Effects of zero rating value added tax on government revenue in Namibia

A partial equilibrium analysis

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Abstract

Purpose – The Government of Namibia has traditionally used fiscal (especially tax) policy as an instrument for annual budget formulation. Marginal tax rates for profits and various income brackets have been changed back and forth in response to changes in economic conditions. However, to date, no attempt has been made to evaluate the effectiveness of these reforms in achieving the broad national economic goals, in general, and the potential effects on government revenue in the short, medium and long-run periods, in particular. The purpose of this paper is to fill this information gap by analysing the implication of the 2008 zero-rating of value added tax (VAT) on basic commodities for aggregate demand and government revenue.

Design/methodology/approach – The study uses an analytical framework based on economic theory which posits that in an open economy, which trades with the rest of the world, aggregate demand for goods and services is made up of consumption demand, investment demand, government demand and net exports and that real sector equilibrium is attained when aggregate supply of goods and services is equal to aggregate demand for goods and services.

Findings – Using the Namibia Household Income and Expenditure Survey results, the annual loss in government revenue attributable to this policy is, *ceteris paribus*, estimated to be N\$310.4 million. With a marginal propensity to consume out of disposable income of 0.89, total expenditure by households on goods and services is likely to increase by N\$276.3 million per annum. In the medium-to-long-run, national income will have increased by N\$303.9 million per annum. Taxes which are responsive to changes in the level of national income will have increased by N\$85.7 million, compensating for just over one quarter of the estimated loss in government revenue of N\$310.4 million.

Research limitations/implications – The study has used a partial equilibrium model as opposed to computable general equilibrium model, which provides a consistent framework that meets most of the sectoral and institutional data requirements for the simple reason that a social accounting matrix which can be used readily to connect data from different sources, such as national accounts and household surveys and would thus have been ideal model for analysing the impacts of the VAT tax reform has not been developed for Namibia.

Practical implications – The paper provides a number of practical policy options available for government including, but not limited to, increasing direct taxes, VAT rate on specific (luxury) goods and services and statutory VAT rate on all other commodities not zero-rated, other taxes such as taxes; and borrowing from external sources.

Social implications – It is established that zero-rating VAT on all the basic commodities in 2008 reduces the VAT paid by all Namibian households by N\$310.4 million per year, which represents the annual increase in the disposable income of all households. And with a marginal propensity to consume out of disposable income of 0.89, total expenditure by households on goods and services will increase by N\$276.3 million per year.

Originality/value – This paper presents the first attempt at evaluating the effectiveness of tax (VAT) policy reforms in Namibia in achieving the broad national economic goals, in general, and the potential effects on government revenue in the short, medium and long-run periods, in particular.
Keywords Namibia, Value added tax, Government revenue
Paper type Research paper

1. Introduction

Against a backdrop of rapid decline in economic growth, an escalating cost of living and a worsening unemployment situation, the Government of the Republic of Namibia (GRN), in 2008, decided to zero-rate value added tax (VAT) on additional basic commodities that are consumed mostly by poor households[1]. The first round of zero-rating had been put in place at the inception of the VAT system in the year 2000, with the zero-rated goods and services being *mahangu* (pearl millet flour), *mahangu* meal, maize, maize meal, water, electricity, refuse removal and sewerage disposal. The second round of zero-rating, put in place in 2008 added fresh and dried beans, cooking oil, bread, bread and cake flour, and processed animal fat. When first introduced in 2000, provision was made for three VAT rates, 30 per cent, 15 per cent and 0 per cent. The 30 per cent VAT rate was dropped in November 2002, leaving a 0 per cent rate for commodities on which the tax had been zero-rated at the inception of the tax system and a standard rate of 15 per cent for all other commodities.

