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NIGER

Selected Issues and Statistical Appendix

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Approved by the African Department

December 9, 2008

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CHAPTER I

ASSESSMENT OF THE REAL EXCHANGE RATE AND EXTERNAL COMPETITIVENESS[1]

I. ECONOMIC BACKGROUND AND EXPORT PERFORMANCE

1. The Nigerien economic outlook has been improving since 1999. After a long period of decline in per capita income, growth accelerated through 2007, attaining an annual average of 4 percent, or about 1 percent in per capita terms. Economic reforms and political stability have attracted external aid and higher domestic and external private investment. The total investment-to-GDP ratio has increased from an average of 12 percent in 1997–99 to 22 percent in 2005–07 (Table 1).

Table 1. Niger and Sub-Saharan Africa Comparative Performance, 2005-07

	Niger			SSA[1]		
	2005	2006	2007	2005	2006	2007
GDP per capita (in 2000 US dollars)	173	176	176	370	382	398
Gross Domestic Investment (percent of GDP)	23.1	21.6	21.7	20.4	21.1	22.1
Overall Fiscal Balance (excl. grants-percent of GDP)	-9.6	-6.9	-6.9	-1.8	0.1	-2.2
Current Account Balance (percent of GDP)	-9.3	-8.6	-7.7	-0.2	2.6	-0.8
CPI (in annual average-percent)	7.8	0.1	0.1	9.4	8.8	7.8
Real Effective Exchange Rate (2000=100)	113.3	110.6	110.7	105.2	110.8	114.1
Export of Good and Services (percent of GDP)	16.5	15.5	15.8	41.5	43.1	42.9
Terms of Trade (2000=100)	116.9	119.4	143.0	104	116.2	119
External Debt to Official Creditors (percent of GDP)	52.3	14.2	14.9	13.5	26.7	20.7

Source: REO, Sub-Saharan Africa, 2008.

[1] Excluding Nigeria and South Africa.

2. Export performance has been similarly positive in recent years (Table 2). After relatively sluggish growth in 1995–99, merchandise exports doubled their nominal growth rate in 2003–07. The decline in uranium exports during the 1990s was reversed after 2002 when world prices rose dramatically due to years of underinvestment in production and revived world demand. However, the acceleration of Niger's exports is not limited to uranium. Because modern production and marketing techniques have been introduced, agricultural exports like onions and cowpeas are growing annually at double-digit levels. On the other hand, livestock exports were stagnant in 2003–07 because of a drought in 2004 that led to a decline in the stock. In total, Niger exports of goods increased significantly, from US$280 million in 2000 to US$730 millions in 2007 and are projected to increase to about

[1] Prepared by Cheikh Gueye and Gonzalo Salinas.

US$980 million in 2008, mainly because uranium prices are still high. As a result Niger's share of total world exports rose by about 70 percent between 2000 and 2008 (see Figure 1). Although this is mainly driven by mineral exports, nonmineral exports have also accelerated because since 2004 Niger has specialized in onions and cowpeas in response to heavy demand in neighboring countries. Livestock exports have also grown solidly since 2004.

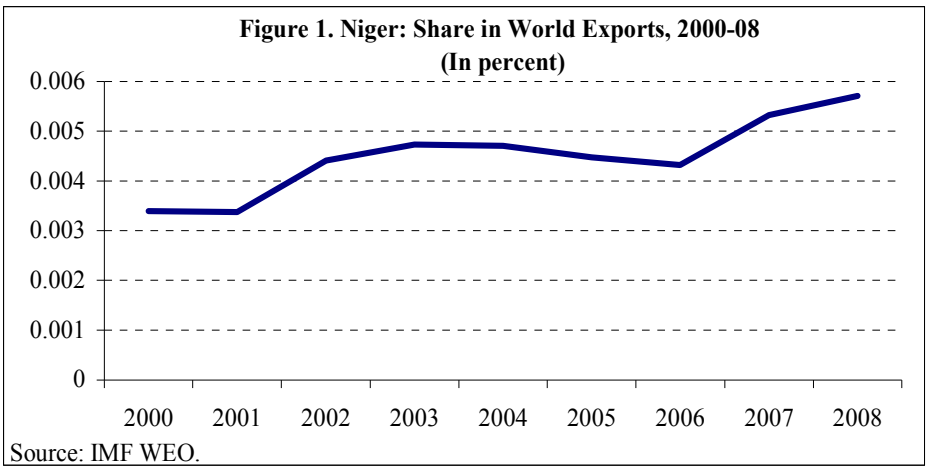
Table 2. Niger: Average Annual Growth Rate of Exports
In U.S. Dollar by Product, 1996-2007
(In Percent)

	1996-99	1999-2004	2004-07
Total Exports of Goods	-0.1	7.9	17.5
Uranium	-9.0	4.5	24.3
Livestock	2.1	3.3	7.3
Cowpeas	6.6	6.3	19.2
Onions	5.9	20.1	29.3
Gold*			33.4
Others	10.3	6.1	3.3
Non-Mineral Exports	7.1	8.2	10.1

Source: Central Bank of Niger, 2008.

* Exports of gold started in 2004.

3. Despite the recent favorable export performance, there are still concerns about a possible deterioration of Niger's competitiveness. The appreciation of the euro, to which the CFA franc is pegged, and the increase in imported commodity prices have partly offset the positive impact of the rise of uranium prices on the current account balance. Wage pressures have mounted in the public sector and the construction, energy and telecommunications sectors.



II. Research Strategy and Summary of the Results

4. Against the backdrop of recent economic developments, this chapter assesses the real exchange rate and competitiveness of Niger's economy. The chapter uses four methods to evaluate the exchange rate: (i) purchasing power parity; (ii) the fundamental equilibrium exchange rate; (iii) the macroeconomic balance approach; and (iv) external sustainability based on an analysis of Niger's sustainable net foreign assets (NFA) position. Competitiveness is assessed by various surveys. The results from applying these methods should not, however, be taken as a complete assessment of Niger's external stability because Nigeria a member of the West African Economic and Monetary Union (WAEMU), so its real exchange rate is determined by economic, financial, and monetary developments throughout the WAEMU zone. For these reasons the 2007 Decision on Bilateral Surveillance over Members' Policies recommends that external stability in a currency union be assessed at the union level. The decision also states that this does not preclude assessment of the real exchange rate at the member level.

Exchange rate assessment

5. **The purchasing power parity approach indicates that in 2006 Niger's real exchange rate was moderately undervalued by about 12 percent,** though it had been generally overvalued in the late 1970s and early 1990s.[2]

6. **The Equilibrium Real Exchange Rate Approach indicates a moderate undervaluation of 0.7 to 3.7 percent**. This approach shows a slight overvaluation in 1979 and a major overvaluation in the late 1980s and the early 1990s, in phase with the Purchasing Power Parity (PPP) findings.

7. **The macroeconomic balance approach suggests an undervaluation of about 8 percent.**

8. **The external sustainability approach indicates that the exchange rate is consistent with a sustainable NFA position.** Based on current substantial inflows of foreign direct investment to expand uranium production and start petroleum production, and a foreign debt level well below the policy-determined threshold, it is estimated that Niger could sustain an NFA position of about –86 percent of GDP. This level corresponds to a current account deficit of 6.1 percent of GDP, which is very modestly below the projected 2013–28

[2] The PPP assessment did not cover 2007 due to the lack of data for that year.

average deficit of 6.4 percent after a spike in 2009–12 due to heavy investment in mining and petroleum. Although applying the calculated elasticity of the current account to the real effective exchange rate implies a small overvaluation of 1.9 percent, given the margin of error of these estimates, we cannot conclude that there is an overvaluation.

9. On the basis of this analysis it appears that the real effective exchange rate of Niger is in line with the fundamentals. This conclusion is somewhat different (see below) from the recent assessment for the WAEMU region as a whole. The reasons are (i) Niger's better performance on fundamentals that affect the equilibrium level of the real exchange rate, mainly the terms of trade; and (ii) the lower appreciation in Niger of the real effective exchange rate compared to other WAEMU countries in recent years, due to the higher weight of Nigeria's naira in the basket of Niger's trading partners.

Tale 3. Niger: External Sustainability and the Real Exchange Rate

Method	Assessment	Overvaluation (+) or Undervaluation (-) (In Percent)
Purchasing Powever Parity	Real Exchange Rate Undervalued	-12
Equilibrium Real Exchange Rate	Real Exchange Rate Undervalued	-0.7 - -3.7
Macroeconomic Balance Approach	Real Exchange Rate Undervalued	-8.1
External Sustainability Approach	Real Exchange Rate Overalued	0.09

Source: IMF's Staff Calculations, 2008.

Competitiveness

10. **A variety of competitiveness indicators show that the business environment has improved significantly.** Niger's Index of Economic Freedom (IEF) with respect to comparator groups stands out because of its high IEF scores on monetary freedom. Diagnostic studies like the World Bank's Investment Climate Assessment (ICA) and the Diagnostic Integration Study (DTIS) also recognize progress in stabilizing the economy and its positive effect on competitiveness. However, the World Bank's report on Doing Business (DB) indicators suggests that Niger is among countries where business activities are most costly. This points to the need for improvement in the labor market, procedures to establish a business, access to credit, and cost of capital.

11. **Global and sectoral productivity indicators show improvement.** Data on annual wages, employment, and value added of the modern sector show that since 2000 productivity has improved in all sectors except services. Value added per worker has increased especially in manufacturing, energy, and transportation. However, the labor market is characterized by

shortages of skills, rigidities, and wages cost that are higher than in comparable countries in sub-Saharan Africa.

Table 4. Niger: Competitiveness Assessment

Strengths	Weaknesses
Political Stability	Cumbersome Regulation
Macroeconomic Stability	Lengthy and Costly Bureaucratic Procedures
Prudent Monetary Policy	Rigid Labor Market Legislation
Lack of Price Controls	Limited Access to Finance
Low Trade-Policy Barriers	High Costs to International Trade
Limited State Intervention in Sectors Productive	Underdeveloped Infrastructure

Source : World Bank, 2007-2008.

III. Purchasing Power Parity Assessment

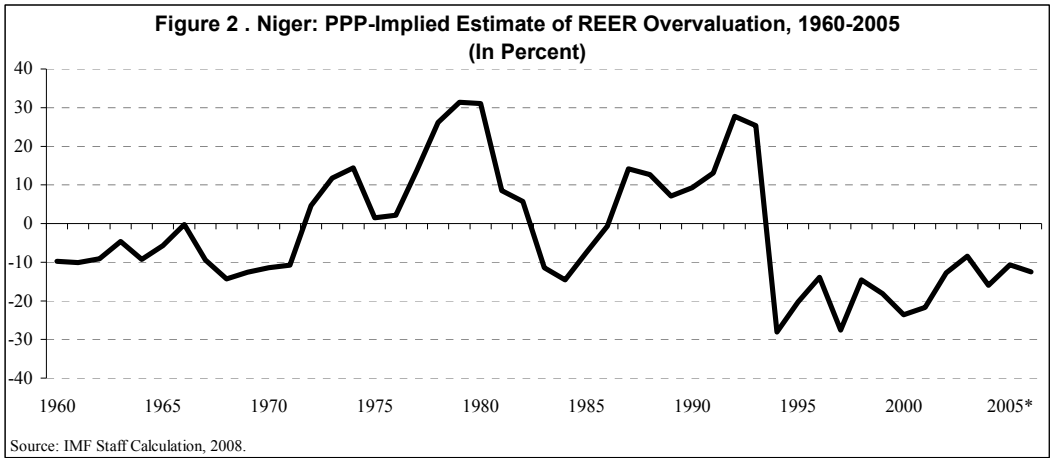
12. One indication of the potential over- or undervaluation of a country's currency is whether, under the currently existing exchange rate, prices in its economy are higher or lower than in other countries, that is, whether there is absolute PPP against the rest of the world. There are several reasons why absolute PPP would not hold,[3] but one that is particularly significant over the long run is the Harrod-Balassa-Samuelson effect (Harrod, 1933; Balassa, 1964; Samuelson, 1964), which states that countries with higher income per capita are expected to have more appreciated real exchange rates.[4] Therefore, several studies have sought to assess a potential exchange rate overvaluation by assuming PPP holds after controlling for income per capita level (e.g., Rogoff, 1996; Frankel, 2004; Johnson, Ostry, and Subramanian, 2007; Rodrik, 2007).

13. This section conducts such an exercise for Niger. Following Rodrik (2007), the real exchange rate is estimated as the ratio of the nominal exchange rate to the PPP conversion

[3] Such factors include trade policy barriers; domestic taxes; transaction costs, including transport costs; incorporation of nontradable goods in price indices; and pricing-to-market practices.

[4] Suppose that the price of traded goods is the same in all countries and determined in international markets. In a fast-growing economy, productivity growth tends to be concentrated in traded goods. This will lead to increases in wages for production of tradable without increases in their prices. However, workers in the nontradable sector demand comparable pay rises, which leads to an overall rise in the price of nontraded goods and thus to an appreciation of the real exchange rate. Note that the relative price of nontradables may rise even if there is balanced growth of the two sectors as long as the production of nontradables is more labor-intensive.

factor.[5] The logarithm of this variable is then regressed on the logarithm of the chained real GDP and on a fixed effect for a given period. The fitted values of the regression are the real exchange rate predicted by PPP taking the Harrod-Balassa-Samuelson effect into account. The deviation of the actual real exchange rate from the predicted values is the measure of overvaluation. Figure 2 shows the estimated overvaluation between 1960 and 2006[6].



14. The PPP assessment indicates that while the real exchange rate was largely overvalued in the late 1970s and early 1990s, today it is moderately undervalued. The first episode of significant overvaluation occurred in the last half of the 1970s when the real exchange rate was 30 percent above the value indicated by PPP and Niger's income per capita. This apparent was the result of an increase in the price of uranium that boosted the terms of trade and thus prompted appreciation of the real exchange rate.

15. The second large overvaluation occurred in the early 1990s and ended abruptly in 1994, when the WAEMU devalued the nominal exchange rate. This move brought the real exchange from an overvaluation of 30 percent in 1993 to an undervaluation of 30 percent in 1994. Although the undervaluation has significantly diminished in the last few years as the euro appreciated, the PPP assessment still points to a moderate undervaluation of about 12 percent in 2006.

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[5] Data for this exercise come from Penn World Tables 6.2 (Heston, Summers, and Atina 2006). The PPP assessment is carried out using all countries in this database for the period 1950–2004.

[6] The values for 2005 and 2006 are calibrated using data from The World Bank's World Development Indicators (WDI).

IV. Equilibrium Real Exchange Rate

16. This section follows the equilibrium real exchange rate (ERER) approach pioneered by Edwards (1989) in assessing whether the real effective exchange rate (REER) is in line with the fundamentals in Niger. Theoretically, the ERER is defined as the rate that would yield equilibrium in the balance of payments—with three important qualifications: (i) no undue restrictions on trade flows, (ii) no special incentives for inflows or outflows of capital; and (iii) no excessive unemployment (Nurske, 1945). In other words, here the ERER is compatible with both internal and external equilibrium. Operationally, however, it is not easy to identify what constitutes internal and external equilibrium. Edwards (1989) considers internal equilibrium to be achieved when the market for nontradable goods clears in the present and the future. Others view it as being realized when there is no gap between domestic and foreign output.

17. ERER models relate the real exchange rate to economic fundamentals, such as net foreign assets, openness, and productivity growth. These models have been used to assess the magnitude by which the exchange rate needs to be adjusted to correct excesses of current account balances. Using the autoregressive distributed lag (ARDL) approach to estimate a panel of 39 African countries and 70 possible single-country models, Chudik and Mongardini (2007) found that the terms of trade, openness, government consumption, and productivity had significant impact on the real exchange rate. Roudet, Saxegaard, and Tsangarides (2007) employ robustness techniques, such as the ARDL and Johansen methods, to conclude that terms of trade, investment, government spending, and openness determine exchange rate equilibrium in WAEMU countries. There are also several country-specific studies using many of the same techniques. For instance, in the 2008 selected issues paper for the WAEMU regional consultation, the ARDL approach was used to compute the equilibrium exchange rate of all WAEMU members. The results did not suggest any significant overvaluation of the real exchange rate in recent years. For the WAEMU as a whole, recent estimates indicate that at the end of 2007, the REER exceeded by a small amount the 95 percent confidence band around the estimated equilibrium real exchange rate.

A. Estimation Strategy

18. The shortness of the time series (1970–2007) and the quality of the data available (Di Bella, Lewis & Marin, 2007) cause many difficulties in estimating the equilibrium exchange rate of Niger. For this reason Chudik and Mongardini (2007) found no significant long-run coefficients when trying to estimate the ERER for Niger, among other countries, even though they used seven determinants of the real exchange rate and estimated ten model specifications.

19. To deal with these challenges, the following strategy has been implemented: (a) taking into account the limited availability and low quality of the time series data, variables included in the regressions are those deemed particularly relevant for Niger that are available for a long period; and (b) the short length of the time series is accounted for by using the ARDL-bound test approach (Peseran, Shin and Smith, 2001) to test for cointegrating relationships for each model specified.

The model

20. The equilibrium REER data-generating process (DGP) of the Nigerien economy for 1970–2007 period can be approximated using the following model:

$$REER_t = \alpha + \beta_1 * LTOT_t + \beta_2 * LGCGDP_t + \beta_3 * LPROD_t + \beta_4 * LOPEN_t + \beta_5 * FLOW_t + \mu \qquad (1)$$

LTOT, LGCGDP, LPROD, and LOPEN are the natural logarithm of the terms of trade, the ratio of government consumption to GDP, productivity, and openness; FLOW is the flow variable; and μ is the disturbance term. Box 1 defines all these variables and the signs that could be expected from the estimation.

Unit root tests

21. The Dickey and Pantula strategy (1987) is used to carry out the unit root tests. The first step uses the augmented Dickey-Fuller (ADF) model to test on the first difference the existence of more than one unit root. If this null hypothesis is rejected, the second step is implemented; if accepted, the series is an I(2) series or higher. The second step is performed at the variable level to test for the presence of one unit root against the alternative hypothesis of no unit root.

22. The Dickey and Pantula tests, however, may not be robust due to autocorrelation and that heteroskedasticity that may be present given the limited time span and the possible presence of breaks. Therefore, this strategy has been supplemented with the Perron (1992) (PP) and Zivot and Andrews (1992) (ZA) tests. The PP test proposes a nonparametric correction of the error autocorrelation and heteroskedasticity; the ZA test makes it possible to pin down potential structural breaks in the series and then to again carry out the ADF taking into account these breaks. These tests reveal that all series plotted in Appendix 1 are I(1) except for the resource balance variable. Details of the tests are provided in Appendix 2.

Box 1. Description of Variables

The **real effective exchange rate** (REER) is defined as

$$REER = E * (P / P^*)$$

where E is the nominal effective exchange rate, and P and P* are the CPI inflation rates of Niger and its trading partners. Nigeria is included as a trading partner.

The **terms of trade** is the ratio of the export and import price indices. The macroeconomic impact of the terms of trade on the REER is generally positive because the income effect tends to dominate the substitution effect, but that will depend on the share of international trade in economic activity.

Government consumption as a share of GDP: Increase in government consumption can affect long-run equilibrium in different ways. If the spending is biased towards nontradable goods, the increase will result in an appreciation of the real exchange rate; if the increase is directed to tradable goods, it may cause a depreciation. Therefore the sign could be either positive or negative.

Productivity relative to trading partners captures the Balassa-Samuelson effect. It has been proxied by relative real GDP per capita. Countries with higher productivity growth in the tradable sector experience a rise in relative wages. This increases the price of nontradables relative to tradables and thus results in an appreciation of the real exchange rate. The expected sign is positive.

Openness is usually proxied by the ratio of the value of imports and exports (at current prices) to GDP. However, in a resource-dependent country like Niger, this ratio seems to reflect more the vagaries of the uranium international market than changes in Niger's trade policies. Therefore, other two proxies have been used: (i) value of imports to GDP and (ii) the value of total trade to GDP, controlling for the value of uranium exports. The latter is equal to trade minus the predicted values from a regression of trade on uranium exports.

The **flow variable** has been approximated in three different ways: (i) the resource balance (the ratio of real GDP to the values of exports at constant prices minus the value of imports at constant prices; (ii) aid net of reserves; and iii) net foreign income. The resource balance is further adjusted by multiplying the value of exports by the terms of trade.

Econometric Estimation

ARDL-OLS Estimation

23. The ARDL is well-suited to the estimation of time series with different levels of cointegration and performs well when the time series are short (Baffes et al., 1997). In the ARDL approach, model (1) above can be reformulated in the following form:

$$y_t = b + \sum_{i=1}^{p} a_i y_{t-1} + \sum_{i=0}^{n} c_i' x_{t-i} + \omega_t \qquad (2)$$

This ARDL(p, n) is of order p (number of lags) and n (number of variables), y_t being the vector of the dependent variables, x_t the vectors of the independent variables, a_i and c_i the parameters to be estimated, b the constant term, and ω_t the disturbance term.

24. This formulation, however, does not take into account short-run dynamics, in which case estimation of the long-run parameters can be biased (Banerjee et al, 1986). Therefore, following the Stock (1987) and Pesaran and Shin (1998) reparametrization techniques, model (2) has been respecified as a vector error correction model (VECM):

$$\Delta y_t = c + \delta y_{t-1} + \theta' x_{t-1} + \sum_{i=1}^{p-1} \alpha_i \Delta y_{t-i} + \sum_{i=0}^{n-1} \phi' \Delta x_{t-i} + \omega_t \qquad (3)$$

25. The estimation of the parameters using model (3) minimizes the collinearity among regressors and therefore the standard errors. It also facilitates identification of possible simplifications of the relationship (Johnston and DiNardo, 1997). Using model (3), the first step of the ARDL tests for the existence of a long run-run relationship using a bound testing approach. Pesaran, Shin, and Smith (2001) propose testing (1) H_0 : $\delta = 0$ and $\theta = 0$, which means that we cannot reject the absence of cointegration vector, against the alternative (2) H_a : either δ or θ is significantly different from zero, which implies that the hypothesis of the existence of such a relationship cannot be rejected. In this test, the ARDL uses an F-test with lower critical value, corresponding to the case where all variables are I(0) and upper critical value corresponding to the case where all variables are I(1). If the test statistic is higher than the upper bound critical value, the null of no cointegration is rejected; it is lower than the lower bound critical value, it is not rejected. In the second step, once existence of a cointegrating relationship is established, the ARDL(p, q) long-run model can be estimated and the appropriate lag length selected. Appendix 3 reports the F-bound tests of the existence of the long-run relationship and shows that a long-run relationship cannot be rejected. It also shows that the best model, using both the bound test and the t-test as selection criteria, is the model in the first column. Appendix 4 uses the model of the first column of Appendix 3 to test for the appropriate lag length, which is two, because all coefficients using two lags are significant and also the error term is significant and less than one.

Robustness checking: The Johansen and Engle-Granger Estimations

26. Cointegration has been tested for robustness using the Johansen and Engle-Granger techniques. The Johansen method performs a cointegration test by comparing the estimated likelihood ratios to the asymptotic critical value (Johansen, 1992), which has led to rejection of the null hypothesis of no cointegration in favor of the existence of one cointegrating vector; this implies that the existence of a long-run relationship cannot be rejected. The results of this test are reported in Appendix 5. The Log-likelihood value (159.2) and the trace statistic (24.73) are above their critical values, which implies that the existence of "at most one" cointegrating relationship cannot be rejected. Likelihood ratio tests, however, are known

to be sensitive to small size sample bias; therefore, the critical value has been adjusted using the Cheung and Lai (1993) method.[7]

27. The Johansen method, however, could present pitfalls where the number of observations is limited.[8] Therefore, further tests have been carried out using the two-step method (Engle-Granger, 1987). The first step of the Engle-Granger OLS technique is applied to the long-run equation of the REER as a regressand and its main fundamentals as regressors. The results of this first step is reported in the first column of Appendix 4 and in Table 5. These results show that all the parameters are significantly different from 0. The estimates, however, may result from a spurious regression. Therefore, the second step is carried out in Appendix 6 to test for the normality of the residuals from the long-run equation. The DF-value is –3.209, which is less than the critical value at the 5 percent confidence level. The p-value is 0.019. This implies that the existence of a cointegrating vector cannot be rejected. Tests for robustness of the long-run parameters using both the Johansen and Engle-Granger methods are carried out in the following section.

B. Econometric Results and Interpretations

28. **Appendices 3 and 4** show all the results of the econometric estimation of equation (3), including different variables and number of lags,[9] The following model is selected because all of its variables are significant and economically congruent, and according to its efficient error correction term, F-bound, test and information criteria:

$$REER_t = \alpha + \beta_1 TOT_t + \beta_2 GCGDP + \beta_3 PROD + \varepsilon_t \qquad (4)$$

Thus, variables such as openness, aid net of reserves, net foreign income, and real resource balance are dropped from this preferred model.

[7] The adjustment factor is calculated as T divided by (T–nK), T being the number of observations, n the number of variables including the intercept and k is the number of lags.

[8] Monte Carlo simulation evidence suggests that the Johanson method statistical attributes deteriorate in the presence of small samples.

[9] After estimation of the ARDL the long-run parameter of each regressor is estimated by the sum of the coefficients of the level and lagged levels, divided by one minus the sum of the coefficients of the lagged levels of the dependent variable.

29. When the robustness of model (4) to alternative estimation techniques is tested using OLS and Johansen methods, the estimates remain consistent and efficient, with the same expected signs as in the ARDL. Results are presented in Table 5.

30. The long-run parameters in Table 5 show that terms of trade elasticity is estimated to be in the range of 0.36 (OLS Engle-Granger) to 0.49 (Johansen), which means that with a 10 percent increase in the terms of trade, the REER would appreciate by 3.8 to 4.9 percent This estimate confirms results observed in other country studies that the income effect of the terms of trade tends to dominate the substitution effect in Niger. This result is in line with those of Roudet et al. (2007) for the WAEMU countries (2.5–3.1 percent), and the medium value of those of Elbadawi (1994) for Chile, Ghana, and India. It is also within the 0.23–0.68 range of the single-equation estimates of Chudik and Mongardini (2007).

31. A 10 percent increase in government spending is associated with an appreciation of the REER of 3.5 percent (ARDL) to 5.09 percent (Johansen). These results confirm that an increase in public spending tends to weigh more on nontradable than on tradable goods. The estimates are similar to those found in the literature: Chudick and Mongardini (2007) found parameters within a range of 0.27–0.67 for the single-equation estimations. Their coefficients for the panel estimation (0.556) are not far from the ones found through the ARDL (0.35) and Johansen (0.51) estimation. Moreover, a positive change in productivity is associated with an appreciation of the REER. A 10 percent increase in productivity would require a 3.8 percent (OLS Engle-Granger) to 4.5 percent (ARDL) appreciation.

32. The adjustment parameters presented in Table 5 strongly support cointegration; all the error correction adjustment elasticities are highly significant and less than one. The corresponding estimate for the ARDL, Johansen, and Engle-Granger estimators are –0.77, -0.75, and –0.51. These elasticities are in line with estimations such as those of Elbadawi (1994) for Chile, Ghana, and India. The error correction coefficients have then been used to derive the adjustment speed in terms of number of years required to adjust for a given exogenous shock. To eliminate 99.9 percent of an external shock, it would take 3.5 years for the ARDL model, 3.7 years for the Johansen, and 6.3 years for the Engle-Granger.

C. Calculating the Equilibrium Exchange Rate Indexes

33. The cointegrating relationships obtained by estimating the REER with their fundamentals (terms of trade, productivity, government spending) permit the computation of the ERER indices. ERERs are calculated using the long-run parameters in Table 5 and the permanent component of the fundamentals estimated using the Hoddrick-Prescott (HP) filter.

34. The computed indexes are summarized in Table 6 and reported in Appendix 7. The over- and undervaluations calculated from the different models are shown in Figures 3, 4, and 5. The three procedures (ARDL, OLS, Johansen) give similar results for the two main episodes of overvaluation: the late 1970s and the early 1990s.

Table 5. Niger: Dependent Variable
(In REER)

Long-term variables	ARDL (with two lags)	OLS Engle-Granger	Johansen
Ln(Terms of trade)	0.38**	0.362***	0.495***
	(2.39)	(5.3)	(8.49)
Ln(Productivity)	0.45**	0.385***	0.410***
	(2.04)	(8.31)	(10.08)
Ln(Government consumption)	0.35***	0.24**	0.509***
	(3.8)	(2.19)	(5.18)
Constant	0.13	0.59	0.915
Observations	36	38	40
Error correction term	-0.77***	-0.75****	-0.51***
	(-5.10)	(-5.28)	(-6.51)
99 percent correction (Years)	3.13	3.32	6.46

In parentheses are the t statistics *** p <0.01, ** p<0.05.
Source: IMF Staff calcuation, 2008.

35. The REER appears undervalued in 2007 in a range of 0.7–3.7 percent. The difference in the results of the WAEMU-wide analysis (2008 WAEMU regional consultation selected Issues Paper) is caused by a number of factors. On one hand, the REER has not appreciated in Niger as much as in the WAEMU because of the weight of the Nigerian naira in the effective exchange rate, and the bilateral real exchange rate with Nigeria has been stable. In addition, the equilibrium rate in Niger has appreciated recently because of improvements in the terms of trade and increases in government consumption.

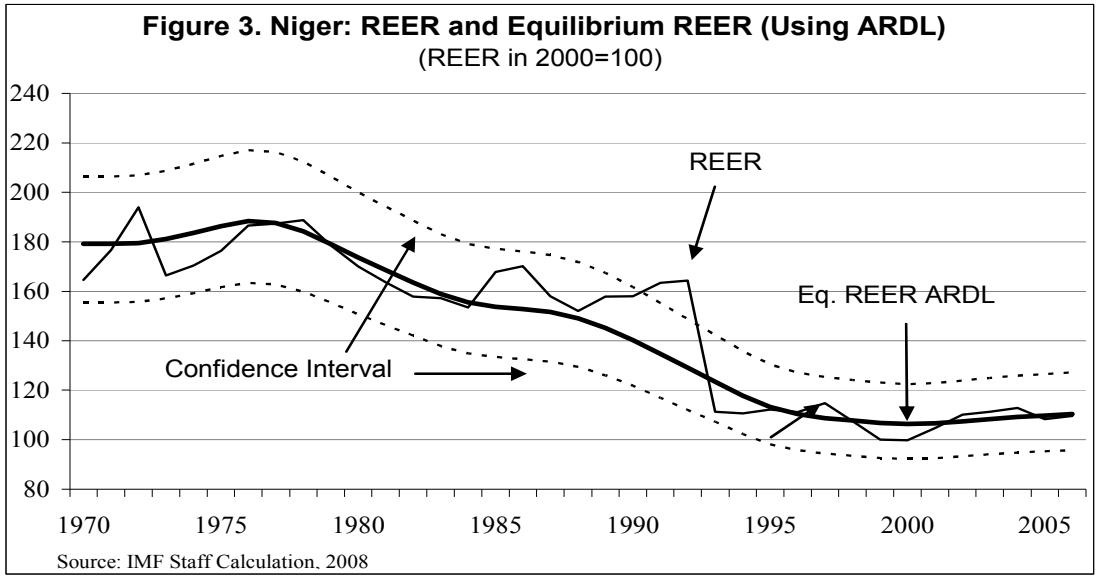
V. THE MACROECONOMIC BALANCE APPROACH

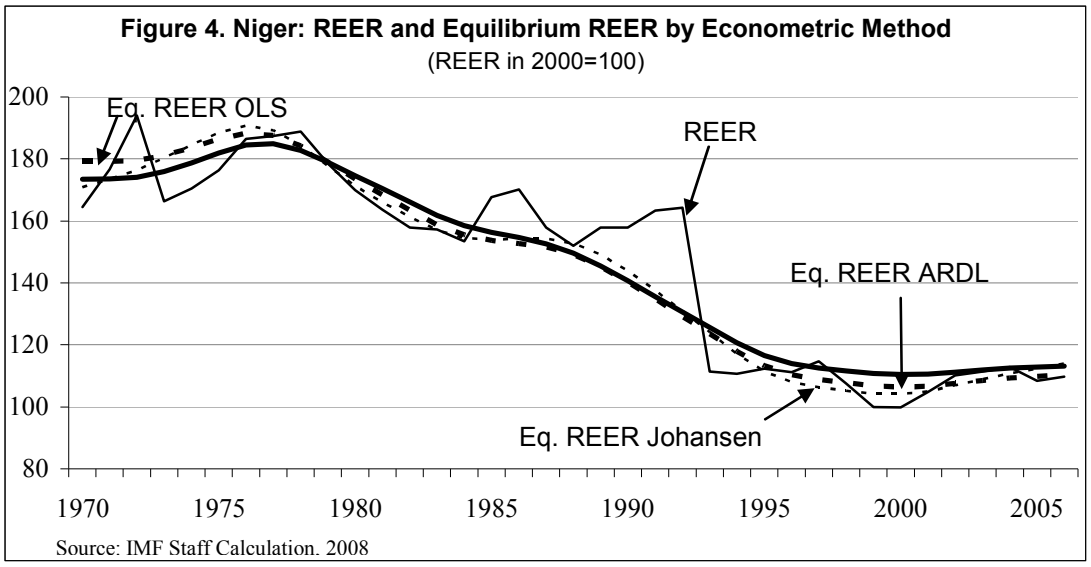
36. The MB approach to assessing exchange rates focuses primarily on whether the underlying current account, at prevailing real exchange rates, is consistent with normal or equilibrium saving-investment balances. The 2007 Decision on Bilateral Surveillance defined the underlying current account as "the current account stripped of temporary factors, such as cyclical fluctuations, temporary shocks, and adjustment lags."

