (including commodity prices and adverse weather) presents an ongoing challenge.

58. **Develop insurance and risk-sharing mechanisms.** Governments can also insure themselves against identified risks that could threaten export revenues or necessitate additional expenditures, and, within monetary unions, participate to risk sharing mechanisms.

- **Hedging mechanisms.** Hedging instruments can ensure continued financing in the event of natural disasters or drops in commodity prices. However, using these instruments requires significant institutional capacity, and countries must be sufficiently attractive to potential creditors. Capacity and creditworthiness issues could possibly be brought to manageable levels if delegated to unions' central banks levels.

- **Risk sharing mechanisms.** Risk-sharing mechanisms can mitigate the impact of asymmetric shocks[23] on a monetary union and reduce the provisions necessary for each member to protect its investment budget. The most extreme option would be to establish a centralized budget managed by the monetary union, which could adjust net transfers to member states based to the nature and magnitude of economic shocks.[24] A more modest alternative could involve pooling resources in a solidarity fund and allowing withdrawals by member states that have suffered a shock. In this case the first challenge would be to address the issue of moral hazard by requiring verification that the budgetary shocks in question are exogenous and not the result of any deliberate domestic policy action. Incentives would also be required to ensure that the solidarity fund does not undermine fiscal discipline among member states.

59. **Given the different characteristics of CEMAC and UEMOA, policymakers may wish to explore different options for each monetary union.** In UEMOA, disparities in geographical conditions and revenue sources between member states render shocks highly asymmetric. Solid coordination capacity, as evidenced by sophisticated mechanisms such as the regional investment fund, provide an enabling environment to explore the possibility of developing

[23] These are simultaneous positive and negative shocks affecting multiple member states.

[24] Basdevant et al. (2015) suggest that a simple, automatic, and non-regressive system of temporary transfers—financed by a relatively small contribution of the order of ¾ to 1¼ percent of GDP—would reduce the share of uncovered asymmetric risks from 75 to 20 percent. The fund would be financed by tax revenues from all UEMOA members, and resources would be transferred to countries that suffered negative shocks. Transfers would be proportional to: (i) the size of the shock, (ii) the relative size of the recipient economy, and (iii) the annual resources accumulated in the fund.

risk-sharing mechanisms. By contrast, CEMAC countries are less prone to asymmetric shocks given their uniformly heavy dependence on oil revenues. In this context, developing hedging mechanisms against oil-price fluctuations may be a more appropriate strategy.

60. **Strengthen public investment management.** Strengthening public investment management could reduce the volatility of public investment, particularly at the appraisal and implementation stages.[25] Improving treasury management and introducing budgeting mechanisms for multiyear projects could also help to smooth investment expenditures.

- **Appraisal.** Independent and technically sound appraisal is certainly critical to identify high return projects, based on cost-benefit analysis. Such identification and ranking of projects based on returns will certainly be useful to prioritize good investment projects in the event of a shortfall in anticipated resources (assuming that available resources were initially well anticipated). But it will also be instrumental to speed the procurement process, as based on a good identification of supply market's ability to deliver the outcomes required in terms of time, cost, and quality, which which will avoid having to go back in the procurement cycle if bids differ significantly from pre-identified costs of projects.

- **Procurement**. Reducing delays will also help lessen the extent to which expenditures are skewed towards the final months of the fiscal year, which at present is a significant contributor to investment volatility. Synchronizing the start of the bidding process with the submission of the budget to the legislature could also encourage execution to begin earlier in the fiscal year, as could a reduction in the number of ex ante controls.

- **Treasury management.** Effective treasury management requires realistic weekly or monthly expenditure plans from all spending agencies, as well as a reliable forecast of available financing. Accurately anticipating expenditures and financing enables the treasury to use short-term borrowing to finance shortfalls instead of delaying the execution of investments.

- **Multiyear budgeting of projects.** At the project level, multiyear budgeting allows for resources to be automatically carried forward, rather than being reconfirmed in each annual budget, reducing policy uncertainty and improving budgetary predictability.

61. **In recent years, Mali and Niger have launched important public financial management reforms in an effort to improve project selection and accelerate procurement cycles.** In Mali, all public investment projects are reviewed by a selection committee, and their inclusion in the three-year Public Investment Plan is based on predetermined criteria. The Malian government also recently introduced a budgetary line to fund feasibility studies for domestically financed projects. Niger has implemented similar reforms to the institutional framework for project selection, and both countries have adopted procurement codes designed to reduce delays and smooth project implementation over the fiscal year. Chad has also implemented a new procurement code, but the project selection process still lacks both clear criteria and an independent appraisal mechanism.

[25] See Rajaram et al. (2010) for a more comprehensive discussion of the various stages of public investment management. The analysis presented in this section focuses on those stages with the most direct implications for public investment volatility.

62. **Treasury management remains a key challenge in all three countries, as it directly impacts the capacity of the government to implement investment programs promptly and effectively.** While each country has made progress in reforming treasury procedures, much remains to be done. In Niger, a recent assessment of public financial management, including cash management, revealed that procedures for the preparation of the treasury cash plans, overall commitment plans, sectoral commitment plans and procurement plans are not reliably adhered to, and has been resulting in payment delays. In Mali, the government has taken steps to improve cash management by establishing a Treasury Single Account in 2014 and adopting a formal directive specifying emergency extra-budgetary spending procedures. In Chad, the use of computerized payment systems has improved the treasury department's performance by reducing payment delays and improving recordkeeping.

63. **All three countries should consider adopting formal multiyear budgeting processes for individual projects.** A 2009 UEMOA directive calls for the adoption of multiyear budgeting systems beginning in January 2017. The CEMAC framework for public financial management does not include such a multiyear budgeting objective. However, individual countries should consider implementing measures to secure project funding across multiple budget cycles in order to smoothen the execution of projects that necessitate several years to be completed.

64. **Undoubtedly, actions discussed in preceding paragraphs to reduce public investment volatility should be complemented with actions to reduce the magnitude and frequency of the shocks which are at the origin of such volatility.** Efforts to foster economic diversification, and related sources of fiscal revenue[26] would reduce countries exposure to single commodity price volatility. Improved governance and the reform of security sectors would contribute to reduce fragility and the occurrence of security shocks. Adaptation to climate change would abate the impact of such change on people's livelihoods. Regional integration and cooperation efforts would strengthen the efficacy of countries' responses to such shocks. Economic integration, in particular, would make monetary policy more effective as business cycles and shocks would become more symmetric across countries. At the same time though, obtaining results in these domains would rely to a large extent on effective and efficient public investment programs. This is notably the case for diversification, adaptation and regional integration which require specific infrastructure currently mostly missing. To some extent, it could even be argued that actions to reduce public investment volatility are pre-requisites to high and sustained investments in infrastructure in our three countries of interest.

[26] Greater reliance to public-private partnerships, to the extent that explicit and contingent liabilities are well understood and uncorrelated to the shocks which affect governments revenues, could also contribute to shield public investment from fluctuations in government revenues.

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