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Chapter 8

Uganda

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INTRODUCTION

The Ugandan economy underwent major structural change over the past two decades. Growth of income per capita began to accelerate in the late 1980s and has since outpaced that of most countries in Africa. Uganda's post-war macroeconomic reform programme exceeded all expectations in supporting economic growth and poverty reduction, as compared with other post-conflict recoveries. These reforms have reduced barriers to trade and liberalised prices and markets previously subject to state control. Improved management of monetary and fiscal policy helped achieve macroeconomic stability and paved the way for debt relief under the Heavily Indebted Poor Country (HIPC) initiative.

Poverty incidence is less than half the 1990 level, which means that Uganda has achieved the first millennium development goal (MDG). The country has made less progress towards other MDG targets, especially those for health, education, and environmental sustainability. The new National Development Plan (2010/2011-2014/2015) aims at further accelerating growth and reducing poverty, but contains little additional efforts to improve education and health indicators.

Against this background, this chapter tries to answer two key questions: first, how much progress is Uganda expected to make in achieving the MDGs under continued economic trends and policies? Second, what additional efforts, in terms of public spending and broader economic policy reforms, would be needed to accelerate progress towards the achievement of the human development goals?

The policy analysis is based on simulations with a dynamic-recursive computable general equilibrium (CGE) model known as Maquette for MDG Simulations (MAMS) that was adapted and estimated with data for Uganda (see Chapter 1 and Lofgren and Diaz-Bonilla, 2010). The CGE model analysis is combined with a microsimulation approach to determine impacts on poverty (MDG 1) and inequality (see Chapter 1 and Vos and Sánchez, 2010).

The next section details the macroeconomic policy reforms that helped accelerate the growth and transformation of Uganda's economy following the end of the civil war despite the lingering low-intensity conflict. It finds that the country is still facing major challenges in ensuring more sustained and inclusive growth. The third section assesses observed progress towards the MDG targets and highlights some of the obstacles to more accelerated progress. The fourth section details the way in which the modelling framework was adapted and fitted to data for Uganda and presents the results of the policy scenario analysis. The concluding section discusses policy implications. One of the main findings is that achieving the MDGs will be costly for Uganda, and given the limited scope for enhancing domestic resource mobilization in the short run, the country's reliance on foreign aid will need to increase temporarily to finance the additional MDG spending. Reforms to enhance tax collection and efficiency in public service delivery should gradually phase out such reliance on foreign resources, and resource mobilization can be diversified further once revenues from newfound oil resources begin to flow.

REFORMS AND ECONOMIC PERFORMANCE

When the National Resistance Movement (NRM) took over power under the leadership of President Yoweri Museveni in 1986, the Ugandan economy was in tatters after decades of civil war, social dislocation and asset destruction. Economic instability was high, and visible in huge macroeconomic imbalances, high inflation and shortages of foreign exchange. The reform policies that were in place induced structural change and helped spur economic growth. Since the early 1990s, Uganda's economy has been among the fastest growing in sub-Saharan Africa. Robust growth has been sustained, well beyond what would be expected of typical post-conflict recovery and reconstruction. Economic prosperity has continued despite the prevalence of a number of conditions which in

other contexts would be impediments to growth. These conditions include continued insecurity, especially in the northern parts of the country as well as in neighbouring countries, limitations of being a landlocked country, important infrastructural deficits, and the failure to exploit its (mineral) resource base. The latter condition has changed recently with the discovery of vast oil reserves.

Observers agree that Uganda's economic success has its foundations in the government's ability to restore a certain degree of internal stability and security and the effective implementation of a series of economic reforms considered to be the most comprehensive in Africa (Collier and Renikka, 2001; World Bank, 2007). The reform process started in 1990s after several years of internal wrangling over the direction of macroeconomic policy, especially whether a state-led or market approach should prevail (Whitworth and Williamson, 2010). The latter approach was chosen and between 1990 and 1993 the exchange rate regime was liberalized and the parallel foreign-exchange market was legalized, as a result of which there was a large devaluation of the Ugandan shilling. This laid the foundation for the liberalization of the coffee sector, the country's main source of income and export revenue. The export tax was abolished and replaced by an import tax, which subsequently was lowered gradually. The measure led to a steep increase in coffee production and exports, which in turn helped lift rural incomes and reduce poverty (Appleton, 1999).

These early reforms were followed by measures to ensure macroeconomic stability, notably the restoration of fiscal discipline and tighter control of inflationary pressures. Fiscal reform also included the establishment of a Medium Term Expenditure Framework (MTEF). The reform process was completed with the Poverty Eradication Action Plan (PEAP) of 1997 and a series of complementary measures to stimulate growth and private sector development. The latter included the Plan for the Modernization of Agriculture, the Medium-Term Competitive Strategy for the Private Sector, the Strategic Export Programme and the Strategic Export Intervention Programme.

In 2002, Uganda became the first country to qualify for debt relief under the HIPC Initiative. Macroeconomic performance has been impressive throughout the reform period (see Table 8.1). Real GDP growth recovered to 5.6 per cent during 1989/90-1993/94 and accelerated to 8.2 per cent during 2005/6-2009/10. Private investment more than doubled to 18 per cent of GDP. The public debt burden was slashed from 76 per cent to 19 per cent of GDP over the same period. Inflation fell from 31 to 9 per cent.