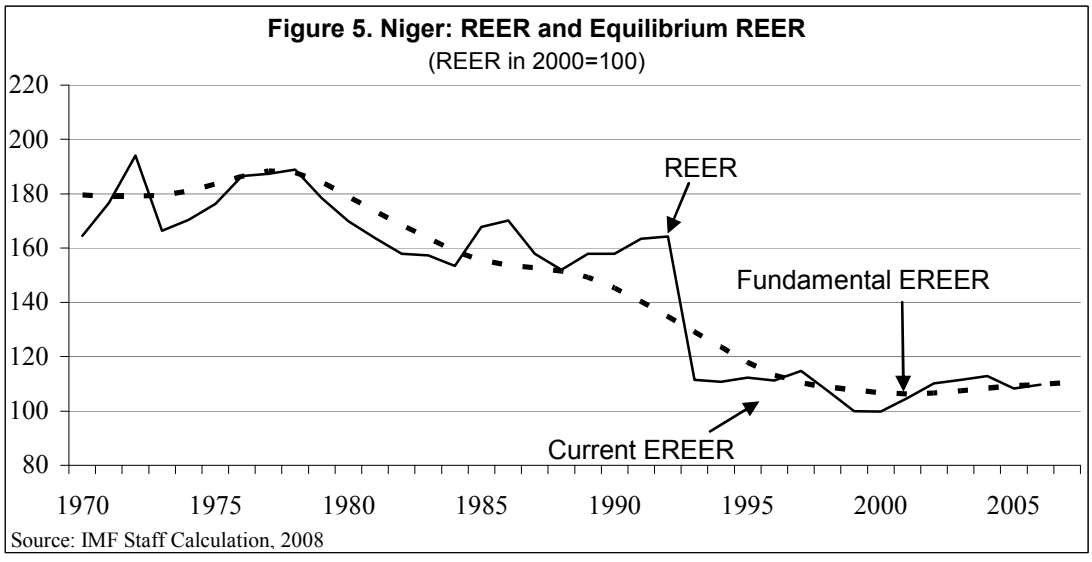
Table 6. Niger: Percentage of Overvaluation (+) or Undervaluation (-) under Three Different Estimation Methods, 1973-2007

	Year	ARDL Overvaluation	Engle –Granger Overvaluation	Johansen Overvaluation
1.	1973	8.1	11.4	10
2.	1984	-1	-2.8	0.2
2.	1985	-1.3	-3.2	-0.7
2.	1986	9.1	7.3	9
2.	1987	11.4	10	10.3
3.	1990	8.7	8.5	5.9
3.	1991	12.5	12.2	9.8
3.	1992	21.3	20.5	18.8
3.	1993	27.3	25.8	25.5
4.	1994	-9.8	-11.4	-10.2
5.	2006	-1.4	-4	-3.5
5.	2007	-0.7	-3.1	-3.7

Source: IMF Staff calculation, 2008.







37. The MB assessment proceeds in three steps. In the first a trade-equation model is applied to calculate the underlying current account positions that would emerge, at prevailing real exchange rates, if all countries were operating at full potential output after taking out the transitory impact of lagged exchange rate changes. The second step uses a separate model to

estimate an equilibrium or normal position for saving and investment balances based on the medium-term determinants of savings and investment. The third calculates how much the exchange rate has to be adjusted, other policies being unchanged, to bring the underlying current account in line with the current account norm.

38. The underlying current account can be approximated using the n-year moving average, the Hodrick Prescott-Filter, the *World Economic Outlook* projection method, and the IMF Consultative Group on Exchange Rate Issues (CGER) model.

Tabel 7. Niger: Alternative Estimations of the Underlying Current Account

Method	Estimates of the Underlying Current Account for 2007
Five Year Moving Average	-8.3
Hodrick -Prescott Filter	-8.5
Post-2012 Projection	-6.4
CGER Underlying CA	-8.1

Source: IMF Staff Estimates, 2008.

39. The 5-year[10] moving average applied for 1970–2007 leads to an estimation of the underlying current account balance of –8.3 percent of GDP. The 5-year lag corresponds to the time needed for the real exchange rate to get back to equilibrium as estimated in the ERER model (see above). The advantage of the n-year moving average is that it is both simple and commonly used in empirical works; its drawback is that it gives equal weight to all data points, although an author may choose to reduce the weights of outliers, as the HP filter does.

40. The HP filter applied for 1970–2007 gives an estimate of the underlying current account balance of about –8.5 percent of GDP for 2007. The filter differences the data to make them stationary and then smoothes the differenced data with an asymmetric moving average.

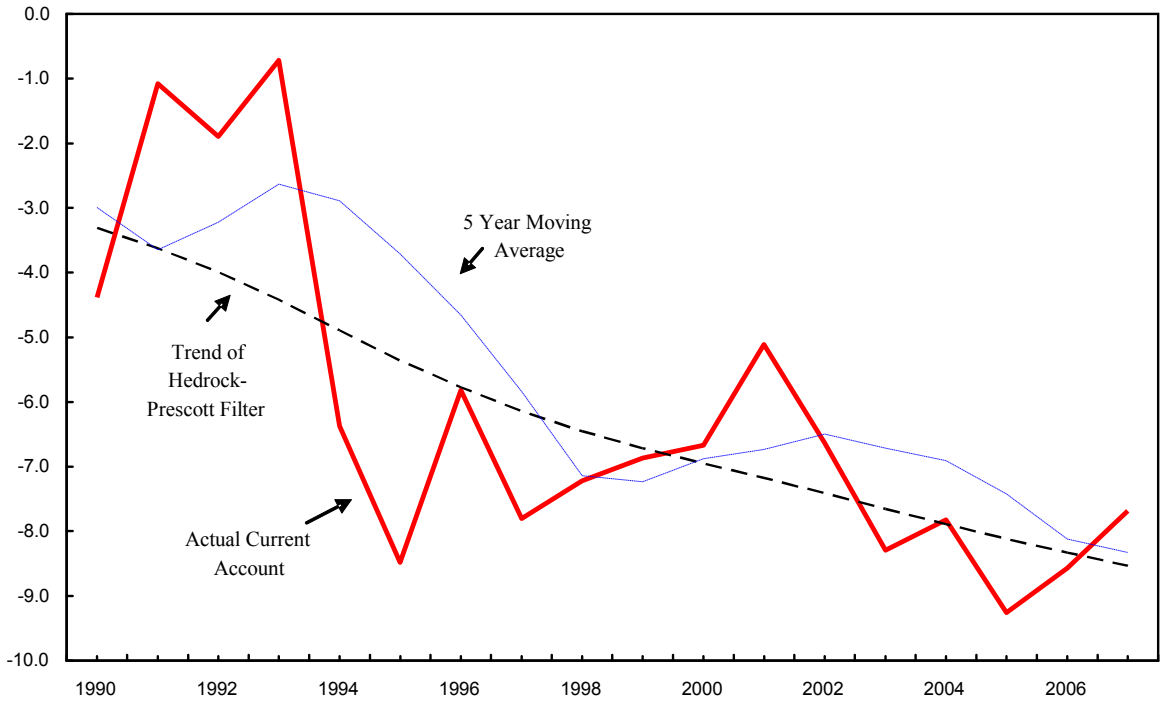
41. The 2008 Article IV exercise projects the average 2013–28 current account deficit at -6.4 percent, after petroleum and uranium investment spikes. This could be taken as the underlying current account because it is expected that temporary factors will die out during

[10] The 5-year lag chosen is the speed of adjustment computed using the coefficient of the error correction term in the equilibrium exchange rate model already discussed.

those years. This is realistic for Niger, where it is expected that foreign direct investment (FDI) and the impact on the current account generated by uranium and oil related investment will be completed by 2013.

42. The CGER approach estimates the underlying current account balance to be -8.1 percent of GDP. The CGER method approximates the underlying current account as it would prevail if domestic and foreign output were at potential. To calculate the current account, the method uses a model that has a standard structure: export volume depends on relative price and the level of foreign activity, and import volume is a function of relative price and the level of domestic activity.[11,12]

Figure 6. Niger: Underlying Current Account



Source: IMF Staff Estimates, 2008.

43. The second step is computation of the current account norm. This could be done by regressing the Niger current account balance on medium-term values of the fundamentals. However, given the limited Nigerien data, two other methods have been used: (i) the

[11] Other fundamental factors such as factor income and current transfers may influence the current account, but they are implicitly modeled by allowing the intercept (baseline) to shift over time.

[12] Details of the computation given in Appendix 10.

estimation obtained by Chinn and Presad (2003) for a panel of 71 countries (developed and developing) over a long period (1970–95); and (ii) the estimation of Lee et al. (CGER, 2008) for a panel of 54 developed and developing countries for 1973–2004, with a hybrid (mean group) pooled estimation. Table 8 presents the estimated coefficients from those panel regressions and the calculated current account balances for Niger.

Table 8. Niger: 2007 Current Account Norm Estimation

Variables	Medium Term Value	Chinn & Presad		CGER Pooled Estimation	
		Coefficients	Impact	Coefficients	Impact
Government Budget Balance	-6.88	0.64	-4.40	0.19	-1.31
Youth Dependency Ratio	2.00	-0.16	-0.32	-	
Relative Income	1.43	-0.45	-0.64	0.02	0.03
Initial NFA	5.12	0.03	0.15	-	
Foreign Aid to GDP	8.52	-0.51	-4.34	-	
Output Growth	-1.83	-		-0.16	0.29
Old Age Dependency	6.57	-		-0.12	-0.79
Population Growth	3.56	-		-1.03	-3.67
Lagged Current Account	-8.57	-		0.37	-3.17
Current Account Norm			**-9.56**		**-8.61**

Source: IMF Staff Estimates, 2008.

44. The current account norm based on Chinn-Presad indicates a somewhat larger deficit than the one implied by the hybrid pooled method. In the case of Niger, the Chinn-Presad method gives a norm of –9.56 percent of GDP and the hybrid pooled method a norm of -8.61 percent. The difference is due to the bigger coefficient on the government deficit and incorporation of foreign aid in the Chinn-Presad method. That method seems better suited to developing countries because the level of aid is an important determinant of the current account norm; a country that receives significant aid flows will spend it in large part on imports and therefore will have a higher current account deficit.

45. The last step in the MB approach is to use trade elasticities to compute the magnitude of the adjustment needed to eliminate the gap between the current account norm and the underlying current account and align the real exchange rate with fundamentals. Estimation of trade elasticities is based on earlier estimates on a panel of 77 countries for 1960–93 by Senhadji and Montenegro (1998), which were also used in the 2008 WAEMU Selected Issues Paper. Their study estimates that on average export elasticities with respect to price are –1.0 and to income 1.5, and import elasticities with respect to price are –1.1 and to income 1.5.

46. To summarize, the underlying current account estimated at –8.1 percent of GDP and the sustainable current account at –9.6 percent suggest a moderate undervaluation. The REER of Niger would need to appreciate by 8.1 percent to align the current account with the S-I balance that corresponds to its fundamentals, assuming other policies are unchanged. This assessment is in line with our earlier estimates using the ERER framework.

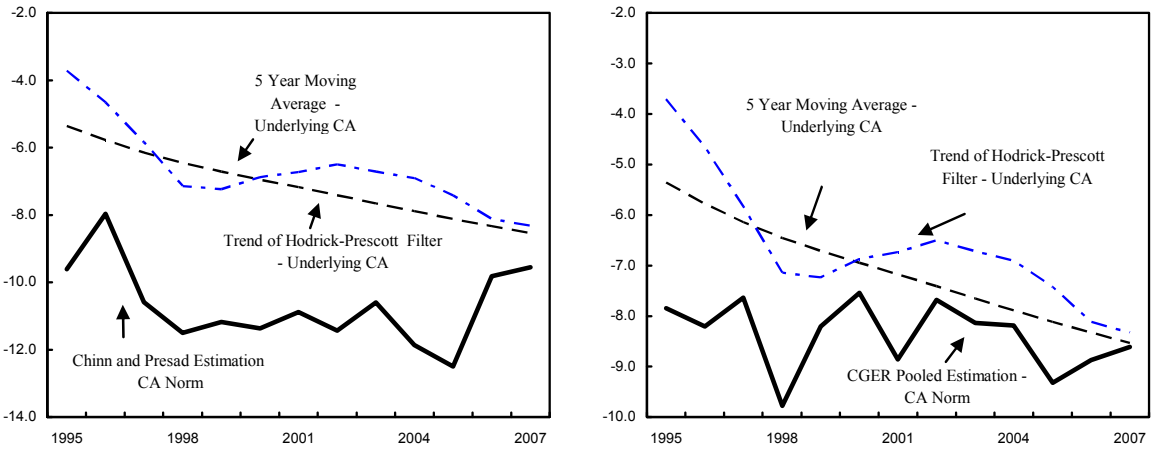
Table 9. Niger: Impact of a Devaluation on the Current Account

Export Elasticity (EXPEL)	1
Import Elasticity (IMPEL)	-1.08
Share of Export goods and services in GDP (EXP/GDP)	0.18
Share of Import of goods and services in GDP (IMP/GDP)	0.21
Real Effective Exchange rate elasticity of the current account [1]	-0.1632
Required percentage change in the REER to improve the current current account by one percentage point	-6.1275

Source: IMF staff estimates, 2008.

[1] Has been computed using the following formula: (EXPEL*EXP/GDP)-(IMPEL-1)*(IMP/GDP).

Figure 7. Niger: Current account norm is below the underlying current account trends which suggests a moderate undervaluation...



Source: IMF Staff Estimates, 2008.

Table 10. Niger: Implied Results of the Macroeconomic Balance Approach
(In percent of GDP)

Underlying Current Account	-8.1
Savings-Investment Norm	-9.56
Needed adjustment in the current account balance	1.46
Implied over(+) or under(-) valuation	-8.088

VI. THE EXTERNAL SUSTAINABILITY APPROACH

47. The ES approach complements the ERER and the MB methods by focusing on the sustainability of the relationship between a country's current account and net foreign asset (NFA) position and its current account. Considering an intertemporal budget constraint for the whole economy, the ES approach involves computing the current account balance-to-GDP ratio that would stabilize the NFA position at some assumed benchmark value. Based on the exchange rate elasticity of the current account and assuming all other policies are unchanged, the ES approach then calculates the size of the adjustment of the real exchange rate needed to close the gap between the NFA stabilizing current account and the underlying current account.

48. To compute the NFA stabilizing current account, the ES approach uses straightforward assumptions about GDP growth and inflation rates, applying the following formula:

$$ca^s = \frac{g + \pi * (1+g)}{(1+g) * (1+\pi)} * b^s \qquad (5)$$

where ca^s is the current account norm as a share of GDP; g is the expected growth of the overall Nigerien economy, assumed to be 5.2 percent a year for 2007–16, driven mainly by investment and production in the mining sector and a sustained increase in agricultural value added (this level of growth is similar to average growth for 2000–07); π is the inflation rate expected to prevail in the medium term, proxied as the GDP deflator and is set at 2 percent in accordance with Niger's DSA; and b^s is the target value of the net foreign liabilities as a share of GDP projected in the following table.

49. The model shows that, under these assumptions, to stabilize the NFA position at the 2007 Net Foreign Asset Position (-18.9 percent of GDP) the current account would need to remain at -1.33 percent of GDP. This normative current account deficit, however, appears low if Niger were to maintain a high growth, to reduce poverty and to build basic capital

infrastructure to accelerate its development process to meet the Millennium Development Goals.

50. It is preferable to set the NFA benchmark based on the expected levels of its components in the long run: FDI, portfolio investment, external official reserves, and external debt. In this case, special consideration is given to the inflows of FDI that Niger expects to receive; these are high in view of the investment expected to expand uranium production and start petroleum production. A realistic FDI projection assumes that Niger would be able to attract over the next five years annual FDI of about 10 percent of GDP, so that FDI would reach about 40 percent of GDP in about five years. Portfolio investment is expected to rise noticeably. Also, external reserves are expected to increase modestly, attaining 4 months of imports, equivalent to 10 percent of GDP. The target for external debt comes from the IMF and the World Bank debt sustainability framework, which suggests that for a country rates as a medium policy performer like Niger the NPV of debt should not exceed 40 percent of GDP. Considering that for Niger the ratio of nominal debt to the NPV of debt is 1.6, a target of 50 percent of nominal debt-to-GDP (equivalent to 30 percent of NPV of debt-to-GDP) seems reasonable, and is a significant distance from the threshold.

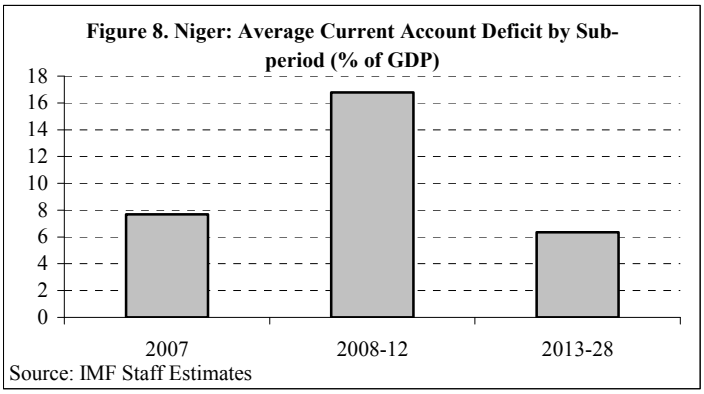
Table 11. Niger: Net Foreign Asset Target
(In percent of GDP)

	WAEMU (2006)*	Niger (2007)	Benchmark
Net Foreign Asset Position (NFAP)	-33	-18.9	-86
Assets	34	9	12
Direct Investment Abroad	2	0	0
Porfolio Investment	1	2	2
Reserves	13	7	10
Debt	18	0	0
Liabilities	-67	-27.9	-98
Direct Investment	20	6.5	40
Porfolio Investment	1	5	8
Debt	46	16.4	50

Source: Staff Estimates, 2008.

51. Table 10 indicates that on the basis of these assumptions, a reasonable benchmark for Niger's NFA position as a percent of GDP is –86 percent. Using equation 1, this benchmark implies a current account deficit of 6.1 percent of GDP. This should be compared with the current account deficit that will prevail after the spike in 2009–12 due to investment in mining and petroleum. The path of the current account deficit in the next 20 years is presented in Figure 8. After the spike in 2013–28 the current account deficit averages

6.4 percent—very slightly above the level consistent with stabilizing the NFA position at its benchmark level.



52. The small discrepancy between the underlying current account and that which stabilizes the NFA position at the benchmark level would suggest a small overvaluation of 1.9 percent of the REER . However, given the margin of error of these estimates, we conclude that the exchange rate is consistent with a sustainable NFAP position.

VII. NON-EXCHANGE-RATE DETERMINANTS OF COMPETITIVENESS

53. Up until the last decade, Niger's competitiveness was severely eroded by an unstable political environment, economic instability, and too large a role of the state in economic activity. The business environment improved after political stabilization and macroeconomic reforms in the late 1990s, which included trade liberalization, elimination of price controls, and a general disengagement of the state from productive sectors. The progress over the last decade is reflected in the significant improvement of Niger's Index of Economic Freedom (IEF) (Figure 9), especially in the fiscal and trade areas.[13] With respect to comparator groups, Niger currently stands out for its high IEF scores on monetary freedom, which recognize the prudent monetary policy of the regional central bank and lack of price controls (see Table 12). Diagnostic studies like the World Bank's Investment Climate Assessment (ICA) and the Diagnostic Trade Integration Study (World Bank, forthcoming) also recognize the progress Niger has made to stabilize its economy and positive effect of that on competitiveness. Indeed, largely as a result of stability and liberalization reforms, the investment rate in Niger jumped from an average of 12.5 percent of GDP in 1995–2004 to 22 percent in 2005–07.

[13] High fiscal freedom implies a low burden of the government from the revenue side in terms of top tax rate on income and tax revenue-to-GDP. High trade freedom refer to low tariff and non-tariff barriers on imports and exports.

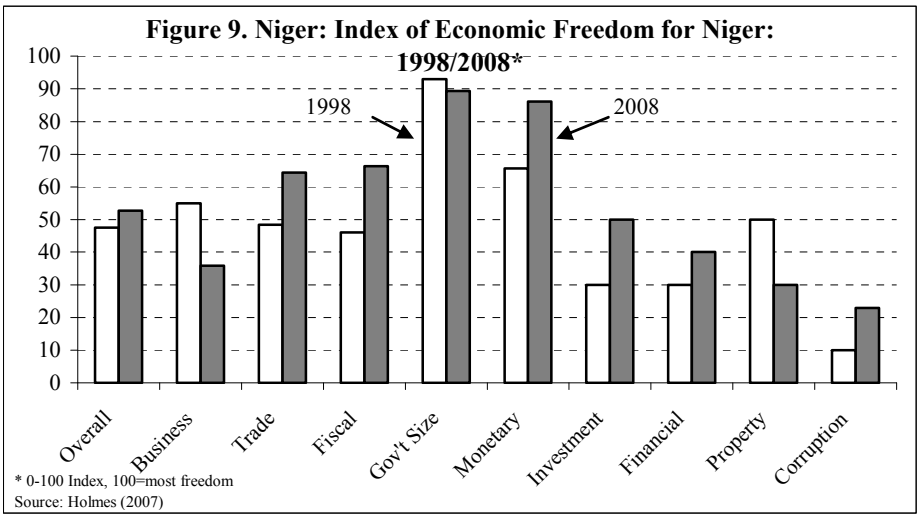


Table 12. Niger: Sensitivity Analysis

	Current Account			
	NFAP	Underlying 2008-13	Consistent with NFAP Target	
	Percent of GDP			Overvaluation
Baseline Scenario	-96	-8.1	-6.7	8.5
Other assumed scenarios				
Higher sustainable NFAP	110	-8.1	-7.8	1.8
Higher real growth (6 percent)	-96	-8.1	-7.2	5.5

Source: IMF Staff Estimates, 2008.

54. However, there is plenty of room to improve the business environment and competitiveness in Niger. Regulation in general is particularly cumbersome and imposes an unnecessary burden on the private sector. Considering mostly regulatory issues, the World Bank's report on *Doing Business* (DB) lists Niger as one of the countries where business activities are most costly (Table 13). Although the country has raised its ranking in the last couple of years, it is still 169th of the 178 countries ranked. In addition, company managers surveyed in the ICA argued that regulation is not consistent, and stated that they spend nearly 15 percent of their time resolving administrative problems.

55. Basic bureaucratic procedures have traditionally been lengthy and costly, thus limiting the flexibility of economic agents and imposing a barrier to the much-needed formalization of the economy. Not surprisingly, the DB ranks Niger far below comparators in all three areas of starting a business, dealing with licenses, and closing a business. Recently, though, the government has been taking action to speed up procedures for establishing a business.[14]

56. Diagnostic studies further identify rigid labor market legislation in Niger as an area that keeps the country at a competitive disadvantage. The DB classifies Niger as one of the countries in which it is hardest to employ workers, much harder than in comparators in sub-Saharan Africa. Based on the DB ranking, the IEF gives a very low score to Niger for labor freedom.[15] Furthermore, the ICA notes, there is an absence of an educated work force; poor on-the-job professional training programs; and significant losses because of the ill health of members of the labor force (Table 14).

57. Firms also have major difficulties in accessing capital. The ICA finds that most firms cannot meet the basic requirements for a loan or an overdraft,[16] And the DB rankings imply that Nigerien firms face more difficulties in getting credit than firms in all comparators,, essentially because of poor legal rights and scarce credit information. However, it is promising that credit to the economy has increased by an annual average of 24 percent since 2004, if from a very low base.

58. Particularly disappointing for a landlocked country like Niger is the fact that firms face obstacles in trading across borders even beyond those naturally imposed by geography. Mainly for reasons related to its landlocked location (i.e., time and costs to deliver goods to major international markets), the DB lists Niger among the countries with highest obstacles to engaging in world trade. Yet, it also ranks Niger low in this area for the policy-related reason

[14] Thus, since 2006, procedures for registration with the National Social Security Fund and the employment promotion agency have been unified; payment of the global business license tax (*patente synthétique*) at the time of starting up a business is now deferred; the registration fee has been reduced by 5 points for certain sale contracts; and payment for enrollment in the Chamber of Commerce is no longer mandatory.

[15] Labor freedom refers to the ability of workers and business to interact without restriction by the state.

[16] Access to loans and overdrafts is determined mainly by the size of the company, the use of an auditor to certify the accounts, and high guarantees.

Table 13. Niger: Index of Economic Freedom Score Averages for 2007[1]
Niger and Comparator Groups (Excluding Niger)

	Overall Score	Business Freedom	Trade Freedom	Fiscal Freedom	Government Size	Monetary Freedom	Investment Freedom	Financial Freedom	Property Rights	Freedom from Corruption	Labor Freedom
Niger	52.7	36.0	64.4	66.4	89.3	86.0	50.0	40.0	30.0	23.0	42.2
High Growth Sub-Saharan Countries[2]	57.4	55.8	69.6	78.5	81.8	72.4	47.5	48.8	34.4	27.6	57.2
Low Income Countries[3]	53.8	50.5	65.7	75.8	77.6	70.7	41.6	42.2	29.9	24.9	57.9
Sub-Saharan Countries	54.6	51.3	64.9	72.3	75.5	71.8	42.9	46.1	34.1	28.0	59.0
Sub-Saharan Low Income Countries	53.1	48.1	64.8	71.9	76.9	70.9	41.9	44.1	29.8	25.1	57.2
Sahelian Landlocked Countries[4]	53.0	42.1	65.1	65.6	87.5	77.4	43.3	43.3	26.7	26.7	52.0
WAEMU Countries	53.3	43.1	65.4	67.7	81.4	78.9	40.0	45.7	31.4	24.7	54.8

Notes:

[1] Scores for 165 countries. Scores range from 0 to 100, with 100 implying greatest economic freedom.

[2] Defined as Sub-Saharan countries with at least 6% real GDP growth for 2006 - 2007 and are non-oil, non-island and not post conflict.
For 2007, countries included are: Burkina Faso, Ethiopia, Ghana, Kenya, Mozambique, Tanzania, Uganda and Zambia.

[3] Includes African and non-African countries.

[4] Includes Burkina Faso, Chad and Mali.

Table 14. Niger: Doing Business Ranking Averages for 2007 [1]
Niger and Comparator Groups (Excluding Niger)

	Ease of Doing Business	Starting a Business	Dealing with Licenses	Employing Workers	Registering Property	Getting Credit	Protecting Investors	Paying Taxes	Trading Across Borders	Enforcing Contracts	Closing a Business
Niger	169	153	155	161	63	135	147	115	163	132	133
High Growth Sub-Saharan Countries [2]	115	110	115	111	129	101	83	82	134	90	89
Low Income Countries [3]	136	116	119	104	114	122	107	109	133	113	128
Sub-Saharan Countries	135	125	112	115	124	113	110	105	130	115	121
Sub-Saharan Low Income Countries	146	127	125	118	127	124	115	115	135	119	129
Sahelian Landlocked Countries [4]	164	144	113	125	128	128	136	136	163	144	125
WAEMU Countries	160	151	123	135	141	129	142	143	133	142	102

Notes:

[1] Rankings among 178 countries.

[2] Defined as Sub-Saharan countries with at least 6% real GDP growth for 2006 - 2007 and are non-oil, non-island and not post conflict.
For 2007, countries included are: Burkina Faso, Ethiopia, Ghana, Kenya, Mozambique, Tanzania, Uganda and Zambia.

[3] Includes African and non-African countries.

[4] Includes Burkina Faso, Chad and Mali.

that a large number of documents are needed for both exporting and importing. Moreover, the ICA highlights the costs imposed by the inadequate transport infrastructure in Niger: 41 of the firms surveyed considered transportation-related problems to be major issues hindering productivity. The government thus urgently needs to simplify international trade procedures and build up the infrastructure network to at least partly compensate for the natural impediments to international trade.

59. Competitiveness is also hindered by the cost of "informal payments" to ease business transactions. The IEF ranks Niger near the bottom in terms of freedom from corruption, with an index below the average in low-income countries and in comparators in sub-Saharan Africa. The ICA found the cost of informal payments to be high, ranging from 4.1 to 13.2 percent of a firm's yearly turn-over depending on the sector. About 58 percent of entrepreneurs responding to ICA surveys cited corruption as a serious concern.

60. It thus appears that making the Nigerien economy more competitive requires reforms to ease regulatory procedures, make labor legislation more flexible, improve technical training, facilitate access to finance, build up infrastructure, and combat corruption. Accomplishing reform in turn requires sustained commitment from the government, recognizing that results may only be perceived in the long run. Nevertheless, progress in some areas can be dramatic, as illustrated by the improvement of Niger's DB ranking on registration of property, where it climbed 40 positions between 2007 and 2008 by significantly reducing the duration and cost of registration. Besides the obvious benefits of such measures on competitiveness and the business

Table 15. Niger: Major or Very Severe Constraints to Firm's Growth According to the Investment Climate Assessment

Problem	Niger	Benin	Cambodia	China	Mali	Senegal	Tanzania	Uganda	Turkey
Cost of finance	66.7	78.2	10.5	21.6	57.3	64.5	56.2	60.3	28.2
Tax rate	68.4	87.7	18.6	34.1	36.4	50.4	72.1	48.3	38.1
Informal Sector Practices	61.5	71.7	33.7	17.6	42.2	48.6	23.9	31.1	22.7
Tax Administration	63.2	86.2	20.7	23.7	30.1	47.2	54.7	36.1	33.1
Corruption	59	83.9	55.9	22.4	48.7	39.9	50	38.2	23.7
Customs Regulations	38.5	64.7	25.6	21.1	19.9	36.6	30.8	27.4	8.9
Transport	35.9	42.1	7.8	19.4	20.1	36.1	22.5	22.9	8.4
Electricity	41	69.2	12.7	28.1	24.2	30.6	57.6	44.5	17.3
Access to Land	18	33.7	3.2	16.3	13	29.7	24.3	17.4	6
Training, skills of workers	41	25.6	6.6	26.7	20.1	17.3	24.6	30.8	12.8
Labor laws	15.4	35.4	5.9	19.4	3.9	15.8	11.9	10.8	8.7
Telecommunications	28.2	40.7	3.2	16.5	14.3	3.5	11.6	5.2	10.9

NB: Exclusively for firms in Manufacturing.
Source: Niger's Investment Climate Assessment (2008).

environment, improvements in Niger's performance on cross-country rankings is important per se because the lists affect the views of international investors considering doing business in Niger.

VIII. Productivity and Wages

61. Productivity is the main determinant of a nation's competitiveness and the main source for improvement of its population living standards. Therefore, an analysis of the main driving forces of productivity is important for formulating and implementing welfare-enhancing policies. This section analyzes the evolution of productivity and unit labor costs in the main sectors of the Nigerien economy, using Senegalese productivity as a comparison.

