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# Conflict, Growth, and Poverty in Guinea-Bissau

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*Conflicts and political instability have been serious constraints to growth in Guinea-Bissau. Of special concern was the civil war of 1998, which lasted 11 months and led to substantial loss of life as well as to a massive decrease in GDP per capita. Based on research on the economic cost of conflicts in Sub-Saharan Africa conducted by Lopez and Wodon (2005) and using a technique to identify outliers in time series and to correct the series for such outliers, this chapter estimates that GDP per capita today could have been more than 40 percent higher if there had been no conflict in 1998. In turn, one in three persons living in poverty today might not be poor had it not been for the conflict.*

Conflicts have had a devastating impact on the economies of affected countries in Sub-Saharan Africa (Yartey 2004, World Bank 2000a, Easterly and Levine 1999, Rodrick 1999). In Guinea-Bissau, conflicts and political instability have been the main constraints for growth and poverty reduction over the past three decades. Rather than being massive and pervasive, conflicts and instability in Guinea-Bissau have become cyclical events confined, to some extent, to the capital, but with economic and social consequences for the country as a whole. While the continued instability has not often caused a significant loss of human life and physical destruction (with the notable exception of the 1998 conflict, as discussed below), the instability has been detrimental to institution building and has not produced an environment conducive to investment, growth, and poverty reduction. As many as six major military-related incidents concerning political power have taken place since independence in 1974. Thereafter, the country experienced two decades of a state-controlled system before organizing its first democratic elections in 1994. The fledgling democratic process was halted by the 1998 civil conflict that led

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24. The authors are grateful to Humberto Lopez for help in estimating the impact of Guinea-Bissau's conflict on per capita GDP.

to a drop in GDP per capita of roughly 30 percent, and to the displacement of up to 350,000 people—or about one-fifth of the population.

A state of persistent political instability prevailed after the war, and it was only in 2001 that new democratic elections brought a new civilian government to power. However, the democratic process stalled again as the elected government failed to restore political stability and good governance. Following several cabinet reshuffles, alleged coup attempts, and the dissolution of the parliament during 2001–02, the military staged a bloodless coup d'état in September 2003, and a civilian transition government was charged with restoring order and rebuilding the public administration. Since mid-2004, the authorities have made significant progress in restoring fiscal discipline despite the highly polarized and still fragile political environment.

The objective of this chapter is to measure the impact of the conflict on per capita GDP in Guinea-Bissau. This was done using a technique developed by Tsay (1988, 1986) and Gomez, Maravall, and Peña (1997) that identified and corrected outliers in time series. This was then applied to the assessment of the impact of conflicts on GDP per capita in Sub-Saharan African countries by Lopez and Wodon (2005).<sup>25</sup> The estimates suggest that GDP per capita would be roughly 42 to 43 percent higher today if the conflict had not occurred. In turn, assuming that the conflict had no impact on inequality (we don't have data on that potential impact), we found that about one-third of people now in poverty can be said to be poor because of the conflict.

The chapter is organized as follows: the first section briefly reviews the political context and recent economic performance of the country, including a discussion of the various impacts of the conflict; and the second section provides econometric estimates of the loss in per capita GDP attributed to the conflict and the likely impact that this economic loss has had, in turn, on poverty. A brief conclusion follows.

## Guinea-Bissau's Conflict and Economic Performance: A Brief Review

### *Political Context*

Guinea-Bissau has experienced a long history of conflict and political instability. Following a decade-long freedom war with Portugal, Guinea-Bissau became independent in 1974. As noted in Chapter 1, the government of Luis Cabral was overthrown in a bloodless coup led by the prime minister and former armed forces commander, João Bernardo “Nino” Vieira, in 1980. There were several coup attempts against the Vieira government in 1983, 1985, and 1993. In 1994, the country's first multiparty legislative and presidential elections were held. President Vieira, of the ruling Party for the Independence of Guinea-Bissau and Cape-Verde (PAIGC), was re-elected with a slight margin over Kumba Yala of the Party of Social Restoration (PRS). An army uprising against the Vieira government in June 1998 triggered a bloody civil war that displaced over 300,000 members of the civilian population. Failed