As Alderman and del Ninno (1999) observe, a single-rate VAT system is both equitable and efficient. It is equitable because of its distributional neutrality and efficient because it is easy to administer. An alternative view, however, is that VAT systems should be based only on efficiency criteria, and equity concerns ought to be addressed by targeted income transfers. The introduction of VAT in South Africa in 1991 appears to have taken cognisance of this viewpoint. To reduce the burden of VAT on the poor, a safety net programme, the National Nutrition and Social Development Programme, was also introduced in 1991 to distribute R400 million each year to community-based projects (Alderman and del Ninno, 1999). In addition to this programme, maize and brown bread were exempted from VAT shortly after the tax system was introduced and, by mid-1993, 19 food commodities in all were exempted from VAT.

In Ethiopia, the VAT system which replaced sales tax in 2003 was expected to enhance revenue through its broader base, improve efficiency, promote exports and foster economic growth (Monoz and Sang-Wook, 2003). It was designed to tax services in addition to production, grant zero-rating to exports and give exemptions to fewer basic products than had been the case under the sales tax system. Non-exempt commodities are taxed at a uniform VAT rate of 15 per cent. Monoz and Sang-Wook (2003) observe, however, that the broadening of the tax base, the increase in the tax rate that accompanied the change from sales tax to VAT, and the choice of exemptions led to differential effects on the incomes and expenditures of groups within the Ethiopian population. They argue that exemptions complicate administration of the VAT system, erode the tax base and distort input choices. In a study of revenue and welfare effects associated with VAT exemption of financial services in Organisation for Economic Cooperation and Development countries, Buettner and Erbe (2012) have reported that there are several definitional and technical difficulties associated with levying a tax on the value added by financial institutions, although, in a study of Germany, they show that repealing the VAT exemption on financial services would increase tax revenue by 1.6 billion euros or 1.2 per cent of VAT revenue in that country and lead to a welfare gain of about 1 billion euros.

In April 1995, the Government of Mexico, in response to the December 1994 Mexican *peso* crisis, increased the VAT rate from 10 to 15 per cent, thereby increasing government revenue. In an attempt to establish the potential impact on revenue of bringing the VAT rate down again in Mexico, Pagan *et al.* (2001) use a vector autoregression model to analyse the dynamics between government spending, inflation, VAT rate and VAT revenue. They find that the likely impact of a VAT rate reduction would be to decrease government tax receipts in the short to medium term, and substantial budgetary shortfalls in the long term, which effectively would negate the short-term political objectives of VAT rate reduction.

Giesecke and Tran (2009) apply a dynamic computable general equilibrium model to the Vietnamese VAT system and demonstrate that a tax reform that replaced the system's three VAT rates (0, 5 and 10 per cent) with a single rate and at the same time removed the many exemptions, would advance Vietnam's development goals. Real private consumption (which they use as a measure of welfare) would be increased by an average of 0.9 per cent relative to base case, with about a third of this welfare gain accruing through reduction in the rate of indirect taxation on capital accumulation.

Applying a stepwise regression analysis to data for the accounting years 2001-2010 in Nigeria, Onaolapo *et al.* (2013) find that VAT has a statistically significant effect on revenue generation in Nigeria and recommend that the government improve on the collection of VAT and widen the VAT base to cover the informal sector.

The GRN has traditionally used fiscal (especially tax) policy as an integral part of economic policy. However, to date, no attempt has been made to evaluate the potential effects of the various tax policies on government revenue in the short, medium and long term. This is the information gap that this study seeks to fill with a partial equilibrium analysis of the implications for aggregate demand and government revenue of the 2008 zero-rating of VAT on additional basic commodities. The underlying reasoning here is that reduction of the tax burden, as a result of the VAT zero-rating, leads to an increase in households' disposable income, which in turn leads to an increase in aggregate consumption spending, which is a component of aggregate demand for goods and services. The resulting increase in national income then generates, through taxes that are responsive to income, additional tax revenue to the government thus compensating, either partially or in full, for the loss in tax revenue. The rest of the paper is structured as follows: Section 2 gives an overview of the place of VAT in the Namibian tax system; Section 3 presents the analytical framework adopted; Section 4 presents and discusses the results of analysis, while the conclusions and policy recommendations are presented in Section 5.