62. Data on annual wages, employment, and the value of the modern sector have been computed using the *Institut National de la Statistique du Niger* database from 1998 to 2004 for mining, manufacturing, energy, construction, commerce and hospitality, transportation and services. Productivity of sector i ($PROD_i$) is approximated as value added at current prices (VA_i) per worker in that sector ($WORK_i$), and the unit labor cost at current prices in sector i (ULC_i) as the ratio of salaries at current prices (SA_i) to productivity per worker at current prices in each sector ($PROD_i$):

$$PROD_i = VA_i / WORK_i$$

$$ULC_i = SAL_i / PROD_i$$

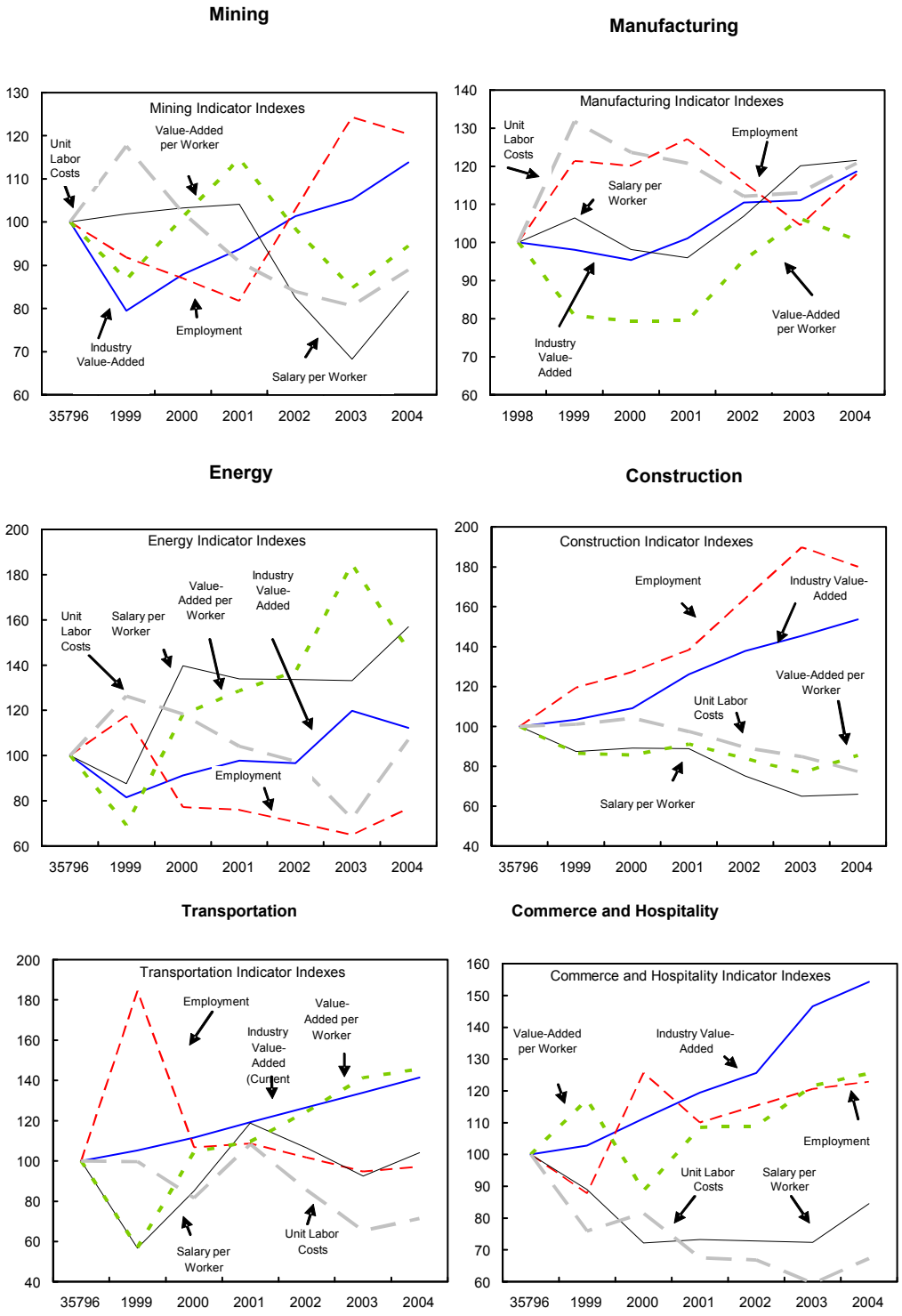
63. These indices, presented in Figure 10, indicate that from 1998 to 2000, productivity decreased in all sectors. Since 2000, productivity has improved in all sectors except services. Value added per worker rose considerably in manufacturing, energy, transportation, and commerce, declined slightly in mining, and declined more in services; unit labor cost also declined in mining as salary per worker fell.

64. A comparison with Senegalese data from the World Bank 2006 report indicates that in most sectors, except services, construction, and commerce, productivity has increased faster in Niger than in Senegal with an accompanying improvement in unit labor cost. Even in the three exceptions, unit labor costs increased less in Niger than in Senegal.

65. Despite improvements in productivity and unit labor cost since 2000, wage costs are high in Niger. World Bank data based on enterprises surveys compare monthly wages (in US dollars) for unskilled workers in the 2000s across a number of African and non-African countries; they show that wages for unskilled worker in Niger, at US$88 a month in 2005 are 10 percent below those of Kenya, which has a much higher per capita income, but higher than

in Nigeria, Benin, Mali, Uganda, and Tanzania (Figure 12). This confirms that further efforts are needed to improve productivity, in order to enhance overall competitiveness.

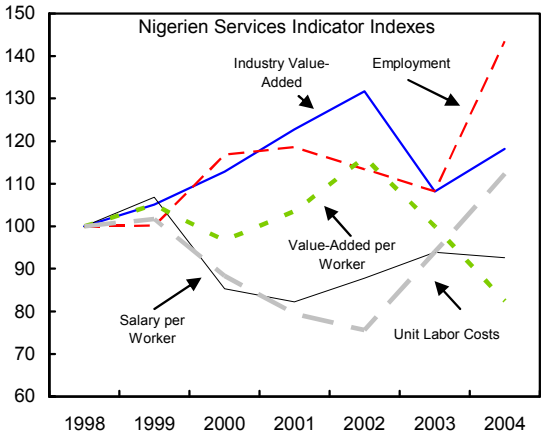
Figure 10. Niger: Evolution of Unit Labor Costs and Productivity Indexes, 1998-2004
(1998 = 100)



Source: Nigerien authorities; and IMF staff calculations.

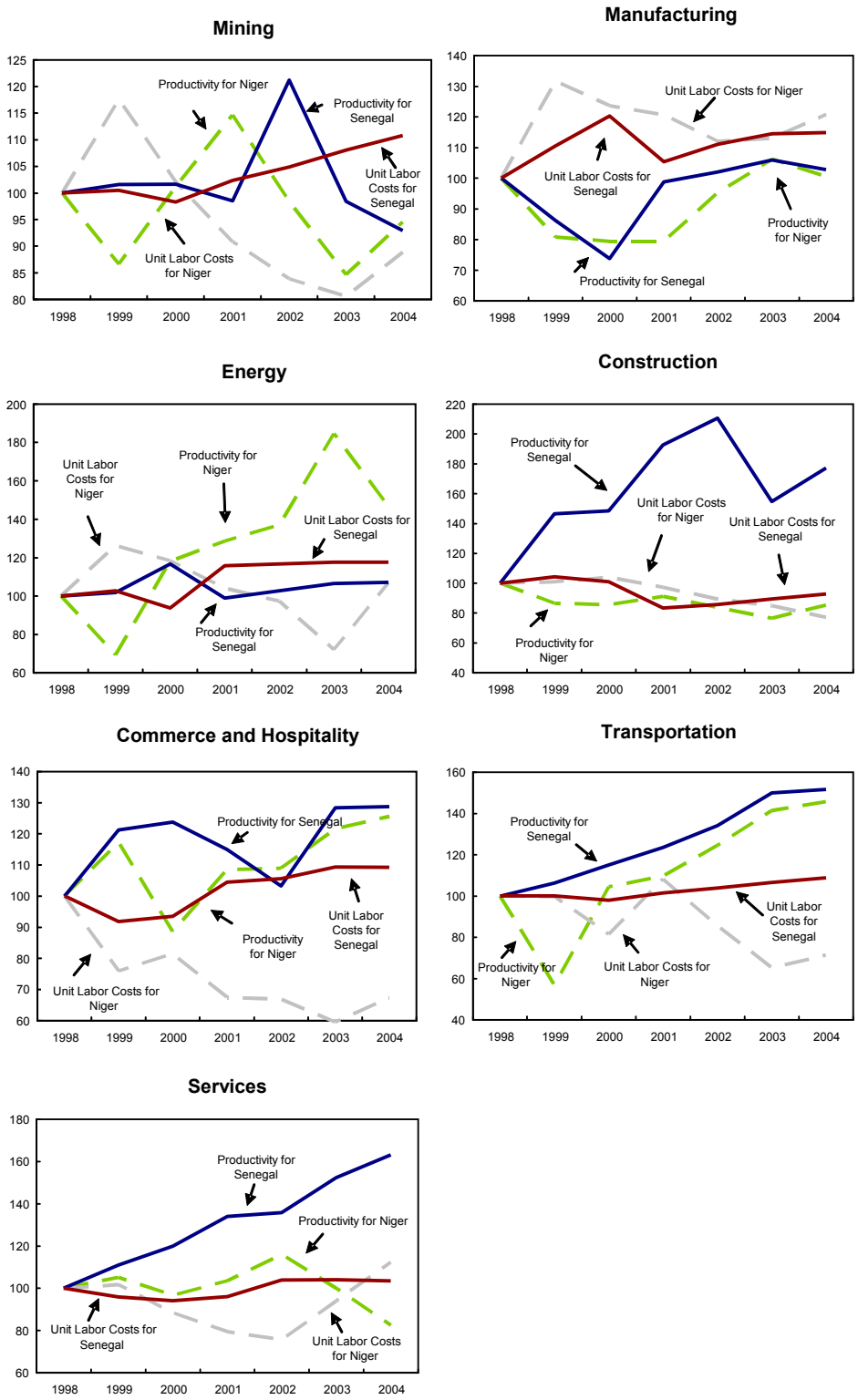
Evolution of Unit Labor Costs and Productivity Indexes 1998-2004
(1998 = 100)

Services



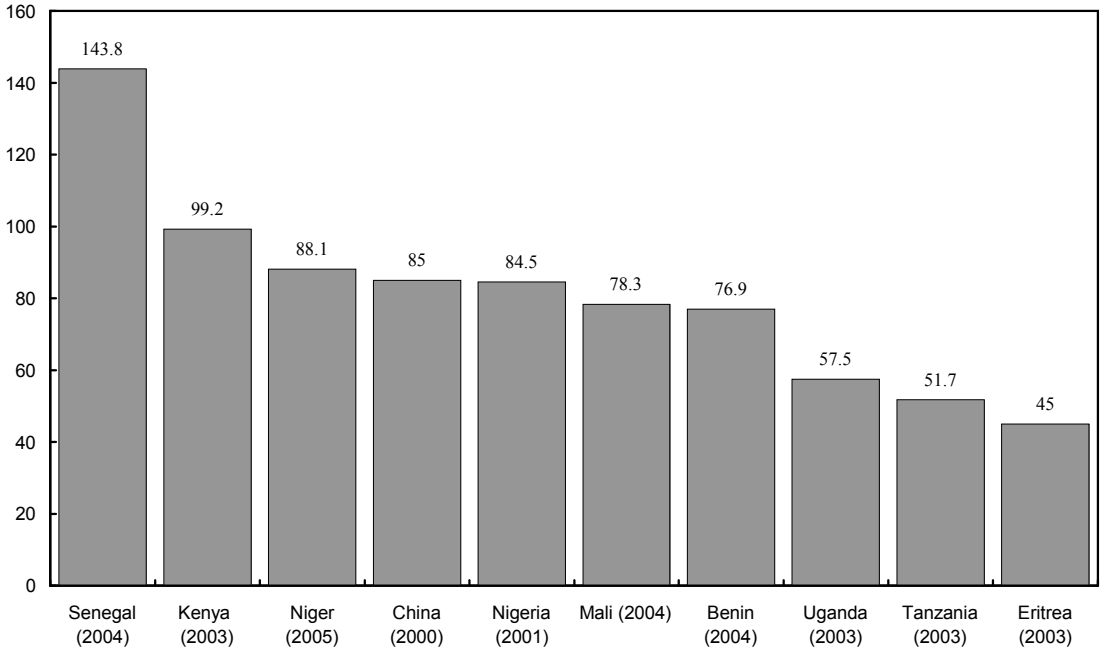
Source: Nigerien authorities and IMF staff calculations.

Figure 11. Niger and Senegal: Evolution of Unit Labor Costs and Productivity Indexes 1998-2004 (1998=100)



Source: Nigerien and Senegalese authorities and IMF staff calculations.

Figure 12. Niger: Monthly Wages for Unskilled Workers in the Manufacturing Sector



Source: World Bank, Enterprise Surveys 2003-06.

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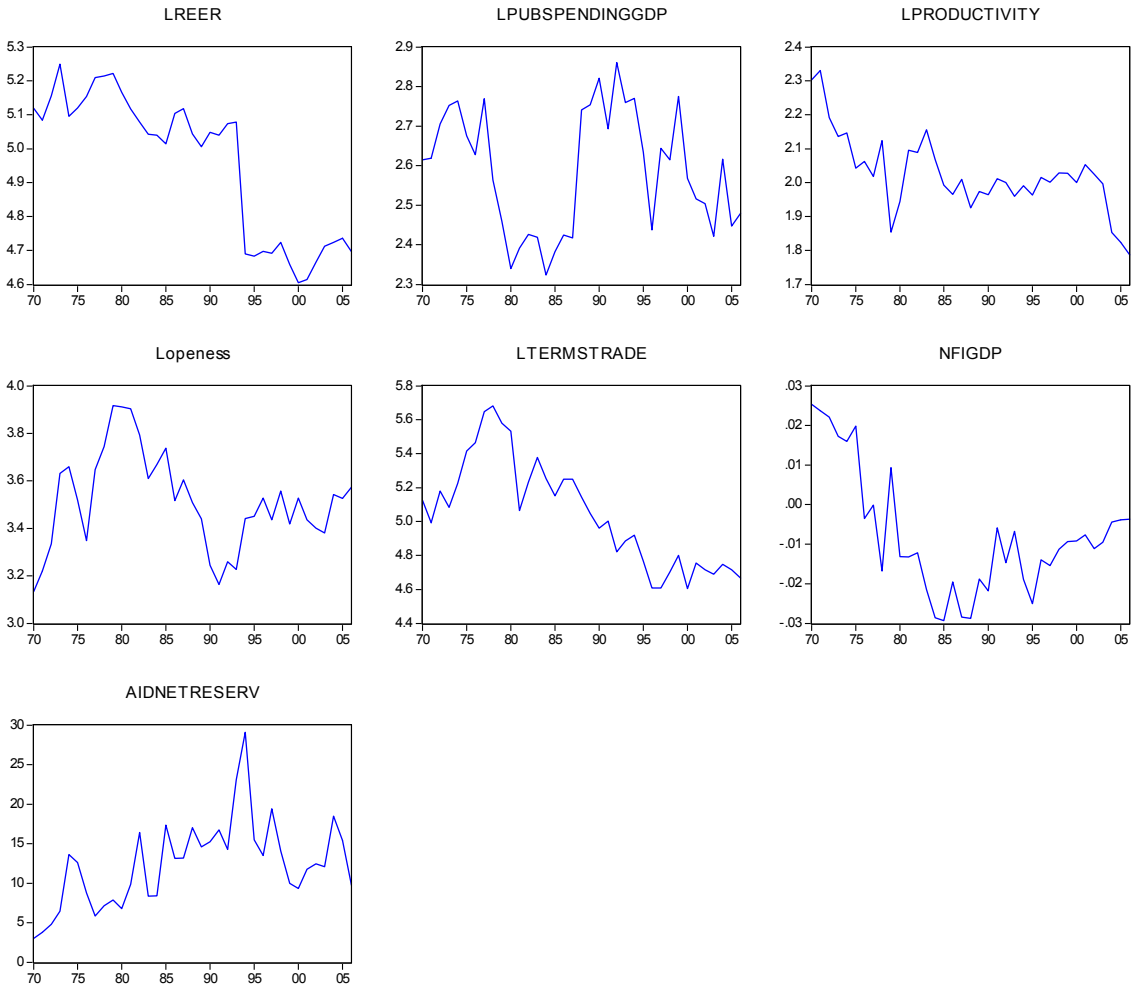
APPENDIX—FIGURE 1



APPENDIX TABLES

Table 1. Niger: Unit Root Test for REER Fundamentals: Augmented Dickey Fuller

Variable	ADF		Phillips-Perron		Zivot-Andrews
	Statistic	P-value	Statistic	P-value	Statistic*
ln (REER)	-0.807	0.817	-0.831	0.810	-7.349
ln (Terms of Trade)	-1.074	0.725	-1.357	0.603	-3.007
ln (Productivity)	-2.208	0.204	-1.522	0.523	-4.198
ln (Government Consumption)	-2.011	0.282	-2.31	0.169	-3.825
ln (Openness)	-2.277	0.180	-2.735	0.068	-4.174
ln (Investment)	-2.193	0.209	-3.007	0.034	-4.56
ln (Net Foreign Income)	-2.579	0.097	-2.622	0.089	-2.783
ln (Aid Net of Reserves)	-1.787	0.387	-2.628	0.087	-3.802
ln (Resource Balance)	-1.583	0.492	-2.074	0.255	-3.371
First Difference of:					
ln (REER)	-4.460	0.000	-6.478	0.000	-6.318
ln (Terms of Trade)	-3.483	0.008	-7.077	0.000	-7.464
ln (Productivity)	-3.434	0.010	-5.984	0.000	-6.15
ln (Government Consumption)	-4.819	0.000	-7.868	0.000	-5.541
ln (Openness)	-4.549	0.000	-7.142	0.000	-7.295
ln (Investment)	-3.794	0.003	-8.514	0.000	-7.804
ln (Net Foreign Income)	-3.508	0.008	-10.26	0.000	-11.768
ln (Aid Net of Reserves)	-3.816	0.003	-7.563	0.000	-9.023
ln (Resource Balance)	-1.583	0.492	-2.074	0.255	-7.496

* Critical values: 1%: -5.43, 5%: -4.80.

Table 2. Niger: ARDL on Base and Alternative Specifications
(Using Two Lags)

Long Run Coefficients	Dependent Variable: ln(REER)					
	1	2	3	4	5	6
ln (Terms of Trade)	0.38***	0.51***	0.78***	0.54***	0.58****	0.47***
	-2.39	10.70	12.00	10.35	7.61	9.76
ln (Productivity)	0.45***	0.37***	0.19***	0.36***	0.32***	0.16*
	-2.04	4.56	2.14	4.06	2.47	1.95
ln (Government Consumption)	0.35***	0.53***	0.65***	0.54***	0.54***	0.47***
	-3.80	19.17	17.96	17.94	12.28	16.80
ln (Openess)		-0.05				
		1.23				
Net Foreign Income			2.33***			
			662.67			
Aid Net of Reserves			-0.01			
			0.01			
ln (Investment)				-0.02	0.00	
				0.24	0.00	
Resource Balance					1.22***	
					210.00	
Trend						-0.01
						0.00
Constant	-0.13	-0.71	-1.56	0.93	1.00	16.74
Observations	36	38	33	38	38	38
R-squared	0.92	0.99	1	0.98	0.98	0.98
F-Statistic for Bound Test [1]	12.38	23.02	6.84	15.26	6.05	20.72
Akaike Information Criteria	-77.5	-121.4	-122.9	-98.8	-94.0	-110.1
Schwarz Information Criteria	-58.5	-80.4	-78.0	-57.8	-44.9	-75.7

Z statistics in parentheses.
*** p<0.01, ** p<0.05, *p<0.1.

[1]Upper level bound for F-statistic is 6.36 (Pesaran and others, 2001).

Table 3. Niger: ARDL on Base Specification with Different Number of Lags

Long Run Coefficients	Dependent Variable: ln(REER)			
	Two Lags	One Lag	Three Lags	Four Lags
ln (Terms of Trade)	0.38**	0.34	0.45***	0.40
	-2.39	-1.25	-3.67	1.51
ln (Productivity)	0.45**	0.42	0.42***	0.37
	-2.04	1.12	-2.49	0.82
ln (Government Consumption)	0.35***	0.25***	0.49***	0.25***
	-3.80	3.89	0.00	1.66
Constant	0.13	0.43	-0.69	0.41
Observations	36	37	35	41
R-squared	0.92	0.90	0.94	0.91
F-Statistic for Bound Test [1]	12.38	64.61	11.82	80.63
Akaike Information Criteria	-77.50	-77.85	-74.27	-89.62
Schwarz Information Criteria	-58.49	-64.96	-49.39	-75.91
Error Correction	-0.78***	-0.48***	-1.01***	-1.77***

Z statistics in parentheses.

*** p<0.01, ** p<0.05, *p<0.1.

[1] Upper level bounds are 6.36 for two lags, 7.84 for one lag, 5.61 for three lags, and 5.06 for four lags.

Table 4. Niger: Johansen Cointegration

Number of Cointegrating Equations	Parameters	Log Likelihood	Eigenvalue	Trace Statistic	5% Critical
None	20	144.8	.	53.71	47.2
At most 1	**27**	**159.2**	**0.55**	**24.73***	**29.7**
At most 2	32	168.6	0.40	6.09	15.4
At most 3	35	171.5	0.15	0.23	3.8
At most 4	36	171.6	0.01		

* The Trace Statistic Test implies that the hypothesis of "at most one" cointegration vector is not rejected.

Table 5. Niger: Engle-Granger Estimation: Test for Normality of the Error Correction Term

Cariable	ADF	p-value
OLS residuals	-3.209	0.019

Table 6. Niger: Estimates of Equilibrium REER and Overvaluation

Year	Actual	Equilibrium			Overvaluation (+)		
	REER	EREER-ARDL	EREER-OLS	EREER-Johansen	ARDL (%)	OLS (%)	Johansen (%)
1970	170.3	179.6	173.8	168.7			
1971	164.5	179.2	173.5	170.8	-8.2	-5.2	-3.7
1972	176.7	179.1	173.5	173.4	-1.4	1.8	1.9
1973	194.0	179.5	174.1	176.3	8.1	11.4	10.0
1974	166.4	181.1	175.9	180.2	-8.1	-5.4	-7.6
1975	170.5	183.6	178.7	184.5	-7.1	-4.6	-7.6
1976	176.3	186.3	181.9	188.4	-5.4	-3.1	-6.4
1977	186.5	188.3	184.5	190.8	-1.0	1.1	-2.2
1978	187.4	187.6	184.9	189.3	-0.2	1.3	-1.0
1979	188.8	184.2	182.8	184.3	2.5	3.3	2.4
1980	178.5	179.0	178.9	177.6	-0.3	-0.2	0.5
1981	170.0	173.6	174.5	171.2	-2.1	-2.6	-0.7
1982	163.7	168.6	170.4	166.0	-2.9	-4.0	-1.4
1983	157.9	163.6	166.2	161.3	-3.5	-5.0	-2.2
1984	157.3	158.8	161.8	157.0	-1.0	-2.8	0.2
1985	153.4	155.5	158.5	154.5	-1.3	-3.2	-0.7
1986	167.8	153.7	156.4	153.9	9.1	7.3	9.0
1987	170.2	152.8	154.6	154.3	11.4	10.0	10.3
1988	157.9	151.6	152.6	154.4	4.2	3.4	2.3
1989	152.0	149.1	149.6	152.7	1.9	1.6	-0.5
1990	157.9	145.3	145.5	149.1	8.7	8.5	5.9
1991	157.9	140.3	140.7	143.8	12.5	12.2	9.8
1992	163.4	134.7	135.6	137.5	21.3	20.5	18.8
1993	**164.3**	**129.1**	**130.6**	**130.9**	**27.3**	**25.8**	**25.5**
1994	111.4	123.5	125.6	124.1	-9.8	-11.4	-10.2
1995	110.7	117.8	120.6	117.0	-6.1	-8.3	-5.5
1996	112.2	113.2	116.5	111.3	-0.8	-3.6	0.8
1997	111.2	110.3	113.9	108.0	0.8	-2.4	3.0
1998	114.7	108.8	112.5	106.2	5.4	2.0	8.0
1999	107.5	107.8	111.5	105.3	-0.2	-3.6	2.1
2000	100.0	106.8	110.7	104.3	-6.3	-9.7	-4.1
2001	99.8	106.3	110.4	104.2	-6.1	-9.5	-4.2
2002	104.8	106.6	110.6	105.1	-1.7	-5.2	-0.3
2003	110.2	107.5	111.2	106.9	2.5	-0.9	3.1
2004	111.4	108.4	111.9	108.8	2.7	-0.5	2.3
2005	112.8	109.2	112.5	110.7	3.3	0.3	1.9
2006	108.3	109.8	112.8	112.2	-1.4	-4.0	-3.5
2007	109.7	110.4	113.1	113.9	-0.7	-3.1	-3.7

Source: IMF staff calculation, 2008.

Table 7. Niger. Underlying Current Account Balance, 2007

Base Year Data								Projected Change in Current Account due to			
Current Account	Ratio of import to GDP	Ratio of export to GDP	Domestic Output Gap	Foreign Output Gap	Percent Change in REER			Closing Domestic Output Gap	Closing Foreign Output Gap	Effects of exchange rate changes	Underlying Current Account
					Current Year	Previous	Two Years				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	(In percent of GDP)							(In percent of GDP)			(In percent of GDP)
-7.68	0.21	0.18	-1.30	0.20	1.13	-4.00	1.25	-0.29	0.05	-0.18	-8.10

Source: Staff calculations, 2008.

CHAPTER II

THE MACROECONOMIC IMPACT OF SCALED-UP AID: THE CASE OF NIGER[17]

I. INTRODUCTION

1. The need to scale up aid for low-income countries (LICs) has been embraced by the international community since the 2005 Gleneagles G8 summit. The belief is that increased aid should help LICs develop faster and make progress toward the Millennium Development Goals (MDGs) established for 2015.[18] In particular, it is presumed that stepped up public physical investment would address, among other things, the infrastructure gap of LICs and crowd in private investment, which ultimately should support broad-based growth. Further, large public spending on education and health would foster productivity by tackling low educational attainment, high child and maternal mortality, and HIV/AIDS and malaria.

2. Despite broad political consensus, the impact of aid on economic growth has not been proven empirically. Regression-based studies on the impact of aid on economic growth (e.g., Griffin and Enos, 1970; Papanek, 1973; Dowling and Hiemenz. 1982; Gupta and Islam, 1983; Boone, 1994; Burnside and Dollar, 2000; and Easterly, Levine, and Roodman, 2003) reach widely differing conclusions. More recently, Rajan and Subramanian (2005b) provide evidence that any positive impact of aid on growth would be offset by the adverse effects on exports of aid-induced real exchange rate appreciation. On the other side, Clemens, Radelet, and Bhavnani (2004) distinguish the use by recipients of aid flows on physical and human capital (late impact). They find that aid used to accumulate physical capital has a significant positive impact on growth over the short to medium run, and that used for human capital has a long-term growth payoff that is econometrically difficult to discern. And Minoiu and Reddy (2007) find that non-geopolitically-motivated aid has a positive effect on economic growth.

3. Notwithstanding the lack of empirical consensus of the impact of aid on growth, policy makers need some kind of framework to help them assess the potential economic impact of increased aid flows. To this end we develop a simple macroeconomic model that requires a small set of parameters to calibrate, and assesses effects of higher foreign aid on output growth and other major macroeconomic variables, including the real exchange rate. In line with the findings of Clemens, Radelet, and Bhavnani (2004), the model

[17] Prepared by Abdikarim Farah and Gonzalo Salinas.

[18] The MDGs range from halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education, all by the target date of 2015. They form a blueprint agreed to by all the world's countries and its leading development institutions. For a list of the MDGs and more information about them, see http://www.un.org/millenniumgoals/.

distinguishes the short- to medium-term growth payoff of aid-financed physical investment and the long-term payoff of aid-financed human capital formation. It also considers the use of part of the aid for non-growth-generating activities. Our approach is similar to those of Agénor et al. (2005), Lofgren and Diaz-Bonilla, (2006), and Berg et al. (2008). Those studies also use general equilibrium models to simulate the potential impact of aid flows on such macroeconomic indicators as growth, inflation, and the real exchange rate. However, calibrating these models requires a large number of parameters, most of which may not be precisely defined for most LICs.

4. Application of the model to Niger—one of the poorest countries in the world—suggests that scaled-up aid would raise economic growth and help reduce poverty without unduly jeopardizing economic stability. In particular, we consider a 50 percent increase in foreign aid (up from about 10 percent of GDP in 2007) and keeping it constant thereafter as a share of GDP. This is projected to raise economic growth by more than 1 percentage point sustained over a long period, without generating significant risks to macroeconomic stability. Although new large aid flows would cause the real exchange rate to appreciate, adverse effects on exports would be limited. However, for Niger to achieve the income-based poverty reduction MDGs, aid flows would need to triple relative to their 2007 level, and an increase of that magnitude is likely to threaten macro stability.

5. In what follows, Section II reviews the literature; Section III presents the macroeconomic model; Section IV contains a simulation of the model with application to Niger; and Section V draws conclusions.

II. Aid and Growth—Literature Review

6. The neoclassical production function provides a good benchmark for the possible impact of aid on growth. This is illustrated by considering an augmented Solow growth model with constant returns to scale:

$$Y = AK^{\alpha}(LH)^{1-\alpha} \tag{1}$$

where Y_t is output, A is total factor productivity (TFP), K_t is physical capital, L_t is labor, H_t is human capital, and α is the capital share in income. In this set up, higher aid could be assumed to raise physical capital one-for-one (Rajan and Subramanian, 2005a). On this assumption the marginal impact of aid on growth is

$$\frac{\delta\gamma_y}{\delta(\frac{Aid}{Y})} = \alpha\beta\frac{Y}{K} \tag{2}$$

where γ_y is the rate of output growth per worker, β is the fraction of aid invested, and Y/K is the output-to-capital ratio. Assuming a capital share in income of 0.35 (Bosworth and Collins, 2003), β=1, and a capital-output ratio of 0.45, an increase in aid of 1 percent of GDP will raise output growth by about 0.2 percentage points. Because of the law of diminishing

returns inherent in the neoclassical framework, the growth rate would eventually and revert to the rate prevailing before the increase of aid. However, the growth impact could be sustained in the presence of "increasing returns to scale" or where aid fosters TFP.

7. Despite the straightforward implications of the neoclassical model, early studies (e.g. Griffin and Enos, 1970; Papanek, 1973, Dowling and Hiemenz, 1982; Gupta and Islam, 1983; Boone, 1994) failed to agree on the observed effect of aid on output growth. Although several later studies (e.g., Burnside and Dollar, 2000; Chauvet and Guillamont, 2002) found a positive growth impact when interacting aid with other growth determinants, Roodman (2003) and Easterly et al. (2003) show that the significance of this relationship is not robust to an expansion of the sample size, elimination of outliers, and a correction for serially correlated errors. Rajan and Subramanian (2005b) find aid has negative effects on economic growth because of the adverse effects on exports of aid-induced appreciation of the real exchange rate on exports, though the methodology used to derive these conclusions has been contested (e.g., Kraay, 2006; Minoiu and Reddy, 2007).[19]

8. Recent studies that look at more disaggregated aid data seem to find a positive relationship between aid and growth. Clemens, Radelet, and Bhavnani (2004) find that aid allocated to physical investment (e.g., infrastructure and program assistance) has a discernible impact on growth and aid allocated to human capital (e.g., health and education) has a long term growth payoff that is econometrically harder to identify.[20] Minoiu and Reddy (2007) differentiate *geopolitical aid* (e.g., general budgetary support, roads for military bases) from *development aid* (e.g., irrigation, infrastructure, health, and education). They find that a 1 percent of GDP increase in development aid boosts average growth by about half a percentage point over the following 10 years and between two-thirds and 2.1 percentage points after 25 years; but they also find that geopolitical aid has either a zero or a negative growth impact, depending on the specification. Heady (2005 and 2007) and Bobba and Powell (2007) find a positive impact of non-geopolitical aid.