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25. Lopez and Wodon (2005) noted that this approach differs from that used by Murdoch and Sandler (2001) who used cross-country panel data to measure the average effect of conflicts on growth. The main issue with cross-country results is that indices of war tend to be discrete variables with low cross-country variability. As a result, the averaging involved in estimating the impact of conflicts may under- or overestimate impacts where conflicts are particularly severe or instead relatively mild, respectively.

governance, breakdown of the rule of law, and limited accountability and transparency of public sector management were among the causes of this conflict, which lasted nearly a year.

Following the conflict, attention was turned to the task of reconciliation and rehabilitation. By June 1999, the situation, although still fragile, calmed down and improved steadily. A Government of National Union (GNU) was put in place and charged with the tasks of preparing a National Reconciliation and Rehabilitation Program (NRRP) and organizing elections. Free and fair parliamentary elections were held on November 28, 1999, and a presidential runoff vote took place on January 16, 2000. Opposition parties scored a landslide victory in both elections. President-elect Kumba Yala of the PRS took office on February 17, 2000. Shortly after, a broad coalition cabinet, including members of various parties in the national assembly, was appointed.

The task of national reconciliation and reconstruction was, however, undermined by the lack of political consensus. Following the elections, the parliament approved a new constitution in April 2001, which was neither vetoed nor promulgated by the president. The resulting ambiguity undermined the rule of law, and a prolonged friction developed between the executive and the legislative branches of the government over the choice of the new cabinet chief. As a result, the country operated without an effective government for several weeks, and the announcement of yet another foiled coup attempt in mid-April 2001 demonstrated once again the fragility of the political and democratic processes. The prevailing political instability, which affected all institutions, was not conducive to economic recovery and postconflict reconstruction. In December 2001, the government allegedly thwarted a coup attempt by army officers.

Delays in holding parliamentary elections led to a military coup and the appointment of a transition government in September 2003. Between December 2001 and December 2002, President Yala carried out two cabinet reshuffles, dissolved the parliament, and called for legislative elections, which were repeatedly postponed. The ensuing discontent among the population led the army to seize power in a bloodless coup in September 2003. President Yala announced his resignation and was placed under house arrest. The military, led by the chief of defense, Gen. Verrisimo Seabra (who was later killed along with other officers during the October 6, 2004 mutiny), quickly restored power to civilian control, and a civilian caretaker government was appointed with the objective of restoring the rule of law and reasserting control over public finances. In this context, the businessman Henrique Rosa was sworn in as interim president, with the support of almost all political parties as well as that of the civil society. By the end of 2003, the newly appointed government prepared an Emergency Economic Management Plan (EEMP) and a budget for 2004 with the support of the international community.

Parliamentary elections were successfully organized in early 2004, and the postelection government endorsed the EEMP reform agenda. Legislative elections were held in March 2004 and an orderly transition to a government elected on the basis of a broad reform platform took place in May 2004. The transition government, led by the leader of the PAIGC, Carlos Gomes Júnior was appointed with the objective of ensuring the functioning of the public administration and preparing presidential elections by mid-2005. Despite the difficult economic situation, the government prepared a draft of the country's PRSP and significantly improved budgetary discipline during the second half of 2004. The government also endorsed the reform program, which was agreed to by the international community; prepared the 2005 budget; and successfully organized a free, fair, and transparent

presidential election that was won by the independent candidate and former president, João Bernardo “Nino” Vieira.

Recurrent military interventions on the political scene, as experienced in the recent past, still remain a major obstacle to stability and democracy. So far, the military has kept their promise not to intervene in the political process during and after the presidential elections. However, the widespread poverty in the barracks and the highly polarized political environment remain ingredients for future interventions of the military. Moreover, the majority of soldiers in Guinea-Bissau’s army are from the *Balante* ethnic group. There is a critical need for reforming the security sector to prevent further instability and conflict.

