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FISCAL SPACE AND FINANCING FOR NATIONAL HEALTH INSURANCE IN BOTSWANA

September 2018

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The Health Finance and Governance Project

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ACRONYMS

BCWIS	Botswana Core Welfare Indicators Survey
BMTHS	Botswana Multi-Topic Household Survey
BPOMAS	Botswana Public Officers Medical Aid Scheme
BURS	Botswana Unified Revenue Services
DHMT	District Health Management Team
GDP	Gross Domestic Product
HFG	Health Finance and Governance
MAS	Medical Aid Scheme
MFED	Ministry of Finance and Economic Development
MOHW	Ministry of Health and Wellness
NHI	National Health Insurance
NHIF	National Health Insurance Fund
NHIS	National Health Insurance Scheme
NMIT	Non-Mineral Income Tax
OOPS	Out-of-pocket spending
PAYE	Pay as you earn
UHSP	Universal Health Services Package
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VAT	Value Added Tax
USAID	United States Agency for International Development



EXECUTIVE SUMMARY

The main purpose of this report is to estimate the potential revenue that could be gained from health insurance contributions raised through a levy on incomes. As described in the Health Financing Landscape Analysis and in the National Health Financing Strategy 2019-2023, Botswana's health system faces the twin challenges of 1) raising resources to pay for growing health needs, and 2) improving the efficiency of the health system to ensure value for money (MOHW and HFG 2018). Meanwhile, as Botswana's economy diversifies and revenue from minerals becomes a smaller share of government revenue, the Government of Botswana (GOB) is facing a slow but steady fiscal contraction; as described in NDP II, this will require a reduction of government spending as a percentage of economic activity (GOB 2017). Thus, while spending is relatively unconstrained in the short term, policymakers are interested in analyzing potential alternative financing sources for the health sector, beyond the direct funding of the Ministry of Health and Wellness (MOHW) in the general budget.

To this end, policymakers and stakeholders in the Health Financing Technical Working Group recommended the introduction of a National Health Insurance (NHI) System as one potential approach to finance and reorganize the health sector so as to introduce new mechanisms and incentives for strategic purchasing. The proposed reforms are described in detail in the NHI Blueprint Report (Gutierrez et al. 2018), which suggests a modest levy of 2 percent of employee wages (1 percent from the employee and 1 percent from the employer) as one source of potential financing. The modeling exercise described in this report takes this levy as the baseline and estimates a number of scenarios with varying assumptions about the levy rate and the cost of the health services package to be provided by the potential NHI scheme. In addition, this analysis explores the potential cross-subsidization arrangement proposed in the NHI Blueprint, which would entail a separate NHI Fund and NHI Scheme. The Fund would be financed by contributions from all Botswana (including MAS members) and would transfer a per capita fee to both the public NHI Scheme and private Medical Aid Schemes in order to finance the provision of a Universal Health Services Package (UHSP).

Ultimately, the analysis finds that a 2% levy on wages would raise only 11.5 percent of the total estimated cost of providing the UHSP benefit package to the entire population. While the NHI Blueprint report recommended the cross-subsidization arrangement as a mechanism for MAS members to contribute to the financing of the public health sector, a 2 percent wage levy does not fully finance the cost of providing the UHSP package, such that the cross-subsidization arrangement would result in a subsidy to MAS members instead of the other way around. Further, the result also estimates the revenue from contributions that could be collected from informal sector workers. Given, the size of the informal sector, the low average income, the high cost of collection, and likely low compliance, the modeling results indicate that very little resources could be raised by introducing premiums for the informal sector.

These results hold a number of important policy implications. First, the cross-subsidization arrangements proposed in the NHI Blueprint report are not feasible in the short to medium term. Rather than introducing a separate NHI Fund and Scheme, the new NHI system could have its own NHI Scheme that both pools resources and purchases services on behalf of members. Such a system would still introduce a new purchasing arrangement, with important implications for how services are paid for. Second, there is limited revenue to be gained from introducing NHI levies, especially from the informal sector. Given the low potential revenue to be raised, the introduction of NHI or other health financing reforms should focus more on creating a purchaser-providers split as a way to introduce mechanisms for accountability



and incentives for efficiency, rather than on generating new revenue. Such a purchasing entity (whether it is called NHI or by some other name) could be entirely financed by government subventions without introducing an NHI levy. Ultimately, the main message of the report is that ensuring the financial sustainability of the health system will require health financing reforms that secure more resources, but also make better use of existing resources. Thus, given, the limited revenue available from health insurance levies or premiums, Botswana should focus first on introducing purchasing reforms that enable modern provider payment systems that incentivize quality and efficiency. Only by making better use of existing resources and safeguarding the financial sustainability of the health system can Botswana ensure continued progress towards universal health coverage for current and future generations of Botswana.

I. INTRODUCTION

This report is part of the broader project taking place under the auspices of the Health Financing Technical Working Group to consider ways of improving the financing and operation of health care provision in Botswana, particularly health care provided through Ministry of Health and Wellness (MOHW) public health facilities. It is part of the USAID Health Finance and Governance (HFG) project, which provides technical assistance to the MOHW in order to develop Botswana’s National Health Financing Strategy and assist with other priority health financing activities.

Recognizing significant challenges such as improving efficiency and ensuring the long-term financial sustainability of the health system, Botswana’s National Health Policy called on the MOHW to “develop a health financing strategy that will guide the financing of the entire health sector” (MOHW 2011). Thus, with HFG support, the MOHW developed the National Health Financing Strategy 2019–2023 (MOHW and HFG 2018). The strategy outlines a set of goals and strategic actions in order to address Botswana’s priority health financing challenges. Among the recommendations in the report, the strategy calls for analyzing diverse options for resource mobilization, including exploring National Health Insurance (NHI) as one option for reform. To that end, HFG and the MOHW, with the support of the Health Financing Technical Working Group, developed a potential proposal for an NHI system in the National Health Insurance Blueprint Report (Gutierrez et al. 2018). Similarly, in line with the recommendations in the strategy, HFG supported an actuarial costing study of the revised Universal Health Services Package (UHSP) in order to estimate the cost of the revised UHSP benefit package (Kelly 2017).

The purpose of this Fiscal Space Analysis is to contribute to the policy dialogue concerning NHI in Botswana by estimating the potential revenue that could be gained from health insurance premiums, as described in the NHI Blueprint. While the blueprint outlines a general design for the potential NHI, and the actuarial analysis estimates the cost of the UHSP package, neither models potential revenue from health insurance premiums. By estimating this potential revenue (as well as fiscal space from other sources), this report is intended to advance the conversation related to NHI and universal health coverage in Botswana.

This report has four main parts. The first presents Botswana’s macroeconomic and fiscal background, which is essential for consideration of the fiscal space available for health financing. The second section draws upon work carried out by the author for the United Nations Children’s Fund (UNICEF) in 2017 on fiscal space for priority spending in Botswana (Jefferis 2018). This includes analysis of different methods of generating additional fiscal space for UNICEF priority spending in the areas of health, education, and social protection. The third section contains modeling and quantification of the revenues that could be raised for NHI in Botswana, using the approaches laid out in the NHI Blueprint. The report concludes with a discussion of the implications for the structuring and implementation of the proposed Botswana NHI scheme.

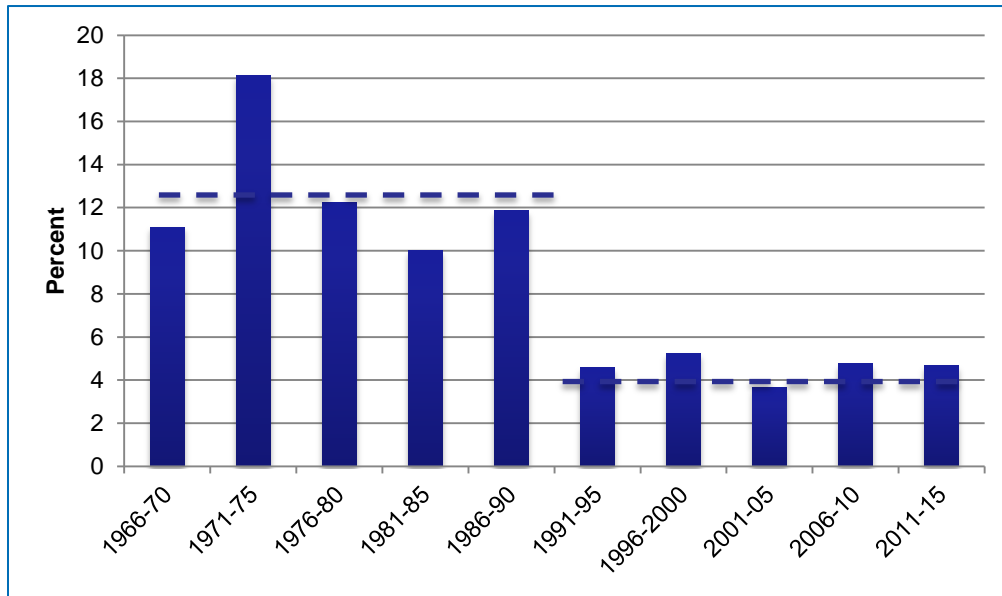
2. MACROECONOMIC AND FISCAL BACKGROUND

Botswana's fiscal space is relatively unconstrained in absolute terms, in the short term at least, due to high fiscal revenues from diamond exports and a history of prudent public financial management. The government budget has been roughly balanced in recent years. Debt levels are low, with public and publicly guaranteed debt totaling only 21.1 percent of Gross Domestic Product (GDP) in 2016/17, well below the statutory limit of 40 percent of GDP. The government also has accumulated cash savings almost equivalent to the level of debt, so that net indebtedness was only 2.3 percent of GDP as at March 2017.¹ The government could in principle increase spending, in the short term at least, by borrowing more or drawing upon accumulated savings. However, this would be inconsistent with the country's principles of fiscal policy and debt management, and the need to support long-term structural change.