9. In view of the mixed results from cross-country growth regressions, development practitioners are relying more on general equilibrium models and their simulations to assess the economic impact of increased foreign aid. In this context, Agénor et al, (2005) develop a model that captures the links between foreign aid, the level and composition of public investment, and their effects on economic growth and poverty. A similar framework underpins the Maquette for Millennium Development Goals Simulations (Lofgren and Diaz-

[19] Minoiu and Reddy (2006) notice that the IV used in Rajan and Subramanian (2005b) approximates only geopolitically motivated aid, which a priori is not clearly expected to have a positive effect on growth. Kraay (2006) also questions Rajan and Subramanian due to the lack of robustness to increases in sample size and changes in the definition of exchange rate overvaluation, while noting that it is at odds with the vast majority of studies that find only a weak relation between aid and real exchange rate appreciation.

[20] In their most conservative estimates, a one percentage point increase in the share of Aid to GDP raises GDP growth rate by about 0.4 percentage points.

Bonilla, 2006), which explicitly links socioeconomic performance and public expenditure. Berg et al. (2008) also provide a dynamic stochastic general equilibrium model that focuses on the interaction of fiscal, monetary, and exchange rate policies as aid flows increase. However, these models require a large number of parameters to calibrate that for most LICs are not readily available.

III. THE MODEL

10. Our approach is to model the growth impact of aid through its effect on physical and human capital accumulation while taking into account its effects on domestic demand and the real exchange rate. On the supply side, we distinguish the economic growth impact of increased physical capital from that of human capital. In particular, we assume that while higher physical capital induced by more aid raises growth quickly, human capital affects growth with a long time lag. These assumptions are premised on the fact that an individual needs to remain in school for a number of years to acquire a meaningful degree of productive human capital. The demand side of the model captures the crowding-in effect of public investment on private investment and the effects of aid-induced real exchange appreciation on exports. All variables in the model are in real terms.

A. Supply Side

11. Output is determined by the human-capital augmented Solow production function, with constant returns to scale[21]:

$$Y_t^S = A_t K_t^{\alpha} H_t^{\beta} L_t^{1-\alpha-\beta} \tag{3}$$

K_t is the sum of private (K_p) and government physical capital (K_G). α and β are, respectively, the shares of output attributed to physical and to human capital. Taking logs of Equation (3) and differentiating it with respect to time, gives:

$$\dot{y}_t = \dot{a}_t + \alpha \dot{k}_{t-1} + \beta \dot{h}_t + (1-\alpha-\beta)\dot{l}_t \tag{4}$$

The upper dot represents the time derivative; lower-case variables are in per capita terms. Note that we have assumed that private capital becomes productive with a one-year lag.[22] Physical capital is determined by the following accumulation equation:

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[21] We refrain from assumptions that would significantly increase the impact of aid on growth, such as increasing returns to scale; Gottschalk (forthcoming) provides a comprehensive review of the growth effects of public investment using different assumptions.

[22] This would imply that the supply function is contemporaneously independent from the demand side of the economy.

$$K_t = (1-\delta_K)K_{t-1} + I_{PK,t} + I_{GK,t}, \quad (5)$$

where δ is the depreciation rate, which is the same for private and government capital. Human capital formation is driven by government spending on health and education (G_H), net of depreciation:[23]

$$H_t = \frac{(1-\delta_H)}{(1+\overline{g})} H_{t-1} + I_{H,t}\ , \quad (6)$$

Equation (6) captures the fact that population growth reduces per capita human capital over time. $I_{H,t}$, is investment in human capital:

$$I_{H,t} = \overline{w} * (\sum_{i=t-6}^{i=t-1} G_{H,i}) = \frac{1}{20} * (\sum_{i=t-6}^{i=t-1} G_{H,i})\ , \quad (7)$$

where g is the rate of population growth and w is the share of each school-graduating cohort in the labor force. G_H represents public expenditures in human capital formation (expenditures o health and education). Appendix 1 provides the derivation of equation 7.

B. Aid Flows

12. In line with Clemens, Radelet, and Bhagvani. (2004), we classify foreign aid into early impact aid (ΔAID_{EI}**),** late impact **(** AID_{LI} **)**, and no impact aid (AID_{NI}) on output growth.

$$AID_t = AID_{EI,t} + AID_{LI,t} + AID_{NI,t} \quad (8)$$

Early impact aid finances mainly physical capital and is assumed to have an almost immediate effect on output. Late impact aid finances expenditures in human capital formation (G_H) as follows:

$$G_{H,t} = \gamma_{H,0} T + AID_{LI,t} \quad (9)$$

The first term on the right-hand side is public expenditure on human capital, assuming it remains constant as a share of government revenue (T) with respect to its level before the aid

[23] Baldacci et al (2004) present panel data evidence of a significant and direct impact of education and health spending on the accumulation of human capital in developing countries.

increase. [24] The second term incorporates increased expenditures funded by additional late impact aid.

We further distinguish late impact aid that finances capital goods (AID_{LIK}) from such aid that finances consumption goods (AID_{LIC}):

$$AID_{LI,t} = AID_{LIC,t} + AID_{LIK,t} \tag{10}$$

Although we consider AID_{LIK} as part of government investment in demand equations (Equation 18 below), its effect on the supply side is captured through human capital (Equation 7) rather than physical capital.

C. Demand Side

13. The demand side of the economy comprises a set of behavioral equations for private consumption (C_t), investment (I_t), government revenue (T_t) and expenditures (G_t), exports (X_t), and imports (M_t).

$$C_t = c_1(Y_t - T_t) \tag{11}$$

$$T_t = \tau Y_t \tag{12}$$

$$I_{P,t} = \rho_p Y_t \tag{13}$$

$$I_{GK,t} = \rho_{GK} T_t + AID_{EI,t} \tag{14}$$

$$I_{GH,t} = \rho_{GH} T_t + AID_{LIK,t} \tag{15}$$

$$X_t = Y_t^{\psi_X} RER_t^{\sigma_X} \tag{16}$$

$$M_t = Y_t^{\psi_M} RER_t^{\sigma_M} + \theta * AID_t \tag{17}$$

$$G_t = \gamma T_t + AID_{EIC,t} + AID_{LI,t} + AID_{NI,t} \tag{18}$$

Private consumption (equation 11) is function of disposable income $(Y_t - T_t)$, while government revenue (equation 12) is in turn a function of income. We link private investment directly to output (equation 13), whereas government investment is determined by domestic

[24] The coefficients of taxes are calibrated based on 2007 levels without filtering out public investment that was funded by foreign aid during that year. This simplification does not distort our post-2007 projections because we assume that both taxes and pre-2007 foreign aid keep growing at the same pace as GDP growth.

revenue and foreign aid (equations 14 and 15).[7] Notice that we divide public investment into capital that affects output through physical capital accumulation (I_{GK}), and capital that affects it through human capital formation (I_{GH}). A similar simplification allows us to express government consumption (equation 18) as a function of domestic revenue, late impact and no-impact aid.[7] Import and export volumes (equations 16 and 17) are assumed functions of income and the real exchange rate.[25] The positive link between exports and output is premised on the assumption that the expansion of exports is determined by the production capacity of the country while the world demand for its exports is unlimited. Furthermore, imports are directly influenced by foreign aid, as we assume that a share θ of aid is imported.

D. Closing of the Model

14. We close the model by setting aggregate demand equal to aggregate supply:

$$Y^s{}_t = Y^D{}_t = C_t + I_t + G_t + (X_t - M_t) \tag{19}$$

and the current account deficit equal to:

$$(X_t - M_t) = AID_t + KF_t \tag{20}$$

where KF_t represents non-aid capital flows and is assumed proportional to GDP ($KF_t = kY_t$). The structure of the model is as follows. Output is determined by physical capital (lagged one year) and human capital as well as TFP. Output and exogenously determined aid, in turn, determine consumption, investment, government domestic revenue, and government consumption. The real exchange rate, through its impact on exports and imports, adjusts to ensure that the current account deficit is fully covered by new aid and non-aid capital flows. In a fixed exchange regime in the context of a small open economy (as in Niger), movements in the RER results only from the price of nontradeable goods. Finally, note that in this model government always spends all aid flows while the central bank is implicitly assumed to sell to private agents any aid generated foreign exchange.

15. The model is easily tractable, it requires estimation of only a few basic parameters, and its dynamics are straightforward. Consider an increase in foreign aid in year t. Domestic demand increases that same year because the increase in government consumption and investment is only partially offset by higher imports. Given that aggregate supply function is unchanged in year t, the increase in domestic demand will be accompanied by an appreciation of the exchange rate and an increase in inflation. In the following year, the increase in foreign

[25] For imports and exports the values of σ and ψ are obtained from Senhadji (1998a, 1998b).

aid boosts output through higher physical capital. This eases the pressure of domestic demand on the real exchange rate. Over time, economic growth is reinforced by the coming into stream of new human capital, further reducing real exchange rate and inflationary pressures. The higher output expands (crowds in) private investment and augments the total impact of increased aid-related expenditures growth. Eventually economic growth will revert to its steady state—but only after a long period, mainly because of the delayed growth impact of human capital. The real exchange rate also stabilizes, though at a more appreciated level.

E. Calibration and Simulation of the Model: the Niger Case

16. Niger's economic performance over the past four decades was disappointing. Economic growth averaged just 2.2 percent for 1970–2007, implying an annual 1.1 percent decline in per capita income. However, economic performance has improved since 1999 when the first democratic elections in Niger's history took place. Economic reforms and political stability have since fostered external aid and higher domestic and foreign private investment, and the average annual GDP growth rate averaged 4.2 percent for 2000–07. Despite this progress, 61 percent of the population were still living below the poverty line in 2007.

17. The model is simulated by using Niger-specific parameters and others borrowed from cross-country studies (see Table 1). On the supply side, α is set at 0.35 (in line with estimates for sub-Saharan African countries) and β at 0.30 (in line with estimates by Mankiw, Romer, and Weil (1992). Data on physical capital are s constructed from gross investment by applying the perpetual inventory method. Data on the labor force, which is only available from 1980, are extended back to 1960 by assuming that the labor force grew at the same rate as total population. Human capital is estimated as described in Appendix 1. On the demand side, the equations (11–15 and 18) are calibrated on national accounts data for 2006 and 2007.[26] We assume that both imports and exports have an income elasticity of 1 and the set price elasticities of imports is 1.08 and of exports is 1.[27]

18. Simulation of the model requires that we estimate the size and distribution of aid. To do so we use 2007 budget data. In that year, 66 percent of foreign aid was allocated to physical investment, 26 percent to human capital formation (health, education, and other social sectors), and 8 percent to other government consumption. The allocation of aid across

[26] The coefficients of taxes are calibrated based on 2007 levels without filtering-out public investment that is funded by foreign aid during that year. This simplification does not distort our post-2007 projections since we assume that both taxes and pre-2007 foreign aid keep growing at the same pace as GDP growth

[27] These price elasticities are the average for a large number of developed and developing countries as estimated in Senhadji (1998) and Senhadji and Montenegro (1998).

different uses (i.e., early impact aid, late, and no-impact aid, as defined in paragraph 10) is assumed to remain unchanged throughout the projection period (Table 2).

Table 1. Niger: Assumed Values of Key Parameters for General Equilibrium Simulation

Parameters	Values
Share of physical capital in production	0.35
Share of human capital in production	0.30
Ratio of public investment to tax revenue	0.71
Ratio of private investment to disposable income	0.16
Marginal propensity to consume	0.84
Income elasticity of exports	1.00
Price elasticity of exports	1.00
Income elasticity of imports	1.00
Price elasticity of imports	1.08
Ratio of tax revenue to disposable income	0.11
Share total aid spent in imports	0.40
Ratio of government consumption to tax revenue	1.40

Source: Staff estimates.

19. With these assumptions, we consider a baseline scenario where aid flows in terms of GDP hold steady at their 2007 level and several alternative scenarios with aid scaled up. In particular, we assess the implications of the following cases: (i) a 50 percent *permanent* increase in aid in 2008 that boosts only factors of production; (ii) a 50 percent *one-year* increase in aid in 2008 that also boosts only factors of production; (iii) an increase in aid as in (i) but accompanied by improvements in TFP; (iv) an increase in aid as in (i) but with capacity constraints that make aid less effective; (v) an increase in aid to a level that would allow Niger to reduce income-based poverty by one-half by 2015; and (vi) an increase in aid to a level consistent with what is needed to finance the PRSP (2008–12).

Baseline scenario: No increase in aid

20. In the baseline scenario the model is simulated using the parameters listed in Table 1, keeping foreign aid constant as a share of GDP with its 2007 level. In 2008–20, average annual economic growth is about 5.1 percent and income per capita grows annually at 1.7 percent, rising from US$322 in 2007 to US$414 by 2020. Because inflation would remain at about 2 percent, equal to international inflation, the real exchange rate would remain constant throughout the period. As a result, there is no expenditure switching resulting from exchange rate fluctuations, and all aggregate demand components grow at the same rate as GDP.

Table 2. Niger: Composition of Assumed Increase in Foreign Aid from 2007 to 2008

	2007	2008 Increase	
	CFAF b.*	CFAFb.	% of GDP
Total	235.3	108.0	5.0
According to Time of Impact and Production Factor			
Physical Capital (AID_{EI})	155.3	71.28	3.3
Physical Capital for Education and Health (AID_{LIK})	32.9	15.12	0.7
Consumption in Education and Health (AID_{LIC})	28.2	12.96	0.6
Other Consumption (AID_{NI})	18.8	8.64	0.4

Source: Staff projections based on 2007 Budget.

* Total foreign aid in 2007 was equivalent to 11.5% of GDP.

Scenario I: Permanent increase in aid

21. A permanent and substantial increase in aid is projected to bring about a major and sustained pickup in economic growth while limiting risks to macroeconomic stability. We assume aid rises by 5 percentage points of GDP in 2008 (up from 10 percent in 2007) and remains at that level thereafter. In 2008, new aid raises physical capital growth by 1 percentage point. This on its own accelerates economic growth by 0.4 percent. Subsequently, as newly formed human capital comes on stream, growth rises 1½ percentage points above the baseline in 2014 (Figure 1 and Appendix Table 1). Although growth slows gradually thereafter, it would stay about 1 percent above the baseline growth rate until 2020.[28] By 2020, per capita GDP would be 12½ percent higher than in the baseline. On other key variables, the increase in aid causes the real effective exchange rate (REER) to appreciate by 3 percent in 2008. Thereafter, the real exchange rate stabilizes but at a more appreciated level relative to the baseline. The appreciation of the REER reduces exports by 1 percentage point relative to the baseline in 2009–10. However, exports would be some 10 percent higher than in the baseline over the long run, because aid is having a positive impact on output. The external current account deficit (before aid) would widen by 5 percent of GDP and is financed by new aid flows.

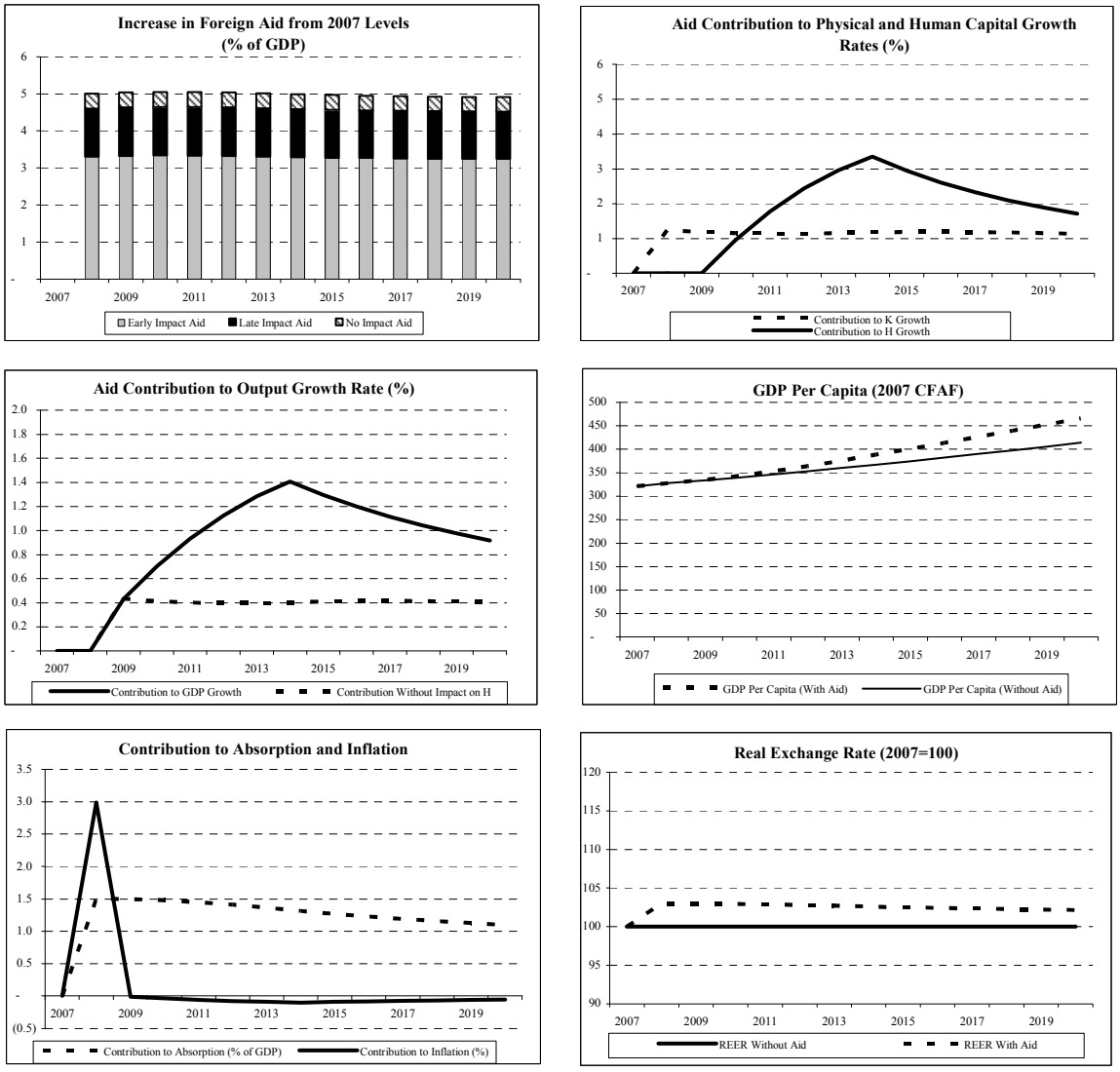
Scenario II: Temporary increase in aid

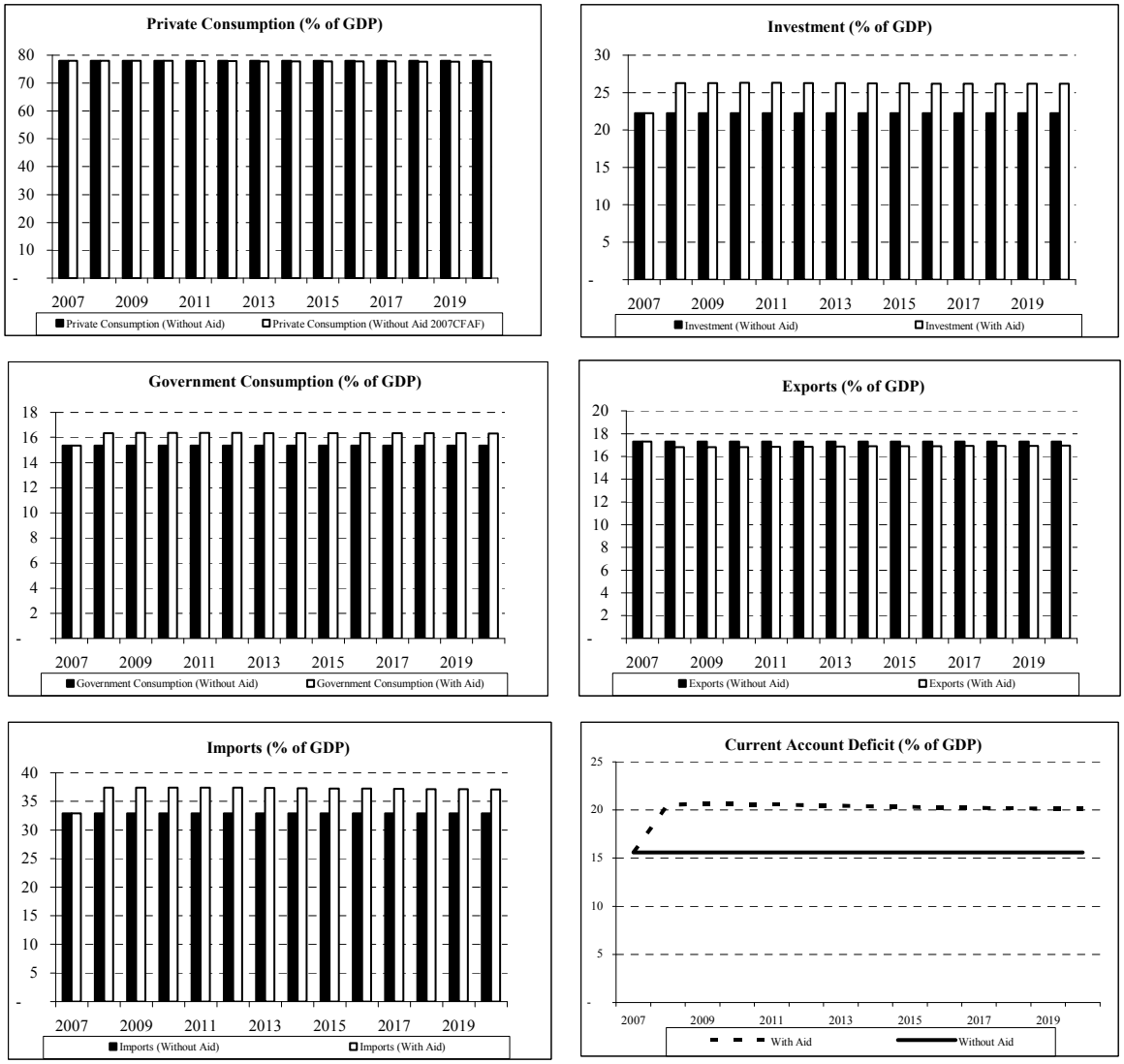
22. The impact on economic growth of a temporary increase in aid would be short-lived (Appendix Figure 1). The increase in aid would raise physical capital by 1 percentage point above the baseline, as in the previous scenario. The higher physical capital boosts GDP growth by 0.5 percent in year t+1. However, the growth effect of higher physical capital

[28] We assume that TFP is unaffected by new aid flows.

quickly fades out because the increase in aid is temporary. Over the medium term, the delayed impact of enhanced human capital mitigates the decline in growth toward that of the baseline. The real exchange rate increases immediately in response to the increase in aid, but then declines as aid falls until it eventually converges to the baseline level. The external current account deficit widens initially with the increase in aid and appreciation of the real exchange rate but returns to the baseline level after a few years.

Figure 1: Niger: Economic Impact of AID (Scenario I)





Scenario III: Positive impact of aid on TFP

23. As expected, improvements in TFP induced by increased investment financed by aid would boost growth more relative to Scenario I and limit the impact of aid flows on inflation and the real exchange rate (Appendix Figure 2). We assume that an increase in investment of roughly 5 percentage points of GDP raises TFP growth by ½ of a percentage point. GDP growth will increase TFP by the same proportion, and this would dampen the effects of aid on inflation and the real exchange rate. In this scenario, Niger's per capita income would be some 20 percent higher than in the baseline.

Scenario IV: Lower efficiency of aid

24. Capacity constraints and mismanagement would severely erode the benefits of increased aid. We assume that roughly one-quarter of all aid is wasted—less than the half estimated by Pritchett (1995) and Arestoff and Hurlin (2005). We justify the lower rate of waste by taking into account continuing reforms in Niger to improve public financial management and the recent emphasis by donors on better management of aid.[29] Under these circumstances, the growth impact would be scaled down by 0.4 percentage points relative to Scenario I (Appendix Figure 3). Income per capita by 2020 would only exceed the baseline by 9 percent. Further, less efficient aid use would raise inflation and cause the real exchange rate to appreciate more (reducing growth in exports) relative to Scenario I. Thus, less efficient use of aid not only curtails the growth dividend from scaled up aid but also jeopardizes macroeconomic stability.

Scenario V: Increase in aid needed to reach the MDG goal of poverty reduction

25. The expansion of aid to a level that would allow Niger to attain MGD-1 would have to be very large. In this scenario aid is assumed to increase to allow Niger reduce poverty by 50 percent by 2015 (MDG1) compared to 1990.[30] To find the required level of aid, we first estimate the impact of aid on poverty incidence by using the GDP per capita growth of Scenario I and assume a consumption per capita elasticity of –1.1. These assumptions imply that aid would have to increase by almost 20 percent of GDP for Niger to reach MDG 1. Such an increase could allow Niger to attain annual GDP growth rates of some 10 percent (7 percent in per capita terms), raising per capita GDP to 83 percent above the baseline by 2020. However, the marked increase in aid would substantially increase inflation and cause the real exchange rate to appreciate (Appendix Figure 4). The increased risks to macroeconomic stability could themselves weaken economic growth.

Scenario VI: Change in the composition of aid

26. A change in the composition of aid between expenditures for human and physical capital has serious implications for economic growth. Shifting the composition toward human capital accumulation strengthens economic growth by 1 percentage point relative to Scenario 1 (Appendix Figure 5), even though the assumed share of human capital in output is

[29] World Bank (2006) also uses an efficiency parameter in the model, assuming it to be 0.5 and 0.8 in different simulations.

[30] Poverty incidence is defined as the percentage of the population consuming less than US$2 per day.

Table 3. Niger: Incidence of Poverty Under Different Aid Scenarios, 2007-13

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Reduction since 1993
Scenario I	61.2	59.8	58.3	56.7	54.8	52.8	50.8	48.8	46.9	-25.6
Scenario III	61.2	59.8	58.0	55.9	53.7	51.4	49.1	46.8	44.6	-29.2
Scenario IV	61.2	59.8	58.4	56.9	55.1	53.3	51.5	49.7	47.9	-23.9
Scenario V	61.2	59.8	56.3	52.3	47.9	43.4	39.1	35.0	31.5	-50.0
Assumed Consumption Elasticity (Ravallion, 2004)	-1.3									

Source: Authors' estimates.

slightly lower than that of physical capital. This reflects the fact that allocating two-thirds of aid to education and health increases total government expenditure in these sectors by 60 percent, but the same amount of investment in physical capital increases that spending by only 15 percent.

Scenario VII: Intermediary scenario of the PRSP 2008-12

27. The 2008–12 PRSP for Niger envisages a massive increase in foreign assistance (Appendix Figure 6) that according to our simulations would significantly accelerate growth and reduce poverty. By 2012 foreign aid is projected to increase by about 15 percent of GDP over its 2007 level (less than in Alternative Scenario V), after which we assume that total aid remains constant in real terms. An upscale in aid under the PRSP could considerably accelerate accumulation of physical and human capital. Even if we neglect the impact of aid on TFP growth, annual GDP growth could increase by up to 2.5 percentage points, reaching 8 percent and staying above 7 percent for the entire period of 2012–20. However, this scenario would also generate major economic changes, including an increase in the current account deficit equivalent to 15 percent of GDP and 8 percent increase in the price level and the real exchange rateby 2012.

Scenario VIII: Excluding demand equations

28. The inclusion of demand-induced growth does not significantly bias the growth impact of aid. We eliminate the demand side of our model and thus remove the crowding-in impact of aid expenditures on private investment mentioned on paragraph 15. This changes the results marginally—these “supply only model” estimates are slightly lower than in Scenario I, but the difference is relatively small. Thus, it confirms that the growth impact of scaled-up aid is largely supply-driven (Appendix Table 2).

Table 4. Niger: Increase in GDP Growth Rate Caused by Higher Foreign Aid
(In percent)

	2008	2009	2010	2011	2012	2013	2014	2015
Baseline Scenario	0.00	0.43	0.70	0.93	1.13	1.28	1.41	1.30
Alternative Scenario 1	0.00	0.43	0.26	0.23	0.20	0.17	0.14	-0.10
Alternative Scenario 2	0.00	0.93	1.21	1.46	1.67	1.83	1.97	1.87
Alternative Scenario 3	0.00	0.33	0.53	0.70	0.85	0.97	1.07	0.99
Alternative Scenario 4	0.00	3.15	4.12	4.97	5.66	6.17	6.52	6.20
Alternative Scenario 5	0.00	0.17	0.89	1.52	2.01	2.38	2.64	2.36
Alternative Scenario 6	0.00	0.39	0.84	1.33	1.84	2.33	2.66	2.59
Alternative Scenario 7	0.00	0.43	0.69	0.91	1.09	1.23	1.34	1.20

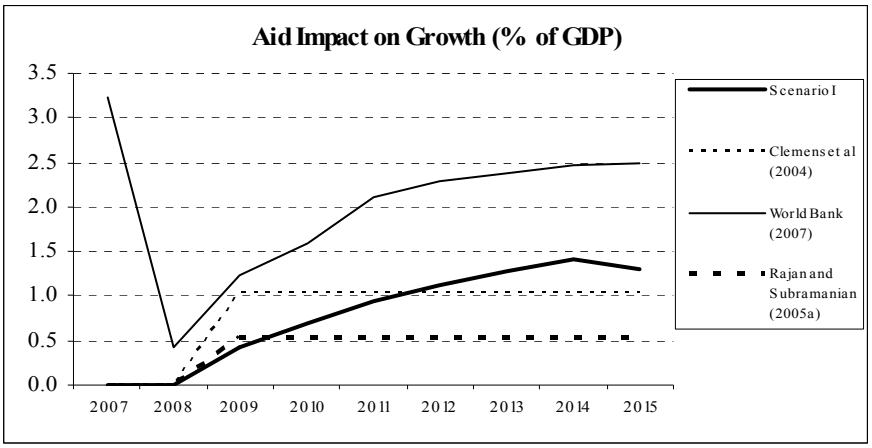
Source: Staff estimates.

F. Comparison to Other Estimates

29. Figure 2 and Appendix Table 3 present comparisons of our estimates in the baseline scenario with those derived from other sources. Because our methodology is grounded on a production function with constant returns to scale, our results should be in line with the impact of aid suggested in Rajan and Subramanian (2005a). We can compare our estimates to their suggestions by looking at the our projected impact in 2009 of increased aid on growth, because at that point the impact of human capital is not present. Indeed, the estimated contribution to growth in 2009 is similar to that implied in Rajan and Subramanian (2005a). In the longer run, growth accelerates faster in our baseline scenario due to the impact of human capital.

30. We could also estimate the impact of an increase in aid in Niger using parameters from cross-country exercises with historical data. For instance, we produce estimates based on Clemens, Radelet, and Bhavnani (2004), who suggest that a 1 percent increase in early impact aid can lead to a 0.36 percent increase in GDP growth annually for four years. In Figure 2 and Appendix Table 3 we see that in the first years after an aid scale-up, GDP growth in our baseline scenario is lower than the one implied in Clemens, Radelet, and Bhavnani (2004), possibly because the baseline scenario conservatively omits any impact of aid on TFP growth. On average, in the first four years the difference between the two projections is only 0.2 percent per year. In the long run, GDP growth in the baseline scenario generally surpasses the estimates in Clemens, Radelet, and Bhavnani (2004), reflecting the effect of late impact aid.

Figure 2. Niger: Aid Impact on Growth (% of GDP)



31. The results of our model are as well in line with those obtained by the simulation of a dynamic stochastic general equilibrium model (DSGE) in Berg and others (forthcoming). Assuming a pegged exchange rate, zero capital mobility, and a passive monetary policy, as is the case for Niger, the model implies that an increase in aid equivalent to 5 percent of GDP leads to an increase in GDP slightly higher than 1 percentage point, and that the real exchange rate would appreciate by slightly less than 3 percent.