### *Consequences of the 1998 Conflict*

The human losses and economic disruption created by the 11-month conflict that took place in 1998 were widespread. Between 2,000 and 6,000 lives were lost and up to 350,000 persons were internally displaced, including 7,000 who were generally better educated and sought refuge in Senegal, Cape Verde, the Gambia, Guinea, and Portugal, thereby depleting Guinea-Bissau’s limited human capital. While solidarity within the population helped to avoid a major humanitarian crisis, deprivation increased dramatically and food stocks were depleted (on vulnerability in Guinea-Bissau, see for example Lourenço-Lindell, 2002, and World Bank 2000b and 2006).

Real GDP declined by 28 percent because of a sharp decline of production in all sectors. A significant deceleration in the production of cashew nuts and cereals probably helped cause a 17 percent decline in agriculture production. Most of the formal industrial, trade, and service activities were interrupted in the last seven months of 1998. The closing of banks and nonpayment of most wages repressed the impact of the war on prices. However, the armed conflict adversely affected the country’s fiscal position and its balance of payments. Marketing of cashew nuts, the main source of public revenue, was severely disrupted and merchandise exports and imports (in U.S. dollars) decreased by about 45 and 30 percent, respectively, over the period 1997–98. As a result, the external current account deficit (excluding official transfers) remained at a high of nearly 16 percent of the GDP, and the current primary budget balance moved from a surplus of about 5 percent of the GDP in 1997 to a deficit of about 7 percent of the GDP in 1998. After June 1998, external debt service arrears piled up that were equivalent to almost 10 percent of the GDP. Arrears on salaries, goods and services, pensions, and transfers also represented 5 percent of the GDP.

Apart from a reduction in income flows as represented by the GDP, capital destruction was also widespread. Damages to public infrastructure (including the airport, energy and water systems, health and education facilities, roads, markets, public enterprises, and administrative buildings) amounted to \$25–\$30 million. Some 5,000 houses were damaged in the capital city of Bissau, and losses of up to \$90 million were incurred by businesses because of destruction, requisition, confiscation, and looting. As the private sector was hit, the banking system was also weakened from an already fragile position. Investor confidence faded, leading to a reduction in investments (both foreign and domestic). Furthermore, the implementation of necessary reforms in the areas of taxation, civil service, public enterprises, and the social sectors were interrupted as the administration could not implement the 1998–2001 Policy Framework Paper that had been agreed upon in May 1998, and the conflict led to a temporary halt in donor funding.

### *Postconflict Economic Performance*

The economy bounced back during 1999–2000 because of a return to peace and good agricultural performance. During the two years following the conflict, economic performance improved as a result of the enhanced security situation and gradual resettlement of displaced populations. Nearly all of the 300,000 to 350,000 persons initially displaced by the conflict in 1998 returned to their homes. Agricultural production, which represents nearly 60 percent of the GDP, grew on average by 6 percent in real term per annum during the period 1999–2000. Cashew nut production, the leading agricultural subsector, averaged 70,000 metric tons over the indicated period (compared to 50,000 metric tons in 1997). Performance in agriculture had positive spillover effects on the economy as a whole (as evidenced by the close correlation between trends of real GDP growth and cashew nut production). Services grew on average by 15 percent in real terms, largely because of the close interrelationship between transportation activities and the boom in the cashew sector. Industrial activities suffered from heavy damage in infrastructure and electricity supply. Industrial growth first decelerated by 1 percent in 1999 and then picked up by 10 percent in the following year, thanks to donor support to the government's reconstruction program.