Economic growth is volatile and still highly subject to the performance of the diamond sector, which in relative terms is in long-term decline. Although Botswana was once renowned as one of the world's fastest-growing economies, that has not been the case for many years. As Figure 1 shows, average real GDP growth rates in the first 25 years after independence were consistently in double figures, as diamond mining expanded. But over the past 25 years, real GDP growth rates have been unspectacular, averaging some 4 percent a year, which has been insufficient to create sufficient jobs for the growing labor force. While Botswana competently managed its "first transformation"—from a low-income agrarian economy to an upper-middle-income mineral-based economy—the mineral-based government spending growth model has long since run out of momentum. Recent growth has been more diversified, but based largely on a continued high level of government spending and the expansion of domestically focused goods and services. Without the development of a broader range of export sectors, for both goods and services, economic growth under the current model will gradually decline and eventually the country will run into fiscal problems. Botswana requires a "second transformation," to an economy based on productivity, efficiency, and competitiveness, to ensure future sustainable growth.

¹ MFED Budget in Brief, February 2018, Table A2.

Figure 1: GDP Growth, Five-Year Averages, 1965–2015



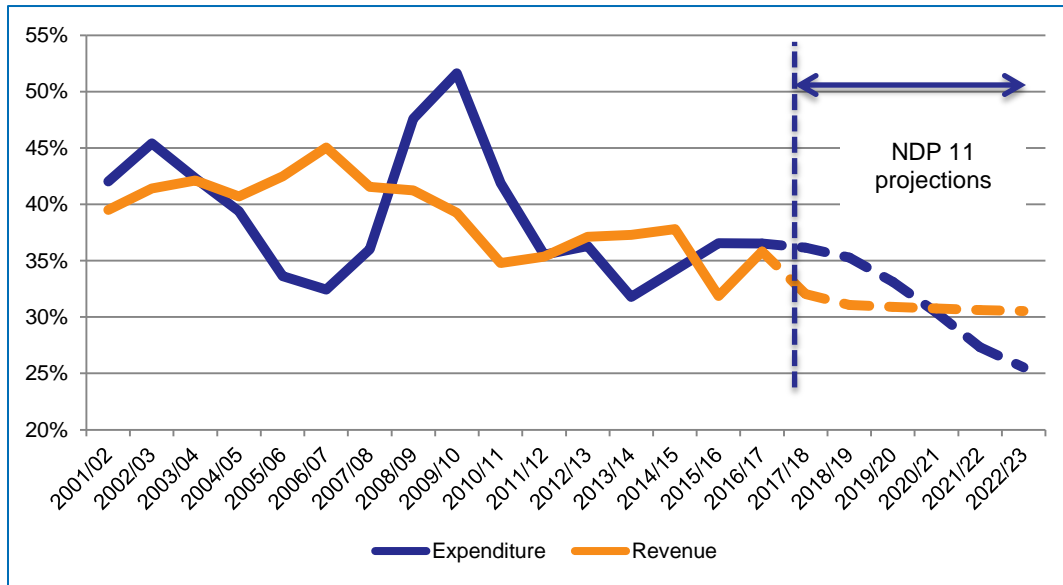
Source: Authors, based on data from World Development Indicators (NY.GDP.MKTP.KD.ZG).

Botswana therefore faces major long-term challenges of generating new sources of export-led growth, to supplement and eventually replace diamonds.

Furthermore, government revenues are mainly derived from external sources (diamond exports and the Southern African Customs Union), which cannot be relied upon indefinitely, and domestic fiscal revenue generation is low. Despite a positive outlook in the short term, a steady, long-term contraction of fiscal space is taking place as the fiscal contribution of the highly taxed diamond sector diminishes. In this context, the high level of public spending commitments—much of which involves very inefficient spending generated on the basis of high historical revenues—has to be managed downwards while ensuring that public resources are allocated as optimally as possible in improving social welfare.

The relative size of fiscal revenues has been declining, as mineral revenue growth has slowed and the overall contribution of mineral revenues has declined, although minerals still remain the largest single revenue source. In the five years from 1986/87 to 1990/91, mineral revenues averaged 27 percent of GDP, whereas over the past five years, mineral revenues averaged 13 percent of GDP. Over the same period, total revenues averaged 36 percent of GDP, with a downward trend, and are expected to decline further to around 30 percent of GDP over the next five years (Figure 2).

Figure 2: Government Revenues and Spending (Percentage of GDP), 2001/02–2022/23



Source: Econsult, based on data from Ministry of Finance and Economic Development (MFED) (Financial Statements and Tables), National Development Plan (NDP) 11, and Statistics Botswana (National Accounts).

Botswana’s income tax rates are relatively low when compared with those of other Southern African Customs Union countries, and the Value Added Tax (VAT) rate is one of the lowest in the world. Despite low tax rates, Botswana has traditionally enjoyed a high ratio of fiscal revenues to GDP, driven mainly by mineral revenues. At their peak, in the early 1990s, total revenues amounted to almost 50 percent of GDP, and for most of the period since then a ratio of fiscal revenues to GDP of at least 40 percent was accepted as the norm, and government spending was developed accordingly. The led to a large government and significant public sector wage bill. In the long-term, however, fiscal revenues are expected to decline to around the average for an upper-middle-income country, around 25–30 percent of GDP. This obviously means that public spending amounting to 40 percent of GDP cannot be sustained, and a major adjustment process is necessary. Domestic revenue mobilization is a high policy priority; proposals that have been put forward (other than raising tax rates) include reducing tax leakages (e.g., by minimizing exemptions and concessions); strengthening the taxation of income from capital such as interest and dividends; and raising property taxes.

3. UNICEF REPORT ON FISCAL SPACE ANALYSIS FOR PRIORITY SPENDING

In 2017, UNICEF commissioned a series of reports examining the fiscal space available for increased priority spending in a number of countries in sub-Saharan Africa, including Botswana. The reports focused on priority spending areas from the UNICEF perspective—health, education (excluding tertiary), and social welfare provision—and considered different potential funding options for creating fiscal space that could finance increased priority spending. The Botswana report’s conclusions, especially from the perspective of health financing, are summarized below.

3.1 Priority Spending

An analysis of Botswana’s functional allocation reveals some interesting insights about trends in priority expenditure. In general, education has taken the largest share, averaging 22 percent between 2012/13 and 2016/17, followed by general public administration at 13 percent, and health at 11 percent. The allocation of the largest share of the budget to education is a longstanding characteristic of expenditure in Botswana, with the share varying between 20 and 25 percent since the mid-1990s. The share of spending allocated to health has increased significantly over time, rising from a historical average of around 5 percent in the 1980s and 1990s to its current levels, to a large extent reflecting the impact of HIV and AIDS and its related costs. Compensation of employees (wages and salaries) accounts for approximately 60 percent of priority education spending and 50 percent of health spending.

Priority spending—which for the purposes of the UNICEF study was defined as (selected) expenditure in the education, health, and social protection sectors—averaged 10.8 percent of GDP between 2012/13 and 2015/6, and 32 percent of total government spending. In education and health, there have been major investments in infrastructure, with new hospitals, schools, and tertiary and vocational education institutions being built. With some exceptions, the availability and quality of infrastructure is not a binding constraint on the provision of priority sector services.

However, there are major concerns about the quality of public service provision in Botswana, despite the high levels of spending on infrastructure and high levels of per capita spending on health and education. This reflects overinvestment in expensive tertiary education and curative health care, which are not always pro-poor, and underinvestment in primary education and primary health care. Despite high and increasing priority spending (on a real, per-child basis), shown in Table 1, the ongoing implications of past spending decisions, along with persisting inequalities and spending inefficiencies, highlight the need for better priority spending.

Table 1: Priority Spending as Shares of GDP and Total Government Spending

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17*
% GDP	11.0%	10.5%	10.2%	10.9%	11.7%	10.0%
Education	5.6%	5.3%	5.3%	6.1%	6.3%	5.4%
Health	4.0%	3.8%	3.4%	3.6%	4.0%	3.5%
Social welfare	1.4%	1.4%	1.5%	1.3%	1.5%	1.1%
% Total government expenditure	30.8%	29.2%	31.8%	31.9%	32.8%	30.9%
Education	15.7%	14.8%	16.7%	17.7%	17.5%	16.7%
Health	11.2%	10.6%	10.6%	10.4%	11.2%	10.9%
Social welfare	3.9%	3.8%	4.6%	3.9%	4.1%	3.4%

*Revised estimates

Source: Jefferis, 2018.

3.2 Fiscal Space Scenarios Examined

The UNICEF report considered a number of options for expanding fiscal space for priority expenditure. In principle, policymakers could consider the following options:

- increasing tax and/or non-tax revenue through higher tax rates or increased collection efficiency
- reducing non-priority expenditures
- increasing external borrowing
- increasing net internal borrowing

Several of these options were modeled through a detailed fiscal-macroeconomic model. This model was based on actual data from recent years and allowed a number of key macroeconomic and fiscal parameters to be varied, and their impact on fiscal space to be projected vis-à-vis a baseline (business as usual) scenario (Table 2). The key scenarios modeled were as follows:

Alternative 1: Increased Non-Mineral Income Tax (NMIT) and VAT collection through improved tax collection efficiency (a 10 percent increase in the ratio of NMIT and VAT collections to GDP).

Alternative 2: Increased priority expenditure by 0.5 percent of GDP over a five-year period.

Alternative 3: Increased NMIT rates, raising income tax rates on individuals and companies so as to increase NMIT receipts by 10 percent over five years.

Alternative 4: Increased VAT rate. Botswana has a basic VAT rate of 12 percent, which is relatively low by global standards. This scenario envisaged a VAT increase to 14 percent.

Alternative 5: Reduction in non-priority expenditure, which grows at approximately two-thirds of the rate in the base scenario. This marks a de facto re-prioritization from non-priority to priority spending (as the growth rate of the latter is not reduced).

Alternative 6: Combined fiscal space scenarios.