32. We also compare our results with those produced specifically for Niger in World Bank (2006). This source assumes a 0.8 efficiency of aid parameter and specifically models the way education, health, and infrastructure, affect each other and the accumulation of factors of production. Estimates in this alternative methodology are considerably higher than our calculations, but also much higher than the estimates produced based on the other two sources. This is surprising considering that the efficiency of aid parameter used lowers the estimated impact of aid.

IV. CONCLUSIONS

33. The approach used in this paper to assess the impact of the scaling-up of aid is mainly based on a production function to model the supply side of the economy. The approach examines physical capital and human capital, two channels through which aid affects the productive capacity of the economy and also considers a possible impact of aid on TFP and a potential erosion of the impact due to inefficiency in aid programs. In this approach we also explore the economic impact of the different uses and destinations of aid. We further analyze the case where the interaction between changes in supply and in absorption impacts the real effective exchange rate, with a feedback on supply. The model could be refined with a more detailed formulation of the consumption behavior of households, based on utility maximization, and with different time preference discount

factors. However, despite a richer specification, the results are not likely to be significantly different.

34. The model suggests that a scaling up of aid within feasible bounds, 5 percent of GDP (a level close to other African countries), is likely to raise annual GDP growth from 4.5 percent up to 6.5 percent. The impact on poverty reduction is substantial, a cut of 25 percent, but still well below the MDG objective. Based on the model, external assistance and FDI would have to rise by 20 percent of GDP on a sustained basis to cut poverty by half between 1990 and 2015. It is unlikely that a sustained rise of foreign resources could come from official development assistance alone; a substantial increase in FDI would be needed. This in turn would require improvements in the investment climate. Notice, though, that since our approach is based on a simple elasticity of poverty reduction to growth, it may mask the possible impact on poverty of the interaction between more dynamic growth and carefully targeted use of resources in the social sectors. Moreover, as suggested in Minoiu and Reddy (2007), the impact of aid on GDP and poverty alleviation can be considerably augmented by improving the effectiveness of donors aid management.

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APPENDIX I—EFFECT OF LATE IMPACT AID ON HUMAN CAPITAL ACCUMULATION

We simulate the gradual effect of late impact aid by assuming that (i) human capital is entirely the result of government expenditures on health and education, and (ii) the pace at which these expenditures impact production is similar to the one at which students who benefit from improved education join the labor force. The latter assumption should likely lead to conservative estimates of the impact of aid on growth because aid allocated to health expenditures and training allocated to current members of the labor force have an immediate effect on human capital. We prefer that bias, considering the skepticism that aid has any impact on growth. It is also true, though, that a large share of aid in the health sector goes to infants and children, and thus its effect on human capital is only perceptible in the long run.

With these assumptions, the human capital of a cohort about to enter the labor force is approximated by the sum of public expenditures $G_{H,i}$ on health and education over the last five years:

$$h_t = (\sum_{i=t-6}^{i=t-1} G_{H,i}) \tag{1}$$

Thus, the total human capital in an economy is the sum of the human capital of each cohort, weighted by the share of a cohort in the labor force, and allowing for depreciation:

$$H_t = w_t(\sum_{i=t-6}^{i=t-1} G_{H,i}) + w_{t-1}(1-\delta_H)(\sum_{i=t-7}^{i=t-2} G_{H,i}) + w_{t-2}(1-\delta_H)^2(\sum_{i=t-8}^{i=t-3} G_{H,i}) + \ldots \tag{2}$$

where w is the share of each cohort in the labor force. Considering a working life of 40 years and taking into account the population pyramidal structure, we assume that in period t, the recently graduated cohort accounts for 5 percent of the labor force. This weight evolves through time according to annual population growth (g):

$$w_{t-n} = \frac{w_t}{(1+g_t)^n} = \frac{\overline{w}}{(1+\overline{g})^n} \tag{3}$$

in which $\overline{w}$ is the share of the youngest cohort in the labor force (5%), and assuming that population growth is constant ($\overline{g}$). Hence:

$$H_t = \overline{w}(\sum_{i=t-6}^{i=t-1} G_{H,i}) + \frac{\overline{w}}{(1+\overline{g})}(1-\delta_H)(\sum_{i=t-7}^{i=t-2} G_{H,i}) + \frac{\overline{w}}{(1+\overline{g})^2}(1-\delta_H)^2(\sum_{i=t-8}^{i=t-3} G_{H,i}) + \ldots \quad (4)$$

$$H_{t-1} = \overline{w}(\sum_{i=t-7}^{i=t-2} G_{H,i}) + \frac{\overline{w}}{(1+\overline{g})}(1-\delta_H)(\sum_{i=t-8}^{i=t-3} G_{H,i}) + \frac{\overline{w}}{(1+\overline{g})^2}(1-\delta_H)^2(\sum_{i=t-9}^{i=t-4} G_{H,i}) + \ldots \quad (5)$$

and similarly for consecutive terms. Subtracting (5) from (4) gives us our human capital accumulation equation:

$$H_t = \frac{(1-\delta_H)}{(1+\overline{g})} H_{t-1} + I_{H,t} \quad (6)$$

where:

$$I_{H,t} = \overline{w} * (\sum_{i=t-6}^{i=t-1} G_{H,i}) = \frac{1}{20} * (\sum_{i=t-6}^{i=t-1} G_{H,i}) \quad (7)$$

APPENDIX

Table 1. Niger: Scenario I—Production Function and Demand Method
Increase in Aid by 5% of GDP, Remaining Constant as Share of GDP Afterwards

Assumptions	2007	2008	2009	2010	2011	2012	2013	2014	2015
α	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
β	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Increase in Aid from 2007 (2007 CFAF billion)	0.00	108.00	114.48	121.35	128.63	136.35	144.53	153.20	162.39
Increase in Aid from 2007 (% of GDP)	0.00	5.00	5.04	5.05	5.05	5.04	5.02	4.99	4.97
Increase in Early Impact Aid from 2007 (2007 CFAF billion)	0.00	71.28	75.56	80.09	84.90	89.99	95.39	101.11	107.18
Increase in Early Impact Aid from 2007 (% of GDP)	0.00	3.30	3.32	3.33	3.33	3.32	3.31	3.29	3.28
Increase in Late Impact Aid from 2007 (2007 CFAF billion)	0.00	28.08	29.76	31.55	33.44	35.45	37.58	39.83	42.22
of which Capital Expenditures	0.00	15.12	16.03	16.99	18.01	19.09	20.23	21.45	22.73
Increase in Late Impact Aid from 2007 (% of GDP)	0.00	1.30	1.31	1.31	1.31	1.31	1.30	1.30	1.29
Increase of TFP Growth From Increased Foreign Aid (%)	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Exchange Rate (CFAF per US$)	496.05	488.74	481.62	473.80	465.17	456.45	456.45	456.45	456.45

Baseline Scenario	2007	2008	2009	2010	2011	2012	2013	2014	2015
Baseline Capital Growth (%)	5.08	4.37	4.41	4.45	4.51	4.56	4.61	4.65	4.69
Baseline Labor Growth (%)	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39
Baseline Human Capital Growth (%)	4.26	4.00	3.84	4.11	4.55	4.51	4.48	4.46	4.44
Baseline TFP Growth (%)	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Baseline Real GDP Growth (%)	4.53	5.18	4.88	4.97	5.12	5.13	5.14	5.15	5.16
Change in Baseline Consumption (%)	9.52	5.18	4.88	4.97	5.12	5.13	5.14	5.15	5.16
Change in Baseline Investment (%)	10.25	5.18	4.88	4.97	5.12	5.13	5.14	5.15	5.16
Change in Baseline Government Investment (%)	10.25	5.18	4.88	4.97	5.12	5.13	5.14	5.15	5.16
Change in Baseline Private Investment (%)	10.25	5.18	4.88	4.97	5.12	5.13	5.14	5.15	5.16
Change in Baseline Government Consumption (%)	7.55	5.18	4.88	4.97	5.12	5.13	5.14	5.15	5.16
Change in Baseline Exports (%)	8.14	5.18	4.88	4.97	5.12	5.13	5.14	5.15	5.16
Change in Baseline Imports (%)	18.14	5.18	4.88	4.97	5.12	5.13	5.14	5.15	5.16
Baseline Absorption (% of GDP)	115.59	115.59	115.59	115.59	115.59	115.59	115.59	115.59	115.59
Baseline Current Account Deficit (% of GDP)	15.59	15.59	15.59	15.59	15.59	15.59	15.59	15.59	15.59
Change in Baseline Taxes (%)	7.29	5.05	4.76	4.84	4.98	4.99	4.99	4.99	5.00
Change in Baseline Price Level (%)	2.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Change in Baseline Real Exchange Rate (%)	2.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Supply Indicators with Aid	2007	2008	2009	2010	2011	2012	2013	2014	2015
Gross Capital Accumulation (2007 CFAF billion)	456.77	566.81	597.51	631.72	669.92	711.57	756.81	805.79	857.22
Government Capital Stock excl. H related (2007 CFAF billion)	2009.50	2168.55	2334.44	2508.28	2691.30	2884.50	3088.93	3305.61	3535.13
Private Capital Stock (2007 CFAF billion)	3731.94	3894.93	4067.98	4252.78	4451.23	4664.80	4894.98	5143.28	5410.30
Investment to GDP (% of GDP)	22.25	25.49	25.52	25.54	25.56	25.57	25.57	25.58	25.59
Human Capital Stock (2007=100)	100.00	104.00	107.99	113.46	120.63	129.01	138.60	149.43	160.46
Capital Growth (%, excl. human capital related)	5.08	5.61	5.59	5.60	5.64	5.70	5.76	5.82	5.88
Human Capital Growth (%)	4.26	4.00	3.84	5.07	6.32	6.95	7.44	7.81	7.39
TFP Growth (%)	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
GDP (current CFAF billion)	2052.59	2223.34	2341.26	2473.27	2621.43	2783.29	2959.38	3150.21	3350.44
GDP (2007 CFAF billion)	2052.59	2158.85	2273.53	2402.56	2548.02	2707.44	2881.34	3070.25	3268.35
Real GDP Growth (%)	**4.53**	**5.18**	**5.31**	**5.68**	**6.05**	**6.26**	**6.42**	**6.56**	**6.45**
Real GDP Per Capita Growth (%)	**1.11**	**1.73**	**1.86**	**2.21**	**2.58**	**2.78**	**2.94**	**3.06**	**2.96**

Demand Indicators with Aid	2007	2008	2009	2010	2011	2012	2013	2014	2015
Consumption (2007 CFAF Billion)	1600.83	1683.69	1772.82	1872.89	1985.53	2108.81	2243.12	2388.87	2541.74
Investment (2007 CFAF Billion)	456.77	566.81	597.51	631.72	669.92	711.57	756.81	805.79	857.22
Government Investment (2007 CFAF Billion)	159.87	254.54	268.66	284.20	301.36	319.95	340.04	361.69	384.47
Private Investment (2007 CFAF Billion)	296.90	312.27	328.86	347.52	368.56	391.62	416.77	444.10	472.75
Investment excl. Human Capital Related (2007 CFAF Billion)	456.77	551.69	581.49	614.73	651.91	692.48	736.58	784.34	834.49
Government Consumption (2007 CFAF Billion)	314.94	352.84	371.74	392.91	416.68	442.69	471.01	501.73	533.96
Exports (2007 CFAF Billion)	355.30	363.08	382.40	404.24	428.95	456.12	485.83	518.18	552.08
Imports (2007 CFAF Billion)	675.24	807.58	850.94	899.20	953.07	1011.75	1075.43	1144.31	1216.65
Imports excl. Aid-Financed (2007 CFAF Billion)	675.24	731.982	770.803	814.257	863.026	916.304	974.260	1037.070	1102.974
Absorption (2007 CFAF Billion)	2372.53	2527.75	2661.93	2812.58	2982.09	3167.62	3369.77	3589.15	3819.25
Taxes (2007 CFAF Billion)	224.30	235.91	248.44	262.54	278.44	295.86	314.86	335.51	357.15
Absorption (% of GDP)	115.59	117.09	117.08	117.07	117.04	117.00	116.95	116.90	116.86
Current Account Deficit (% of GDP)	15.59	20.59	20.61	20.60	20.57	20.52	20.46	20.39	20.33
Price Level (2000=100)	119.43	123.00	122.99	122.95	122.87	122.78	122.67	122.54	122.43
Real Exchange Rate (2007=100)	100.00	102.99	102.98	102.94	102.88	102.80	102.71	102.60	102.51

Growth of Demand Indicators with Aid	2007	2008	2009	2010	2011	2012	2013	2014	2015
Change in Consumption (%)	9.52	5.18	5.29	5.65	6.01	6.21	6.37	6.50	6.40
Change in Investment (%)	10.25	24.09	5.42	5.73	6.05	6.22	6.36	6.47	6.38
Change in Government Investment (%)	10.25	59.22	5.55	5.79	6.04	6.17	6.28	6.37	6.30
Change in Private Investment (%)	10.25	5.18	5.31	5.68	6.05	6.26	6.42	6.56	6.45
Change in Government Consumption (%)	7.55	12.03	5.35	5.70	6.05	6.24	6.40	6.52	6.42
Change in Exports (%)	8.14	2.19	5.32	5.71	6.11	6.33	6.51	6.66	6.54
Change in Imports (%)	18.14	19.60	5.37	5.67	5.99	6.16	6.29	6.40	6.32
Change in Imports excluding aid financed (%)	18.14	8.40	5.30	5.64	5.99	6.17	6.32	6.45	6.35
Change in Absorption (%)	7.52	6.54	5.31	5.66	6.03	6.22	6.38	6.51	6.41
Change in Taxes (%)	7.29	5.18	5.31	5.68	6.05	6.26	6.42	6.56	6.45
Change in Price Level (%)	2.58	2.99	-0.01	-0.04	-0.06	-0.08	-0.09	-0.10	-0.09
Change in Real Exchange Rate (%)	2.58	2.99	-0.01	-0.04	-0.06	-0.08	-0.09	-0.10	-0.09

Table 2. Niger: Projections Based on Econometric Findings in Clements, Radelet, and Bhavnani (2004)

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Baseline Potential GDP Growth (%)	4.53	5.18	4.88	4.97	5.12	5.13	5.14	5.15	5.16
Baseline Potential GDP (CFAF billions)	2053	2202	2356	2522	2704	2900	3110	3336	3578
Annual Change in GDP Deflator (%)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Exchange Rate (CFAF per US$)	496.0	488.7	481.6	473.8	465.2	456.5	456.5	456.5	456.5
Increase in Short Impact Aid from 2006 (CFAF billion)	0.0	71.3	75.8	80.5	85.6	91.0	96.7	102.8	109.3
Increase in Short Impact Aid from 2006 (% of Baseline GDP)	0.00	3.30	3.31	3.32	3.33	3.33	3.34	3.34	3.34
GDP Growth Under Assumed Aid (%)	4.53	5.18	5.90	6.00	6.15	6.16	6.17	6.18	6.19
GDP Under Assumed Aid (CFAF billion)	2053	2202	2379	2572	2785	3015	3265	3537	3831
GDP Under Assumed Aid (2007 CFAF billion)	2053	2159	2286	2423	2573	2731	2900	3079	3270

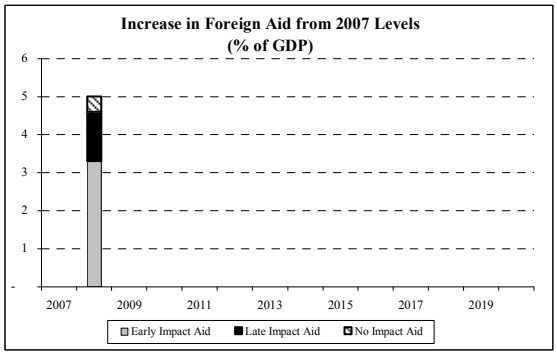
Table 3. Niger: Alternative Estimates of the Impact of an Aid Increase by 5% of GDP in Niger

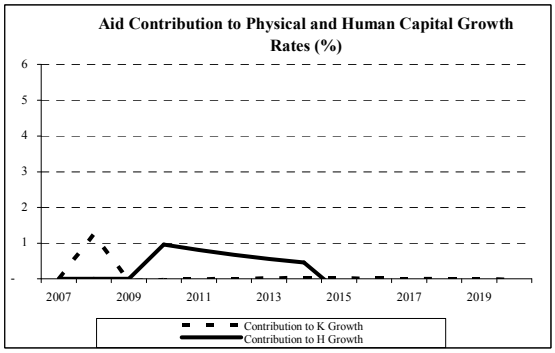
	2007	2008	2009	2010	2011	2012	2013	2014	2015
Baseline Scenario									
Baseline	4.53	5.18	4.88	4.97	5.12	5.13	5.14	5.15	5.16
After Aid	4.53	5.18	5.31	5.68	6.05	6.26	6.42	6.56	6.45
Difference	0.00	0.00	0.43	0.70	0.93	1.13	1.28	1.41	1.30
Supply Only Model									
Baseline	4.53	5.18	4.88	4.97	5.12	5.13	5.14	5.15	5.16
After Aid	4.53	5.18	5.31	5.67	6.03	6.22	6.37	6.49	6.36
Difference	0.00	0.00	0.43	0.69	0.91	1.09	1.23	1.34	1.20
Rajan and Subramanian (2005a)									
Baseline	4.53	5.18	4.88	4.97	5.12	5.13	5.14	5.15	5.16
After Aid	4.53	5.18	5.41	5.50	5.65	5.66	5.67	5.68	5.69
Difference	0.00	0.00	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Clemens et al (2004)									
Baseline	4.53	5.18	4.88	4.97	5.12	5.13	5.14	5.15	5.16
After Aid	4.53	5.18	5.90	6.00	6.15	6.16	6.17	6.18	6.19
Difference	0.00	0.00	1.02	1.03	1.03	1.03	1.03	1.03	1.04
World Bank (2007)									
Baseline	7.10	8.40	8.00	7.70	7.30	7.00	6.80	6.50	6.30
After Aid	10.34	8.82	9.23	9.30	9.41	9.28	9.17	8.97	8.80
Difference	3.24	0.42	1.23	1.60	2.11	2.28	2.37	2.47	2.50

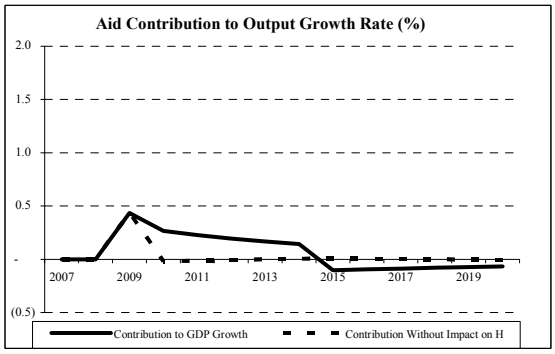
Sources: Rajan and Subramanian (2005a), Clemens et al (2004), World Bank (2007); and Staff estimates.

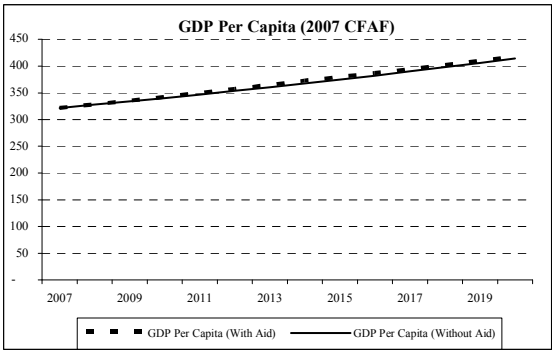
APPENDIX

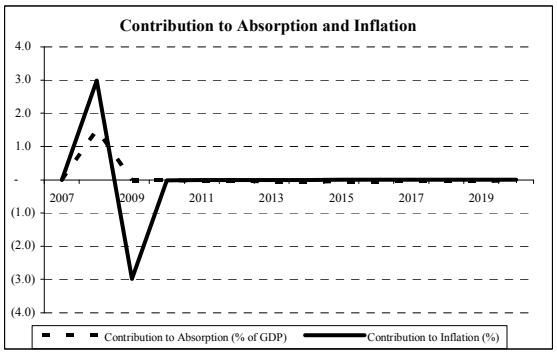
Figure 1—Scenario II











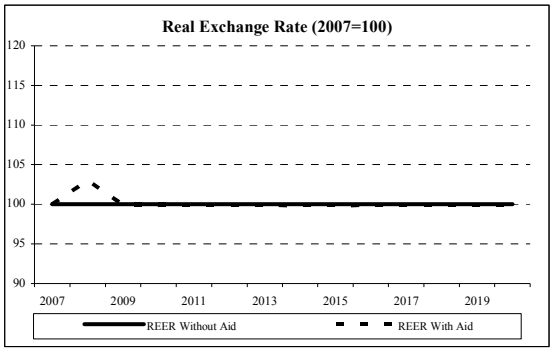
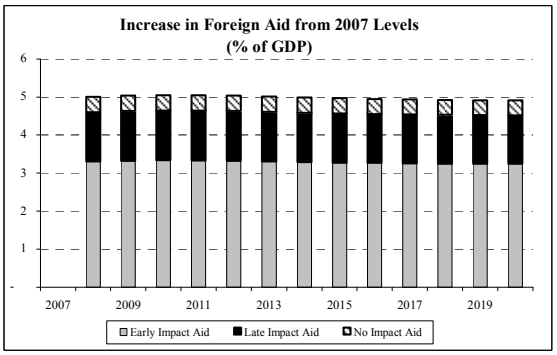
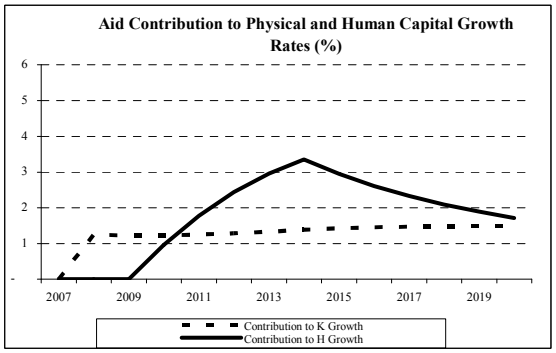
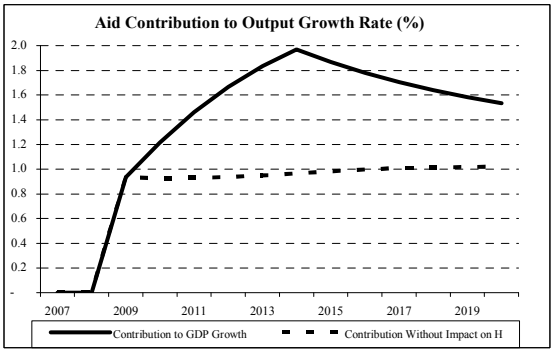
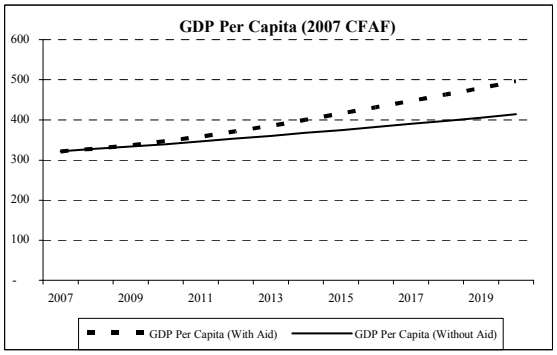


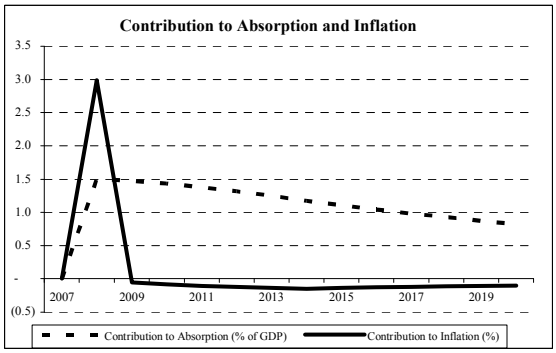
Figure 2—Scenario III











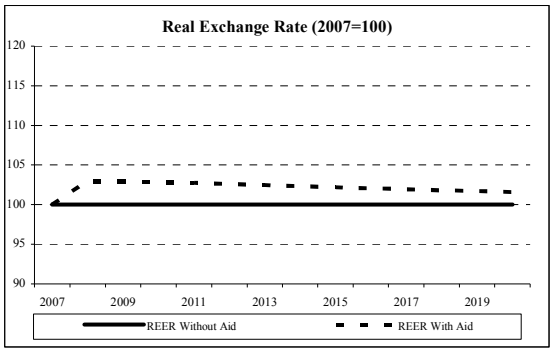
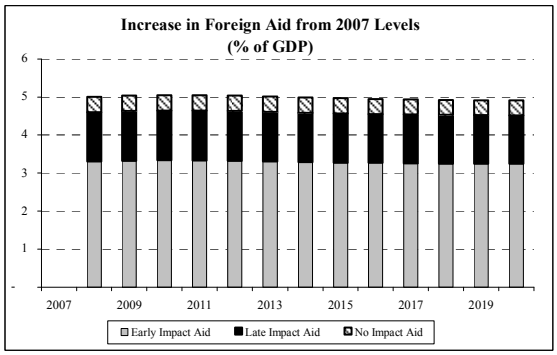
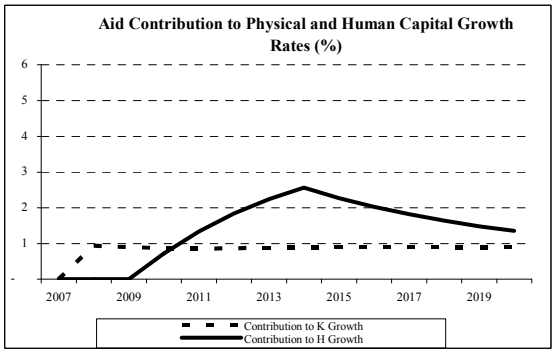
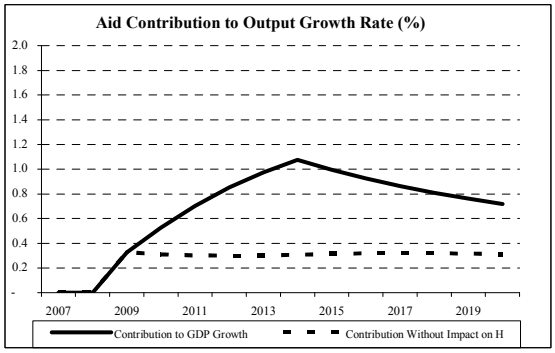
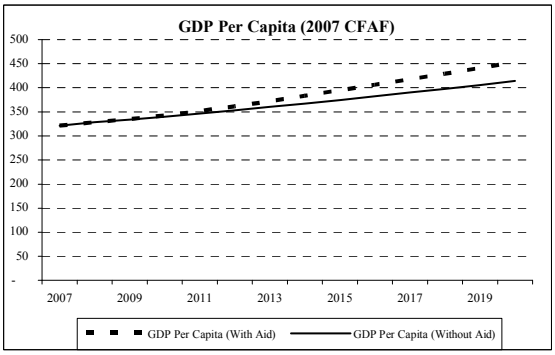


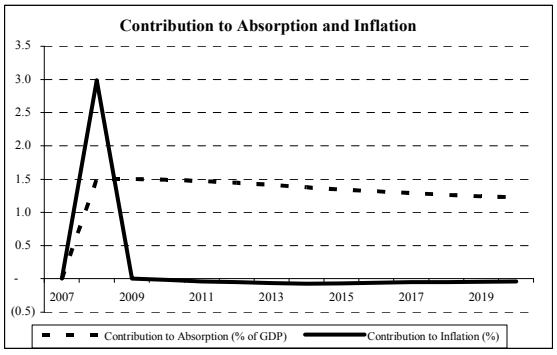
Figure 3—Scenario IV











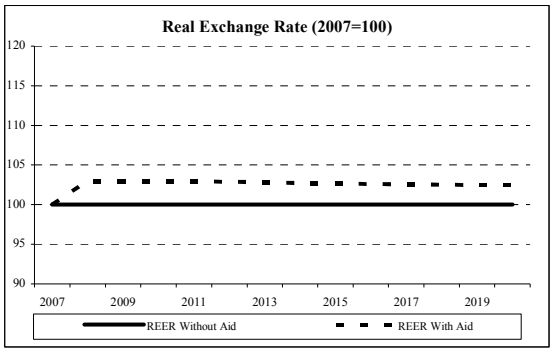
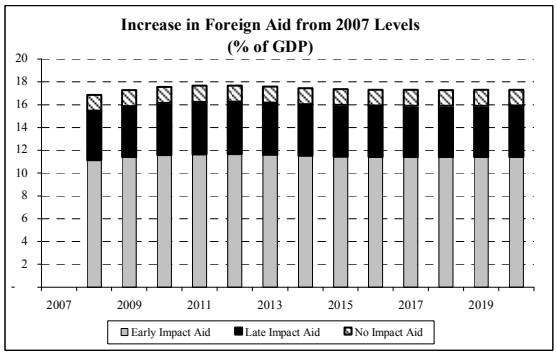
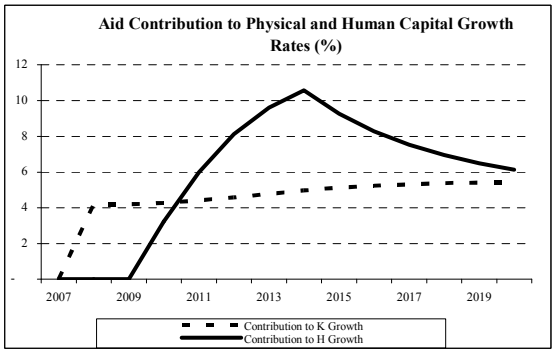
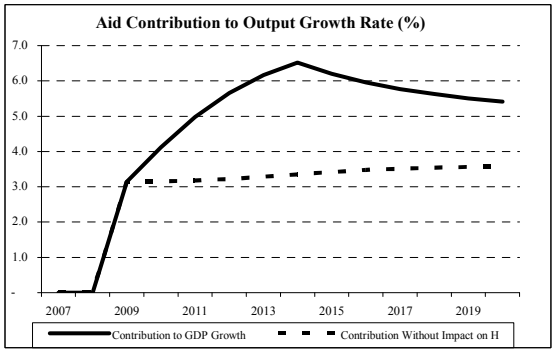
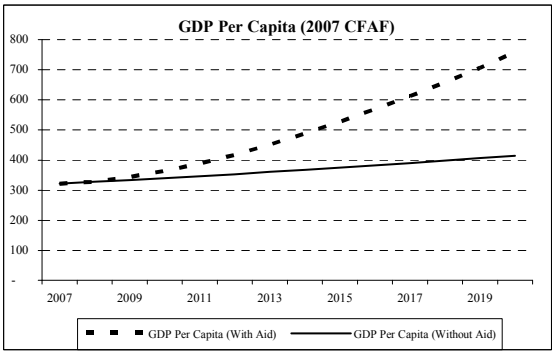