Real annual GDP grew by an average of nearly 8 percent from 1999 to 2000, leading to a growth in per capita GDP of close to 10 percent over two years. At the same time, government revenue reached 18 percent of the GDP, and the overall budget deficit (excluding grants) increased from 14 percent to 25 percent of the GDP as a result of increased post-conflict reconstruction activities. Late in 1999, the government and the International Monetary Fund agreed upon a macroeconomic framework for the period 2000–01 that would consolidate and sustain economic performance, reduce inflation, and limit fiscal and external gaps to financially sustainable levels. Progress continued to be encouraging on the macroeconomic front through December 2000, and the country completed its interim PRSP, reached the decision point under the HIPC Initiative, and agreed to a three-year PRGF program with the IMF for the period 2001–03.

However, inadequate public policies prevented the conclusion of the IMF's first PRGF review in 2001, resulting in payment difficulties. Early in 2001, the macroeconomic program was found to be substantially off track owing to large unbudgeted expenditures mainly on defense that were financed by credit from the banking system and promissory notes. Late in 2001 a string of political crises at the northern border with Senegal in the Casamance region added to the worsening security situation. Military crackdowns ordered by the authorities led to a significant expenditure overrun, and the primary fiscal deficit reached 3.7 percent of the GDP in 2001 compared with the targeted surplus of 0.8 percent under the PRGF program. Consequently, the first review of the PRGF by the IMF was not concluded as scheduled in 2001, and the program was declared off track. After two unsuccessful short-term, staff-monitored programs, efforts to revive the program were abandoned by mid-2002, and the arrangement expired at the end of 2003 without the completion of a review. In view of the disappointing developments, the IMF established that it would be unlikely that Guinea-Bissau would be able to meet PRGF standards in the near future.

Under these conditions, donor support (equivalent to 4 percent of the GDP) did not materialize as expected, causing severe payment difficulties. External budgetary supports decreased from \$12 million in 2000 to \$1 million in 2001. The balance of payment and fiscal difficulties were further fueled by a record 37 percent decline in world market prices

of cashew nuts in 2001. Consequently, export volume growth plummeted from 26 percent to -1 percent between 1999 and 2002, and government budgetary revenues as a share of GDP decreased from 19 percent to 15 percent during the same period. In this context, the external account and budget deficits (excluding external grants) reached 13 percent and 26 percent of the GDP, respectively, by the end of 2001.

The economy became recessionary in 2001 and further stagnated through 2002-03. Real GDP grew at a minor rate of 0.2 percent by the end of 2001, and contracted by 7.2 percent by the end of 2002. The main contributing factors to the economic contraction in 2002 were the 15 percent fall of the production of cashew nuts, a lower than expected agricultural performance due to unfavorable weather conditions, and the continued suspension of donor-funded policy lending representing about 7 percent of the GDP. The fiscal situation continued to be precarious because of the sharp decline in economic activity and the implementation of a number of policy decisions outside the emergency financial management framework that was agreed upon with the IMF and the Bank.

Economic performance remained sluggish in 2003. Although the agriculture sector grew by about 5 percent, real GDP grew by only 0.6 percent because of a significant contraction in the other sectors of the economy. Simultaneously, fiscal management further deteriorated when a substantial diversion of resources to expenditures took place outside the legally established budgetary procedures. A key issue in public finance management was the decision by President Yala to increase the salaries of the military in 2003 by more than tenfold. Consequently, the public sector wage bill increased from 8 percent of GDP in 2003 to about 11 percent in 2004.<sup>26</sup>

Thanks to an enhanced fiscal management and increased donor support to the EEMP, economic performance started to recover in 2004. During the second half of 2004, the transition government formed after the September 2003 military coup took decisive measures aimed at restoring fiscal discipline. The treasury committee, established in 2003, was reinstated and tasked with implementing a strict cashflow management system. As a result, budgetary revenues increased from 15.5 percent in 2003 to 17.5 percent by the end of 2004. It is worth noting that this performance was largely attributed to improved tax collection in the informal sector and illegal fishing activities. The government, however, continued to rely on external assistance for the implementation of the EEMP in 2004. The economy started to recover in 2004 with real GDP growth reaching 2.2 percent by the end of 2004. While growth was not expected to change substantially in 2005 because of capacity constraints and continued political uncertainties, performance was expected to improve in the medium term if adequate fiscal and capacity building reforms were carried out (for a recent review of developments in Guinea-Bissau, see Economist Intelligence Unit, 2005).