Table 2: Fiscal Outcomes

Scenario	Budget Balance (average over 5 years) (% of GDP)	Government Debt (end of 5 years) (% of GDP)	Total Revenue 2022 (P mn, 2016 prices)	Incremental Revenue 2022 (P mn, 2016 prices)
0. Baseline	-1.5	16.4	77,723	
1. Enhanced tax administration	-1	13.7	80,278	2,555
2. Increased priority spending	-2.3	20.7	77,723	0
3. Increased NMIT rates	-1.2	14.8	79,304	1,581
4. Increased VAT rate	-1	13.6	79,347	1,624
5. Reduced non-priority spending	-1	13.5	77,723	0
6. Combined scenarios (1,3,4,5)	0.4	6.2	83,646	5,923

Source: Jefferis, 2018.

In general, the alternative-scenario results suggest that sustained increases in fiscal space (and hence potentially in priority-expenditure flows) could be derived from improved tax administration or higher tax rates. Freeing up fiscal space by reducing non-priority expenditure is possible, but is likely to face political obstacles.

Three of the scenarios deal with improving revenues. Each of them create additional fiscal space of around 0.5 percent of GDP on average over the projection period. With priority expenditure averaging just under 10 percent of GDP, these would each enable priority spending to be raised by around five percent, should the additional revenues be devoted entirely to priority spending. Fiscal space can also be created by reducing the growth rate of non-priority spending; if the growth rate is reduced by one-third, this creates a magnitude of fiscal space similar to the results of each of the revenue scenarios.

Combining all of these scenarios would create fiscal space of 2 percent of GDP on average, which could accommodate a 20 percent increase in priority spending.

In 2018 GDP is projected to be approximately P200 billion, so 0.5 percent of GDP is P1 billion. This compares with the following priority spending levels in 2016/17: education P9.3 billion; health P6.0 billion; and social protection P2.4 billion.

Increasing priority spending without an increase in revenues would lead to a rapid rise in government debt, which would not be sustainable in the long term.

A number of other options for additional fiscal space were considered in the UNICEF report (although not directly modeled).



3.2.1 “Earmarking,” or Ring-Fencing Revenues Raised from Specific Sources

These may be unrelated to the sector, e.g. 1 percent of VAT or an income tax levy, a levy on cell-phone usage or air tickets, or vaguely related sources such as “sin taxes” raised from excise duties on alcohol, tobacco, sugary drinks, fatty foods, etc.² The practice of earmarking specific revenues has not generally been used in Botswana, apart from specific cases where the revenue and expenditure are closely related to use (e.g., a fuel levy to finance road maintenance and an accident compensation fund). Earmarking of revenues for specific, unrelated expenditures is generally not considered a public finance best practice, because, in principle, spending should be prioritised and allocated on the basis of projected returns and impact, which is independent of revenues.

Earmarking may, however, be justified as a second-best approach when best practice (e.g., objective prioritization of expenditures) is unattainable, and where political, rather than technical, prioritization of spending dominates. In these circumstances, earmarking may be one way of protecting priority spending, but even this may be undermined by decreases in non-earmarked funding to the sector for which funding is earmarked.

3.2.2 Developing Additional Revenues Sources from within the Sector

Cost recovery is in place for some priority services, including school fees and fees for use of public health facilities. However, the fees are minimal. Secondary school fees raise approximately P89 (USD8.60) per pupil per year, which makes an insignificant contribution (P16 million) to the overall education budget, and could well cost more to collect than is raised in revenues, especially once the cost of means testing (for the exemption of poor families) is taken into account. Although exact figures are not available, it appears that the majority of secondary school pupils—an estimated 75 to 80 percent—do not pay fees, whether because they are exempted or because payment is not enforced. In any case there is no political will to raise fees to meaningful levels (relative to the costs of education provision), or to enforce sanctions (exclusion from school) against households who are deemed able to pay but who do not.

There are also notional fees for the use of some public health services, but at P5 (USD 0.50) these are set at such a low level that they cannot possibly cover the costs of collection and administration, nor are the fees enforced. Revenue from health service fees is not clearly identified in the government accounts, but would appear to have been P1.5 million in 2015/16. At this low level, and given the likelihood that the cost of administration and collection is greater than the fees raised, it is likely that the MOHW is made worse off financially by the imposition of fees as currently structured. A higher user fee could be considered (say P50 per consultation), but this would require a thorough assessment of the likely costs (in terms of collection and administration fees, as well as potential exclusion of patients from access to health services), against the potential benefits (revenues raised and inculcating a perception of value for services received).

² This is sometimes justified, particularly for health care, on the basis that people with unhealthy diets or lifestyles cost the health system more due to increased illness; however, this is likely to be offset by reduced life expectancy, so on balance there is no evidence that people with unhealthy lifestyles have higher lifetime health care costs. While there are many benefits from healthier lifestyles, these are not predominantly reduced lifetime health care costs.

3.2.3 Better Quality, More-Effective Spending (Efficiency Gains)

The health financing strategy notes that there are several sources of inefficiency in the health sector, leading to poor outcomes for relatively high expenditures. A number of inefficiencies have been identified:³

- Too high a proportion of national health resources are spent on curative health services, administration, and capital goods (i.e., building of hospitals and health clinics) as compared to preventive and primary health services.
- Limited autonomy of public health providers prevents them from spending money where it is most needed.
- Hospitals and other providers have high levels of technical inefficiency.

Hence, “increasing allocative and technical efficiency can save money and in the long term improve the effectiveness, quality, and sustainability of the health system” (Cali et al. 2016). The report made a number of specific suggestions, including improving drug policies, reforming purchasing mechanisms, encouraging competition between and among public and private providers, technical changes in medical interventions and clinical guidelines, and improving managerial practices and operational procedures. One essential component of this is developing hospital/health costing systems; at present, the costs of provision for different types of health services by the public sector are simply not known, so the information base is not available on which to base improved resource allocation decisions.

3.2.4 Running Larger Budget Deficits

Additional fiscal space could be created by additional borrowing, but debt funding for priority expenditure is inherently undesirable, because the cost of the debt is likely to exceed the return on priority expenditure, at least until the very long term. However, the main challenge with regard to financing additional priority spending with increased tax revenues is ensuring that the additional revenues are used to finance priority spending specifically, rather than the budget in general.

The government could, in principle, run larger deficits (or smaller surpluses) in order to increase priority spending. The additional spending could be financed by drawing down accumulated savings, or by additional borrowing, given that public debt is well below the statutory limit, and interest payments account for a relatively small proportion of the budget. Botswana has choices in these areas that most countries do not. Illustrative longer-term projections (beyond the horizon of the modeling carried for the UNICEF report) indicate that Botswana could run a budget deficit of up to 3 percent of GDP over the next decade, while remaining within statutory budget limits and not drawing down cash reserves.

Official policy, as laid out in the Government’s Medium-Term Debt Management Strategy,⁴ is clearly not to do this. This is driven by the understanding that the fiscal space created by accumulated savings and low debt is primarily intended to support the structural transition to a lower level of fiscal revenues in the future, especially as spending may be slower to adjust than revenues. Furthermore, the government has stated its intention to re-build (rather than run down) savings balances with the new fiscal rule in NDP II, which implies running budget surpluses and minimizing new borrowing.

³ Cali et al. 2016, p.7.

⁴ MFED, 2016.

3.3 Concluding Comments

In Botswana, almost uniquely amongst countries in sub-Saharan Africa, the binding constraint on spending is not availability of funding (whether through revenues or the financing of fiscal deficits) — at least not in the short term. The binding constraint is the need to move the economy on to a fiscal path that is sustainable in the longer term as mineral revenues decline, and hence to achieve a permanently lower level of public spending relative to GDP. In the relatively short-term time horizon of the UNICEF fiscal space model (five years) this is not apparent, but much-longer-term fiscal projections (10 years plus) show the magnitude of the challenge.

Botswana has other characteristics that distinguish it from many other developing countries. First among these is the coexistence of high levels of priority spending with poor social outcomes (such as high inequality and infant mortality, and poor educational outcomes). These indicate high levels of inefficiency in spending. A second is the coexistence of those poor social outcomes with high levels of fiscal space — notably low levels of debt alongside high government savings.

In conclusion, it is not clear that the problems can easily be solved by more spending rather than improving the quality of existing levels of spending. Second, the government sees financial buffers as an essential part of its macroeconomic toolkit, necessary to support the transition to future lower levels of fiscal revenues and spending.

4. MODELING OF POTENTIAL NHI REVENUES

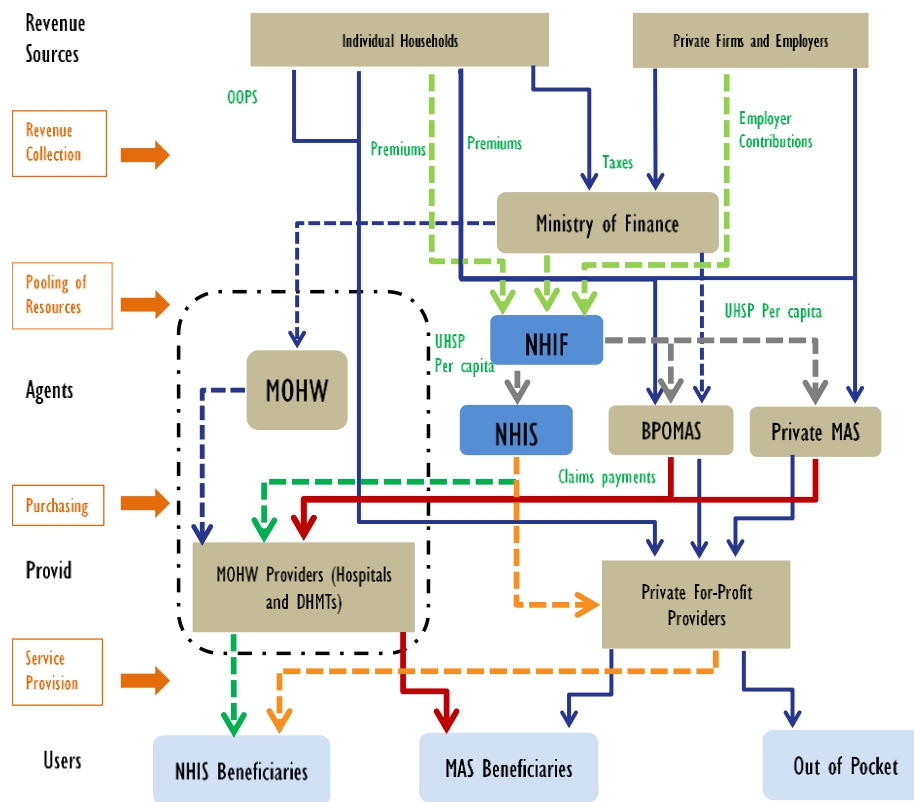
4.1 Principles and Structures

The National Health Insurance Blueprint Report (Gutierrez et al. 2018) sets out the principles and structure of the proposed National Health Insurance Scheme (NHIS) for Botswana. The principles are summarized below, and a diagram of the proposed structure and financing flows is reproduced from that report (Figure 3).