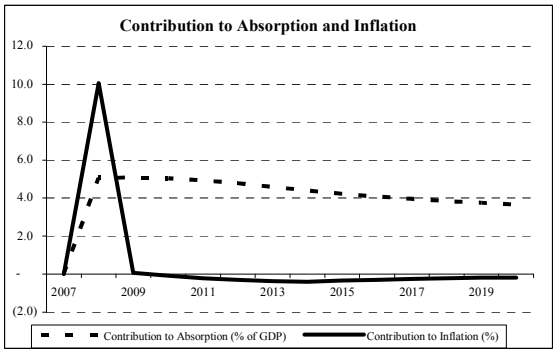
Figure 4—Scenario V

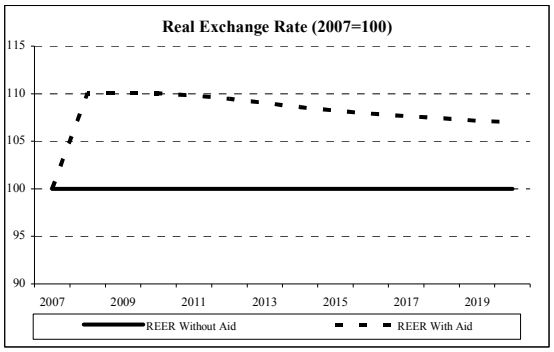


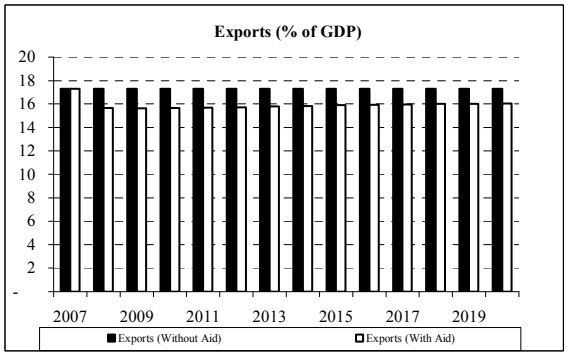












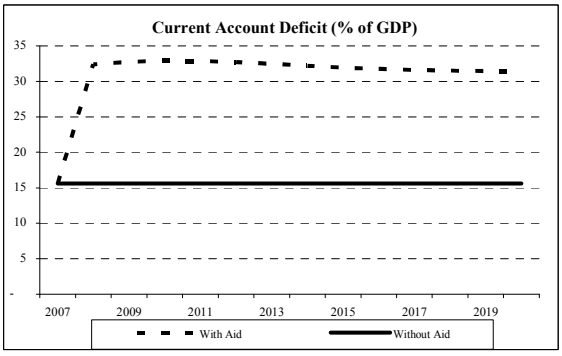
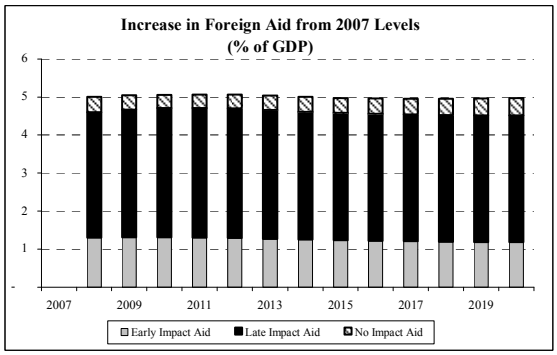
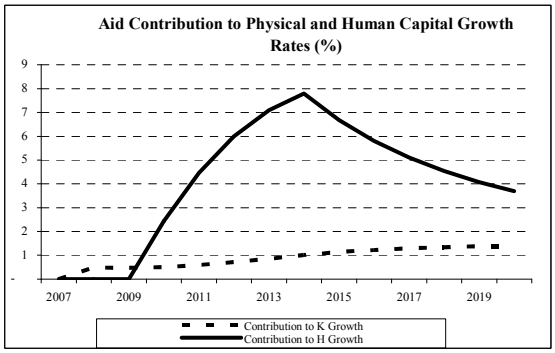
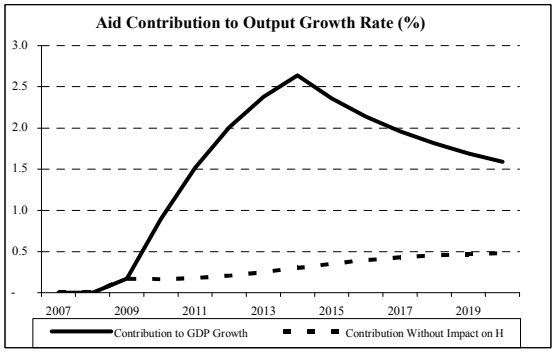
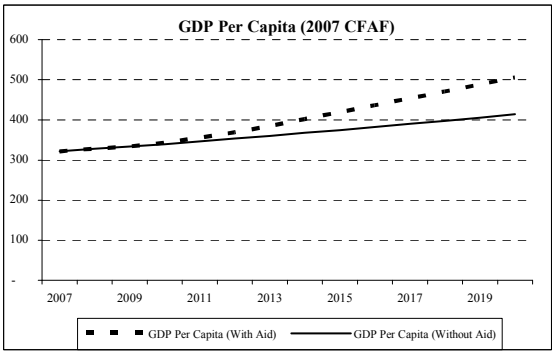


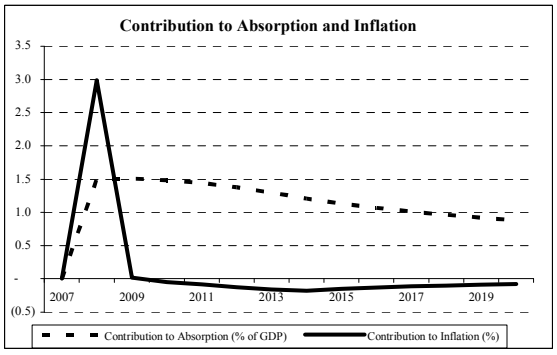
Figure 5—Scenario VI











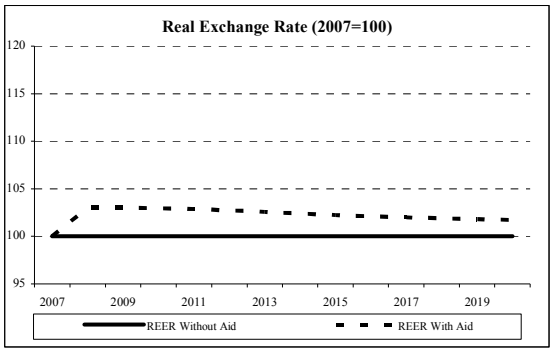
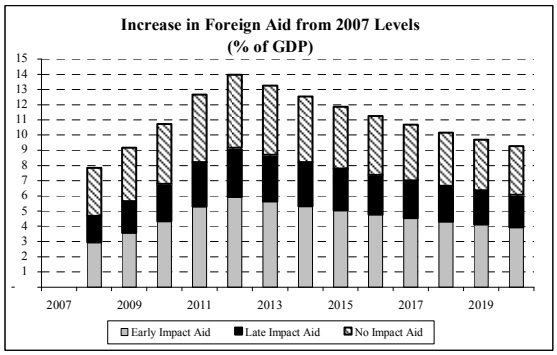
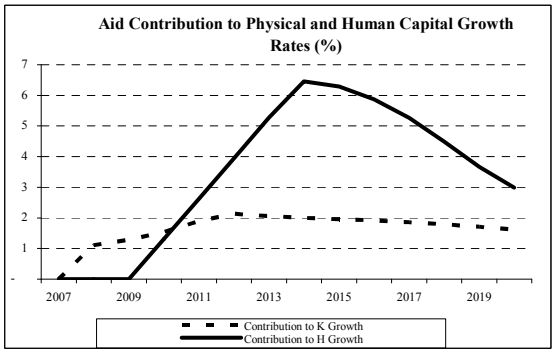
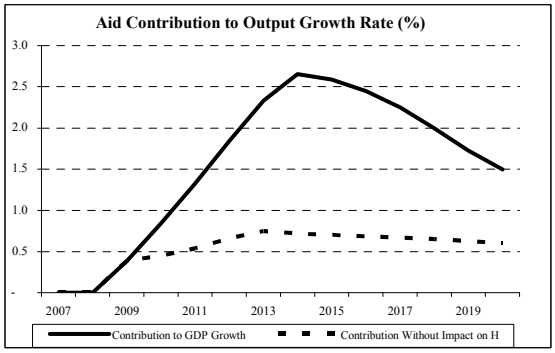
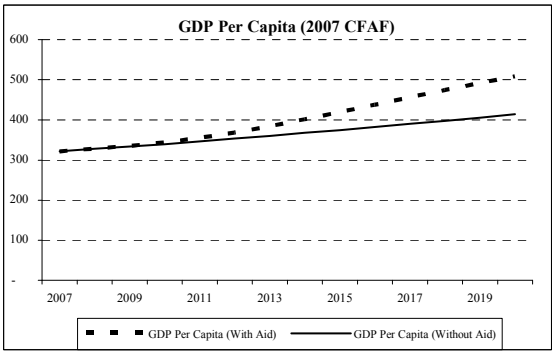


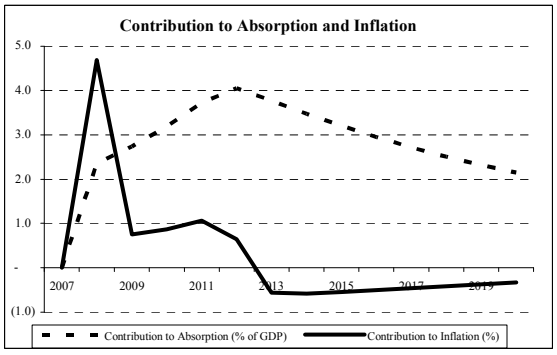
Figure 6—Scenario VII











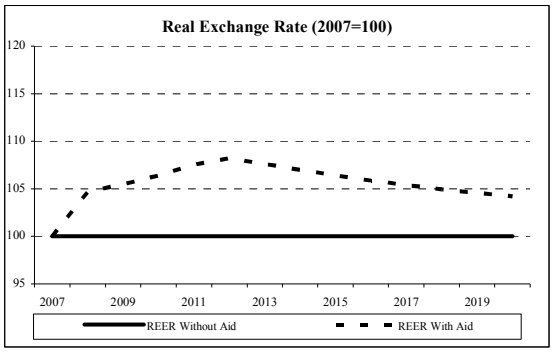
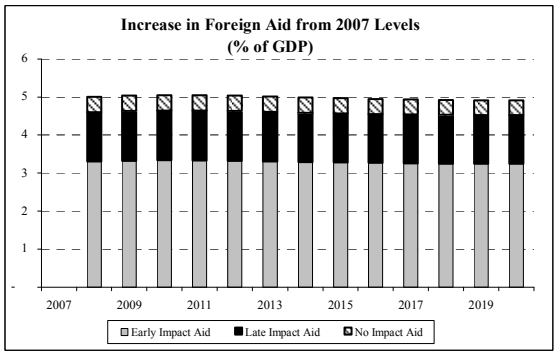
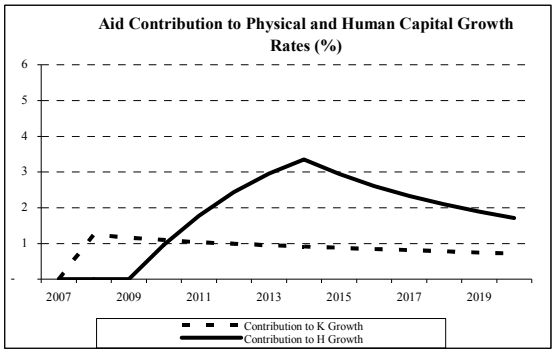
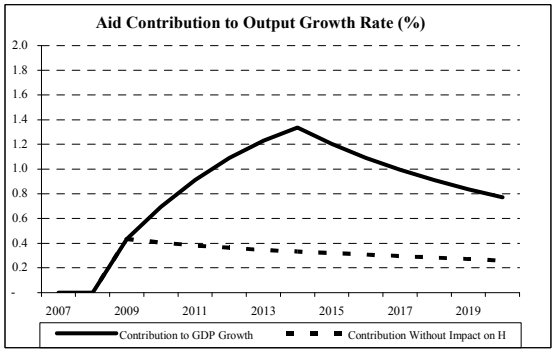
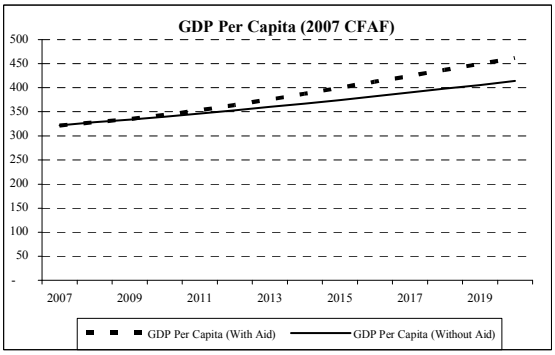


Figure 7—Scenario VIII









STATISTICAL APPENDIX

Niger: Basic Data

Area, population, and GDP per capita (2007)

Area:	1,267,000 squqre kilometers
Population:	13.4 millions
Population growth rate:	3.3 percent
GDP per capita:	US$ 199.00

	2000	2001	2002	2003	2004	2005	2006	2007
				(Billions of CFA francs)				
National accounts								
GDP at current market prices	1,186.3	1,329.4	1,439.5	1,534.3	1,530.4	1,777.0	1,906.4	2,034.8
				(Percent of GDP)				
Primary sector	36.7	41.0	41.9	44.1	40.2	42.4	42.9	40.8
of which: agriculture	22.1	26.7	27.8	24.9	21.2	25.0	26.1	24.1
Secondary sector	12.5	12.0	11.5	11.5	11.9	11.0	11.3	13.8
of which: mining	2.7	2.3	2.0	1.9	2.1	2.0	2.1	4.8
Tertiary sector	50.8	43.0	47.2	44.4	47.8	46.6	45.9	45.4
Consumption	96.2	95.2	94.2	93.7	96.4	90.3	89.1	88.7
Gross investment	11.4	12.1	14.2	16.3	14.6	23.1	23.6	23.6
				(Annual percentage change)				
Real GDP	-2.6	8.0	5.3	7.1	-0.8	8.4	5.8	3.3
Nominal GDP	0.7	12.1	8.3	6.6	-0.3	16.1	7.3	6.7
Prices								
GDP deflator	3.4	3.7	2.8	-0.4	0.6	7.1	1.4	3.3
Consumer price index (average)	2.9	4.0	2.7	-1.8	0.4	7.8	0.05	0.06
Terms of trade, 2000=100	-13.2	-1.1	1.5	3.6	-1.1	2.6	1.8	18.0

Table 1. Niger: Gross Domestic Product at Constant 1987 Prices, 2000-07

	2000	2001	2002	2003	2004	2005	2006	2007
Rural sector	322.8	365.5	372.4	478.9	437.3	490.8	530.4	551.4
Agriculture	166.3	202.8	204.4	280.6	236.2	284.7	319.6	331.8
Livestock	118.2	121.7	124.8	147.7	151.1	155.6	163.6	170.9
Forestry and fishing	38.3	40.9	43.2	50.7	49.9	50.4	47.1	48.6
Mining	58.3	58.7	59.4	52.0	55.8	53.9	58.5	54.2
Industry, energy, and handicrafts	77.2	79.6	82.3	65.4	67.6	67.9	70.8	72.5
Manufacturing industries and handicrafts	58.0	60.0	62.0	50.8	54.0	54.1	55.9	57.2
Electricity, gas, and water	19.2	19.6	20.3	14.6	13.6	13.7	14.9	15.4
Construction and public works	16.0	17.0	18.0	22.2	23.3	24.7	26.3	27.1
Commerce, transport, and services	286.1	298.1	311.1	319.5	338.1	353.1	365.2	380.3
Commerce	158.0	165.4	173.6	174.0	182.1	189.1	197.8	205.7
Transport	40.6	42.7	45.0	56.8	59.6	60.5	61.4	64.3
Services	87.5	90.0	92.5	88.6	96.3	103.4	105.9	110.3
Government	73.0	73.6	74.8	89.8	87.0	100.2	105.9	109.4
GDP at factor cost	833.5	892.4	918.1	1,027.8	1,009.1	1,090.5	1,157.0	1,194.9
Import taxes and duties	19.6	21.2	22.9	58.4	68.1	77.3	78.6	81.5
GDP at constant 1987 market prices	853.1	913.6	941.0	1,086.2	1,077.2	1,167.9	1,235.7	1,276.5
Annual rate of growth (percent)	-1.4	7.1	3.0	7.1	-0.8	8.4	5.8	3.3
Modern sector	225.6	231.3	238.8	266.5	283.7	318.1	335.1	343.8
Annual rate of growth (percent)	1.8	2.6	3.2	-1.9	6.4	12.1	5.3	2.6
Traditional sector	627.5	682.3	702.3	819.6	793.5	856.0	907.2	940.4
Annual rate of growth (percent)	-2.5	8.7	2.9	10.3	-3.2	7.9	6.0	3.7
GDP deflator (1987=100)	150.1	156.1	160.8	141.3	142.1	152.2	154.3	159.4
Annual rate of growth (percent)	4.5	4.0	3.0	-0.4	0.6	7.1	1.4	3.3

Sources: Ministry of Finance and Economy; and IMF staff estimates.

Table 2. Niger: Gross Domestic Product by Sector of Origin at Constant 1987 Prices, 2000-07

	2000	2001	2002	2003	2004	2005	2006	2007
Rural sector	-9.2	13.6	6.7	15.1	-8.7	12.2	8.1	4.0
Agriculture	-15.3	19.5	1.0	0.9	-15.8	20.6	12.3	3.8
Livestock	1.7	1.9	2.3	46.0	2.3	3.0	5.2	4.4
Forestry and fishing	8.5	9.3	5.5	36.8	-1.4	0.9	-6.5	3.2
Mining	7.0	2.2	5.2	4.9	7.5	-3.4	8.4	-7.3
Industry, energy, and handicrafts	-3.4	1.8	4.3	6.0	3.3	0.5	4.3	2.5
Manufacturing industries and handicrafts	-5.9	3.4	6.4	1.5	6.2	0.3	3.3	2.3
Electricity and water	2.2	2.7	-3.8	25.2	-6.9	1.3	8.4	3.3
Construction and public works	3.1	3.9	4.2	6.6	5.1	6.0	6.4	3.1
Commerce, transport, and services	4.0	5.1	3.2	2.0	5.8	4.4	3.4	4.1
Commerce	4.7	2.9	2.3	17.8	4.7	3.8	4.6	4.0
Transport	2.6	2.4	3.4	6.9	5.0	1.5	1.4	4.7
Services	3.7	9.7	4.4	-21.2	8.7	7.4	2.4	4.1
Government	-3.0	-0.3	-0.6	-1.4	-3.1	15.1	5.7	3.3
GDP at factor cost	-2.9	7.7	4.6	7.9	-1.8	8.1	6.1	3.3
Import taxes and duties	3.1	14.3	18.7	-5.8	16.6	13.5	1.7	3.7
GDP at market prices	-2.6	8.0	5.3	7.1	-0.8	8.4	5.8	3.3
Modern sector	0.2	4.8	4.8	-1.9	6.4	12.1	5.3	2.6
Traditional sector	-3.5	8.4	5.5	10.3	-3.2	7.9	6.0	3.7

Sources: Ministry of Finance and Economy; and IMF staff estimates.

Table 3. Niger: Gross Domestic Product by Sector at Current Market Prices, 2000-07

	2000	2001	2002	2003	2004	2005	2006	2007
Rural sector	435.6	544.5	602.8	676.8	615.9	754.3	817.2	829.9
Agriculture	261.8	354.7	400.8	382.3	324.4	444.1	497.9	490.9
Livestock	125.9	134.6	140.9	204.1	208.4	221.3	235.5	251.7
Forestry and fishing	48.0	55.1	61.0	90.3	83.1	88.9	83.9	87.3
Mining	31.8	31.0	29.1	29.7	31.4	35.7	40.1	98.2
Industry, energy, and handicrafts	89.4	97.4	102.5	109.9	112.1	117.9	127.2	132.6
Manufacturing industries and handicrafts	74.9	81.9	87.5	90.8	94.1	98.4	102.6	106.6
Electricity and water	14.4	15.5	15.0	19.2	18.0	19.6	24.6	26.0
Construction and public works	27.3	31.5	34.0	36.6	38.7	41.6	47.5	50.7
Commerce, transport, and services	382.2	346.4	427.5	433.9	471.0	511.4	538.2	573.8
Commerce	175.3	181.4	189.4	225.3	239.2	260.4	273.9	290.8
Transport	77.2	82.4	87.3	94.0	106.5	115.1	124.1	134.9
Services	129.7	82.6	150.8	114.6	125.3	136.0	140.2	148.1
Government	149.0	141.3	148.8	149.3	145.2	181.5	198.0	204.9
GDP at factor cost	1,115.2	1,192.1	1,344.6	1,436.2	1,414.2	1,642.5	1,768.2	1,890.1
Import taxes and duties	71.1	84.5	102.9	97.7	115.8	134.5	138.2	144.7
GDP at current market prices	1,186.3	1,276.6	1,447.5	1,533.9	1,530.0	1,777.0	1,906.4	2,034.8
Annual rate of growth (percent)	0.7	7.6	13.4	6.0	-5.2	16.1	7.3	6.7
Modern sector	343.4	357.2	383.0	388.8	419.8	501.8	546.6	637.6
Annual rate of growth (percent)	5.4	4.0	7.2	1.5	2.3	19.5	8.9	16.7
Traditional sector	855.9	919.3	1,064.6	1,155.9	1,123.3	1,289.7	1,374.8	1,415.3
Annual rate of growth (percent)	-0.3	7.4	15.8	8.6	-6.6	14.8	6.6	2.9

Sources: Ministry of Finance and Economy; and IMF staff estimates.

Table 4. Niger: Gross Domestic Product of the Modern Sector at Current Market Prices, 2000-07

	2000	2001	2002	2003	2004	2005	2006	2007
Mining	25.3	24.0	21.5	21.8	23.2	27.2	31.2	88.2
Manufacturing industries	8.8	8.9	9.3	11.1	11.6	12.1	12.2	13.1
Electricity and water	14.4	15.5	15.0	19.2	18.0	19.6	24.6	26.0
Construction and public works	10.2	13.0	14.3	15.1	15.7	17.4	21.0	23.5
Commerce and hotels	22.3	24.8	25.0	23.5	29.8	34.8	38.8	43.0
Transport	17.8	18.8	19.4	23.6	26.4	33.1	39.4	44.8
Services	24.6	26.5	26.7	27.4	34.1	41.7	43.3	49.3
Total (excluding government)	123.4	131.4	131.3	141.7	158.8	185.8	210.4	288.0
Government	149.0	141.3	148.8	149.3	145.2	181.5	198.0	204.9
Import taxes and duties	71.1	84.5	102.9	97.7	115.8	134.5	138.2	144.7
Total	343.4	357.2	383.0	388.8	419.8	501.8	546.6	637.6

Sources: Ministry of Finance and Economy; and IMF staff estimates.

Table 5. Niger: Gross Domestic Product of the Traditional Sector at Current Market Prices, 2000-07

	2000	2001	2002	2003	2004	2005	2006	2007
Agriculture	261.8	354.7	400.8	382.3	324.4	444.1	497.9	490.9
Livestock	125.9	134.6	140.9	204.1	208.4	221.3	235.5	251.7
Forestry and fishing	48.0	55.1	61.0	90.3	83.1	88.9	83.9	87.3
Mining and quarries	6.5	7.0	7.6	7.8	8.2	8.5	8.9	10.0
Artisanal activities	66.1	73.1	78.2	79.6	82.5	86.3	90.5	93.5
Construction and public works	17.1	18.5	19.7	21.5	23.0	24.2	26.5	27.1
Commerce and hotels	152.9	156.7	164.3	201.8	209.4	225.6	235.1	247.8
Transport	59.4	63.6	67.9	70.4	80.0	82.0	84.7	90.0
Services	118.2	56.1	124.1	98.0	104.3	108.9	112.0	116.9
Total	855.9	919.3	1,064.6	1,155.9	1,123.3	1,289.7	1,374.8	1,415.3
Total (excluding rural sector)[1]	420.3	374.9	461.8	479.2	507.4	535.4	557.6	585.4

Sources: Ministry of Finance and Economy; and IMF staff estimates.
[1]Agriculture, livestock, and forestry and fishing.

Table 6. Niger: Supply and Use of Resources at Current Market Prices, 2000-07

	2000	2001	2002	2003	2004	2005	2006	2007
	(Billions of CFA francs)							
Supply of resources	1,515.2	1,680.4	1,811.7	1,930.1	1,971.9	2,319.1	2,469.5	2,675.2
Gross domestic product	1,186.3	1,329.4	1,439.5	1,534.3	1,530.4	1,777.0	1,906.4	2,034.8
Imports of goods and nonfactor services	329.0	351.0	372.2	395.8	441.4	542.2	563.1	640.4
Use of resources	1,515.2	1,680.4	1,811.7	1,930.1	1,971.9	2,319.1	2,469.5	2,675.2
Consumption	1,140.9	1,266.2	1,356.4	1,437.8	1,604.6	1,604.6	1,698.9	1,805.4
Private	974.0	1,089.7	1,171.3	1,190.4	1,211.4	1,324.4	1,412.7	1,440.5
Public	167.0	176.6	185.1	247.4	263.3	280.2	286.2	364.9
Gross domestic investment	146.4	172.8	202.2	250.6	223.3	410.4	449.7	480.6
Gross fixed investment	143.4	169.8	199.2	231.8	258.1	384.6	430.2	473.8
Private	59.5	68.4	78.7	166.5	174.8	260.6	301.5	343.7
Public	83.9	101.4	120.5	65.3	83.3	124.0	128.7	130.2
Changes in stocks	3.0	3.0	3.0	18.8	-34.8	25.8	19.5	6.7
Exports of goods and nonfactor services	227.9	241.3	240.7	241.7	273.8	304.2	320.9	389.3
Resource gap (deficit -)	-101.1	-109.6	-131.4	-154.1	-167.6	-238.0	-242.2	-251.1
As percent of GDP		-8.5	-8.2	-9.1	-10.0	-11.0	-13.4	-12.7
Domestic savings	45.3	63.2	83.1	96.5	55.7	172.4	207.5	229.5
As percent of GDP	3.8	4.8	5.8	6.3	3.6	9.7	10.9	11.3
Memorandum items:								
Net factor income from abroad	-11.8	-11.0	-16.8	-15.2	-6.8	-5.0	0.6	-16.6
Current account balance (incl. grants)	-79.1	-67.9	-95.6	-126.7	-119.6	-147.1	-156.2	-181.1
Gross national income	1,208.2	1,318.3	1,483.4	1,561.3	1,578.0	1,867.8	1,992.4	2,104.9
Gross national saving	67.3	104.9	119.0	123.9	103.7	263.2	293.5	299.5

Sources: Ministry of Finance and Economy; and IMF staff estimates.

Table 7. Niger: Production, Marketing, and Exports of Agricultural Products, 2000/01-2006/07[1]

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
	(Thousands of metric tons)						
Millet							
Production	1679.0	2358.7	2567.2	2037.7	2652.4	3008.5	2781.9
Sorghum							
Production	371.0	663.6	669.7	599.5	943.9	929.3	975.2
Cowpeas							
Production	263.0	509.5	654.2	339.5	586.1	712.0	1001.1
Exports	19.9	…	…	…	…	…	…
Groundnuts (unshelled)							
Production	113.2	82.0	153.7	159.1	139.1	152.6	147.7
Rice							
Production	60.0	75.1	79.9	72.4	38.7	6.8	6.4
Cotton (unginned)							
Production	24.0	2.7	8.3	4.7	7.9	5.2	…
Exports (ginned)	…	…	…	…	…	…	…

Sources: Ministry of Agriculture and Livestock (production data); Office des Produits Vivriers du Niger (OPVN); Ministry of Commerce, Transport, and Tourism (export data); and IMF staff estimates.

[1]Crop year: October 1- September 30.

Table 8. Niger: Area under Cultivation and Yield of Principal Crops, 2000/01-2006/07 [1]

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
			(Thousands of hectares)				
Area under cultivation							
Principal food crops							
Millet	5,151	5,212	5,576	5,604	5,894	6229.9	6170.2
Sorghum	2,156	2,604	2,240	2,219	2,477	2682.4	2838.8
Rice	18	25	24	21	13	3.8	4.0
Principal cash crops							
Cowpeas	3,846	3,512	3,845	2,722	3,464	4133.5	4761.1
Groundnuts (unshelled)	360	192	335	349	309	310.1	375.3
Cotton (unginned)	6	4	5	5	8	…	…
			(Kilograms per hectare)				
Average yields							
Principal food crops							
Millet	326	455	460	364	450	483	451
Sorghum	172	255	299	270	381	346	344
Rice	3,313	3,049	3,352	3,443	2,870	1789	1604
Principal cash crops							
Cowpeas	68	145	170	125	169	172	210
Groundnuts (unshelled)	314	426	460	455	450	492	393
Cotton (unginned)	435	697	1,607	4,700	7,900	…	…

Sources: Ministry of Agriculture and Livestock; and IMF staff estimates.

[1]Crop year: October l-September 30.

Table 9. Niger: Cereal Production, Imports, and Consumption, 2000-07 [1]

	2000	2001	2002	2003	2004	2005	2006	2007
	(Thousands of metric tons)							
Production	2,319	3,110	3,338	3,575	2,637	3,596	3,938	3,757
Available supply from domestic production	1,959	2,627	2,821	3,026	2,450	3,146	3,473	3,349
Initial stocks	389	19	35	126	91	33	42.7	...
Imports	353	303	320	268	...	...	...	...
Total supply	2,701	2,949	3,176	3,421	...	...	...	...
Consumption	2,507	2,695	2,786	2,993	2,919	3,081	3096	3198
Overall balance	194	254	390	427	...	21	222	151
o*f which*: domestic balance	-548	-48	69	159	-223	...	...	...
Final stocks	194	147	170	163	73	176	155	...
Memorandum items:								
Imports by OPVN	8	...	...	...	...	...	...	...
Grants	8	8	0	8	...	...	...	...
Commercial imports	0	295	320	260	...	...	216	...

Sources: Ministry of Finance and Economy, Ministry of Agriculture and Livestock; Office des Produits Viviriers du Niger (OPVN); and IMF staff estimates.

[1]Crop year: October l-September 30.

Table 10. Niger: Size and Value of the Herd, 2000-07

	2000	2001	2002	2003	2004	2005	2006	2007
				(Thousands of heads)				
Cattle	5,481	5,810	6,159	6,529	6,920	7,336	7,776	8,242
Sheep	7,739	8,010	8,290	8,580	8,881	9,192	9,513	9,846
Goats	9,237	9,606	9,990	10,390	10,545	11,238	11,687	12,155
Camels	1,467	1,486	1,505	1,525	1 5 45	1,565	1,585	1,606
Other[1]	14,096	14,289	14,483	14,680	14,880	15,084	13,777	13,966
				(Millions of CFA francs)				
Cattle	641,699	752,052	788,771	825,762	803,779	825,432	1,029,721	1,159,872
Sheep	186,053	218,481	237,036	214,174	205,586	295,339	271,606	298,590
Goats	137,382	150,440	163,356	153,138	151,025	132,990	180,214	199,062
Camels	245,486	253,091	239,516	237,337	224,878	220,798	249,303	264,900
Other[1]	99,525	99,731	115,962	124,265	134,427	129,114	131,767	139,208

Sources: Ministry of Finance and Economy; and IMF staff estimates.
[1]Mainly horses.

Table 11. Niger: Production and Exports of the Uranium Sector, 2000-07

	2000	2001	2002	2003	2004	2005	2006	2007
	(Metric Tons, unless otherwise specified)							
Production	2,898	2,920	3,072	3,143	3,273	3,093	3,434	3,153
SOMAIR (Société Minière de l'Air)	978	1,008	1,066	1,126	1,277	1,302	1,565	1,750
COMINAK (Companie Minière d'Akouta)	1,920	1,912	2,006	2,017	1,996	2,100	1,869	1,403
Exports	2,950	2,960	2,960	3,120	3,340	3,400	3,160	3,415
SOMAIR	990	1,000	1,000	1,160	1,280	1,300	1,560	1,750
COMINAK	1,960	1,960	1,960	1,960	2,060	2,100	1,600	1,665
Change in stocks during the year (- decrease)	-52	-40	112	-20	-26	-306	275	-262
Level of stocks at end of year	1,118	694	806	786	760	454	729	467
Prices (in CFA francs per kilogram)								
Minegate price	21,328	21,009	20,820	20,728	20,758	22,500	24,545	38,961
Unit value of exports	21,700	21,300	21,100	21,000	21,000	23,100	25,200	40,000
Value of exports [1]								
Total	64,015	63,048	62,456	65,360	70,140	78,194	79,632	143,057
Total (millions of U.S. dollars)	89	86	90	112	133	149	152	299
Total (millions of SDRs)	70	68	69	80	90	101	104	195
Value of stocks [1, 2]								
Total	17,680	13,447	15,081	16,292	15,059	8,741	17,894	18,195
Total (millions of U.S. dollars)	25	18	22	28	30	20	34	38
Total (millions of SDRs)	19	14	17	20	20	13	23	25
Memorandum items:								
Average exchange rate (CFA francs per U.S. dollar)	710.1	732.4	694.8	580.1	527.5	527.0	522.4	478.6
Average exchange rate (CFA francs per SDR)	936.5	932.3	899.7	811.2	781.4	778.8	768.7	732.7

Sources: Nigerien authorities; and IMF staff estimates.