## **Impact of the Conflict on GDP Per Capita and Poverty**

### *Impact of the Conflict on Per Capita GDP*

This section assesses the impact of the conflict on per capita GDP using a procedure proposed by Tsay (1988, 1986) for detecting outliers in time series. The basic idea is to empirically test and correct the data for the presence of outliers in the GDP per capita time series.

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26. Most public sector wages remained unpaid in the first nine months of 2003 prior to the military coup.

If the outliers are observed at the time of conflicts (for example, the year 1998 for Guinea-Bissau), then the corrected series for GDP per capita can be assumed to represent the counterfactual path that the economy would have followed if there had been no conflict. Details on the estimation methodology are provided in Lopez and Wodon (2005) who conducted similar work on Rwanda. Here we provide the basic estimation strategy and the key empirical results. The results for Guinea-Bissau are compared to a broader set of results for Sub-Saharan countries that had a recent conflict.

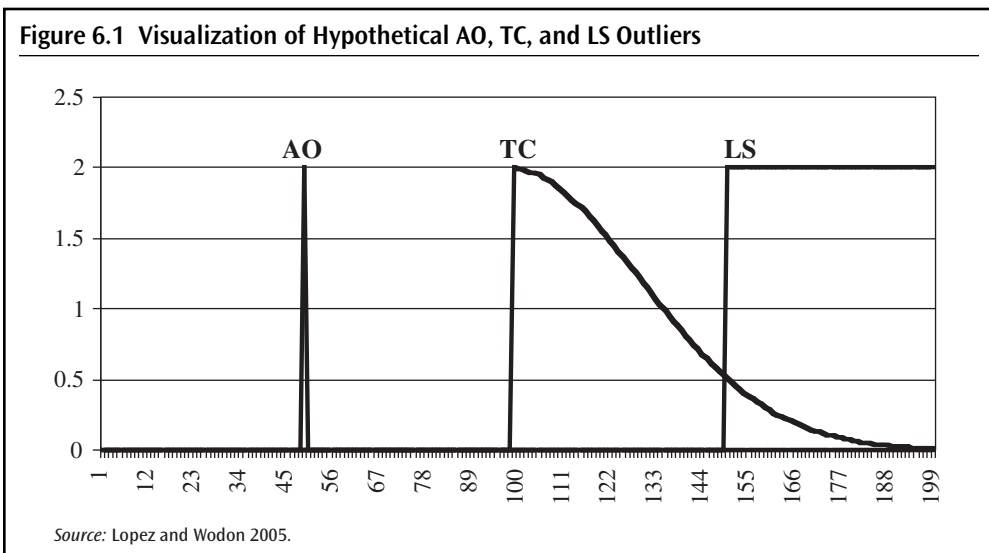
The variable  $e(t)$  can be understood as a white noise sequence with a zero mean and constant variance  $\sigma^2$ .  $L$  is the lag operator (i.e.,  $Le(t) = e(t-1)$ ), and  $\phi(L)$  is a polynomial in  $L$  with  $\sum_i |\phi_i| < \infty$  and roots of  $\phi(z) = 0$  outside the unit circle. GDP per capita, denoted by  $Y(t)$ , is represented through a univariate time series with:

$$Y(t) = X(t) + Z(t), \text{ with} \quad (1)$$

$$X(t) = \mu + \phi(L)e(t), \text{ and} \quad (2)$$

$$Z(t) = w(L)o(t) \quad (3)$$

In the above,  $X(t)$  is a stationary and invertible series for which the polynomial  $\phi(L)$  can be approximated by  $\phi(L) = \theta(L)/\phi(L)$ , with  $\theta(L)$  and  $\phi(L)$  finite order polynomials in  $L$  (that is,  $X(t)$  would follow an ARMA process).  $Z(t)$  is defined so that  $o(t) = 1$  at  $t = s$ , if at time  $s$  an outlier occurs and  $o(t) = 0$  otherwise. The structure of  $w(L)$  defines various potential types of outliers, which are represented visually in Figure 6.1. If  $w(L) = \omega$ ,  $Z(t)$  defines an additive outlier (AO), which accounts for a “one shot” change in GDP in a given year. If  $w(L) = \omega/(1-L)$ , we obtain a level shift (LS), which implies a permanent impact on the series. Finally, if  $w(L) = \omega/(1-\delta L)$ , the estimation suggests a transitory change (TC), which vanishes over time. The empirical strategy to estimate these equations is discussed in Lopez and Wodon (2005). The method can be generalized to control for additional variables that may affect the GDP per capita, which is done here to consider the potential impact of changes in terms of trade.





The procedure applied to Guinea-Bissau using the data on GDP per capita in constant local currency units as well as data on the changes in the terms of trade reveals the existence of a single additive (“one shot”) outlier for the year 1998, which corresponds to the civil war. The estimates provided here are from comparative data for Guinea-Bissau and various other Sub-Saharan African countries that a conflict.

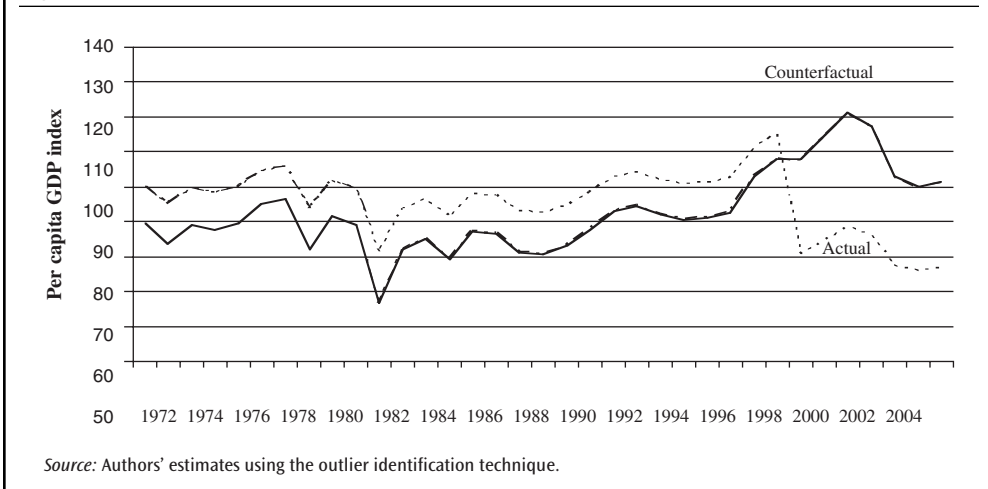
According to Table 6.1, GDP per capita would have been 42 or 43 percent higher in 2004 (depending on the model) than it actually was if there had been no conflict, which is a very large impact (also see Figure 6.2). As a point of comparison, in Rwanda, where the human, social, and economic costs of the genocide have been staggering, the estimates suggest that the per capita GDP would be between 25 and 30 percent higher today than if the genocide had not taken place (Lopez and Wodon 2005), which suggests a smaller economic impact than in Guinea-Bissau. Much of the difference between the impacts observed in Guinea-Bissau and Rwanda stems from the fact that two outliers were identified in Rwanda. First, in 1994, the year of the genocide, there was a loss of about 40 percent of the GDP. In the following year, however, there was a rebound (another additive, but this time a positive outlier) so that part of the negative impact of