2. The place of VAT in Namibia's tax system
Over the fiscal periods 2000/2001-2007/2008, taxes accounted for an average of 88.9 per cent of annual government revenue, with the non-tax sources contributing only 11.1 per cent[2] (Table I).

	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2008/2009	Average	%
Tax revenue	7,550	8,166	9,330	8,763	10,467	11,963	15,843	19,183	11,401.88	88.9
Non-tax revenue	617	666	1,104	957	849	1,073	4,683	1,411	1,420.00	11.1
Total revenue	8,167	8,832	10,434	9,720	11,316	13,036	20,526	20,594	12,821.88	100.0

Source: GRN, revenue and expenditure data, 2000/2001-2007/2008, Ministry of Finance

Table I.
Sources of
government revenue
(2000/2001-2007/2008)
(N$ million)

Namibia's tax system is made up of five broad categories: taxes on income and profit; property taxes; domestic taxes on goods and services; taxes on international trade and transactions; and other taxes. In terms of contribution to tax revenue, however, the dominant taxes are those on income and profit, which over the fiscal periods 1990/1991-2007/2008 contributed an average of 37.2 per cent of total revenue per fiscal year, followed by taxes on international trade (33.9 per cent); and domestic taxes on goods and services (27.4 per cent). Together, these three tax categories contributed an average of 98.5 per cent of total annual tax revenue over the fiscal periods 1990/1991-2007/2008, the remaining 1.5 per cent being contributed by other taxes[3] (Figure 1).

Taxes on goods and services are dominated by *ad valorem* (indirect) taxes levied on goods and services. These were general sales tax (GST) and additional sales levy (ASL) from 1990/1991 to 2000/2001. From the 2000/2001 fiscal year, however, these two taxes were replaced by VAT, although revenue data obtained from the Ministry of Finance show ASL figures up to 2002/2003 and GST figures up to 2007/2008, because of lags in their collection and remittance to the government. These three indirect taxes accounted for an average of 81.5 per cent of annual revenue from domestic taxes on goods and services over the fiscal periods 1990/1991-2007/2008, followed by a levy on fuel (12 per cent), other taxes (4.2 per cent) and business licences (2.3 per cent) (Figure 2).

VAT is a consumption-based tax collected at each stage of the production and distribution chain. Different viewpoints have been expressed on VAT. Some economists argue that, although VATs are more efficient in generating government revenue, they generally distort consumer behaviour more than other forms of *ad valorem* taxes like sales tax and ASL (see, e.g. Alderman and del Ninno, 1999). Others argue that an ideal VAT regime only imposes the lowest level of distortion (see, e.g. Ebrill *et al.*, 2001). This group of economists views an ideal VAT regime as one with a single standard rate on all domestic sales, a zero rate on exports and no exemptions. Under such a regime, VAT essentially becomes a consumption tax; producers pay VAT on their output, but claim back in full the VAT they paid on their intermediate inputs. The effective VAT tax rate on producers thus becomes zero, while the effective tax rate on consumers becomes the legislated standard VAT rate.
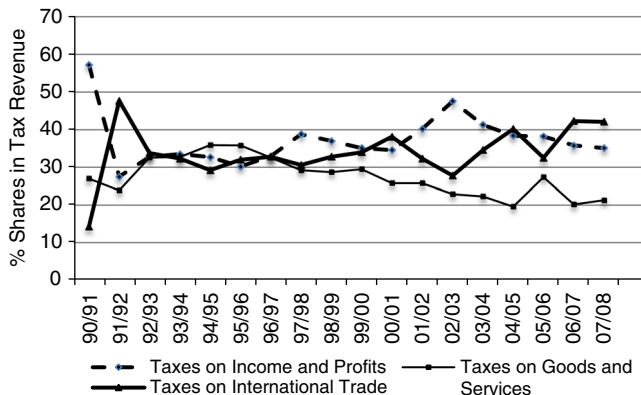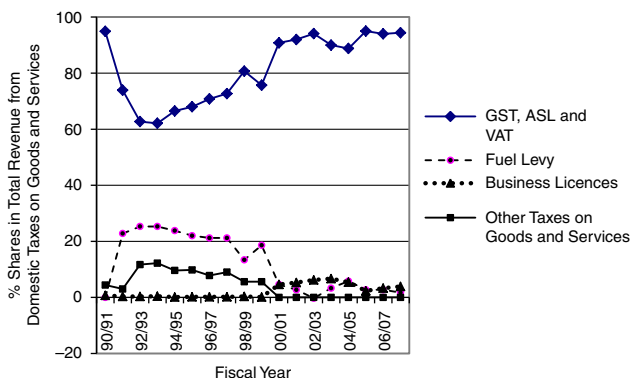