[1]Data on the value of exports differ from those provided on the balance of payments series owing to differences in the timing of the recording of exports.

[2]Value of stocks estimated on the basis of the unit value of exports during the year.

Table 12. Niger: Production Capacity and Output of the Industrial Sector, 2000-07

	2000	2001	2002	2003	2004	2005	2006	2007
	(Thousands of metric tons)							
Flour mills								
Production capacity	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Output	0.0	0.0	0.0	0.0	3.9	4.6	5.5	5.5
Rice processing mills								
Production capacity	29.0	29.0	35.0	35.0	35.0	35.0	65.0	...
Rice processed	5.8	4.7	4.0	3.1	6.7	2.0	12.6	...
Cotton ginning								
Production capacity (unginned cotton)	24.0	24.0	24.0	24.0	26.0	26.0	...	...
Unginned cotton processed	3.7	1.4	6.6	6.8	7.1	7.8	...	...
Cement								
Production capacity	40.0	40.0	60.0	60.0	60.0	60.0	60.0	60.0
Output	33.1	47.0	54.7	55.8	59.2	83.4	62.0	42.0
Soap, manufacturing								
Production capacity	13.0	13.0	17.0	17.0	17.0	17.0	13.0	13.0
Output	8.1	7.5	8.7	10.4	10.2	9.4	9.4	9.4
	(Millions of meters)							
Textiles								
Production capacity	25.0	25.0	25.0	25.0	25.0	25.0	10.0	10.0
Output	5.8	6.7	7.0	5.6	4.0	2.0	1.9	2.6
	(Thousands of bottles)							
Brewery								
Production capacity	350.0	350.0	350.0	350.0	350.0	350.0	350.0	350.0
Output	129.7	124.4	120.4	116.5	103.5	94.9	97.5	99.9

Source: Ministry of Finance and Economy.

Table 13. Niger: Production, Imports, Sales, and Prices of Electricity, 2000-07

	2000	2001	2002	2003	2004	2005	2006	2007
				(Millions of kilowatt-hours)				
Volume								
Domestic production	205	180	191	194	205	202	194	195
of which: SONICHAR	135	134	144	149	155	158	168	152
Imports	204	220	211	235	295	339	399	450
Transmission losses	-39	-38	-30	-51	-59	-43	-45	-57
Electricity sales	327	342	365	363	382	416	480	531
Household usage	116	135	147	157	171	192	190	245
Other low voltage	22	16	15	16	18	19	42	34
Medium voltage	189	191	203	189	194	205	248	252
of which: mining sector	91	88	94	98	101	103	107	92
				(Millions of CFA francs)				
Value								
Electricity sales	25,485	27,275	29,001	28,661	29,296	31,765	36,890	40,099
Household usage	10,005	11,538	12,594	13,534	14,707	16,464	17,249	20,277
Other low voltage	1,892	1,421	1,359	1,424	1,546	1,638	2,349	2,375
Medium voltage	13,589	14,316	15,047	13,702	13,043	13,662	17,291	18,412
				(CFA francs per kilowatt-hour)				
Average unit prices[1]								
Low voltage	86	86	86	86	86	88	85	84
Medium voltage	75	73	74	73	71	70	74	73

Sources: NIGELEC; and IMF staff estimates.

[1]Unit prices are derived from the NIGELEC rate schedules and may not correspond to value and volume data.

Table 14. Niger: Prices of Petroleum Products in Niamey, 2000-07

	2000	2001	2002	2003	2004	2005	2006	2007
	(CFA francs per liter, annual average)							
Gasoline								
Super	515.0	508.0	498.0	499.0	468.6	530.6	629	598
Regular	425.0	420.0	416.0	416.0	503.0	583.0	...	...
Kerosene	240.0	240.0	240.0	240.0	240.0	283.8	436	435
Diesel	365.0	361.0	337.0	353.0	464.0	534.0	487	564
	(Dollars per US gallon, unless otherwise indicated)							
Gasoline								
Super	2.7	2.6	2.7	3.2	4.2	4.8	…	…
Regular	2.3	2.2	2.3	2.7	3.6	4.2	…	…
Kerosene	1.3	1.2	1.3	1.6	1.7	3.1	…	…
Diesel	1.9	1.9	1.8	2.3	3.3	3.8	…	…
Memorandum item:								
Average period exchange rate (CFA francs per U.S. dollar)	712.0	733.0	697.0	581.2	527.6	527.1	522.4	478.6

Sources: Ministry of Trade and Private Sector; and Ministry of Transport and Communications.
[1]1 U.S. gallon = 3.785 liters.

Table 15. Niger: Consumption of Petroleum Products, 2000-07[1]

	2000	2001	2002	2003	2004	2005	2006	2007
	(Thousands of cubic meters)							
Diesel fuel	66.3	56.6	62.2	69.7	80.6	82.2	…	84.8
Gasoline	70.0	65.5	63.6	73.1	74.7	70.8	…	76.8
Jet fuel	17.5	14.6	12.1	12.6	14.4	15.7	…	14.5
Kerosene	11.9	8.8	10.4	13.7	14.0	8.2	…	5.2
Total	165.7	145.5	148.3	169.0	183.7	176.9	…	181.3

Sources: Ministry of Trade and Private Sector.

[1]Evolution of petroleum product consumption may vary from imports because of stock adjustments.

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Table 16. Niger: Indices of Consumer Prices in Niamey, 2005-2008 (September)

	Weights	2005					2006					2007					2008		
		Mar	Jun	Sept.	Dec	Ave	Mar	Jun	Sept	Dec	Ave	Mar	Jun	Sept	Dec	Ave	Mar	Jun	Sept
										(Base 100 = 1996)									
General index	10,000.0	117.9	123.0	129.4	123.7	123.5	121.3	123.6	126.2	122.2	123.6	120.1	123.4	125.4	128	123.6	130.5	136.1	144.8
Food, beverage, tobacco	4,513.0	122.5	133.3	146.1	132.2	133.5	127.2	131.1	135.4	127.7	130.7	123	130.5	132.9	137	129.9	142	152.8	171.8
Clothing and footwear	582.0	108.5	108.7	106.3	106.5	107.5	105.7	106.8	102.6	104.9	104.8	105.7	103	104.5	106.7	104.5	108.3	109	108.8
Housing, water, electricity, gas and fuels	1,389.0	110.5	107.5	110.4	111.0	109.9	110.5	110.1	111.5	113.5	111.2	111.6	109.3	113.6	113.5	111.8	114.6	118.1	119.1
Furniture, households fittings, house upkeep	767.0	103.0	103.9	103.7	103.6	103.5	104.0	104.0	107.4	109.3	106.2	108.4	109	107.9	107.4	108.2	108.7	113.7	113
Health	165.0	92.0	92.3	91.6	91.3	91.8	89.3	89.5	90.1	90.1	89.65	91.8	88.3	87.2	86.4	89.22	85.8	86.2	87.2
Transportation	1,205.0	124.9	130.6	135.9	137.9	132.3	138.3	143.3	146.7	135.8	142.2	134.1	139	142.1	146.2	139.7	145.8	145.8	145.9
Communications	91.0	126.1	126.1	126.1	126.1	126.1	121.8	121.8	121.7	121.7	121.8	117.8	117.8	117.8	117.4	117.8	117.8	117.8	117.8
Leisure, entertainment, and culture	264.0	111.3	109.6	107.4	106.3	108.6	106.3	103.8	103.5	103.5	104.2	102.4	101.5	100.4	100.3	101.4	102.5	99.1	99
Education	109.0	131.9	131.9	132.1	139.5	133.9	139.5	139.5	139.5	149.6	142	149.8	149.8	149.8	153.6	150.8	153.6	153.6	153.6
Hotels, cafés, restaurants	475	132.4	133.1	133.1	132.9	132.9	131.6	131.6	132.2	133.3	132.2	138	138.9	138.9	140.7	138.4	145	145	145
Other goods and services	440	104.7	104.6	104.6	105.9	105.0	104.5	103.7	103.0	103.9	103.7	105.5	104.4	104.2	106.5	105	107	107.1	107.1

Source: Directorate of Statistics and National Accounts, Ministry of Economy and Finance.

Table 17. Niger: Financial Operations of the Central Government, 2000-2007

	2000	2001	2002	2003	2004	2005	2006	2007
	(Billions of CFA francs)							
Total revenue	110.1	132.8	160.9	156.7	173.8	189.0	247.2	309.0
Tax revenue	102.8	125.5	144.6	152.1	167.6	181.3	203.8	233.2
Nontax revenue	3.8	4.1	3.8	1.2	1.4	4.9	38.5	71.2
Annexed budgets/special accounts	3.5	3.2	4.1	3.4	3.9	2.8	4.9	4.6
Total expenditure and net lending	214.3	245.6	278.1	275.4	317.6	358.4	376.6	476.0
Total current expenditure	143.8	157.4	161.8	159.9	172.7	165.3	174.2	239.4
Budgetary expenditure	138.5	147.1	153.7	151.3	155.8	148.7	163.8	199.5
Wages and salaries	51.8	50.4	55.3	57.1	59.2	63.0	68.0	72.2
Goods and services	39.9	44.2	48.7	39.5	50.3	43.6	47.4	61.7
Subsidies and transfers	24.0	28.1	30.3	37.3	38.2	31.9	43.5	58.3
Interest, scheduled	21.6	25.4	22.6	17.4	8.1	10.1	4.9	7.1
External debt	19.6	24.1	21.2	16.1	8.0	8.0	3.7	4.4
Domestic debt	2.0	1.3	1.5	1.3	0.1	2.1	1.2	2.7
Annexed budget/special accounts	6.4	9.3	4.9	8.6	16.9	16.6	10.4	39.8
Capital expenditure and net lending	70.5	88.1	116.3	115.5	144.9	192.9	202.3	236.6
Capital expenditure	73.6	89.0	116.5	115.5	144.0	193.1	202.3	236.6
Domestically financed	8.1	25.1	27.1	28.5	34.0	51.0	51.5	73.7
HIPC resources	0.0	7.9	9.8	12.0	17.0	22.3	15.6	13.8
Externally financed	65.5	63.9	89.4	75.0	93.0	120.0	135.2	149.1
Net lending	-3.1	-0.8	-0.2	0.0	0.9	-0.2	0.0	0.0
Overall balance (commitment basis excl. grants)	-104.2	-112.8	-117.2	-118.7	-143.8	-169.3	-129.4	-167.0
Basic fiscal balance (excl. HIPC-financed investment)	-38.7	-48.9	-27.8	-31.7	-33.8	-27.0	21.4	-4.1
Basic fiscal balance	-38.7	-56.8	-37.6	-43.7	-50.8	-49.3	5.8	-17.9
Change in payments arrears	-112.0	-17.0	-33.4	-12.2	-19.3	-12.4	-14.0	-14.8
Domestic arrears and float (net)	3.6	-17.0	-33.4	-12.2	-19.3	-12.4	-14.0	-8.4
External arrears (net)	-115.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Overall balance (cash, excl. grants)	-216.2	-129.8	-150.6	-131.2	-163.1	-181.7	-143.8	-175.4
Financing	216.2	129.8	150.6	131.2	163.1	181.6	143.8	175.4
External financing	236.3	120.5	139.9	134.5	138.6	180.1	235.0	197.1
Grants	59.3	66.5	74.6	76.0	89.2	102.2	898.6	146.5
Budget financing	22.2	25.7	18.6	25.1	26.5	38.7	18.6	27.5
Project financing	37.1	32.7	45.8	39.4	46.5	45.3	95.7	119.0
HIPC Initiative assistance and MDRI	0.1	8.1	10.3	11.5	16.2	18.2	784.3	0.0
Loans	54.7	53.7	78.0	68.4	64.1	55.0	59.3	53.1
Budget financing	26.3	30.4	44.2	32.8	17.6	14.8	19.8	23.0
Project financing	28.4	23.3	33.8	35.6	46.5	45.3	39.5	30.1
Amortization	-35.4	-41.3	-46.2	-38.6	-22.4	-14.6	-726.0	-6.1
Debt relief obtained (incl. Debt under discussion)	157.7	41.6	33.5	28.7	7.7	3.0	3.1	3.5
Domestic financing	-20.2	9.3	10.7	-3.4	24.5	1.5	-91.2	-21.7
Banking sector	-28.6	5.0	5.1	3.5	28.7	-14.8	-82.8	-31.6
of which: IMF (net)	6.7	6.9	12.9	8.2	0.6	1.7	-61.4	5.8
Non banking sector	0.0	-0.7	8.6	-4.3	-4.2	16.3	-8.4	9.9
Privatization receipts (net)	8.5	5.0	-3.0	-2.5	0.0	0.0	0.0	0.0

Sources: Nigerien authorities; and IMF staff estimates.

Table 18. Niger: Budget Expenditure on Social and Rural Sectors, 2004-07
(Millions of CFA francs)

	2004		2005		2006		2007	
	Outturn	Budget Allocation	Outturn	Budget Allocation	Est. Outturn	Budget Allocation	Est. Outturn [1]	Budget Allocation
EDUCATION								
Total	**53,590**	**81**	**63,071**	**79**	**65,046**	**82**	**70,147**	**73**
Percent of GDP	**3.5**		**3.5**		**3.4**		**3.4**	
Current Expenditure	*37,640*	*84*	*48,910*	***96***	*50,859*	*91*	*55,392*	*89*
Wage	23,440	97	23,790	**98**	25,904	93	38,147	88
Other	14,200	69	25,120	**93**	24,955	89	17,245	91
Investment Expenditure	*15,950*	*76*	*14,161*	***50***	*14,187*	*61*	*14,755*	*43*
Domestic financing	290		2,100	**46**	2,034	60	4,037	41
External financing	13,430	77	9,451	**45**	9,997	57	7,149	36
HIPC Resources	2,230	59	2,610	**83**	2,156	90	3,569	87
HEALTH								
Total	**27,870**	**78**	**31,740**	**84**	**34,184**	**89**	**36,439**	**75**
Percent of GDP	**1.8**		**1.8**		**1.8**		**1.8**	
Current Expenditure	*13,500*	*81*	*18,510*	***100***	*16,708*	*87*	*19,348*	*81*
Wage	4,900	100	5,220	**102**	6,733	120	6,969	103
Other	8,600	73	13,290	**99**	9,975	74	12,379	73
Investment Expenditure	*14,370*	*76*	*13,230*	***69***	*17,476*	*91*	*17,091*	*68*
Domestic financing	870	82	1,370	**54**	1,635	80	1,507	70
External financing	10,540	80	7,340	**61**	11,633	91	11,657	62
HIPC Resources	2,960	65	4,520	**98**	4,208	98	3,927	96
EDUCATION AND HEALTH								
Total	**81,460**	**81**	**84,140**	**72**	**99,230**	**84**	**106,586**	**73**
Percent of GDP	**5.3**		**4.7**		**5.2**		**5.2**	
Current Expenditure	*51,140*	*83*	*56,870*	***81***	*67,567*	*90*	*74,740*	*87*
Wage	28,340	98	29,010	**99**	32,637	97	45,116	90
Other	22,800	70	27,860	**69**	34,930	84	29,624	82
Investment Expenditure	*30,320*	*77*	*27,270*	***57***	*31,663*	*74*	*31,846*	*54*
Domestic financing	1,160	73	3,470	**49**	3,669	68	5,544	46
External financing	23,970	81	16,670	**51**	21,630	71	18,806	48
HIPC Resources	5,190	62	7,130	**92**	6,364	95	7,496	91
RURAL SECTOR								
Total	**66,586**	**70**	**58,682**	**67**	**77,885**	**65**	**73,358**	**68**
Percent of GDP	**4.3**		**3.3**		**4.1**		**3.6**	
Current Expenditure	*7,200*	*80*	*9,340*	***94***	*8,563*	*62*	*9,427*	*78*
Wage	3,240	97	3,250	**89**	3,823	93	3,838	90
Other	3,960	69	6,090	**97**	4,740	48	5,589	72
Investment Expenditure	*59,386*	*69*	*49,342*	***63***	*69,322*	*65*	*63,931*	*66*
Domestic financing	1,270	69	1,150	**80**	1,854	10	9,572	70
External financing	52,776	73	43,342	**64**	58,642	80	45,583	65
HIPC Resources	5,340	47	4,850	**53**	8,826	62	8,776	72

Sources: Nigerien authorities; and IMF staff estimates.
1/ Outturn for externally financed investment provisional.

Table 19. Niger: Contribution of the Uranium and Gold Sectors to Budgetary Receipts, 2000-2007

	2000	2001	2002	2003	2004	2005	2006	2007
Royalties	2,782	2,759	2,883	2,990	4,011	5,111	5,528	8,361
COMINAK	1,840	1,806	1,883	1,864	2,283	2,225	2,551	3,081
SOMAIR	942	953	1,000	1,126	1,490	1,642	2,142	3,827
SML	...	...	...	...	238	1,244	835	1,453
Export duty	633	621	646	669	...	...	...	...
COMINAK	420	407	422	419	...	...	...	...
SOMAIR	213	214	224	250	...	...	...	...
SML								
Tax on general revenue	1,218	1,204	1,238	1,201	1,153	1,301	1,581	1,791
COMINAK	746	715	730	746	667	709	813	870
SOMAIR	472	489	508	455	486	554	620	773
SML	...	...	...	...	...	38	148	148
Tax on wages	...	...	...	...	...	...	...	...
COMINAK	...	...	...	...	...	...	...	...
SOMAIR	...	...	...	...	...	...	...	...
SML								
	...	...	...	...	...	...	...	...
Tax on corporate profits	...	...	...	...	...	...	833	2,322
COMINAK	...	...	...	...	...	...	...	...
SOMAIR	...	...	...	...	...	...	833	2,322
SML	...	...	...	...	...	...	...	...
	...	...	...	...				
Dividends	...	...	...	386	295	594	659	823
COMINAK	...	...	...	549	295	265	...	...
SOMAIR	...	...	...	137	...	329	659	823
SML								
Tax on distributed dividends	...	...	...	130	139	195	200	250
COMINAK				89	106	95	...	...
SOMAIR	...	...	...	41	33	100	200	250
SML								
Other	799	869	624	1,157	1,310	1,449	1,768	1,978
COMINAK	617	560	462	492	665	863	1,053	1,329
SOMAIR	182	219	162	665	645	289	418	352
SML	...	...	...	...		297	297	297
Total contribution	5,431	5,453	5,391	6,533	7,106	8,913	10,880	82,116
COMINAK	3,623	3,488	3,497	4,159	4,016	4,234	...	...
SOMAIR	1,809	1,875	1,894	2,674	2,654	3,100	...	...
SML	...	...	...	...	238	1,204	...	...
Memorandum items:								
Total production (metric tons)	2,898	2,960	3,072	3,143	3,273	3,093	3,434	3,153
Price (CFA francs per kilogram)	21,700	21,300	21,100	21,000	21,000	23,100	25,200	40,000
Gold Production	...	...	...	...	1,590	4,962	2,572	2,625
Average price of gold	...	...	...	...	5,756	6,370	7,584	6,670
Contribution/total budgetary revenue	4	4	4	4	...	...	...	...
COMINAK/total contribution	63	64	65	64	56	46	41	13
SOMAIR/total contribution	37	36	35	36	37	33	45	22
SML/total contribution	...	...	...	...	4	18	12	2

Sources: Compagnie Minière d'Akouta (COMINAK); and Société Minière de l'Aïr (SOMAIR).

Table 20. Niger: Monetary Survey, 2000-2007
(In billions of CFA francs)

	2000	2001	2002	2003	2004	2005	2006	2007
Net foreign assets	-1.3	33.1	24.4	75.8	67.9	79.2	162.6	231.7
BCEAO	2.5	19.7	10.2	68.1	49.0	67.1	168.4	240.7
Commercial banks	-3.7	13.4	14.2	7.7	18.9	12.0	-5.8	-9.0
Net domestic assets	104.4	103.9	112.0	118.2	165.4	169.6	126.5	124.0
Domestic credit	111.6	114.0	128.9	139.7	186.4	191.8	151.7	141.6
Net bank claims on the government	43.0	48.0	53.1	56.6	85.3	70.5	-7.9	-50.4
BCEAO	41.8	47.6	54.5	56.2	85.6	75.1	0.6	-31.2
of which: statutory advances	25.8	32.2	33.1	33.1	33.1	32.1	32.5	33.7
IMF resources	45.8	53.0	66.2	74.4	73.5	75.2	13.6	19.6
Commercial banks	-0.3	-1.3	-3.1	-2.0	-3.5	-7.1	-10.4	-20.6
Other	1.6	1.6	1.7	2.4	3.2	2.5	1.8	4.4
Credit to the economy	68.6	66.0	75.8	83.0	101.1	121.3	159.6	191.9
Other items, net	-7.2	-10.1	-16.9	-21.5	-21.0	-22.2	-25.2	-17.6
of which: revaluation account	-8.0	0.0	-8.0	0.0	0.0	0.0	0.0	0.0
Money and quasi money	103.2	137.0	136.4	194.0	233.3	248.6	289.1	358.7
Currency outside banks	32.2	49.8	39.3	84.9	97.7	108.1	132.9	132.8
Private deposits with ONPE	1.6	1.6	1.7	2.4	3.2	2.5	1.8	4.4
Deposits with banks	69.5	85.5	95.4	106.6	132.5	137.9	154.4	221.5
Private sector	65.1	82.2	92.6	104.0	129.5	134.8	144.7	208.4
Public institutions	4.3	3.4	2.8	2.6	3.0	3.1	0.0	0.0
	(Percentage change, in relation to beginning-of-period money stock)							
Net foreign assets	14.4	33.3	-6.3	37.7	-4.1	4.8	23.6	23.9
BCEAO	21.5	16.7	-6.9	42.4	-9.8	7.8	40.7	25.0
Commercial banks	-7.2	16.6	0.6	-4.7	5.8	-3.0	-7.1	-1.1
Net domestic assets	-5.5	-0.5	5.9	4.5	24.3	1.7	-17.3	-0.9
Domestic credit	-8.1	2.3	10.9	7.9	24.1	2.3	-16.1	-3.5
Net bank claims on the government	-30.1	4.9	3.7	2.6	14.8	-6.3	-31.6	-14.7
BCEAO	-24.9	5.7	5.0	1.3	15.2	-4.5	-30.0	-11.0
of which: statutory advances	-4.9	6.2	0.7	0.0	0.0	-0.4	1.3	-0.5
Commercial banks	-3.8	-0.9	-1.3	0.8	-0.8	-1.5	-1.3	2.0
Other	-1.4	0.1	0.1	0.5	0.4	-0.3	-0.6	-3.5
Credit to the economy	22.1	-2.5	7.1	5.3	9.3	8.7	15.4	11.2
Other items, net	2.6	-2.8	-4.9	-3.4	0.3	-0.6	-1.2	2.6
Money and quasi money	8.9	32.8	-0.4	42.2	20.3	6.5	16.2	23.0
Memorandum items:								
Credit to the economy (annual change)	43.8	-3.8	14.8	9.5	21.7	20.0	31.7	20.2
Velocity of circulation	12.6	10.4	11.1	8.1	6.7	7.2	6.6	5.7

Sources: Central Bank of West African States (BCEAO); and staff estimates.

Table 21. Niger: Net Foreign Assets, 2000-07
(In billions of CFA francs)

	2000	2001	2002	2003	2004	2005	2006	2007
Central Bank								
Foreign assets	57.7	80.8	84.5	142.4	120.8	138.5	183.56	262.47
of which: operations account	46.1	63.2	76.1	133.8	113.2	131.5	174.15	253.67
Foreign liabilities	55.2	69.9	83.0	74.3	71.8	71.4	22.25	28.37
Use of Fund resources	54.1	68.9	81.0	72.1	69.5	68.6	20.26	24.5
Other	1.2	1.0	2.0	2.2	2.3	2.8	1.99	3.87
Net foreign assets	2.5	19.7	10.2	68.1	49.0	67.1	161.31	234.1
Commercial Banks								
Foreign assets	26.4	40.0	30.3	34.0	39.0	48.0	44.45	60.08
Foreign liabilities	30.2	26.6	16.4	26.4	20.1	35.9	50.27	69.02
Net foreign assets	-3.7	13.4	13.9	7.7	18.9	12.0	-5.82	-8.94
Banking System								
Foreign assets	84.1	120.8	114.8	176.4	159.8	186.5	228.01	322.55
Foreign liabilities	85.4	96.5	99.3	100.7	91.9	107.3	72.52	97.39
Net foreign assets	-1.3	24.3	15.4	75.7	67.9	79.2	155.49	225.16

Sources: Central Bank of West African States (BCEAO); and Nigerien authorities.

Table 22. Niger: Banking System Claims on the Government, 2000-07
(In billions of CFA francs)

	2000	2001	2002	2003	2004	2005	2006	2007
Central bank	41.8	47.6	54.5	56.0	85.6	75.3	0.6	-30.3
Claims	72.2	85.6	99.7	109.2	107.6	107.8	49	53.3
Statutory advances	25.8	32.2	33.1	33.1	33.1	32.1	35.2	33.7
IMF on-lending	45.8	53.0	66.2	74.4	73.5	75.2	0	0
Consolidated advances	0.6	0.5	0.4	1.7	1.1	0.5	13.8	19.6
Liabilities	30.4	38.0	45.2	53.3	22.0	32.5	0	0
Post office deposits	0.0	0.0	0.0	0.0	0.0	0.0	48.4	83.6
Treasury deposits	0.0	0.0	0.0	0.0	0.8	1.7	0	0
Other government deposits	30.0	37.6	44.8	52.1	20.5	30.4	5.1	4.1
Treasury currency holdings	0.4	0.4	0.4	1.1	0.7	0.4	42.8	78.8
							0.6	0.7
Commercial banks	-0.3	-1.3	-3.1	-2.0	-3.5	-7.1	-10.3	-20.6
Claims	11.4	10.7	10.4	10.9	10.3	12.1	17.3	16.4
Postal checking system	0.4	0.2	0.5	0.5	1.0	0.6	0.3	0.1
Government paper	5.3	5.7	4.7	4.7	2.2	4.1	8.8	7.7
Other	5.7	4.9	5.3	5.6	7.1	7.4	8.2	8.6
Liabilities	11.6	12.0	13.6	12.8	13.8	19.2	27.6	37
Demand deposits	10.0	11.3	9.9	9.0	9.7	16.8	24.1	30.8
Time deposits	1.6	0.7	3.6	3.8	4.1	2.3	3.5	6.1
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0
Private deposits with	1.55	1.6	1.7	2.4	3.2	2.5	1.8	1.4
Postal checking system	1.6	1.6	1.7	2.4	3.2	2.5	1.8	1.4
Customs duty bills	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net banking system claims on the government	43.1	48.0	53.1	56.4	85.3	70.5	-7.9	-49.5

Sources: Central Bank of West African States (BCEAO); and Nigerien authorities.

Table 23. Niger: Summary Accounts of the Central Bank, 2000-07
(In billions of CFA francs)

	2000	2001	2002	2003	2004	2005	2006	2007
Net foreign assets	2.5	19.7	10.2	68.1	49.0	67.1	168.4	240.7
Assets	57.7	80.8	84.5	150.2	120.8	138.5	183.6	262.5
Liabilities	55.2	61.1	74.3	82.1	71.8	71.4	15.2	21.7
Net claims on the government	41.8	47.6	54.5	56.2	85.6	75.1	0.6	-30.3
Claims	72.2	85.6	99.7	109.2	107.6	107.8	49.0	53.3
Liabilities	30.4	38.0	45.2	53.3	22.0	32.5	48.4	83.6
Net claims on banks	-11.0	-15.4	-22.3	-29.5	-30.8	-28.8	-29.1	-71.8
Claims	1.2	1.2	1.2	1.2	1.2	1.1	1.1	0.2
Advances, money market	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other advances	0.0	0.0	0.0	1.2	1.2	1.1	1.1	0.2
Liabilities	12.2	16.6	23.5	30.7	32.0	29.9	0.0	0.0
Deposits, money market	0.0	0.0	0.0	0.0	0.0	0.0	30.2	72.1
Other deposits	10.0	12.3	18.6	23.2	23.8	21.3	0.0	0.0
Currency held by banks	2.3	4.4	4.9	7.6	8.3	8.5	21.8	58.6
Net claims on other financial institutions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Currency outside banks	32.2	49.8	39.3	84.9	97.7	108.1	132.9	133.7
SDR counterpart	9.0	8.8	8.7	7.7	7.5	7.2	7.1	6.6
Other items, net	-8.2	-7.1	-6.0	1.6	-1.5	-2.0	-0.5	-1.9

Sources: Central Bank of West African States (BCEAO); and Nigerien authorities.

Table 24. Niger: Summary Accounts of the Commercial Banks, 2000-07
(In billions of CFA francs)

	2000	2001	2002	2003	2004	2005	2006	2007
Net foreign assets	-3.8	13.4	14.2	8.0	21.5	17.7	7.2	19.8
Assets	26.4	40.0	30.3	34.0	39.0	48.0	44.5	60.1
Liabilities, short term	30.2	26.6	16.1	26.0	17.4	30.3	37.3	40.2
Net money market	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deposits	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advances	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other reserves	10.5	15.2	22.1	30.1	31.1	28.3	29.1	77.9
Currency holdings	2.3	4.4	4.9	7.6	8.3	8.5	8.4	13.4
Deposits at central bank	8.3	10.9	17.1	22.5	22.8	19.8	20.7	64.5
Net bank claims on the government	-0.3	-1.3	-3.1	-2.0	-3.5	-7.1	-10.3	-20.6
Claims	11.3	10.7	10.4	10.9	10.3	12.1	17.3	16.4
Deposits	11.6	12.0	13.5	12.9	13.8	19.2	27.6	37.0
Credit to the private sector	68.6	66.0	75.8	83.0	101.1	121.3	159.6	191.9
Short term	56.2	54.0	62.7	64.1	71.0	83.0	109.9	113.5
Medium- and long term	12.5	12.1	13.1	18.9	30.1	38.3	49.8	78.4
Performing credit	11.0	10.4	12.3	14.5	28.6	35.6	44.9	68.5
Nonperforming credit	1.5	1.7	0.8	4.4	1.5	2.7	4.9	9.9
Deposits	69.2	85.2	95.0	106.2	132.4	137.8	153.9	221.4
Demand	42.2	52.4	54.5	61.8	82.0	81.6	93.9	135.1
of which: public enterprises	2.3	2.0	1.7	1.4	2.6	3.1	4.6	8.7
Time	27.0	32.7	40.5	44.4	50.3	56.2	60	86.3
of which: public enterprises	2.0	1.3	1.1	1.2	2.7	3.4	5	4.5
Central bank rediscounts	1.2	1.2	1.2	1.2	1.2	1.1	1.1	0.2
Long-term foreign liabilities	0.0	0.0	0.3	0.3	2.6	5.6	13.0	28.8
Other items, net	4.7	7.0	12.4	11.5	14.0	15.6	17.6	18.8

Sources: Central Bank of West African States (BCEAO); and Nigerien authorities.