Table 8.1

Uganda: Selected macroeconomic and social indicators, 1989/90-2009/10

	<i>1989/90 to 1993/94</i>	<i>1994/95 to 1999/00</i>	<i>2000/01 to 2004/5</i>	<i>2005/6 to 2009/10</i>
Real Sector				
Real GDP growth (per cent)	5.6	6.0	6.7	8.2
Private investment (per cent of GDP)	8.0	-	14.1	17.7
Public investment (per cent of GDP)	6.6	-	4.7	4.7
Private consumption (per cent of GDP)	89.4	-	77.8	77.4
Public consumption (per cent of GDP)	9.2	-	13.9	11.4
Fiscal Sector				
Government domestic revenue (per cent of GDP)	7.8	11.3	12.2	12.8
Government expenditure (per cent of GDP)	17.9	18.0	22.6	18.2
Fiscal deficit excluding grants (per cent of GDP)	-10.1	-6.7	-10.4	-5.4
Domestic interest payments (per cent of GDP)	1.6	0.9	1.5	1.2
Domestic borrowing (per cent of GDP)	-0.1	-1.1	0.0	-0.2
External Sector				
Exports of goods (per cent of GDP)	6.7	9.5	8.4	15.0
Imports of goods (per cent of GDP)	21.3	19.6	16.8	22.9
Trade deficit (per cent of GDP)	-14.5	-10.1	-8.4	-8.0
Public debt stock (per cent of GDP)	75.8	62.4	58.6	19.1
Donor aid (per cent of GDP)	11.2	10.7	10.7	6.8
Foreign Direct Investment (FDI) (per cent of GDP)	0.1	2.5	3.1	4.9
Monetary Sector				
Inflation(Headline)	30.9	5.8	4.3	9.0
Reserves in months of imports	1.5	5.6	6.3	5.3

Source: Uganda Bureau of Statistics and Bank of Uganda.

Nevertheless, as discussed at greater length in a companion study (Matovu and others, 2011), the economy continues to face a number of serious challenges. These include: (i) overcoming the obstacles to further progress in shifting from subsistence agriculture to higher value-added and commercial agricultural production; (ii) dealing with the severe deficits in physical infrastructure and ensuring that new investments support growth and industrial development as well as facilitate access to markets and services for the poor; (iii) the need to improve government service delivery, enhance accountability and fight corruption; (iv) overcoming constraints to access to new technologies and to domestic and foreign resource mobilization;

and (v) the need to build better economic and political institutions at the national and local levels so as to strengthen social cohesion and resilience to external shocks stemming from world market volatility, intensification of conflict inside or outside Uganda's borders, and adverse weather conditions.

In April 2010, Uganda published its first five-year National Development Plan (NDP) for the period 2010/11-2014/15. The Plan is cast as the first in a series of six five-year instalments that seek to transform Uganda from a peasant society to a modern and prosperous country within a 30-year time horizon. It replaces the PEAP as the country's preeminent planning instrument and seeks to stimulate economic and social development more broadly than before. Public investment priorities are with physical infrastructure, human resources development and access to basic services, expanding the productive capacity of the economy and promoting science, and technology and innovation. For these purposes the level of public investment will be increased by 50 per cent from the average of the PEAP period. The government expects that the plan will help sustain economic growth of more than 7 per cent per year and generate about 550,000 new jobs per year over the planning period. Expected progress towards the MDGs falls short of the international targets, according to the plan's projections. Notably, the targets for universal primary school completion and reductions in child and maternal mortality rates may not be met under the first NDP due to insufficient financial resources as well as implementation capacities.

SOCIAL POLICIES AND PROGRESS TOWARDS THE MDGs¹

Prior to the NDP, pro-poor policies were framed by the PEAP that was in effect during 1997-2008. The PEAP consisted of a multi-sectoral program aimed at reducing poverty. Specific components of the PEAP were the Universal Primary Education program (UPE) and a policy to enhance access to health services. UPE was started in 1997 and aimed at providing free basic education to all children of school-going age. Related measures included the elimination of tuition fees. Access to health care was enhanced by constructing health centres in all the sub-counties and parishes of the country and, subsequently, by the removal of user fees for health-care services. Similarly, measures were taken to enhance the coverage of drinking water supply, extend the road network and improve agricultural infrastructure, especially in previously underserved areas. These measures caused the share of poverty-related expenditures within the MTEF to increase from 16 per cent in 1997/1998 to about 32 per cent in 2008/2009.

Over the past two decades, Uganda has made important progress towards many of the MDG targets. Nonetheless, this progress is sufficient only to ensure meeting 7 of 19 targets by 2015, according to the 2010 MDG Country Report (Ministry of Finance, Planning and Economic Development, 2010). This section briefly surveys the progress towards each of the goals. Achievement of the goals is further assessed below through a modelling exercise, drawing on the MDG report as well as additional data sources.

Eradicate extreme poverty and hunger (MDG 1): Uganda has made impressive progress in reducing poverty. According to the Uganda Bureau of Statistics, the poverty incidence (that is, the share of the population with a per capita income below the poverty line) has declined from 56 per cent in 1992/1993 to 24.5 per cent in 2009/2010. The decline has been continuous, except for a slight increase in the 2002/2003 survey. Consequently, Uganda has already met the international target of halving extreme poverty. The NDP target of reducing poverty to 25 per cent by 2014/2015 has also already been surpassed. Poverty has fallen most substantially in rural areas. Nonetheless, poverty rates remain much higher in rural than in urban areas. For instance, in the rural areas of the northern region of Uganda, the incidence of poverty is 49 per cent compared with less than 3 per cent in the urban areas of the western region. Job creation remains the major challenge to secure greater poverty reduction in the most affected regions.