1. **Purchaser-provider split.** Currently the MOHW is both the supplier (provider) of public health services and the financier of those services, using a budget provided by the MFED. There is no clear distinction between the provider and purchaser roles. The proposed new structure separates these functions, so that the MOHW is the provider of public health services, but these are purchased from the provider (on behalf of its members) by a new NHIS.
2. **NHIS and Medical Aid Scheme (MAS).** The new structure envisages roles for both the new NHIS and the existing MAS. Initially they will form separate but parallel channels, such that the NHIS will purchase health services provided by the MOHW, while the private MAS will purchase health services provided by the private sector. In the future, however, it is envisaged that there may be a more integrated relationship, with the NHIS purchasing from both public (MOHW) and private health providers, and similarly for MAS.
3. **UHSP.** The centerpiece of the health services provided under the new arrangement will be the UHSP (Thematic Group 2017). Both the NHIS and MAS will be required to finance health services under the entire UHSP for their members.
4. **Mandatory membership.** All Botswana citizens residing in Botswana will be required to belong a health insurance scheme, either the public NHIS or a private MAS.
5. **Financing.** The NHIS will be financed through a mixture of premiums charged to members through various mechanisms, and subventions from government (from funds that are currently paid directly to the MOHW). These premiums and subventions will be paid into a new National Health Insurance Fund (NHIF). The NHIF will provide funds sufficient to finance the cost of UHSP provision for both NHIS and MAS members through a capitation fee.
6. **New levies.** Health insurance premiums will be paid by a wage-related levy on all employers and employees in the formal sector, and a levy on (some) income earners in other sectors of the economy (informal sector, agriculture, etc.). The levy will be applicable to both NHIS members and MAS members, and will be paid into the NHIF.
7. **Cross-subsidization.** It is desirable that MAS members pay more than the cost of their UHSP provision, hence enabling a surplus to be payable to the NHIS that can subsidize the cost of provision to the (poorer) NHIS members.

8. **Payment to MOHW facilities.** MAS members will continue to obtain health services from private sector providers as in current arrangements, and NHIS members will do so from public sector providers, who will be reimbursed by the NHIS. If MAS members obtain health services from public sector providers, a charge will be payable by the MAS to the MOHW facilities.
9. **Additional funding resources.** It is anticipated that the membership premiums charged to NHIS members will lead to additional resources for public health services in Botswana.
10. **Subsidy for poorer households.** As it is unlikely that poorer households will be able to meet the cost of NHIS premiums to cover the full cost of the UHSP, their premiums will be (partly) subsidized by government.
11. **Cost information.** MOHW health service providers must be able to charge appropriate fees for services provided. This will require new forms of budgeting and information relating to the costs of those services.⁵

Figure 3: Proposed Financial Flows — NHIS



Source: Gutierrez et al. 2018.

⁵ In 2018, HFG provided support to the MOHW to begin designing a tariff-setting framework that allows the calculation of average costs, and calls for the development of national reference tariffs. The arrangements are described in further detail in Gutierrez and Marshall 2018.

4.2 Modeling—Introduction

The modeling exercise uses data from the 2009/10 Botswana Core Welfare Indicators Survey (BCWIS).⁶ This contains information on incomes and a range of socioeconomic characteristics relevant to the exercise, including information relating to employment, payment of taxes, health insurance, and use of health services. Two datasets are available, for individuals and for households.

The approach of the modeling is as follows:

- Identify income-earning adults.
- Divide this group into those with income from employment (wages and salaries) and those with income from other sources; calculate the amounts that could be raised from an NHI levy on employees; project forward to 2017 on the basis of identified assumptions; add a levy on employers.
- Identify other income-earners and their incomes; project forward to 2017 on the basis of identified assumptions; establish the amount that would be raised by an annual fee payable by other income earners at specified rates depending on income levels.
- Calculate the contribution of the levies to meeting the costs of the UHSP, and the subsidies that the government would need to provide.
- Incorporate MAS into the analysis.
- Carry out a sensitivity analysis by varying different assumptions (e.g., levy rates/levels, UHSP cost, reliability of survey data).

4.3 National Demographics and Income

Table 3 shows the demographic structure of Botswana.

Table 3: Demographic Structure

	Number	% of Population
Young (<16)	650,177	36.1%
Working age (16–65)	1,053,570	58.5%
Elderly (>65)	98,555	5.5%
Total population	1,802,302	100.0%
Adults (16+)	1,152,125	63.9%

Source: BCWIS 2009/10, individual dataset.

⁶ A more recent household survey was carried out in 2015/16—the Botswana Multi-Topic Household Survey (BMTHS)—but the results were not available at the time of this analysis.

Of the adult (16+) population, 45 percent receive an income, while 55 percent do not (Table 4).

Table 4: Major Income Sources (adults)

Income Source	Number	% of Adults
Employment income	309,174	26.8%
Pensions	51,822	2.9%
Remittance receipts	48,428	1.0%
Enterprise income	33,617	2.9%
Government assistance	23,089	2.0%
Other sources (including agriculture)	52,190	9.3%
No income	633,805	55.0%

Source: BCWIS 2009/10, individual dataset.

A total of 95,775 adults were recorded as taxpayers. This represents 8.3 percent of adults and 18.5 percent of adults who receive an income. Almost all taxpayers are those with employment income, of whom 29.9 percent are taxpayers.

Taxpayers tend to earn higher incomes than non-taxpayers (Table 5). However, as there are far more non-taxpayers, they account for the majority of overall household income. One of the implications of this is that any health insurance levy that is collected from individuals through the tax system will be narrowly based, and for it to tap the majority of the adult population, alternative collection mechanisms will be required.

Table 5: Classification of Income Earners by Employment and Taxpaying Status

Category	Number	% of Income Earners	Mean Income (P/month)	Total Income (P mn /month)	% of Overall Income
Taxpayers	95,775	18.4%	3,653	349.9	36.4%
Non-taxpaying employees	216,811	41.8%	1,631	353.6	36.8%
Non-employee income earners	206,546	39.8%	1,243	256.7	26.7%
o/w upper 50%	99,118	19.1%	2,203	218.4	22.7%
o/w lower 50%	107,428	20.7%	359	38.6	4.0%
All income earners	519,174	100.0%	1,850	960.2	100.0%

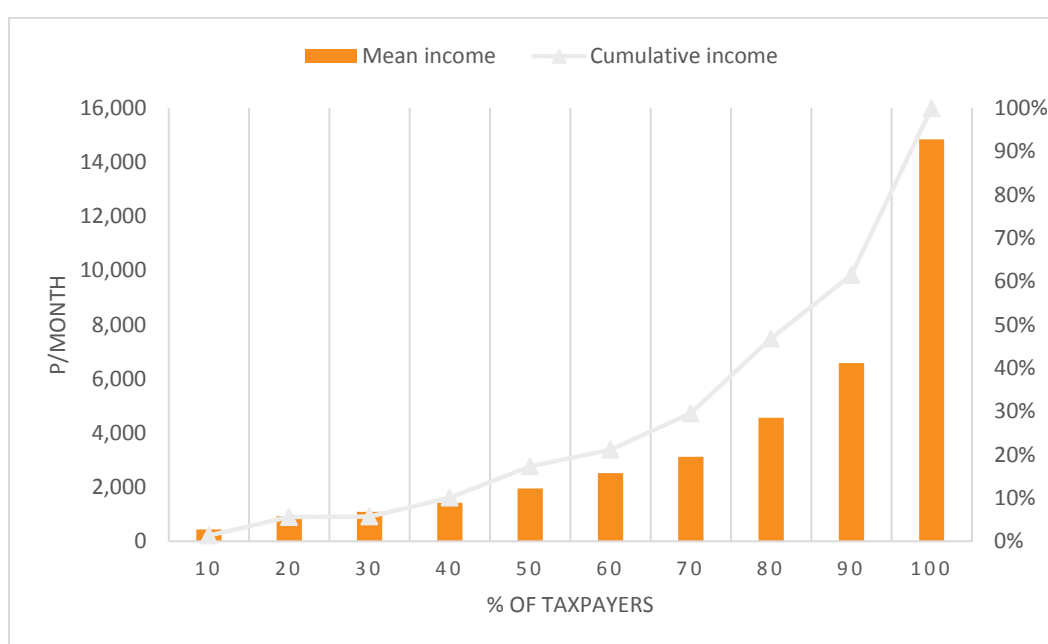
Source: BCWIS 2009/10, individual dataset.

4.4 Further Analysis of Taxpayers

The taxpaying population covers a wide spectrum of incomes (Figure 4). One of the anomalies of the BCWIS data is that many people report paying taxes even when their incomes are well below the minimum end of the taxpaying scale (which was P2,500 per month in 2009/10).⁷ Nevertheless, the majority of taxpayers' income (70 percent) is earned by the top 30 percent of taxpayers, and 39 percent of taxpayers' income is earned by the top 10 percent.

About 10 percent of non-employee income earners report earning incomes above the tax threshold but do not report paying taxes. Similarly, about 10 percent of employees earning incomes above the tax threshold do not report paying taxes. This suggests that the number of taxpayers may be an underestimate, as it is difficult for those in formal employment not to pay taxes when they are above the minimum tax threshold.