Table 25. Niger: Distribution of Credit to the Public and Private Sectors, 2000-2007 [1, 2]
(In billions of CFA francs)

	2000	2001	2002	2003	2004	2005	2006	2007
Short term								
Agriculture	1,105	1,040	410	516	632	928	1,228	934
Mining	1,476	626	1,178	1,212	2,833	2,155	6,758	4,777
Industry	7,698	8,196	9,468	4,703	7,812	9,675	13,191	17,579
Construction	5,214	5,944	5,963	6,838	8,018	10,597	13,888	15,090
Transport	3,391	2,589	2,456	3,845	45,235	53,711	63,266	61,632
Commerce	41,720	40,099	34,136	40,743	5,080	11,474	15,659	19,173
Other	11,770	15,920	17,370	19,713	12,000	11,632	13,953	22,214
Total	72,374	74,414	70,981	77,570	81,610	100,172	127,943	141,399
of which: public and semi public enterprises	21,497	16,985	15,741	13,490	16,792	17,184	21,039	35,325
Medium term								
Agriculture	0	38	35	47	29	162	474	280
Mining	0	0	0	0	182	3,312	2,023	11,058
Industry	772	613	431	493	2,273	2,787	2,511	1,042
Construction	309	377	574	410	670	554	450	740
Transport	1,099	804	998	1,012	6,257	7,483	8,841	9,224
Commerce	2,303	2,342	1,808	2,131	6,614	7,672	7,197	4,783
Other	2,940	4,266	6,670	5,345	7,690	10,002	10,094	16,574
Total	7,423	8,440	10,516	9,438	23,715	31,981	31,590	43,701
of which: public and semipublic enterprises	910	1,575	1,288	1,010	1,688	5,214	4,736	5,704
Long term								
Agriculture	0	0	0	0	0	0	0	0
Mining	0	0	0	0	0	0	0	0
Industry	7	0	0	0	0	0	0	0
Construction	0	36	0	0	0	0	0	1,397
Transport	14	45	17	0	0	0	368	2,778
Commerce	33	0	14	24	31	111	1,526	0
Other	1,947	1,879	1,658	1,128	1,205	814	2,528	3,368
Total	2,001	1,960	1,689	1,152	1,236	2,635	4,422	7,543
of which: public and semi public enterprises	577	554	554	554	554	1,368	2,080	554
Total	81,798	84,814	83,186	88,160	106,561	134,788	163,955	192,643
of which: public and semi public enterprises	22,984	19,114	17,583	15,054	19,034	23,766	27,855	41,583

Sources: Central Bank of West African States (BCEAO); and Nigerien authorities.

[1]Excluding central government.

[2]As declared to the *Centrale des Risques du Niger*; totals may differ from those in Table 28.

Table 26. Niger: Rediscount Rates Applied by the Central Bank, 1989-2008 [1]
(Percent per year)

	Discount Rate [2]	Treasury Advance Special Rate [3]
October 2, 1989	10.50	9.60
November 27, 1989	11.00	9.60
August 20, 1992	13.00	9.70
November 9, 1992	12.50	8.90
December 20, 1993	10.50	9.70
January 18, 1994	14.50	7.70
June 27, 1994	12.00	7.70
August 1, 1994	11.00	5.20
August 29, 1994	10.00	5.20
January 23, 1995	9.00	5.20
June 5, 1995	8.50	4.50
December 26, 1996	7.50	6.50
August 19, 1996	7.00	4.50
October 21, 1996	6.50	4.50
February 17, 1997	6.25	4.51
September 8, 1997	6.00	5.20
August 31, 1998	6.25	4.95
January 4, 1999	5.75	4.95
December 31, 1999	5.75	4.95
June 19, 2000	6.50	5.20
July 7, 2003	5.50	4.95
October 20, 2003	5.00	4.50
December 31, 2003	5.00	4.50
March 22, 2004	4.50	…
August 24, 2006	4.75	…
August 16, 2008	6.75	…

Source: Central Bank of West African States (BCEAO).
[1]Rates applied to short-term credit of 1 year or less and to medium-term credit of up to 10 years, and 15 years since October 1, 1989. The BCEAO also rediscounts long-term credit that, at the time of rediscounting, has no more than 10 years to maturity.
[2]The unified discount rate is applicable to all advances except those to the treasury.
[3]Since the abolition of statutory advances by the BCEAO to member states in January 2003, this rate is no longer applicable.

Table 27. Niger: Interest Rates on the Money Market, 2000-08
(In percent)

	2000	2001	2002	2003	2004	2005	2006	2007	2008
January	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	3.50
February	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.37	2.99
March	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.37	3.32
April	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.00	4.12
May	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.00	4.07
June	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.00	3.69
July	4.95	4.95	4.95	4.95	4.95	4.95	4.95	3.98	4.09
August	4.95	4.95	4.95	4.95	4.95	4.95	4.95	3.73	4.95
September	4.95	4.95	4.95	4.95	4.95	4.95	4.95	3.54	...
October	4.95	4.95	4.95	4.95	4.95	4.95	4.95	3.43	...
November	4.95	4.95	4.95	4.95	4.95	4.95	4.95	3.71	...
December	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.08	...

Source: Central Bank of West African States (BCEAO).

Table 28. Niger Balance of Payments, 2000-07

	2000	2001	2002	2003	2004	2005	2006	2007
	(Billions of CFA francs, unless otherwise indicated)							
Current account balance	-79.1	-67.9	-98.9	-126.7	-119.6	-147.1	-156.2	-181.1
Balance on goods	-33.9	-43.3	-63.8	-79.0	-78.4	-136.8	-117.8	-107.0
Exports, f.o.b	201.2	199.7	194.8	204.9	224.5	258.0	273.5	341.0
Uranium	64.0	63.0	62.5	65.5	70.1	78.5	79.6	143.1
Cattle	37.0	40.3	38.9	33.3	26.8	31.8	35.5	36.7
Gold	0.0	0.0	0.0	0.0	10.3	34.5	24.3	25.5
Other exports	100.2	96.4	93.5	106.1	117.2	113.2	134.1	135.7
of which: reexports	26.1	36.7	24.0	24.2	21.4	31.5	31.4	34.9
Imports, f.o.b	235.1	243.1	258.7	283.9	302.9	394.8	391.3	448.0
of which: Food products	64.1	76.9	83.0	79.7	73.4	98.5	87.8	73.8
Petroleum products	47.3	25.8	28.4	20.2	33.8	55.7	43.7	63.3
Services and income (net)	-78.9	-77.3	-87.7	-90.3	-96.0	-106.2	-123.8	-160.7
Services (net)	-67.2	-66.3	-70.9	-75.1	-89.2	-101.2	-124.4	-144.1
Income (net)	-11.8	-11.0	-16.8	-15.2	-6.8	-5.0	0.6	-16.6
of which: interest on external public debt	-19.6	-24.1	-21.2	-16.1	-8.0	-8.0	-3.7	-4.4
Unrequited current transfers (net)	33.7	52.7	52.5	42.6	54.8	95.8	85.4	86.6
Private (net)	2.7	10.5	8.6	9.7	16.2	43.5	41.6	42.8
Public (net)	31.0	42.2	43.9	32.9	38.6	52.4	43.9	43.8
of which: grants for budgetary assistance	22.2	25.7	18.6	42.1	26.5	38.7	18.6	27.5
Capital and financial account	65.4	52.8	78.1	85.2	170.6	266.8	253.6	253.6
Capital account	38.4	34.2	53.8	53.7	52.3	81.0	887.7	153.6
Private capital transfers	1.3	1.5	8.0	2.8	5.7	3.9	3.0	7.2
Project grants	37.1	32.7	45.8	39.4	46.5	77.1	75.5	119.0
Financial account	27.0	18.6	23.8	24.4	32.9	89.6	-620.9	100.1
Direct investment	6.4	19.4	2.9	6.7	7.0	18.3	26.9	61.0
Portfolio investment	6.5	2.7	1.0	-1.5	1.4	22.0	-2.0	4.9
Other investment	14.1	-3.5	19.9	19.2	24.5	49.3	-645.8	34.2
Public sector (net)	19.3	12.4	31.8	29.8	41.7	46.0	-665.8	47.1
Disbursements	54.7	53.7	78.0	68.4	64.1	57.6	59.3	53.1
Loans for budgetary assistance	26.3	30.4	44.2	32.8	17.6	14.8	19.8	23.0
Project loans	28.4	23.3	33.8	35.6	46.5	42.8	39.5	30.1
Amortization	35.4	41.3	46.2	38.6	22.4	11.6	725.1	6.1
Other (net)	-5.2	-16.0	-11.9	-10.6	-17.2	3.3	20.0	-12.9
Errors and omissions	-16.6	-9.2	-21.6	69.2	7.6	-8.3	-9.4	-3.6
Overall balance	-30.2	-24.3	-42.4	20.7	-26.8	15.2	101.2	72.6
Financing	21.7	24.3	43.0	-29.5	26.8	-15.2	-98.2	-69.0
Net foreign assets (Central Bank of West African States)	-20.4	-17.3	9.5	-56.4	-56.4	-56.4	-56.4	5.7
Rescheduling obtained	157.7	41.6	33.5	28.4	7.7	3.0	3.0	3.4
Change in arrears	-115.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Financing gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Sources: Nigerien authorities; and IMF staff estimates and projections.

Table 29. Niger: Composition of Exports, 2000-07

	2000	2001	2002	2003	2004	2005	2006	2007
	(Value in billions of CFA francs; volumes in tons, and prices in CFA francs per kilogram, unless otherwise indicated)							
Total Exports	201.2	199.7	194.8	204.9	224.5	258.0	273.5	341.0
Uranium								
Value	64.0	63.0	62.5	65.5	70.1	78.5	79.6	143.1
Volume	2,949.6	2,960.0	2,960.0	3,120.0	3,340.0	3,400.0	3,160.0	3,415.0
Price (in 000's of CFA francs per kilo.)	21.7	21.3	21.1	21.0	21.0	23.1	25.2	41.9
Cattle								
Value	37.0	40.3	38.9	33.3	26.8	31.8	35.5	36.7
Volume	74,699.0	70,058.0	62,667.0	39,231.0	35,817.0	42,391.0	53,798.0	51,976.3
Price	495.5	575.0	620.0	848.0	748.3	750.1	660.0	706.2
Cowpeas								
Value	13.4	6.9	7.6	10.8	14.0	13.5	18.5	19.2
Volume	56,640.0	24,000.0	26,400.0	43,583.0	40,761.0	28,477.0	52,749.0	57,237.8
Price	237.0	288.0	287.0	248.0	344.4	473.1	350.0	336.0
Onions								
Value	11.8	10.8	13.8	15.5	35.7	38.4	37.7	41.3
Volume	57,121.0	38,748.0	49,181.0	45,707.0	93,261.0	83,205.0	75,415.0	86,979.2
Price	207.0	279.0	279.7	339.0	383.0	461.5	500.0	475.0
Other Exports								
Value	74.9	78.7	72.2	79.8	77.8	95.8	102.2	100.7
of which: Gold					10.3	34.5	24.3	25.5

Sources: Central Bank of West African States (BCEAO); and IMF staff estimates.

Tableau 30. Niger: Composition of Imports, 2000-07

	2000	2001	2002	2003	2004	2005	2006	2007
	(Values in billions of CFA francs, volumes in tons)							
Total imports, c.i.f	286.1	302.3	322.2	342.0	373.9	496.9	496.3	564.5
Petroleum products								
Value	54.8	31.1	34.3	24.3	41.7	70.0	55.4	79.8
Volume (Thousands Metric Tons)	266.5	170.3	192.8	182.5	197.5	210.0	147.7	215.6
Price (CFAF per kg)	205.6	182.8	177.7	133.3	211.0	333.6	375.3	370.0
Food products	74.3	92.7	100.2	96.1	90.6	124.0	111.3	93.0
Consumption goods	88.2	104.5	92.1	121.0	115.8	140.0	132.9	158.0
Intermediate & capital goods	68.8	73.9	95.7	100.6	125.7	162.9	196.6	233.7
	(In percent of total imports)							
Petroleum products	19.2	10.3	10.6	7.1	11.1	14.1	11.2	14.1
Cereals products	26.0	30.7	31.1	28.1	24.2	24.9	22.4	16.5
Consumption goods	30.8	34.6	28.6	35.4	31.0	28.2	26.8	28.0
Intermediate & Capital goods	24.0	24.5	29.7	29.4	33.6	32.8	39.6	41.4

Sources: Central Bank of West African States (BCEAO); and IMF staff estimates.

Table 31. Niger: Direction of Trade, 2000-07

	2000	2001	2002	2003	2004	2005	2006	2007
				(Percent of total exports)				
Industrial countries	50.9	54.3	60.1	62.0	74.0	109.0	95.4	162.8
Of which: France	30.6	34.5	41.3	40.6	44.3	51.8	45.9	91.2
Japan	13.9	15.6	14.8	16.5	16.5	19.8	17.5	29.2
United States	2.5	0.3	0.0	0.2	0.3	0.4	0.3	10.0
Developing countries	49.1	45.7	39.9	44.5	43.4	42.1	36.7	25.2
Of which: Côte d'Ivoire	2.8	2.7	0.9	2.8	4.2	3.2	2.6	0.9
Nigeria	39.8	37.8	33.2	31.6	26.3	21.7	22.1	17.7
				(Percent of total imports)				
Industrial countries	44.1	40.9	39.6	39.8	42.3	34.0	41.4	52.9
Of which: France	19.6	19.1	16.8	16.4	15.9	16.8	16.3	20.6
Japan	5.9	4.8	4.6	4.9	4.9	3.1	3.9	5.2
United States	5.0	5.8	5.2	5.5	9.9	3.8	7.1	8.3
Developing countries	55.9	59.1	60.4	60.2	57.7	66.0	58.6	47.1
Of which: Côte d'Ivoire	14.2	14.6	14.9	13.8	9.7	9.3	6.3	7.7
Nigeria	10.1	10.3	7.4	7.8	7.4	5.9	6.6	5.2
				(Percent of total trade)				
Industrial countries	46.9	45.4	45.4	45.1	48.1	45.9	49.4	64.1
Of which: France	24.1	24.2	23.8	22.6	22.0	22.3	21.0	29.8
Japan	9.2	8.4	7.5	7.9	7.5	6.2	6.3	8.6
United States	4.0	4.0	3.7	4.0	7.2	2.7	5.4	7.3
Developing countries	53.1	54.6	54.6	54.9	51.9	54.1	50.6	35.9
Of which: Côte d'Ivoire	9.5	10.6	11.0	10.6	8.0	7.1	5.2	5.3
Nigeria	22.3	19.5	14.7	14.1	11.6	8.5	9.2	6.6

Sources: IMF, Direction of Trade Statistics Yearbook, and IMF staff estimates.

[1]Regional data do not add up to world totals.

Table 32. Niger: Medium- and Long-Term External Public Debt by Creditor, 2000-07[1]

	2000	2001	2002	2003	2004	2005	2006	2007
	(Billions of CFA francs; unless otherwise indicated; end of period)							
Supplier's credits	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Financial institutions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United States	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Multilateral loans	638.8	710.3	738.2	709.8	730.9	839.3	185.7	226.7
African Development Bank (AFDB)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
African Development Fund (AFDF)	90.0	105.3	98.1	96.7	116.9	136.5	19.1	28.9
ABEDA[2]	0.9	19.8	19.5	15.5	13.4	18.5	22.3	17.7
Conseil de L'Entente	0.9	1.0	2.4	0.0	0.0	0.0	0.0	0.0
ECOWAS Fund[3]	0.6	0.6	0.9	0.0	0.0	0.1	0.0	0.8
WAEMU	0.0	0.0	8.2	8.2	8.2	7.6	20.9	6.3
European Union	4.0	4.0	25.7	3.0	0.0	2.8	0.0	0.0
European Investment Bank	19.4	19.4	…	12.3	10.9	10.4	8.2	0.0
International Fund for Agricultural Dev.	…	…	…	21.1	19.2	22.2	13.8	11.3
IDA	490.0	522.0	545.4	518.9	516.2	575.9	35.8	90.3
Islamic Development Bank	27.7	26.8	27.1	23.7	21.3	23.0	0.0	21.9
OPEC Fund for International Development	…	1.2	2.6	3.4	12.0	22.2	27.9	27.7
West African Development Bank	5.3	10.2	8.1	6.4	11.9	18.9	20.4	21.5
Other	…	…	…	0.7	0.8	1.2	17.3	0.4
Bilateral loans	312.5	266.5	275.0	82.9	34.3	108.4	87.3	76.1
Algeria	11.9	12.4	14.3	7.3	4.6	9.7	3.2	2.3
China	9.5	7.0	1.7	1.4	2.1	1.6	5.6	0.0
EXIM Bank of ROC (Taiwan)	0.0	0.0	0.0	0.0	0.0	0.0	29.8	26.9
France	115.5	93.3	89.6	61.4	0.0	0.0	0.0	0.0
Iraq	1.5	1.4	1.2	1.1	0.0	1.1	0.0	0.0
Japan	18.2	17.6	14.4	0.0	0.0	0.0	0.0	0.0
Kuwait	37.8	42.4	26.3	0.0	20.6	24.0	21.7	19.2
Libya	17.8	17.9	18.2	11.7	6.9	12.5	0.0	0.0
Libyan Arab Foreign Bank	0.0	0.0	0.0	0.0	0.0	0.0	5.8	4.8
Saudi Arabia	26.0	8.5	26.3	0.0	0.0	26.1	21.3	22.8
Spain	12.5	12.4	11.4	0.0	0.0	0.0	0.0	0.0
United Arab Emirates			3.1	0.0	0.0	0.0	0.0	0.0
United Kingdom	11.8	10.4	8.7	0.0	0.0	0.0	0.0	0.0
United States	7.7	7.8	6.7	0.0	0.0	0.0	0.0	0.0
Taiwan Province of China	42.3	35.4	53.2	0.0	0.0	33.5	0.0	0.0
Use of Fund resources	38.0	53.0	89.8	73.6	73.5	9.3	20.4	19.6
Total disbursed debt outstanding	989.3	1,029.8	1,103.0	866.3	888.0	957.0	273.0	302.8

Sources: Nigerien authorities; and IMF staff estimates.

[1]Disbursed and outstanding; data may not add up due to rounding.

[2]Arab Bank for Economic Development in Africa.

[3]Economic Community of West African States.

Table 33 Niger: Medium- and Long-Term External Public Debt by Creditor, 2000-07[1]

	2000	2001	2002	2003	2004	2005	2006	2007
	(Millions of U.S. dollars; end of period)							
Supplier's credits	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Financial institutions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United States	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Multilateral loans	876.5	964.7	1,147.4	1,330.0	1,493.8	1,516.9	374.0	503.9
African Development Bank (AFDB)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
African Development Fund (AFDF)	123.5	143.0	152.5	181.1	239.0	246.8	38.5	64.3
ABEDA[2]	1.2	26.9	30.3	29.0	27.4	33.4	44.9	39.2
Conseil de L'Entente	1.2	1.4	3.8	0.0	0.0	0.0	0.0	0.0
ECOWAS Fund[3]	0.8	0.8	1.5	0.1	0.0	0.2	0.0	1.8
WAEMU	0.0	0.0	12.7	15.3	16.7	13.7	42.1	14.0
European Union	5.5	5.4	40.0	5.6	0.0	5.0	0.0	0.0
European Investment Bank	26.6	26.3	…	23.1	22.3	18.7	16.5	0.0
International Fund for Agricultural Dev.	…	…	…	39.5	39.2	40.0	27.8	25.1
IDA	672.4	708.9	847.8	972.2	1,055.2	1,041.0	72.1	200.8
Islamic Development Bank	38.0	36.4	42.1	44.3	43.6	41.6	0.0	48.6
OPEC Fund for International Development	…	1.6	4.1	6.3	24.5	40.1	56.2	61.5
West African Development Bank	7.3	13.9	12.6	12.0	24.3	34.3	41.1	47.7
Other	…	…	…	1.4	1.7	2.1	34.8	0.9
Bilateral loans	428.8	361.9	427.4	155.4	70.0	195.9	175.9	169.0
Algeria	16.3	16.8	22.3	13.7	9.5	17.6	6.4	5.2
China	13.0	9.5	2.6	2.6	4.3	2.8	11.3	0.0
EXIM Bank of ROC (Taiwan)	0.0	0.0	0.0	0.0	0.0	0.0	60.1	59.8
France	158.5	126.7	139.2	115.1	0.0	0.0	0.0	0.0
Iraq	2.1	1.9	1.8	2.0	0.0	1.9	0.0	0.0
Japan	25.0	23.9	22.4	0.0	0.0	0.0	0.0	0.0
Kuwait	51.9	57.6	40.8	0.0	42.2	43.4	43.6	42.6
Libya	24.4	24.3	28.3	22.0	14.1	22.5	0.0	0.0
Libyan Arab Foreign Bank	0.0	0.0	0.0	0.0	0.0	0.0	11.7	10.6
Saudi Arabia	35.7	11.5	40.8	0.0	0.0	47.1	42.8	50.6
Spain	17.2	16.8	17.8	0.0	0.0	0.0	0.0	0.0
United Arab Emirates	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.0
United Kingdom	16.2	14.1	13.5	0.0	0.0	0.0	0.0	0.0
United States	10.6	10.6	10.4	0.0	0.0	0.0	0.0	0.0
Taiwan Province of China	58.0	48.1	82.6	0.0	0.0	60.6	0.0	0.0
Use of Fund resources	52.1	72.0	139.6	137.9	150.2	16.8	41.1	43.5
Total disbursed debt outstanding	1,357.5	1,398.6	1,714.4	1,623.3	1,815.1	1,729.7	591.1	716.4

Sources: Nigerien authorities; and IMF staff estimates.

[1]Disbursed and outstanding; data may not add up due to rounding.

[2]Arab Bank for Economic Development in Africa.

[3]Economic Community of West African States.

NIGER: SUMMARY OF THE TAX SYSTEM, AUGUST 22, 2008

Tax	Nature and Scope of Tax	Exemptions and Deductions	Rates
1. Taxes on income and profits			
1.1. Profit tax (Impôt sur les bénéfices– ISB)			
- commercial activities	Levied on the net income of incorporated and unincorporated enterprises engaging in commercial, industrial, agricultural, or artisanal business in Niger. The ISB is also applicable to cooperatives and unions operating a store, vendors of lots for development, real estate companies, and commercial public institutions. Companies are required to pay the ISB. Individuals are liable for the ISB only if their turnover exceeds [CFAF] 30 million in sales/resales or if they provide more than [CFAF] 15 million worth of services.	Exempt: cooperatives and their unions not operating retail outlets, mutual aid companies, credit unions, and other agricultural bodies, and cultural centers. Five-year exemption for enterprises that have adopted the Investment Code.	Single rate: 35 percent (Firms: 35 percent Sole proprietorships: 35 percent Mining companies: 35 percent)
- noncommercial activities	Levied on net income from noncommercial professions. Affects primarily the liberal professions and the use of office space.	No exemption.	35 percent In cases of partnership operations, the tax is payable by the partners.
- minimum lump-sum tax (Impôt minimum forfaitaire -- IMF)	Levied on enterprises liable for the ISB.	Two-year exemption for new enterprises.	1 percent on annual turnover, after VAT.
- provisional ISB deposits (Acompte provisionnel ISB)	Levied on industrial and noncommercial profits.	Companies under the conventional regime	60 percent payable in two tranches of 30 percent each in July and October.
- ISB prepayment (précompte ISB)	Levied on customs operations or billings inside the country => ISB prepayment.	Exempt: Companies with a turnover exceeding [CFAF] 300 million in sales/resales or [CFAF] 100 million in service provision.	**I. Port operations** **-** imports by operators with no taxpayer ID……7 percent **II. Customs operations** - imports by operators with no taxpayer ID……...4 percent

Tax	Nature and Scope of Tax	Exemptions and Deductions	Rates
			- imports by operators with no taxpayer ID……7 percent - re-export and transit operations by operators with a taxpayer ID but no [ISB] exemption certificate ….4 percent - re-export and transit operations by operators with no taxpayer ID or [ISB] exemption certificate ….....7 percent **III. Operations on the domestic market:** - sales to operators with no taxpayer ID…….……7 percent - sales to operators with a taxpayer ID……..……..2 percent - service provision in delivering merchandise to the government and its departments, or to enterprises by an economic operator without a taxpayer ID.……..…...7 percent Provision of services to the government, government departments, or to enterprises by an economic operator with a taxpayer ID……...…..……..2 percent
1.2 Property tax (Impôt sur les revenus fonciers--TI)	Real property tax (taxe immobilière) borne by individuals owning real property	Exempt: principal residences of households, religious sites, school buildings, farms, and adobe brick buildings not producing income.	Premises vacant or occupied free of charge: 5 percent
	.Real property tax (taxe immobilière) borne by corporations on their real property.	Exempt: non-revenue producing government buildings, buildings used as schools, facilities for the distribution of energy belonging to central and local governments, etc.	Leased premises: 10 percent 1.5 percent of the value recorded in the balance sheet before amortization

Tax	Nature and Scope of Tax	Exemptions and Deductions	Rates
1.3 Single tax on wages and salaries (Impôt unique sur les traitements et salaires – IUTS)	Tax withheld monthly at source by employers on wages, salaries, and pensions.	Exempt: family allowances, military and civilian disability pensions, veterans' pensions, remuneration collected by the staff of diplomatic missions and international organizations, etc. Application of a system of reductions for family obligations: 5 percent for each dependent, up to 30 percent for seven dependents. 10 percent rebate for professional fees.	Progressive tax in [CFAF]: 0-25,000: 2 percent 25,001-50,000: 3 percent 50,001-100,000: 7 percent 100,001-150,000: 15 percent 150,001-300,000: 32 percent 300,001-400,000: 38 percent 400,001 and higher: 45 percent.
1.4 General income tax (Impôt général sur le revenu – IGR)	Paid by French and Libyan technical assistance experts, on a basis determined by the conventions signed between these countries.		Progressive schedule of 0-60 percent.
1.5 Occupational license (Contribution des patentes)	Levied on commercial, industrial and any other professions not expressly exempted.		Table A,B Fixed taxes at variable and set rates and proportional taxes levied on the rental value of premises used for professional purposes.
1.6 General business license (Patente synthétique - PS)	Borne by all individual taxpayers with a turnover of less than [CFAF] 30 million in sales/resales or [CFAF] 15 million in service provision.	Individuals exercising liberal professions are required to pay the ISB.	[CFAF] 10,000-900,000, depending on the activity and the turnover.
1.7 Tax on interest and dividend income (Impôt sur le revenu des valeurs mobilières -- IRVM)	Levied on the payment of distributions by limited companies to their shareholders and on interest income. Withheld at source by distributing companies.	Exempt: savings banks, operations on current account, capital amortization operations, Crédit du Niger, cooperatives, Crédit municipal, etc.	Bonds 13 percent and 15 percent Dividends 10 percent (attendance fees)
1.8 Select overheads tax (Taxe sur certains frais généraux -- TCFGE)	Levied on gifts, charges for the receipt and maintenance of vehicles exceeding certain ceilings (e.g., [CFAF] 10,000 a year and per recipient of the gifts in question).	Exempt: enterprises covered by the Petroleum, Mining, and Investment Codes.	30 percent of any amount exceeding the established ceilings.
1.9 Apprenticeship tax (Taxe d'apprentissage -- TAP)	Levied on wages, borne by enterprises liable for the ISB	Exemptions granted in consideration of expenditures made by the enterprise within the framework of professional training for	2 percent of wages paid to employees who are nationals.

Tax	Nature and Scope of Tax	Exemptions and Deductions	Rates
		their employees.	4 percent for other employees.
2. Taxes on goods and services			
2.1. Value-added tax (VAT)	Levied on imports, sales transactions, and on the provision of services within Niger.	Exempt: Exports; and certain essential goods (flour, milk, etc.), unprocessed local products, pharmaceuticals, agricultural inputs, road transportation of cargo and passengers, insurance operations, etc.	Single rate of 19 percent.
2.2. Excise taxes (Droits d'accises)	Levied on certain goods imported or manufactured in Niger (tobacco, beverages, cola nuts, edible oils and fats, etc.)		Alcoholic beverages other than malt beer 45 percent Tobacco 40 percent Malt beer 25 percent Cola, oils, cosmetics and perfumes; fruit juice; edible oils and fats 15 percent Tea, coffee 12 percent
2.3. Mining royalty (Redevance minière)	Paid by corporations mining uranium, when they are exporting the mineral.		A = business revenue B = operating income C = B/A 5.5 percent if C <= 20 percent 9 percent if 20 percent < C < 50 percent 12 percent if C >= 50 percent
2.4 Tax on external commercial publicity, on notices, posters, billboards, and neon signs (Taxe sur la publicité commerciale extérieure sur les affiches, placards, panneaux, enseignes lumineuses—TPCE)	Levied on notices, posters, billboards, neon or other electronic or laser signs used for advertising, installed on government-owned premises.	Government advertisement of other than public affairs.	- For publicity notices, posters, and billboards: CFAF 20,000 per unit and per year; - For neon and other electronic or laser signs: CFAF 10,000 per unit and per year
2.5 Tax on lottery receipts (Taxe sur les recettes des loteries—TRL)	Levied on gaming.		15 percent
3. Stamp and registration duties			
3.1. Registration duties on real estate transactions (Droits d'enregistrement sur les transactions immobilières)	Levied on real estate transactions (rentals, sales, donations)		Fixed duties or duties at proportional or progressive rates, depending on the type of property and the transaction concerned.

Tax	Nature and Scope of Tax	Exemptions and Deductions	Rates
3.2. Single tax on insurance (Taxe unique sur les assurances)	Levied on insurance agreements and contracts.	Exempt: life insurance and reinsurance companies	1.2-36 percent, depending on the type of risk covered.
3.3. Differential motor vehicle tax (Taxe différentielle sur les véhicules à moteur -- TDVM)	Sticker applicable to motor vehicles registered in Niger.	Exempt: vehicles of central and local governments, diplomats and similar persons, disabled persons, etc.	- [CFAF] 5,000-50,000, depending on the capacity of the vehicle expressed in hp, for public passenger and cargo transport vehicles - [CFAF] 5,000-60,000, depending on the capacity of the vehicle expressed in hp, for other vehicles.
3.4. Stamp duty (Droit de timbre)	Levied on legal documents, correspondence to the government, certain invoices, and most official documents. Payment by revenue stamp.		Variable, depending on the document in question.
3.5 Simplified land titling formalities (formalités simplifiées d'attribution de titre foncier)	Granting of land titles by means of an accelerated and simplified procedure .	No exemptions.	- Bare lot: CFAF 15,000 - Fenced lot: CFAF 25,000 - Adobe house: CFAF 75,000 - Semi-rigid house: CFAF 100,000 - Rigid construction—villas or housing complex for singles: CFAF 150,000 - Rigid construction, two-storey R + 1: CFAF 300,000 - Rigid construction, two levels R + 1 + annexes: CFAF 400,000 - Rigid construction, 2+ levels: CFAF 500,000 - Urban gardens: CFAF 60,000 - Semi-urban gardens: CFAF 30,000 - Rural gardens: CFAF 10,000 - Semi-urban field: CFAF 20,000 - Rural field: CFAF 5,000
4. Duties and taxes on foreign trade			
4.1. Customs duty on imports (Droit de'douane à l'importation)	Levied on the value, c.i.f., of imports.	Class 1 products (zero rate) on the Common External Tariff (CET).	Category / Customs tariff 0 / 0 percent 1 / 5 percent 2 / 10 percent 3 / 20 percent

Tax	Nature and Scope of Tax	Exemptions and Deductions	Rates
Statistical fee (Redevance statistique)	Levied on the value, c.i.f., of imports from all sources.		1 percent.
4.3. Petroleum tax (fiscalité pétrolière)	Levied on the marketing of petroleum products.	Exempt: petroleum products under conditional relief arrangements and those intended for international air transport.	
4.3.1 Excluding TIPP (petroleum excise tax)			
4.3.2 TIPP	The tax base is the value, c.i.f., of the products, which varies, depending on changes in prices and the dollar exchange rate. Specific tax.	Exempt: Petroleum products subject to suspensive arrangements and for international air transport.	Tariff by product: Super 91: CFAF 75/liter Kerosene: CFAF 0/liter Gas-oil: CFAF 29/liter Domestic fuel oil: CFAF 0/liter Lubricating greases: CFAF 480/Kg net Lubricating oils CFAF 450/Kg net
4.4. WAEMU community solidarity levy (Prélèvement communautaire de solidarité—PCS—de l'UEMOA)	Charged on the value of the imports concerned.	Exempt: petroleum products and merchandise from WAEMU countries.	1 percent for non-WAEMU goods.
4.5 ECOWAS solidarity levy (Prélèvement de solidarité—PC—de la CEDEAO)	Charged on the value of the imports concerned.		1 percent for non-ECOWAS goods.
4.6. Statistical fee on exports (Redevance statistique à l'exportation)	Levied on the value of exports.		3 percent.
4.7 Special re-export tax (Taxe spéciale de réexportation)	Levied on re-exported merchandise.		Variable, depending on the destination and the type of product: i) Cigarettes: - to Nigeria: 5 percent - to other countries: 15 percent ii) Other goods: 10 percent