Figure 8.1
Uganda: Net primary completion rate, 2001-2009

Source: Ministry of Education of Uganda.

At the national level, the share of employed in the population has remained more or less stable around 78-80 per cent during the 2000s (Ministry of Finance Planning and Economic Development, 2010). The prevalence of malnutrition also has declined, but food security remains a problem, especially in the eastern parts of the country. The share of children under five years of age with a weight too low for their age declined from 26 to 16 per cent between 1995 and 2005/2006.

Achieve universal primary education (MDG 2): Since the introduction of UPE in 1997, the total number of students enrolled in primary education increased from 2.7 million in 1996 to 8.2 million in 2009. The net enrolment ratio has hovered above 90 per cent in recent years, nearing the 100 per cent MDG 2 target.² However, the proportion of pupils starting primary school who reach the final grade (i.e., the net primary completion rate) remains low and in fact has deteriorated in recent years, as a result of rising drop out (National Planning Authority, 2010 and Figure 8.1).

Reduce child mortality and improve maternal health (MDGs 4 and 5): Indicators of child health and mortality show that there has been progress towards MDG 4 since the mid-1990s but that it has been too slow to make it likely for Uganda to reach the target of a reduction by two thirds from the 1990 level (Figure 8.2). The child mortality rate fell from 156 per 1,000 live births in 1995 to 152 in 2001 and further to 137 in 2006. The infant mortality rate, which measures deaths among children less than 1 year of age, rose from 81 to 88 per 1,000 live births between 1995 and 2001, especially due to faltering immunisation rates, but fell again thereafter to 76 in 2006 with the immunisation revitalisation strategic plan. Coverage of vaccinations has improved, but remains insufficient. For instance, the measles immunisation rate was 81 per cent in 2009, below the national target of 90 per cent.

The maternal mortality rate remained more or less stable from 1995 to 2001, and was estimated at 506 per 100,000 births in 1995 and 505 in 2001. Thereafter the rate dropped to 435 in 2006. Despite the more recent progress it is still far from sufficient to meet MDG 5 target of reducing the maternal mortality ratio by three quarters between 1990 and 2015 (Figure 8.2). Between 1995 and 2005, the share of births attended by professional health personnel increased from 35 to 44 per cent. This has likely contributed to reducing the maternal mortality ratio, but access to skilled birth attendants remains low.³ Stark inequalities in health status also remain, with the least-served rural areas lagging the most.

Ensure environmental sustainability (MDG 7): The share of individuals with access to safe water (MDG 7a) has increased from 57 per cent in 1999/2000 to 68 per cent in 2005/06, which means that Uganda may

Figure 8.2
Uganda: Child and maternal mortality, 1995-2006

Source: Ministry of Health.

be on track to meet its target of 89 per cent in 2014/15, which is a more ambitious target than that established by the international MDG agenda. Access to safe water remains much lower for the rural than for the urban population, despite the fact that coverage of improved water supply trebled in rural areas from 21 per cent in 1991 to 63 per cent in 2007. The change in access to improved sanitation (MDG 7b) is more difficult to gauge owing to data limitations. Available information suggests that 74 per cent of urban residents and 62 per cent of rural residents had access to an improved sanitation facility in 2007/08, short of the respective targets of 100 per cent and 77 per cent coverage.

MDG SCENARIO ANALYSIS

In summary, Uganda has seen mixed progress towards the human development goals. The previous section also included tentative assessments of the likelihood of achieving the MDG targets by looking at the past trends.

However, those may not be a good predictor of progress moving forward. This section will provide a counterfactual assessment of the feasibility of achieving the MDGs in Uganda, using the dynamic-recursive computable general equilibrium model, MAMS. The model assesses the interactions between the overall performance of the economy, public policy efforts and the progress towards the human development goals. In the analysis here, the model is used to assess, first, the degree of progress towards the MDGs under a scenario of unchanged growth trends and policy intentions as laid down in the NDP. Against this baseline scenario we assess the macroeconomic feasibility of fully achieving the MDGs by simulating the implications of scaling up public spending for that purpose under alternative financing scenarios.

Calibration of MAMS for Uganda

MAMS for Uganda was calibrated using a Social Accounting Matrix (SAM) with base year data for 2007. It builds on the original 2002 SAM, which was updated and modified by the International Food Policy Research Institute (IFPRI).⁴ For purposes of the Uganda model, the 2007 SAM was expanded to add more detail for the demand and supply of social services, including specifications of education services by level, the health sector, and drinking water and sanitation systems. Further detail was added to identify public and private provisioning of physical infrastructure. The technical coefficients used in the SAM are derived from the 2002/2003 supply-use table (Uganda Bureau of Statistics, 2007), which contains detailed information for a large number of sectors. These coefficients had also been used by IFPRI to construct the previous 2002/2003 SAM. The distribution of labour incomes and employment by sector and type of worker were estimated on the basis of the 2005/2006 Uganda National Household Survey (UNHS5). These structural variables were subsequently fitted to consistency with observed economic aggregates for 2007.

The determinants of outcomes for MDG indicators related to education, health and water and sanitation were estimated using microeconomic models. This way elasticities derived are expected to reflect the impact of policy interventions and changes in demand factors on primary school enrolment and completion, child mortality and access to drinking water and sanitation. The determinants of maternal mortality (MDG 5) in Uganda could not be identified through microeconomic analysis due to data limitations. For the purposes of the present study, it was assumed that

the determinants of maternal mortality (and corresponding elasticities) are the same as those for child mortality.