Figure 4: Taxpayer Incomes by Decile (2009/10)



Source: BCWIS 2009/10, individual dataset.

Table 6 shows the estimated funds that would be raised from a health levy collected from taxpayers, assuming:

- Levy rate: 1 percent of taxable income at all income levels for taxpaying employees; 1 percent of total employee income (taxpayers and non-taxpayers), paid by employers;
- Botswana Unified Revenue Services (BURS) collection fees not considered.

⁷ This, along with other evidence, suggests that incomes are significantly under-recorded in the BCWIS. This point is addressed later.

Table 6: Total Amount Raised from NHI Levy (2009/10 data) (Pula)

	Monthly		Annual	
	Total	Per Person	Total	Per Person
1% levy on incomes of all taxpaying employees	3,498,657	37	41,983,884	438
1% levy on all employee incomes (paid by employers)	7,034,929		84,419,152	
Total	10,533,586		126,403,036	

Source: BCWIS 2009/10, individual dataset.

4.5 Employee and Taxpayer Projections to 2017

These are historical values and have to be extrapolated forward to 2017, which requires estimates of the growth of incomes and the number of employees and taxpayers, as well as taking account of any changes in tax rates. We assume that the number of employees has grown along with formal employment. This has been slow, at 4.7 percent in total over the eight-year period, taking the number of employees based on the BCWIS to 323,803 (which is marginally below the Statistics Botswana 2017 estimate of formal employment of 342,198). We assume that those with incomes above the tax threshold are taxpayers (even if not recorded as such in the BCWIS), taking the estimated total number of taxpayers to 114,027.

Table 7 shows that more options are available for projecting the growth in taxpayer incomes, including:

- Growth of GDP per capita
- Growth of average formal sector earnings
- CPI (inflation)

Table 7: Growth of Key Variables, 2009–17

	2009	2017	Growth Rate
Formal employment	326,755	342,198	4.7%
GDP per capita (P)	37,671	79,907	112.1%
Average formal wages (P/month)	4,656	7,341	57.7%
CPI			49.1%

Source: Statistics Botswana.

The baseline projection uses the growth in average formal wages to extrapolate employee incomes.

Table 8 shows potential NHI levy income, calculated as follows:

Employees—the income of all employees in the BCWIS is projected forward to 2017, and a 1 percent levy applied to all employees with incomes above the tax threshold (varied later to take account of low-income taxpayers).

Employers—the income of all who earn their income from wages from employment (taxpayers and non-taxpayers) is projected forward to 2017, and a 1 percent levy applied to this total income.

Table 8: Projected Revenue from Employee Levy (2017)

			Monthly		Annual	
	Number of Persons Included	Average Income (P)	Total Levy (P)	Avg. Levy per Person (P)	Total Levy (Pmn)	Avg. Levy per Person (P)
1% levy on incomes of all employees with incomes above the tax threshold	114,027	7,674	8,750,660	77	105.0	921
Employer levy (1%) on all employees (taxpayer and non-taxpayer)	323,803		11,268,375		135.2	418
Total levy (employee + employer)			17,045,328		240.2	

Source: Model projections.

It should be noted that it would not be easy to allocate the levy paid by employers to specific individuals, for non-taxpayers. BURS has records on individual taxpayers, each of whom has a Tax Identification Number, and hence can—in principle—allocate levy income to individual names/NHIS members, as it does with Pay-As-You-Earn (PAYE) taxes. However, the administrative task is large, and the allocation of taxes paid to individual accounts is a long and slow process, and is not done in real time, so a new or upgraded system would be necessary to allocate levy payments to individual NHIS members as and when made, and to keep the record of premium payments up to date. However, BURS does not have records on non-taxpaying employees, so again a new system would be necessary to keep records of (employer) levy payments on behalf of non-taxpaying individuals.

4.6 Estimated UHSP Costs

The Actuarial Costing of UHSP costs (Kelly 2017) yields a baseline figure of P2,211 per person per year. If this is extrapolated to the entire population, estimated at P2.254 million in 2017, the total cost of providing the UHSP package in 2017 is P4,984 million (Table 9).

Table 9: Estimated Total Costs of UHSP Provision (2017)

Cost of UHSP (per person) (P)	2,211
Population (low variant projection)	2,254,021
Total UHSP cost (annual) (P mn)	4,984
Percentage of UHSP cost covered by levy on employer + employee	4.8%

Source: Model projections.

The projected revenues from a levy on employees and employers would yield 4.8 percent of total UHSP costs.

4.7 Further Analysis of Non-Employee Income Earners

As noted above, around 40 percent of income-earning adults derive their incomes from sources other than employment. These include those working in the informal sector, in self-employment, and in agriculture, and those who receive pensions, remittances and income from government schemes. It has been proposed that the self-employed pay a fixed annual national health insurance levy as shown in Table 10.

Table 10: Proposed Levy on Non-Employee Income Earners

Income Bracket (P)	Annual Levy (P)
0–36,000	100
36,001–48,000	600
48,001–60,000	1,500
60,001–72,000	2,000
72,001–90,000	2,211
90,001–108,000	2,500
108,001–144,000	3,000
144,001 and above	4,000

Source: NHI Blueprint, 2018

We extend this to include all non-employee income earners, including those in the informal sector, agriculture, pensioners and remittance receivers). Table 11 shows the revenue generated by such a levy, modeled using assumptions followed in the baseline case:

- Use the BCWIS 2009/10 dataset as the source of income data.
- Project the 2009/10 income levels forward to 2017 using the growth rate of average earnings.
- Calculate the revenue generated by each levy bracket.
- Assume 100 percent compliance.
- Assume zero collection costs.

Table 11: Levy Revenue from Other Income Earners (2017)

Levy Rate (P/year)	No. of Adults	% of Total	Levy Raised (P/year)	% of Total
100	178,029	81.0%	17,802,932	21.4%
600	20,252	9.2%	12,151,267	14.6%
1,500	5,768	2.6%	8,652,521	10.4%
2,000	1,653	0.8%	3,305,752	4.0%
2,211	2,800	1.3%	6,190,795	7.4%
2,500	5,452	2.5%	13,629,697	16.4%
3,000	2,272	1.0%	6,816,285	8.2%
4,000	3,639	1.7%	14,554,310	17.5%
Total	219,865	100.0%	83,103,559	100.0%

Source: Model projections.

4.8 Summary of Baseline Results

Table 12: Baseline Revenue Projections, 2017

	Pmn	% of Total UHSP Cost
Employees	105.0	2.1%
Employers	135.2	2.7%
Other income earners	83.0	1.7%
Total	323.3	6.5%
UHSP cost (total)	4,983.6	
UHSP cost (applicable to employees and other income earners)	959.2	

Source: Model projections

Table 12 shows that the revenues earned from the levies would cover a relatively small proportion of overall UHSP costs (6.5 percent). It would only cover approximately 34 percent of the costs of direct UHSP provision for those paying levies (ignoring dependents and other non-income earners).

4.9 Adjustments and Sensitivities

4.9.1 Under-Estimation of Income

There are several reasons to believe that the income figures reported by households in the BCWIS underestimate true incomes. In particular:

- The average monthly income for those with income from “wages from employment” was P2,207; this compares with average earnings in formal employment of P4,656 in Q4 2009 by Statistics Botswana (a gap of 53 percent, relative to the Statistics Botswana figure).
- Total income from employment in the BCWIS was P8,189 million, whereas Statistics Botswana recorded total compensation of employees of P19,835 million in 2009 (a gap of 59 percent).
- The total taxes reported as paid by taxpayers in the BCWIS was P1,193 mn (for 2009/10), while BURS reported total PAYE receipts of P2,186 mn in the 2009/10 fiscal year (a gap of 45 percent).
- Mean household income reported in the BCWIS was P1,842, whereas mean household total consumption was P3,886 (a gap of 53 percent).

In order to compensate for likely under-recording of incomes in the BCWIS, the first adjustment will be to uplift all incomes (for both employees and non-employees) by 100 percent. This is based on the gaps identified above of around 50 percent between BCWIS variables and other measures of similar variables. This provides an estimate of total employment income for 2017 of P27,044 million, and a total of 190,755 employees with incomes above the lower tax threshold (P36,000 a year). Comparisons between the model data and figures from Statistics Botswana and BURS are shown in Table 13.

Table 13: Data Comparisons—Model Projections vs. Statistics Botswana and BURS Data

	Model Projections (adjusted) (2017)	Formal Employment Statistics (2017)	BURS Taxpayer Statistics (2015/16)	National Accounts (2016)
Total employment earnings (P mn)	27,044	29,951	--	34,590
Total number of taxpayers	190,755	--	167,698	
Total taxpayer incomes (P mn)	24,609	--	28,827	

Source: Model projections, Statistics Botswana and BURS.

4.9.2 Reduction of Levy Payment by Low-Income Individuals/Households

Employees: Instead of a 1 percent levy across the board (as in the baseline scenario), the levy is charged at different rates depending on annual income:

0–36,000	0 percent
36,000–72,000	0.5 percent
> 72,000	1.0 percent

However, the employer levy is charged at 1 percent on all incomes, for both taxpayers and non-taxpayers.

Other income earners: As shown in Table 11, 81 percent of other income earners fall into the lowest category of levy payment (P100/year). Even though collection mechanisms have not been discussed, it is likely that a substantial proportion (perhaps even all) of the P100 levy will be taken up by the cost of collection. In this scenario, the levy is waived for the P100 band (as per income levels adjusted for the 100 percent uplift), as collection is unlikely to be cost-effective. A related issue is that the level of income is not documented for those outside of formal employment, and hence proof of income (which determines the levy payable) is unavailable.

4.9.3 Collection Costs and Arrangements

The NHI Blueprint proposes that the NHI levy be collected by BURS. BURS currently collects a number of revenues on behalf of other government departments, generally through processes linked to BURS main revenue collection structures (income tax, VAT, and customs duties). The average commission charged by BURS is approximately 10 percent of revenues, although the exact commission rate depends on the type and level of revenues and the collection mechanisms involved.