Figure 1.
Structure of
the tax system

Source: GRN (2009) Revenue and Expenditure Data, Ministry of Finance

Source: GRN (2009) Revenue and Expenditure Data,
Ministry of Finance

An important conceptual question arises, however, as to the real losers and winners from tax exemption or zero-rating. Producers/distributors and consumers gain from zero-rating, because the effective VAT rate on each of them is zero. When the tax is exempted, however, consumers benefit because the effective VAT rate on them is zero, while producers/distributors are losers because they have to pay VAT on their intermediate inputs. On the demand side, zero-rating provides an incentive for consumers to consume more, while on the supply side zero-rating acts as an incentive to producers to supply more of the commodities on which VAT is zero-rated. Yet VAT exemption provides only an incentive for increased consumption, which is likely to create a mismatch between demand and supply and lead to price increases that could easily erode the benefits accorded to consumers. Producers incorporate their production costs, including the taxes they pay on inputs, in the pricing of their products, and distributors also incorporate their distribution costs, including taxes they pay on their inputs, in their distribution margins. Given this, it can be argued that granting them the additional benefit of claiming rebate on the VAT they have paid on their intermediate inputs is unnecessary and simply leads to unjustifiable loss of tax revenue. Either way, the government is the ultimate loser, especially in the immediate to short term, whether the tax is zero-rated or exempted, because it has to forego or lose revenue.

3. The analytical framework[4]

In order to determine the potential effects of the 2008 VAT zero-rating of basic commodities on aggregate demand and tax revenue, this paper adopts an analytical framework based on economic theory which posits that in an open economy like that of Namibia, which trades with the rest of the world, aggregate demand for goods and services is made up of four components namely: consumption demand (C); investment demand (I); government demand (G); and net exports (NE).

Regarding consumption demand (C), the paper adopts a modification of the Keynesian Absolute Theory of Consumption, which postulates that aggregate consumption spending depends on the level of disposable income, increasing as disposable income increases, but by less than the increase in disposable income because part of every increase in disposable income is saved:

$$C = C_o + cY_{d,} \tag{1}$$

where C is the aggregate consumption spending by households; C_o the autonomous consumption spending out of dissaving; c the marginal propensity to consume out of disposable income; and Y_d the disposable income.

Given the level of taxes, disposable income bears a stable relation to the absolute level of national income (GNP = Y), and gross tax revenue can be viewed as a function of national income:

$$T_g = T_o + tY, \tag{2}$$

where T_g is the gross tax revenue; T_o the autonomous component of gross tax revenue that does not depend on the level of national income; and t is the marginal tax rate:

$$\text{Disposable income then becomes: } Y_d = Y - T_g = Y - T_o - tY \tag{3}$$

Substituting Equation (3) in Equation (1) yields aggregate consumption spending as a function of gross national income:

$$C = C_o - cT_o + c(1-t)Y \tag{4}$$

where $c(1-t)$ is the effective marginal propensity to consume out of national income.