There are synergies among the MDGs, as was explained in Chapter 1. For instance, improved health status of children tends to improve their performance in school. Child health, in turn, tends to improve with access to safe drinking water and improved sanitation systems, as much as by reductions in health threats posed by diseases such as malaria, tuberculosis and HIV/AIDS. In the empirical analysis for Uganda, we account indirectly for the impact of increased mortality and morbidity caused by the prevalence of HIV/AIDS, malaria and other ailments on education performance by using child mortality as a proxy for the health status of young children. The microeconomic regression model explaining changes in the rate of child mortality includes access to water and sanitation and coverage of immunization programs among the determinants. The full specification of the functions determining progress towards the various MDGs can be presented in general terms as follows:

$$MDG_y = 1/0 = C + I + S + oMDG + X$$

where, the MDG target is measured as a binary variable that is 1 if the individual or household has attained the status required for the MDG to be met and 0 if not. Key demand-side determinants are proxied by changes in household consumption (C) and accessibility and functionality of social services as influenced by improvements in physical infrastructure, such as roads and electricity supply (I). The availability and quality of social services are captured by the level of spending per capita or per student for such services (S). $oMDG$ identifies the progress towards other MDGs considered to influence MDG_y . X is a vector of other determinants and control variables. The determinants of education performance, child mortality and access to drinking water and sanitation were all estimated through a probit model specification and combining data from household surveys, demographic and health surveys and administrative records of the education and health sectors. Full details of the microeconomic estimation procedure and results can be found in Matovu and others (2011). The relevant elasticities for MDG determinants obtained this way and used to calibrate MAMS are presented in Table 8.2. In the few cases where the elasticity estimates were not significant and/or showed an unexpected sign, they were replaced with values estimated by other studies for countries similar to Uganda, so as to ensure that the calibrated MAMS for Uganda would reproduce observed trends for the relevant MDG indicators. For example, using data from the

Table 8.2

Uganda: Elasticities of MDG indicators with respect to its determinants in MAMS¹

	<i>C</i>	<i>I</i>	<i>S</i>			<i>oMDG</i>			<i>X</i>
			<i>Health</i>	<i>Water & sanitation</i>	<i>Education</i>	<i>MDG 4</i>	<i>MDG 7a</i>	<i>MDG 7b</i>	<i>Wage premium</i>
MDG4			-1.000				-0.086	-0.010	
MDG5	-0.110	-0.011	-1.000				-0.086	-0.010	
MDG7a	0.001	0.014		0.744					
MDG7b	0.089	0.005		0.099					
Entry primary		0.009			1.000	-0.002			0.110
Completion primary		0.003			1.000	-0.003			0.087
Entry secondary		0.107			0.748	-0.003			0.165
Completion secondary		0.044			0.632	-0.003			0.165
Entry tertiary		0.327			0.169	-0.003			0.486
Completion tertiary		0.167			0.246	-0.003			0.486

¹ Elasticities in italics were not estimated econometrically for Uganda. They are based on other sources of information so that MDG trends generated in MAMS accord with observed trends. Several additional variables pertaining to vector X were included in the various estimations but only wage premium is reported here.

Source: Matovu and others (2011).

Ugandan household survey, the regression results showed that the wage premium on education is negatively related to primary school enrolment and completion. The unexpected sign might have resulted from data limitations and insufficient control variables included in the specification and were replaced with values found by other studies.

Baseline scenario

The baseline scenario was defined such that MAMS for Uganda replicates trends in key aggregates of the model, including MDG indicators, for 2007-2009. The baseline assumes subsequently that the policies of the NDP are effectively implemented and operational during 2010-2015. By assuming a baseline corresponding to expected NDP outcomes we can assess the likely impact of the strategic thrust and policies of the NDP on the MDGs. The baseline scenario is subsequently used as a benchmark against which we compare the macroeconomic and social impacts of alternative scenarios of increased policy efforts seeking to accelerate progress towards the MDGs and step up productivity growth.

Specifically, the baseline assumptions include that the rates of growth of government spending on education, health and water and sanitation, as well as that of public investments in roads and agricultural development, match the GDP shares as proposed by the new NDP. In the past, increasing domestic government revenue has been challenging, and over the past five years tax income has remained rather stable at between 12 and 13 per cent of GDP. Consequently, the baseline allows government revenues to increase only slightly (by two percentage points) between 2010 and 2015. This assumption deviates somewhat from the NDP projections, according to which revenues increase by 0.3 percentage points of GDP annually. In the baseline, the closure rule for the government budget assumes that changes in the deficit are financed through changes in the level of foreign borrowing.

Other closure rules are that private savings adjust endogenously to investment demand and the real exchange rate is flexible so as to clear the external balance of supply and demand for foreign exchange. The latter assumption is a reasonable approximation of the actual functioning of Uganda's exchange rate regime. Rates of return of production factors are assumed to be flexible—and the unemployment rate fixed, except when the rate of unemployment of any type of labour increases above the assumed minimum rate of 5 per cent. In the case of the latter, quantity (employment level) rather than price (wages) clears the relevant segment of the labour market.