BURS can collect the NHI premiums payable by employers and taxpaying employees alongside the income tax (PAYE). It is not clear by what mechanism BURS would collect the levies payable by others (e.g., in the informal sector).

Employees: It is assumed that BURS would charge 5 percent of revenues for collection alongside PAYE contributions.

Other income earners: The collection mechanism has not been identified, but it is likely to be expensive to collect revenues from the informal/agricultural sector. An estimate of 20 percent of revenues is included for costs of collection.

4.9.4 Numbers of Employees and Other Income Earners

Other income earners: As this category includes a wide variety of types of incomes, we reduced the numbers by 50 percent to approximately exclude dependents and pensioners (i.e., recipients of unearned income).

The preliminary results of the 2015/16 BHMTS include data on economic activity, including employment status. Although these preliminary data may be revised, they do indicate significantly higher employment and income-earner numbers than those derived from projections based on the 2009/10 BCWIS as described above. The comparison is shown in Table 14 below.

Table 14: Employment Estimates, Model Projections, and Botswana Multi-Topic Household Survey (BMTHS)

	Model (2017 estimates, based on BCWIS 2009/10)	BMTHS (2015/16)
Employment	323,896	493,272
Other economically active income earners (incl. agric.)	109,933	159,098
Total	433,828	652,369

Source: Model projections and Statistics Botswana 2017.

These data indicate that the number of income earners used in the model is around one-third lower than the BMTHS numbers (or 220,000 people). It appears that they fall mainly in the informal and agricultural sectors. For instance, whereas the BCWIS recorded 14,867 people earning an income from agriculture in 2009/10, the BMTHS recorded 68,780 in 2015/16 (a difference of 53,913). The BMTHS recorded 493,272 people employed in the public and private sectors in 2015/16, whereas Statistics Botswana's formal employment data from March 2016 recorded only 340,196 in the public and private sectors (a difference of 153,000). The BMTHS also recorded 84,759 people working in private households (some of whom may be unpaid). Therefore, few of the possibly omitted people appear to be working in formal employment. The number of people with incomes above the tax threshold in the model (as adjusted) exceeds those recorded as personal income tax payers by BURS, and the total taxpayer earnings in the model are close to those recorded by BURS. For these reasons, the possibly omitted income earners are unlikely to be taxpaying employees (to whom the NHI levy will apply directly), and are likely to be mostly in the informal sector, household sector or agriculture, for whom it would be difficult (or inappropriate) to impose the employer levy through BURS (employers do not report to BURS if they have no employees above the tax threshold).

The modeling exercise has to use projections based on BCWIS data, as these are the only ones with information on income distribution. Although this means that the number of informal and agricultural workers is likely to be significantly underestimated, that will have little impact on the NHI revenue projections, as these are low-income earners. Moreover, the underestimation is to some extent compensated for by the fact that levy payment compliance for these groups is likely to be low. Although enforcement mechanisms have not been specified, it is likely to be difficult to collect from the informal/agricultural sector (assuming that there is no political will to deny treatment to people who do not have NHI membership).

4.10 Overall Results

Table 15 presents revenue projections for 2017, including income uplift, reduced levy rate on lower income taxpayers/households, and collection costs.

Table 15: Projected Levy Income, 2017, Adjusted Baseline

	Pmn	% of UHSP Cost
A. Employees	216.6	4.3%
B. Employers	256.9	5.2%
C. Other income earners	97.2	2.0%
Total	570.8	11.5%

Source: Model projections.

On the adjusted baseline scenario, the incidence of the levy is presented in Table 16.

Table 16: Levy Incidence, Employees (Adults), Adjusted Baseline

Decile	Avg. income (p.a.)	Levy Rate	Avg. Levy per Year	Levy Income	% of Levy Income
10	8,303	0.0%	0	0	0.0%
20	17,283	0.0%	0	0	0.0%
30	22,653	0.0%	0	0	0.0%
40	29,356	0.0%	0	0	0.0%
50	37,783	0.0%/0.5%	184	6,756,356	3.0%
60	52,972	0.5%	265	9,090,311	4.0%
70	73,691	0.5%/1.0%	674	23,572,494	10.3%
80	105,218	1.0%	1,052	29,779,868	13.1%
90	166,018	1.0%	1,660	50,843,333	22.3%
100	402,505	1.0%	4,025	108,008,900	47.4%
Total	83,496			228,051,262	
Total net of BURS fee				216,648,699	

Source: Model projections.

Table 17: Levy Incidence, Other Income Earners, Adjusted Baseline

Levy Rate (P per HH per Year)	No. of Adults	% of Total	Levy Income (P/year)	% of Total
0	112,927	51.4%	0	0.0%
600	16,461	7.5%	9,876,568	4.1%
1500	30,188	13.7%	45,282,476	18.6%
2000	3,119	1.4%	6,237,461	2.6%
2211	13,142	6.0%	29,056,452	12.0%
2500	2,192	1.0%	5,480,804	2.3%
3000	20,252	9.2%	60,756,335	25.0%
4000	21,584	9.8%	86,335,089	35.5%
Total	219,865	100.0%	243,025,185	100.0%

NB: before adjustment for collection costs and compliance

Source: Model projections.

The results show that 51 percent of other income earners and 41 percent of employees would not be liable to pay the levy. This equates to approximately 45 percent of the income-earning adult population, who would need to have their NHIS membership paid by government, along with children and those adults who are not earning incomes.

Almost all of the costs would fall on adults who are already members of MAS (see below) and employers (hence increasing the effective tax rate on firms, with a potential negative impact on the business environment). The effective impact on the tax rate of firms would depend on their cost structure, and in particular the proportion of their costs made up of wages and salaries. Effectively the NHI levy would be a payroll tax that would increase the cost of employment, which would run counter to the objective of creating employment, as it would particularly impact on firms with labor-intensive production structures.

4.11 Health Insurance and MAS

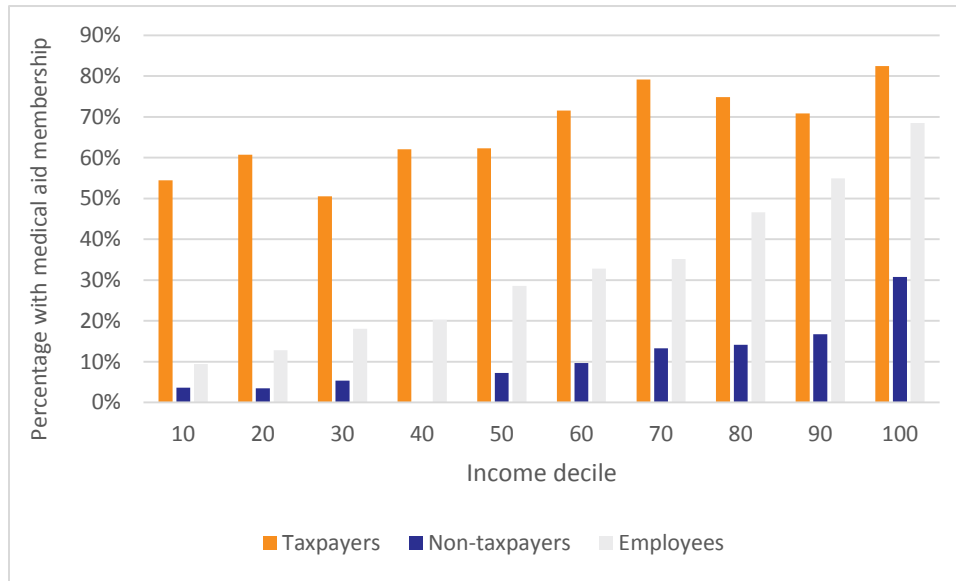
The above projections ignore the role of MAS in the proposed new set-up, and assume that everybody will make NHIF contributions and join the new NHIS.

The analysis below incorporates the role of MAS in the overall set-up, as per the blueprint document. Essentially this requires that adults join *either* an MAS *or* the NHIS. While everybody in specified categories would pay the NHI levy, the NHIF would then direct per capita fees to either an MAS or the NHIS, depending on the number of members. The implications of this are as follows:

- MAS would be required to include the full UHSP as part of the benefits offered to members.
- The NHI Fund would make subventions to MAS to cover the costs of UHSP provision.
- MAS premiums should fall, following the removal of the UHSP benefits from the benefits package that premiums cover directly (they are covered indirectly by the NHI Fund).
- An identification and distinction of NHIS members and MAS members would be necessary; if MAS members presented for treatment at a public health facility, their MAS would have to reimburse the public health service for the benefits provided; furthermore, a distinction would be needed between UHSP benefits and other health benefits, as MAS members would presumably be eligible for the tax-funded non-UHSP benefits (outside of the NHIS benefit package) at public health facilities.

According to BCWIS, approximately 110,000 adults are directly covered by health insurance as principal members (i.e., excluding indirect members—dependents) through MAS. The majority of these are taxpayers (with 68 percent coverage), rather than non-taxpayers (with 10 percent coverage). For taxpayers, health insurance coverage is fairly evenly distributed across the income spectrum, with more than 50 percent coverage even in the lower income deciles. For non-taxpayers, coverage only surpasses 20 percent in the highest income decile. For employees, MAS membership rises with income levels, as expected (Figure 5).

Figure 5: Health Insurance Coverage by Income Decile



Source: BCWIS.

4.12 Separating MAS Members and NHIS Members

The blueprint document specifies that it would be mandatory for all adults to belong to either an accredited MAS or the NHIS (rather than making NHI membership compulsory for all adults as in the projections above). However, NHIF contributions would be made by all. It is essential that MAS premiums be reduced accordingly (to reflect the payment for UHSP benefits for MAS members by the NHIF). If this does not happen, and employees and employers have to continue paying current MAS premiums and additionally pay NHIF levies on top, the implications are likely to be far-reaching. There may be resistance to payment of an additional NHIF levy by MAS members as well as their employers (who typically pay 50 percent of medical aid contributions). The likely result would be a reduction in MAS membership, as some employees would not be able to pay double contributions, and some employers might stop paying subsidies for their employees' MAS membership if they also had to pay towards those employees' NHI membership.