To complete the real sector equilibrium model, government expenditure on goods and services (G), private investment spending (I), exports (X) and imports (M) are also considered.

Government spending is assumed to be autonomously determined by government policy, so it does not vary systematically with the level of national income:

$$G = G_o \tag{5}$$

This paper adopts the marginal efficiency of capital theory of investment, which postulates that investment is a decreasing function of the domestic rate of interest:

$$I = I_o - br \tag{6}$$

where I is the gross private investment, which includes new investment and replacement investment; I_o the autonomous investment spending, which does not depend on the rate of interest; r the average annual lending rate of interest; and b the responsiveness of investment spending to changes in the domestic lending rate.

Demand for Namibia's exports (E) depends on the global conditions of supply and demand, and also on the competitiveness of Namibia's exports in international markets. However, since the global conditions of supply and demand are not within the control of Namibia's policy-makers, at the practical level it is plausible to assume that demand for Namibia's exports depends only on the competiveness of the exports in international markets. Namibia's competitiveness in international trade is measured by its "real exchange rate" (E_1), which is defined as the ratio of its domestic general price level, measured in foreign currency, relative to the general price level abroad:

$$E_1 = \frac{eP}{Pf} \tag{7}$$

where E_1 is the country's real exchange rate, which is applicable to its exports to some specific foreign country; P_f the general price level (GDP-deflator) in the foreign country; P the domestic general price level; and e the nominal exchange rate, which is the

amount of foreign currency that is equivalent to one unit of domestic currency. When two or more export destinations are involved, E_1 in Equation (7) is a "multilateral real exchange rate", obtained as a weighted sum of the individual bilateral real exchange rates, with the weights being the relative shares of the country's total export value derived from each foreign country with which it trades[5].

It can be argued that demand for Namibia's exports in foreign countries is a decreasing function the real exchange rate that is applicable to Namibia's exports:

$$X = X_o + \delta E_1; \quad \frac{\partial X}{\partial E} = \delta < 0 \tag{8}$$

where X is the total export earnings; X_o the autonomous component of export earnings, which does not depend on the real exchange rate; E_1 the real exchange rate that is applicable to exports; and δ the responsiveness of demand for the country's exports to changes in its real exchange rate.

But demand for imports by domestic residents also depends on the level of national income, increasing as national income increases and falling as national income falls:

$$M = M(Y, E_2) = M_o + mY + \gamma E_2; \quad \frac{\partial M}{\partial Y} = m > 0 \text{ and } \frac{\partial M}{\partial E} = \gamma > 0 \tag{9}$$

where M is the total expenditure on imports; M_o the autonomous component; m the marginal propensity to import, which is the proportion of any increase in national income that is spent on imports; E_2 is the multilateral real exchange rate that is applicable to imports and is obtained as a weighted sum of the individual bilateral real exchange rates, with the weights being the relative shares of Namibia's total expenditure on imports going to the various countries from which Namibia imports goods and services; and γ is the responsiveness of demand for imports to changes in the real exchange rate.

Aggregate demand (AD) for goods and services in the economy is the sum of aggregate consumption spending, investment spending, government spending and net exports $(X–M)$:

$$AD = C + I + G + X - M \tag{10}$$

Substituting for the various components of aggregate demand, Equation (10) can be re-written as:

$$AD = C_0 - cT_o + [c(1-t) - m]Y + I_o + G_o + X_o + \delta E_1 - M_o - br \tag{11}$$

Real sector equilibrium is attained when aggregate supply ($Y = \text{GNP}$) of goods and services is equal to aggregate demand (AD) for goods and services:

$$Y = C_o - cT_o + [c(1-t) - m]Y + I_o + G_o + X_o + \delta E_1 - M_o - br \tag{12}$$

Making Y the subject of Equation (12), gives the equilibrium income determination equation:

$$Y^* = \frac{C_o - cT_o + I_o + G_o + X_o + \delta E_1 - M_o - br}{[1 - c(1-t) + m]} \tag{13}$$

where Y^* is the level of national income/output that is consistent with the equilibrium of the real sector.