The main macroeconomic results of the baseline scenario are summarized in Table 8.3. The average rate of GDP growth is 7.2 per cent during 2010–2015, as expected by the NDP. This pace of projected economic growth does not take account of the gains from oil production, which is expected to start exerting an impact on the Ugandan economy at large from 2015 onwards. Growth of the components of GDP is in the range of 5–9 per cent per year, with growth of exports and public consumption at the upper bound of about 9 per cent. Growth in public investment within the NDP is to be driven by infrastructure development, especially in roads and energy. In the baseline, the real exchange rate depreciates by 0.8 per cent per year, thus maintaining export competitiveness. At a sector level (not shown in Table 8.3), services are projected to be a main driver of overall GDP growth, expanding by 8.5 per cent per year on average. Agriculture and industry would grow, respectively, by 4.3 and 7.6 per cent per annum.

The limited increase in government revenue raises the question as to how the accelerated progress towards meeting the MDGs is going to be financed. Domestic borrowing under the baseline is maintained at an average of 1 per cent of GDP while foreign borrowing is estimated at 1 per cent during the

Table 8.3

Uganda: Macroeconomic indicators in the baseline scenario, 2008-2015

	2008	2009	2010	2011	2012	2013	2014	2015
Macroeconomic aggregates (percentage change)								
Consumption – private	9.5	6.1	6.4	4.9	4.9	5.1	5.2	5.2
Consumption – government	12.8	4.9	8.4	8.9	8.4	8.0	8.2	8.4
Fixed investment – private	10.0	6.3	6.9	6.4	6.0	6.2	6.3	6.3
Fixed investment – government	9.1	-3.1	1.0	15.6	-1.6	6.0	8.7	9.3
Exports	-5.7	14.3	9.4	10.5	13.9	12.0	10.8	10.5
Imports	3.4	4.0	5.6	5.8	3.7	5.0	5.6	5.7
GDP at factor cost	9.5	7.2	7.2	7.2	7.2	7.2	7.2	7.2
Total factor employment (index)	2.9	2.8	3.0	2.9	3.2	3.2	3.4	3.7
Total factor productivity (index)	6.6	4.4	4.2	4.3	4.0	4.0	3.8	3.5
Real exchange rate (index)	-5.5	3.0	1.3	1.3	2.4	1.6	1.2	1.0
Fiscal revenues and other receipts (per cent of GDP)								
Direct Taxes	3.7	3.6	3.6	3.6	3.8	3.9	4.1	4.2
Import tariffs	6.4	6.5	6.4	6.4	6.4	6.4	6.4	6.4
Other indirect taxes	3.2	3.1	2.5	3.1	3.5	3.9	4.2	4.6
Private transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Foreign transfers	4.8	4.3	4.1	4.0	4.0	4.0	4.0	4.0
Domestic borrowing	-0.2	-0.3	0.1	0.4	0.7	1.0	1.4	1.7
Foreign borrowing	3.0	2.5	2.7	2.6	1.3	0.5	0.0	-0.6
Government expenditures (per cent of GDP)								
Consumption	11.3	11.0	11.1	11.2	11.3	11.3	11.4	11.4
Fixed investment	8.4	7.6	7.2	7.8	7.3	7.3	7.4	7.6
Domestic interest payments	0.9	0.8	0.8	0.8	0.8	0.8	0.9	1.1
Foreign interest payments	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2
Total	20.8	19.7	19.4	20.1	19.6	19.7	20.0	20.3
Balance of payments (per cent of GDP)								
Imports	28.5	28.5	28.6	28.5	28.2	28.1	28.0	27.9
Factor income payments to rest of the world	3.1	3.5	4.0	4.3	4.7	5.1	5.4	5.8
Net interest income payments to rest of the world	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2
Exports	12.7	14.0	14.5	15.1	16.5	17.5	18.3	19.1
Private transfers from rest of the world	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Official transfers from rest of the world	4.8	4.3	4.1	4.0	4.0	4.0	4.0	4.0
Factor income from rest of the world	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Government borrowing from abroad	3.0	2.5	2.7	2.6	1.3	0.5	0.0	-0.6
Private borrowing from abroad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Foreign Direct Investment	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
Total outflows/inflows	31.8	32.2	32.8	33.1	33.2	33.4	33.7	34.0

Source: Authors' estimates based on the application of MAMS for Uganda.

period 2010–2015, which implies a fiscal deficit of 2 per cent on average. The increase in the deficit is within the limits of the convergence criterion requirement established by the East African Community Monetary Union and which is expected to be ratified in 2012. The additional foreign borrowing that would be needed to finance government deficits in the baseline scenario cause the public debt-to-GDP ratio to increase from 37.0 to 42.5 per cent. This degree of indebtedness is considered sustainable, given the robust pace of GDP growth.

However, the generally positive macroeconomic baseline trends are not good enough to support achievement of most MDG targets. Only the target for poverty reduction would be met, but—as indicated above—that target was already met by the mid-2000s. The shortfall in achievement of the other MDGs is considerable as Figure 8.3 shows.⁵

Figure 8.3
Uganda: Trends in MDG indicators and targets in the baseline scenario, 2007–2015

Source: Authors' estimates based on the application of MAMS for Uganda.

Alternative scenarios for achieving the MDGs

MAMS is particularly useful for assessing the impact of additional resources and policy reforms on accelerating progress towards the MDGs. This subsection explores the impact of scaled-up public expenditure for MDG achievement under alternative financing options, including financing through foreign aid, foreign borrowing, taxation or domestic borrowing. Also a scenario of mixed financing of the MDG strategy is performed in order to assess the feasibility of reducing reliance on foreign aid and borrowing. The scenario analysis is undertaken for both achievement of one MDG at the time and for all MDGs simultaneously. A key difference in model assumptions from those of the baseline is that in the MDG scenarios, government spending no longer adjusts according to a fixed rule, but becomes endogenous to adjust to the levels required to meet the MDG targets. In addition to the MDG scenarios, additional simulations of the impacts of other policy reforms were performed—specifically, policies inducing improvements in the efficiency in the delivery of public services and increased investments in physical infrastructure.