On the assumption that MAS membership patterns continue unchanged, the NHIF revenue projections can be attributed to MAS members and NHIS members. The shortfall in funding attributable to each cohort can also be calculated, and is shown in Table 18.⁸

⁸ Assuming that average household sizes and risk characteristics are the same for MAS and NHIS members.

Table 18: Projected Levy Income and Attribution, 2017, Standard Contribution Rate

	Revenue (P mn)	% of Segmental UHSP Costs Covered	Financing Gap (P mn)
Overall	571	11.5%	4,413
Attributable to:			
MAS members	259	26.0%	738
NHIS members	312	7.8%	3,675

Source: Model projections.

4.13 Increasing the Contribution to UHSP Costs

The contribution of revenue raised by an NHI levy to overall UHSP costs is relatively low (11.5 percent), and the NHIF would therefore be primarily dependent upon subventions from government. This reflects a combination of factors: the level of formal employment, the incomes of those in employment, the size of the informal and agricultural sectors, the level of dependence on government transfers, the proportion of the population that are not income earners, and the costs of health care.

Raising the levy rate on taxpayers and employers would be one way of increasing levy income. Doubling the rate (from 0.5 percent to 1 percent on middle-income taxpayers, and from 1 percent to 2 percent on higher-income taxpayers and employers would, *ceteris paribus*, double the revenue from items A and B in Table 15, and raise the proportion of UHSP costs covered to 21 percent.

Note that the contribution from non-taxpaying households is highly uncertain, given the problems with potential collection and enforcement mechanisms. Hence a lower bound for this source of revenue is zero.

Combining all of the above scenarios results in a range of 9.5 percent—21.0 percent of UHSP costs that could be covered by a health insurance levy (ignoring NHI membership administration costs) (Table 19).

Table 19: Upper and Lower Bound Estimates of NHIF revenues

	Revenue Pmn		% of UHSP Costs	
	Lower	Upper	Lower	Upper
Employees	216.6	433.3	4.3%	8.7%
Employers	256.9	513.8	5.2%	10.3%
Other income earners	0.0	97.2	0.0%	2.0%
Total	473.6	1,044.3	9.5%	21.0%

Source: Model projections.

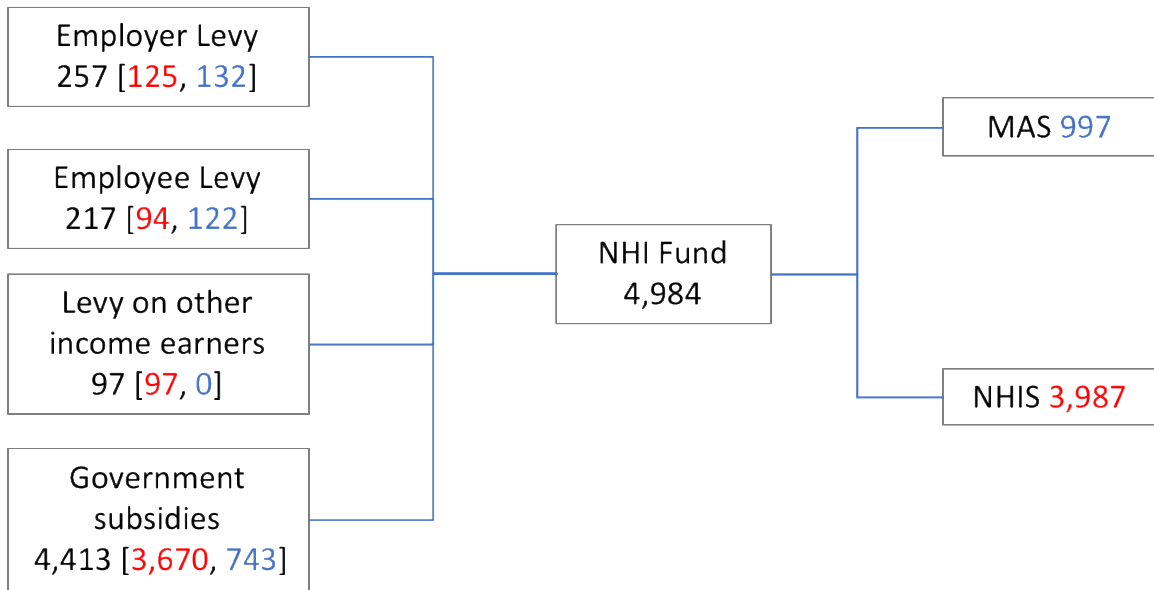
Lower: standard contribution rate; no collections from those not in formal employment.

Upper: double contribution rate; collect from 50 percent of those with informal incomes.

4.14 Government Subvention Requirements

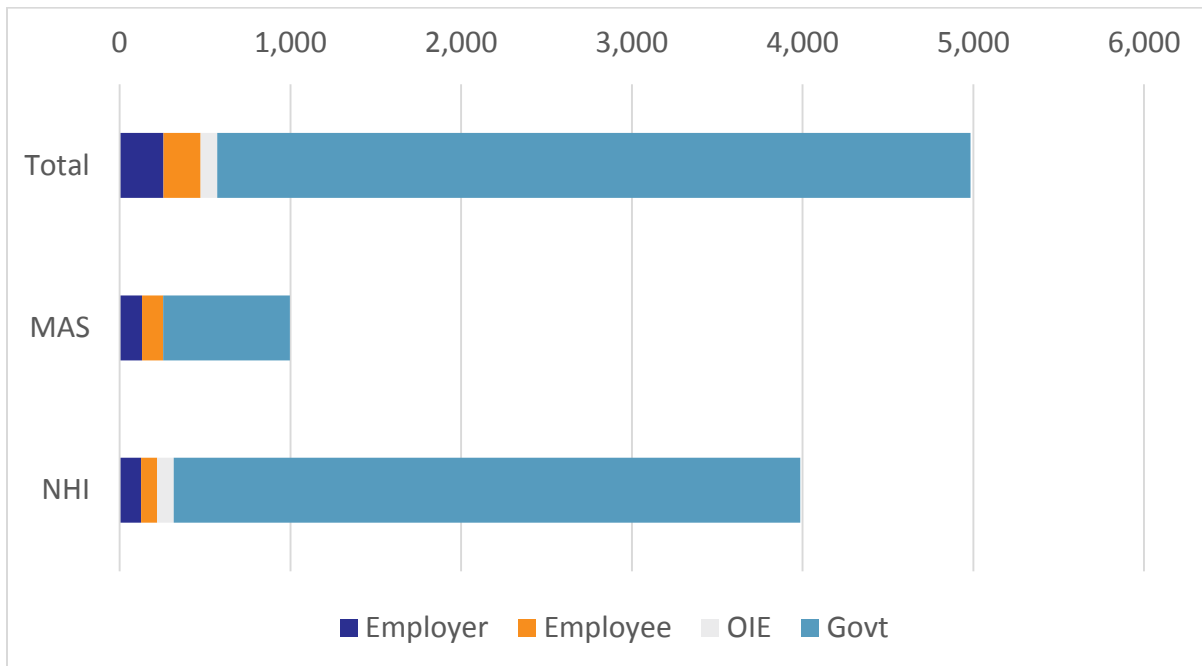
The low coverage rate for UHSP costs implies that substantial government subventions will be required, for both MAS and NHIS members. The financial flows (in the standard rate scenario) are shown in Figure 6 and Figure 7.

Figure 6: Financial Flows through NHI Fund (P mn)



Notes: figures in **RED** — attributable to NHIS members; figures in **BLUE** — attributable to MAS members.
 Source: Model projections.

Figure 7: Annual Contributions from Different Sources to NHI Fund (P mn)



Source: Model projections.

4.14.1 Lower UHSP Costs

The projected baseline cost of the UHSP package in the Actuarial Costing document is P2,211 per person per year (average across all ages, risks, and health conditions). Some observers have commented that this is higher than expectations, and that the actual cost could (should) be less than this. In contrast, other observers have noted that Botswana's health care system is inefficient and high-cost, in which case a relatively high-cost UHSP is to be expected. Given such inefficiency, there may well be potential gains that could reduce the per capita costs of health care delivery in the public sector (which is partly the intention of the proposed structural health care reforms, such as the purchaser-provider split and better costing information, of which the establishment of the NHIS is a component). But these are by no means assured, and the establishment of a completely new health care management system, with complex administration requirements, could also lead to higher, not lower, costs.

We also consider the case where the UHSP costs are one-third lower. The results of four scenarios are shown below: baseline and reduced UHSP costs, and standard and high contribution rates. In the "best case" scenario (reduced UHSP costs and double levy rates), total revenues cover 31.3 percent of UHSP costs (requiring government subventions covering 68.7 percent of UHSP costs). In this scenario, levies paid by or on behalf of MAS members cover 76 percent of their UHSP costs, leaving a financing gap (to be covered by government) for MAS members of P160 million. For the general public (i.e., NHIS members), however, this "best case" raises only 20 percent of their UHSP costs. This reflects the lower proportion of NHIS members in formal employment (compared to MAS members), and the lower incomes for those in formal employment and in the informal sector.