**Table 6.1 Impact of the Conflict on Per Capita GDP**

Year	GDP per capita index	GDP Per capita Index, controlling for the conflict	GDP per capita index, controlling for the conflict and terms of trade
1970*	100.0	100.0	100.0
1980*	80.9	80.9	80.9
1990	102.6	102.6	102.6
1991	104.1	104.1	104.1
1992	101.8	101.8	101.8
1993	100.9	100.9	100.9
1994	101.0	101.0	101.0
1995	102.4	102.4	102.4
1996	111.0	111.0	111.0
1997	115.1	115.1	115.1
1998	80.6	114.7	115.2
1999	84.5	120.3	120.8
2000	88.3	125.7	126.2
2001	86.0	122.4	122.9
2002	77.6	110.4	110.9
2003	75.8	108.0	108.4
2004	76.8	109.3	109.8
GDP cost (%) in 2002	—	-42.3	-42.9

*Source:* Authors' estimates.

*Note:* The value of 42.4 percent is obtained as  $(109.3/76.8) - 1$ . While estimates are only provided for 1970 and 1980, the actual estimations were done using annual GDP data from before 1990.

**Figure 6.2 Impact of the 1998 Conflict on Per Capita GDP**

the conflict was offset. Such a rebound was not observed in Guinea-Bissau, leading to a larger economic impact of the conflict even though the loss in human life was substantially less severe.

It is also important to note that losses in GDP were observed in Guinea-Bissau as in Rwanda, but the conflicts did not seem to have a negative impact on the growth rate of GDP per capita. These results could be interpreted as an indication that these conflicts generated a reduction in the stock values of key economic variables, such as human and physical capital, without changing the returns on these stocks.

### *Impact of the Conflict on Poverty*

Once we have estimated what level of GDP per capita would have been achieved without the conflict, it is straightforward to estimate what the poverty level would have been without the conflict, provided we are willing to make a number of (rather strong) assumptions. In the absence of good information on the distributional consequences of a conflict (that is, who gets affected most and why), these assumptions are necessary to translate our estimate of the impact of the conflict on GDP per capita into an estimate of how consumption per equivalent adult may have changed as measured in household surveys. To explain these assumptions, it is useful to briefly review how poverty was estimated in Guinea-Bissau within the framework of the Poverty Reduction Strategy prepared by authorities.

The official estimates of poverty for Guinea-Bissau are based on a somewhat ad hoc methodology, in part because of weaknesses in the scope of the data collected in the household survey used to measure poverty. The only available nationally-representative survey is the 2002 ILAP, a light household survey that was implemented following the core welfare indicator survey (CWIQ) methodology. The survey includes a consumption module, but this module is not very detailed, making it difficult to properly estimate poverty lines based on traditional approaches, such as the cost of basic needs framework. Instead, the authorities adopted an extreme poverty line of \$1 per person per day after adjusting for

purchasing power parity (Sylla 2004). This resulted in a unique extreme poverty line for the country as a whole (without adjusting for differences in the cost of living between urban and rural areas, for example) of CFAF 108,000 per person per year. A second poverty line of CFAF 216,000 per person per year was obtained, which corresponded to \$2 per person per day. An estimate of the consumption of households per equivalent adult was then derived from the survey data to identify those in poverty and compute a range of poverty and extreme poverty measures.

The results from our GDP per capita simulations for poverty measurement assumes that the GDP per capita growth, as measured in the national accounts, is essentially perfectly correlated with the average growth in the consumption per adult equivalent at the household level. That is, we will use our estimates of the impact of the conflict on per capita GDP as our best guess for the impact of the conflict on the mean adult equivalent per household consumption. A second assumption is that we can rely on the poverty lines used for measuring poverty in the 2002 household survey to assess the impact of the conflict. We do not change the poverty lines for our counterfactual poverty measures without the conflict because we assume that the conflict did not affect relative prices and consumption patterns in such a way that other poverty lines would have had to be used in the absence of conflict. A third assumption is that inequality in per adult equivalent consumption was not affected by the conflict, so that we only need to incorporate the impact of the conflict on mean consumption for our poverty simulations. We only have one survey in Guinea-Bissau that does not have comparable preconflict household level data, so we simply cannot assess the impact of the conflict on inequality. It is best to assume that the inequality has remained unchanged.