The additional spending requirements to close the achievement gaps for all MDGs considered in MAMS for Uganda (universal primary school completion, reducing child and maternal mortality and enhancing access to drinking water and basic sanitation) are substantial but vary depending on the source of financing. Financing through increased taxation or domestic borrowing would be more costly in terms of spending requirements. Under these financing options, public spending for the MDGs would need to increase by 10 per cent of GDP on average during 2011-2015 (Table 8.4). If we add what the government should have spent during 2008-2010 in order to achieve the target, but did not, the total cost would add to about 18 per cent of GDP, according to the simulation results. This would seem an almost insurmountable challenge for public finances. In the case of foreign aid or external borrowing, the additional costs are estimated at 7 per cent of GDP per year during 2011-2015 and nearly 12 per cent of GDP when adding the additional spending requirements for 2008-2010. At the end of the period (2015), however, the required education spending would be lower than the level estimated under baseline assumptions, because of the need to frontload much of the additional expenditures in order to sufficiently accelerate progress and to meet the MDG target on time.

The synergies among the MDGs would imply some cost savings if all goals are targeted simultaneously as compared with a (hypothetical) situation in which synergies were not considered. The synergy effects

were gauged by comparing the sum of public spending requirements for scenarios simulating attainment of just one or two goals with those of the corresponding scenario where all MDGs are targeted simultaneously. Figure 8.4 presents the results for the scenarios with aid-financed additional MDG spending. It shows that the synergy effects (the difference between the dotted and the continuous line) are estimated at about 2.5 per cent of GDP. The figure shows further that the cost of achieving the MDGs increase over time as a result of the decreasing marginal returns to the policy interventions for MDG achievement.

External financing of the MDG strategy causes a strong appreciation of the real exchange rate. In Uganda, the macroeconomic policy challenges have been subject to the debate in the past, in particular in the case of high aid inflows to finance health expenditures. As at the time, it could be argued that over time the adverse effects on export competitiveness of real exchange rate appreciation will be offset by labour productivity growth resulting from higher education levels and better health status of the work force. It has been argued further that it is possible that not all aid inflows add to the excess supply of foreign exchange. For example, aid may be

Table 8.4

Uganda: Additional annual public spending required to achieve the MDGs under different financing scenarios compared to the baseline scenario

Per cent of GDP			
<i>MDG financing scenario</i>	<i>2008-2010</i>	<i>2011-2015</i>	<i>2015</i>
Tax financing	8.10	9.91	13.05
Primary education	3.42	0.64	-0.50
Health	3.60	6.30	9.41
Water and sanitation	1.08	2.97	4.14
Foreign transfers (grant aid)	5.24	7.63	9.41
Primary education	2.66	0.29	-0.92
Health	2.08	5.12	7.22
Water and sanitation	0.50	2.22	3.11
Foreign borrowing	5.24	7.63	9.41
Primary education	2.66	0.29	-0.92
Health	2.08	5.12	7.22
Water and sanitation	0.50	2.22	3.11
Domestic borrowing	8.28	10.16	8.73
Primary education	3.46	0.73	0.39
Health	3.70	6.36	4.08
Water and sanitation	1.12	3.06	4.26

Source: Uganda Bureau of Statistics and Bank of Uganda.

Figure 8.4

Uganda: Total public expenditure¹ in the MDG scenarios with foreign aid financing

¹ Includes spending on both MDG and non-MDG related public services and transfers.

Source: Authors' estimates based on the application of MAMS for Uganda.

in kind or involve the direct purchase of drugs or medical equipment in the donor country, thus lessening the potential pressure for the exchange rate to appreciate. Nonetheless, the model simulations for Uganda yield a loss of export competitiveness in the short to medium run, as one of the macroeconomic trade-offs of the MDG strategy. Accumulation of external debt is another macroeconomic trade off, as the external debt-to-GDP ratio would increase to over 60 per cent by 2015, up from 15 per cent in 2007. This could endanger fiscal sustainability over time if robust economic growth is not sustained. Likewise, stepping up domestic borrowing to finance the strategy would lead to an even higher build-up of the public debt burden. Financing the MDG strategy by increasing tax rates would lead to an increase of the national tax burden from about 13 per cent of GDP in 2007 to 28 per cent in 2015 (against 15 per cent in the baseline), well above the projections of the NDP (see below).

Domestic resource mobilization to finance the MDGs will be challenging in Uganda. It is not just the sheer magnitude of the adjustment that matters, but the high degree of informality of urban and rural sectors makes any significant expansion of the tax base hard to achieve. Similarly, the shallow domestic financial market limits the scope for government borrowing.

Even if such financing would be feasible, the model results suggest that it would increase unemployment by crowding out private consumption and investment. The total unemployment rate would increase to 20 per cent in 2015, seven percentage points higher than in the baseline. Foreign financing, in contrast, would avoid such adverse effect and the unemployment rates would drop to 7.6 per cent in 2015.

In all, increasing foreign aid would seem the better way to finance the MDG strategy. The increase in aid dependence could be seen as only temporary, however, given the anticipated oil resources. Alternatively, the government could consider borrowing externally using future oil revenues as collateral. Authorities appear reluctant to pursue such an option, however, and the National Development Plan does not consider future oil revenues as a potential source of MDG financing today. However, given the remaining gaps towards MDG achievement and the very large public financing requirements, this option may need more serious consideration. It would be consistent with fiscal sustainability criteria that would recommend investing the proceeds from exhaustible natural resources, such as oil, in physical (e.g. infrastructure) and human capital (e.g. health and education) that would enhance productivity and raise future incomes.