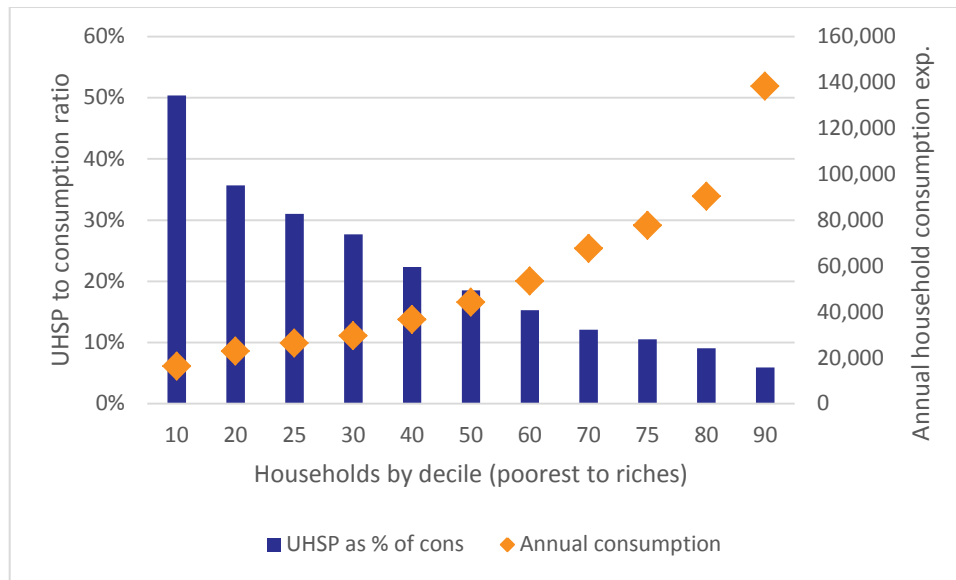
Table 20: NHIF Revenues and UHSP Costs, Various Scenarios

UHSP Cost	Baseline	Contribution Rate	Standard
	Revenue	Percentage of UHSP Costs Covered	Financing Gap
Overall	571	11.5%	4,413
MAS members	254	25.5%	743
NHIS members	317	7.9%	3,670
UHSP Cost	Baseline	Contribution Rate	High
	Revenue	Percentage of UHSP Costs Covered	Financing Gap
Overall	1,044	21.0%	3,939
MAS members	508	51.0%	488
NHIS members	536	13.4%	3,451
UHSP Cost	Reduced	Contribution Rate	Standard
	Revenue	Percentage of UHSP Costs Covered	Financing Gap
Overall	571	17.1%	2,768
MAS members	254	38.1%	414
NHIS members	317	11.9%	2,355
UHSP Cost	Reduced	Contribution Rate	High
	Revenue	Percentage of UHSP Costs Covered	Financing Gap
Overall	1,044	31.3%	2,295
MAS members	508	76.1%	160
NHIS members	536	20.1%	2,135

Source: Model projections.

To illustrate the problem of UHSP affordability over the population as a whole, at the household level, we can compare the cost of the UHSP for the average household with household consumption (based on the BCWIS, projected to 2017 in line with formal earnings growth; consumption expenditure is a proxy for household income) (Figure 8). This shows that the full cost of the UHSP is 18.5 percent of consumption or more for the poorest half of households. It is only 10.5 percent or less of consumption for the richest quarter of households (who are mostly members of MAS, so while NHI premiums directed towards the UHSP may be affordable, these households have little to gain directly). Even at the 90th decile (the richest 10 percent of households) the average UHSP cost is more than 5 percent of consumption.

Figure 8: Average Household UHSP Cost as a Percentage of Household Consumption Expenditure, by Decile



Source: Model projections.

An alternative estimate can be made of the potential revenue raised from a levy using the household consumption data. A levy equivalent to 4 percent of household consumption expenditure levied on the richest 50 percent of households would raise P957 million, around 20 percent of total UHSP costs, which is broadly consistent with the estimated revenue in the “high” scenario above.⁹

Under all realistic scenarios, the need for a government subvention to the NHIF is large. The default assumption is that government subventions would be largely sourced from the current health budget; in the baseline scenario, the subventions would take up 61 percent of the 2017/18 health budget. An alternative option would be to raise other taxes and earmark a portion for the NHIF, a suggestion made in the NHI Blueprint document. For instance, VAT could be increased by 1 percent and the proceeds paid into the NHIF. On the basis of the most recent tax year for which data are available (2016/17), this would raise approximately P550 million, approximately 11 percent of total UHSP costs, and compared to an overall government subvention required of P4,413 million. As noted in the discussion of the UNICEF fiscal space report, this is not an approach that has been used previously in Botswana, and would run counter to best practice in public financial management. Nevertheless, it may be acceptable as a “second best” solution.

⁹ In fact it is slightly lower, as it makes no allowance for collection costs.

5. CONCLUSIONS

The proportion of UHSP costs covered is far lower than the indicative target set out in the blueprint document (50 percent). The target could be achieved only by a combination of: (i) much higher levy rates (with negative impacts on employment creation and competitiveness); and (ii) much lower UHSP costs. Roughly speaking, each 2 percent of levy (1 percent on employees and 1 percent on employers) raises sufficient revenue to cover 10 percent of total UHSP costs at the baseline rate; hence it would take a total levy of 10 percent to cover 50 percent of UHSP costs. This would be a tax on employment that would be highly counterproductive in an environment where job creation is a very high priority.

More generally, **imposing levies as proposed would not generate significant additional funds for health spending.** Indeed, in the baseline case, the net contribution to the public health budget would be negative, because the NHIF subvention to MAS (for the UHSP per capita cost) exceeds the total that the levy would raise. At most, with a double levy and reduced UHSP cost, the levy income (net of MAS subvention but before accounting for NHIF administration costs) would be equivalent to 12.2 percent of the 2017/18 health budget.

It is also important to note that **there is no cross-subsidy from MAS members as a whole to NHIS members;** this is because of the high costs of the UHSP and the relatively low incomes even of MAS members. The full costs of the UHSP package (assuming an average household size of 3.7, with one income earner) would only be met by a levy on those with incomes above P408,000 a year (including both employer and employee levy at the standard rate). This includes an estimated 2–4 percent of the employed population. Even at double rate (4 percent total), the levy would only raise sufficient funds to cover costs from employees with incomes over P204,000 a year (some 8–12 percent of employees).

One option to consider is keeping the proposal to make membership of the NHIS or an MAS compulsory, but removing the proposed NHIF subvention to the MAS for the UHSP per capita costs, and exempting MAS members from the need to pay NHIF levies. This would require MAS to provide the UHSP, but the cost would be met entirely from MAS membership premiums; in this scenario, MAS members (and their employers) would not have to pay NHIF levies. This option may have been ruled out initially as it was expected that there would be a cross-subsidy from MAS members to NHIS members; but, as the projections above show, this will not occur under any realistic set of UHSP costs and levy rates, and hence does not need to be factored into the design of the scheme. Removing the proposed cross-subsidization between the NHIS and MAS through NHIF would reduce the funding burden on government, as it would not have to subsidise the UHSP per capita subvention to MAS.

The overall assignment of health system reform, including the establishment of an NHIF and the NHIS, is a lengthy and complex process, with many stages, some of which are highly dependent on the completion of earlier stages; hence, sequencing of reforms is crucial. The implementation of an NHIF and NHIS, for instance, requires the prior implementation of provider payment mechanisms with comprehensive costing information regarding the services provided. This in turn is a complex process that requires reforms to budgeting arrangements and information regarding services provided. An NHIS cannot purchase health services from providers unless those providers know how much their services cost to provide, which they currently do not (and cannot, given the nature of budgeting arrangements). One of the early steps in the process should be establish the basis for providers to sell their services to

a purchaser. Initially, the purchaser could simply be a separate part of the MOHW, so as to establish the purchaser-provider split internally. This would have the advantage of establishing the true cost of public health services, which would help to identify where there are inefficiencies, and potentially reduce the cost of the UHSP. **It is therefore recommended that an early step in the process be to undertake reforms within the MOHW to establish the basis for the purchaser-provider split, particularly costing information.** There is limited value in proceeding with the introduction of an NHIF/NHIS until this has been done. Once the detailed costing information is available, health service reforms can be introduced to address inefficiencies and hopefully reduce the costs of the UHSP—this would be stage two. The NHIF/NHIS could be introduced as stage three, but only after the first two have been completed, and even then there should be a realistic expectation regarding the (limited) funding potential of the NHIF levy. As has been concluded elsewhere, the real constraint in the Botswana public health system is not the availability of funds but the efficiency and effectiveness of spending. It would be a mistake to proceed with the establishment of a new funding mechanism—especially one that is likely to be extremely expensive to establish and operate—without addressing issues around the efficiency of spending.

A further point that needs to be addressed before any NHIF could be established is how levies would be collected from those working in the informal and agricultural sectors. This has not been discussed in any detail, but is tied in with the issue of how to enforce NHIS membership, assuming it is mandatory to belong to either the NHIS or an MAS. This is politically sensitive, because the only way to ultimately enforce membership is to deny treatment to non-members, or charge fees. Otherwise, NHIS membership becomes voluntary for those who do not have the levy deducted from income at source. While the existing network of social workers—used to establish eligibility for means-tested social welfare benefits—could assist in identifying those eligible for “free” NHIS membership, the challenge arises with those who are deemed well-off enough to pay, but who do not do so. The voluntary nature of compliance is well illustrated with the case of secondary school fees. Hence a political discussion and decision is needed about the desirability of enforcing compulsory NHIS membership, and the potential mechanisms for doing so. A comprehensive NHIS would require a registry (of adults, income earners, or households—there are various options), in order to keep track of NHIF contributions and NHIS/MAS membership. There is no such accessible registry at present; the closest is the national identification (*Omang*) database, which includes all citizen adults, but which is not linked to any other IT systems and is not generally accessible to other government departments. However, there are proposals for other registries: a social registry to track social welfare benefit recipients, and an employment registry to track members of a proposed national pension scheme. Any NHIF/NHIS registry should be developed as part of these other registries, and not independently. Ideally, as discussed in the Operations Chapter of the Health Insurance Blueprint, these registries should all be linked to an accessible *Omang* database.

Ultimately, the main message of this report is that major health financing reforms are indeed necessary to improve efficiency and safeguard the financial sustainability of the health system, but health insurance premiums or levies in and of themselves offer only limited fiscal space. Thus, of the major recommendations in the NHI Blueprint report, the creation of a purchaser-provider split (with its associated changes like better costing systems and provider payment mechanisms) should receive the highest priority. By rearranging how services are paid for and provided, such reforms have the potential not only to improve the efficiency of the health system, but also to incentivize providers to deliver more effective, high-quality care, and ultimately to strengthen the health system and contribute to progress towards universal health coverage in Botswana.

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