If we accept these assumptions, the procedure for assessing the impact of the conflict on poverty is very simple. We first compute poverty using the 2002 household survey data, and then we compute our counterfactual poverty measures after scaling up the adult equivalent consumption aggregate for all households in the survey by a factor equal to the ratio of the estimated per capita GDP without the conflict to the observed per capita GDP at the time of the survey.

The poverty measures used here are the standard first three poverty measures of the so-called FGT class (Foster and others, 1984), namely the head count, the poverty gap, and the squared poverty gap. Denoting the poverty line by  $z$ , the number of households (population weighted) by  $n$ , the number of poor households by  $q$ , and the adult equivalent consumption aggregate of household  $k$  by  $c_k$ , then the three measures are defined, taking a value of zero for the head count, one for the poverty gap, and two for the squared poverty gap in the following expression:

$$P_a = \frac{1}{n} \sum_{k=1}^q \left[ \frac{z - c_k}{z} \right]^\alpha \quad (4)$$

Today, as shown in Table 6.2 and following the methodology used in the PRSP for poverty measurement, we find that 65.7 percent of the population is poor; that is, with a level of consumption per equivalent adult below the \$2 poverty line in purchasing power parity terms, with 21.6 percent being the extreme poor. If the conflict had not taken place, so that per capita GDP today would be 42.3 percent higher than actually observed (the results would be very similar after correcting for terms of trade, hence are not provided here),

**Table 6.2 Impact of the 1998 Conflict on Poverty**

	Poverty observed in 2002 survey (1)	Poverty without the conflict (2)	Poverty reduction in percentage points (2)–(1)	Poverty reduction, percentage versus baseline [(2)–(1)]/(1)
<b>Poverty</b>				
Head count index	65.7	43.0	–22.7	–34.6%
Poverty gap	25.7	13.2	–12.5	–48.6%
Squared poverty gap	12.9	5.7	–7.2	–55.8%
<b>Extreme poverty</b>				
Head count index	21.6	7.6	–14.0	–64.8%
Poverty gap	5.5	1.8	–3.7	–67.3%
Squared poverty gap	2.2	0.7	–1.5	–68.2%

*Source:* Authors' estimates using 2002 ILAP.

poverty would be much lower. Table 6.2 suggests that the share of the population in poverty today could be around 43.0 percent instead of 65.7 percent, while the share of the population in extreme poverty could be at 7.6 percent instead of 21.6 percent. Note that the percentage reduction in poverty following the 42.3 percent reduction in GDP per capita suggests that the elasticity of poverty reduction to growth is roughly around one (it is lower for some poverty measures, and higher for others), which is a reasonable estimate according to international experience.

As expected, the corresponding elasticities for the extreme poverty measures are larger, (these elasticities are a function of the poverty lines—the higher the poverty line, the lower the elasticity). Overall, one in three persons is in poverty today in Guinea-Bissau because of the conflict, with an even higher share for extreme poverty measures.

## Conclusion

This paper has estimated the economic cost of the 1998 Guinea-Bissau conflict on poverty. Following previous work by Lopez and Wodon (2005), a methodology for the identification and correction of outliers in time series was used to estimate the counterfactual GDP per capita that would have been observed in 2002 if the conflict had not taken place. The results suggest that the per capita GDP could have been between 42 to 43 percent higher in 2002 than it was without the conflict, assuming that the trend in GDP as available in national accounts statistics adequately represents changes in economic activity. Next, relying on a number of (admittedly) strong assumptions, we estimated the counterfactual poverty measures that would have prevailed in the absence of the conflict. Our estimates suggest that one in three persons today in poverty might not have been poor if the conflict had not taken place, and the proportion is even higher for extreme poverty. While all these results could be sensitive to some of our assumption, they do provide an idea of the large impact that the conflict has had on poverty in Guinea-Bissau.

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