Efficient utilization of resources

While increasing resources to meet the MDGs is critical, there is also much scope for reforms that would facilitate a more efficient use of resources. For instance, a study by Economic Policy Research Centre (2010) identified a series of interventions to address inefficiencies in the health sector. It highlighted, among other things, that the challenges of effectively delivering drugs in Uganda are related to problems with the institutional partnerships for the delivery of drugs, deficiencies in the procurement and disbursements by National Medical Stores, the ineffective use of funds for drugs under credit lines, third parties and primary health care, and the poor quality of district-level drug acquisition and delivery mechanisms. Similar expenditure tracking studies confirm there are significant resource leakages, especially in the education sector. For instance, Reinikka and Smith (2004) found that, on average, only 13 per cent of the capitation grant disbursed per student by the central government reached the intended primary schools. There are also other inefficiencies in the education sector, including teacher absenteeism, the importance of which could not be quantified in this study.

To examine the potential impact of measures to increase public sector efficiency, we simulated a scenario targeting simultaneous achievement of all non-income MDGs and assuming an improvement in the efficiency in the delivery of education, health, water and sanitation services. The efficiency gain was introduced by assuming an increase in the total factor productivity of 2 per cent per year in each of the corresponding social sectors. The additional assumption is that the efficiency improvements can be achieved through administrative measures at no direct additional fiscal cost. Unsurprisingly, this would help reduce the fiscal costs of the MDG strategy. The results, shown in Figure 8.5, indicate that the efficiency gains

Figure 8.5

Uganda: Total public expenditure¹ in aid-financed MDG-scenarios with and without efficiency shock²

¹ Including both MDG and non-MDG related spending and transfers.

² The simulated efficiency improvement corresponds to an increase of total factor productivity of 2 per cent per year in primary education, health, and water and sanitation sectors.

Source: Authors' estimates based on the application of MAMS for Uganda.

would amount to about 1 per cent of GDP. This simulation is presented for purely illustrative purposes. The actual efficiency gains from public service reforms are likely to differ across sectors and will ultimately depend on political commitment of the country's leadership to take on vested interests and break with corrupt and inefficient practices.

Combining improved domestic resource mobilization and aid financing

For the baseline and the MDG achieving scenarios where taxation is not the financing mechanism of newly required MDG spending, it was assumed that tax revenues would increase from 13 to 15 per cent of GDP between 2007 and 2015, in line with NDP projections. An alternative scenario was assessed in which the MDG strategy would be in part financed by requesting additional official development assistance and in part through an increase in the tax effort (to 19 per cent of GDP in 2015). Improved tax collection should be achievable in the medium run by strengthening the tax administration and reducing or eliminating ad hoc exemptions for selected businesses. This mixed financing scenario would mitigate the real exchange rate appreciation and limit the adverse impact on exports as compared with the case of fully financing the strategy with foreign grants. Average annual export growth would still be 3 percentage points below that of the baseline scenario, but less severe than the 5.5 percentage points drop in the scenario of a fully aid-financed MDG strategy.

While not presented here, similar outcomes may be expected in a scenario which combines tax increases and external borrowing against future oil revenues to finance accelerated MDG attainment. As this would imply upfront investments in human capital it could be a means to avoid the “resource curse” effects that has plagued many natural resource abundant countries.

Infrastructure and MDG attainment

The above analysis involves resources largely targeted towards MDG attainment through the provision of MDG-related public services and improvements in household means. In a final set of simulations, we assess the impact on MDG achievement of increasing public investment in general infrastructure, such as roads and electricity supply. Improvements in infrastructure could have a direct effect on MDG achievement by making social services more accessible (better transportation) and more functional (e.g. allowing for the use of electronic instruments). Infrastructure investment would further add a demand impulse to the economy and enhance productivity of economic activity. Scenario results presented below assume a 25 per cent increase in spending on general public infrastructure. All other baseline assumptions were kept the same.

Figure 8.6 compares the difference in progress towards the MDG between the original baseline and the baseline with increased infrastructure investment. The primary completion rate would be 2.6 per cent higher,

Figure 8.6
Uganda: Impact of other public infrastructure spending on MDG indicators¹

¹ MDG indicators accord with those presented in Figure 8.3.
Source: Authors' estimates based on the application of MAMS for Uganda.

while progress towards the other MDGs would also improve, albeit to a lesser extent. This provides a basis for viewing investments in MDGs and investments in infrastructure not as competing but complementary public policy objectives. In this case, less MDG spending would be compensated by higher spending on general public infrastructure.

EFFECTS ON POVERTY AND INEQUALITY

As already indicated, Uganda had already met the MDG-1 poverty target by the mid-2000s. Nonetheless, it is still useful to examine how additional policy efforts to achieve the non-income MDGs affect poverty reduction and income distribution.

In order to do so, the non-parametric microsimulation approach as described in Vos and Sanchez (2010) was applied to, in top down fashion, take simulation results generated in MAMS and apply them to the full welfare distribution from the 2005/2006 Uganda National Household Survey. As described at greater length in Chapter 1, the method allows

to overcome the limitation that MAMS only shows labour market and household income outcomes for a limited number of labour categories and household groups. Through the microsimulation approach, labour market outcomes and changes in the demographic structure of the labour supply resulting from the MAMS simulations were imposed on the full income distribution as observed through household surveys.

The official monthly poverty line (of UGX 21,135) established by the Uganda Bureau of Statistics (Appleton, 1999) was used to calculate the poverty incidence. All changes in the labour market structure after the base year are assessed relative to the base-year structure of the baseline survey.

The first set of results from the microsimulations shows the impact of the different MDG scenarios on the poverty incidence, or poverty headcount, between 2010 and 2015 (Figure 8.7). In all scenarios, poverty continues to decline. Under the baseline assumptions, which model the assumptions underlying the NDP, the incidence of poverty would fall from 25 to 24 per cent between 2010 and 2015. However, poverty reduction decelerates in the baseline, because economic growth is not sufficiently pro-poor and because of difficulties to reach the “chronic poor”. Targeted policy interventions may

Figure 8.7
Uganda: Poverty incidence in the baseline and MDG scenarios under alternative financing options, 2010-2015

Source: Authors' estimates based on the application of MAMS for Uganda and microsimulations using the 2005/2006 Uganda National Household Survey.

be needed, including through cash transfers programs (e.g., for the elderly and households with children, which are already being piloted in selected areas of Uganda). Public works programmes and employment subsidies could be considered to reduce unemployment and underemployment among targeted population groups.

The poverty impact of the MDG scenarios varies depending on the financing scenario. The scenarios with foreign financing help reduce poverty further, while a tax-financed strategy would weaken poverty reduction in comparison with the baseline. The reasons for this were already mentioned, namely that the assumed direct tax increases would reduce disposable household incomes, aggregate demand and hence employment generation. These kind of trade-offs would be even stronger in the domestic borrowing scenario.

Figure 8.8 shows the results of the microsimulations for income inequality as measured by the Gini coefficient. The degree of inequality rises over the simulation period in all MDG financing scenarios. This could suggest that the NDP will do little to reverse the upward trend in inequality, even though

Figure 8.8
Uganda: Gini coefficient in the baseline and MDG scenarios
under alternative financing options, 2010-2015¹

¹ The Gini coefficient was estimated for household income per capita.

Source: Authors' estimates based on the application of MAMS for Uganda and microsimulations using the 2005/2006 Uganda National Household Survey.

the NDP itself assumes otherwise. The simulated increase in inequality is mainly driven by a strong increase in wages of skilled workers, which more than offsets the inequality-reducing effects of the decline in unemployment of unskilled workers induced by the MDG scenario. Figure 8.8 also shows that the tax-financing scenario mitigates the inequality-enhancing effects, by tempering the wage increases for skilled labour. Rising inequality is often seen as an inevitable outcome of the development process, at least up to a certain level of development, especially as business opportunities expand and returns to education rise. Nevertheless, rising inequality should be of concern to policymakers in Uganda as it slows poverty reduction and may affect long-term economic growth and social cohesion.

CONCLUSIONS AND POLICY IMPLICATIONS

This chapter's scenario analysis points to the need for a new round of structural reforms that will enable Uganda to accelerate progress towards the MDGs. The package of reforms needs to include a combination of increased public expenditure in sectors that expand the productive capacity of the economy, including agriculture and infrastructure, as well as to the social sectors where services that contribute directly to the MDGs are delivered. Additional public spending required to meet existing MDG gaps in primary education, child and maternal mortality, and water and sanitation, would amount to 12 per cent of GDP or more. The limited scope for enhancing domestic resource mobilization in the short run would suggest Uganda would need to increase its reliance on foreign aid in order to achieve the MDGs. Our analysis suggests that this need only be a temporary necessary evil when combined with reforms to enhance tax collection and enhance efficiency in public service delivery.

Moreover, once revenues from Uganda's newfound oil resources begin to flow, resource mobilization can be diversified further. Frontloading some of the future revenues (e.g. by borrowing abroad using oil as collateral) can be sound economic policy if the resources are invested in both physical and human capital that would enhance productivity and thereby offsetting possible "Dutch Disease" effects in the medium run as well as serving the purpose of accelerating progress towards the MDGs. More effective delivery of public services requires greater attention to implementing accountability mechanisms and fighting corruption. This should also be a key priority if Uganda is to avoid the "resource curse" of the ill-management of the proceeds from the impending oil boom.

With the recent cessation of hostilities in the north, after the end of decades of low-intensity civil war, there are now real opportunities for a renewed push to accelerate both economic growth and improvements in the social conditions through MDG achievement. This should also reduce the risk of recurrence of conflict.

NOTES

- 1 This section draws mainly from the 2010 MDG progress report by the Ministry of Finance, Planning and Economic Development (2010).
- 2 The high net enrolment rate also implies that the target of gender parity in primary education is close to being achieved.
- 3 Uganda also faces great challenges to comply with MDG 6 on combating HIV/AIDS, malaria and other diseases which is not subject of analysis in this chapter. Since the late 1990s the data show a troubling upward trend in the number of new HIV/AIDS infections and young women are particularly vulnerable (Ministry of Finance, Planning and Economic Development, 2010). Progress towards two other major diseases, malaria and tuberculosis, has been mixed.
- 4 The IFPRI 2002 SAM is an update of a 1999 Uganda SAM prepared for IFPRI by Paul Dorosh and Moataz El-Said. The latter was published in 2005 (see: <http://www.ifpri.org/dataset/uganda-1>).
- 5 Please note that the achievement towards MDG 2 is monitored here for primary school completion (rather than enrolment).

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