From Equation (13), the multiplier which is applicable to changes in autonomous spending is obtained as:

$$\frac{\partial Y^*}{\partial A} = \gamma = \frac{1}{[1-c(1-t)+m]} \tag{14}$$

where A is the sum of the autonomous components of aggregate demand that do not depend on the level of national income; c the marginal propensity to consume out of disposable income; t the marginal tax rate; m the marginal propensity to consume out of national income.

4. Results and discussions

Zero-rating of VAT on basic commodities and services is bound to result in a loss of government revenue, because VAT is a significant source of tax revenue for Namibia. To calculate the revenue loss arising from the 2008 VAT zero-rating on basic commodities, the 1993/1994 and 2003/2004 Namibia Household Income and Expenditure Survey (NHIES) data were used to determine the average quantities of the zero-rated commodities consumed by a household in a year. Assuming that all these commodities are sourced from the markets, and that no household consumes own production, these quantities are then multiplied by the standard VAT rate of 15 per cent to obtain the average amount of VAT that a household was paying on these commodities in a year before the commodities were zero-rated in 2008[6]. This average amount of VAT is then multiplied by the total number of households in the country, to get the total amount of VAT that all households were paying on all these commodities in a year before the commodities were zero-rated. This figure comes to N$310.4 million. Zero-rating of VAT on these commodities thus leads to, *ceteris paribus*, a reduction of the balance of government budget by an annual amount of N$310.4 million.

The functional relations between components of aggregate demand for goods and services, and their respective explanatory variables are estimated to obtain the numerical values of the parameters/coefficients that are needed to determine the numerical value of the Namibian economy's autonomous expenditure multiplier:

(a) Estimating Equation (2) yielded the gross tax function after factoring out the non-VAT tax reforms as:

$$T_g = -227.170 + 0.282Y$$
$$(-0.764) \quad (31.249)$$
$$R^2 = 0.983$$

where t (the new marginal tax rate) $= 0.282$.

(b) Estimating Equation (4) using the ordinary least squares (OLS) regression technique produced a specific aggregate consumption function with a marginal propensity to consume out of disposable income of 0.641, which is statistically significant at the 0.01 level, with a coefficient of determination of 0.985:

$$C = -1,516.089 + 0.641Y;$$
$$R^2 = 0.985$$

(c) Estimating Equation (6) using OLS regression produced the following specific investment function:

$$I = 17,874.77 - 773.441r$$

$$(5.509) \quad (-4.096)$$

$$R^2 = 0.496$$

where the numbers in brackets are the t-statistics and R^2 is the coefficient of determination, which is the proportion of total variation in investment that is attributable to changes in the lending rate[7].

(d) Estimation of the export function specified in Equation (8) produced the following specific export function:

$$X = 50,845.69 - 402.749E_1,$$

$$(5.406) \quad (-4.062)$$

$$R^2 = 0.493$$

where the numbers in brackets are the t-statistics and R^2 is the coefficient of determination[8].

(e) Estimation of the import function specified in Equation (9) produced the following specific import demand function:

$$M = 996.019 + 0.543Y - 7.090E_2$$

$$(0.559) \quad (10.252) \quad (-0.554)$$

$$R^2 = 0.938$$

From the estimation results, there exists a weak and inconsistent relation between demand for imports by residents of Namibia and the multilateral real exchange rate that is applicable to imports (E_2). This suggests that Namibia's competitiveness in international trade does not influence the decision of the country's residents to buy imports. This is perhaps a reflection of the country's heavy dependence on imports of agricultural and manufactured products, especially from the Republic of South Africa, which is the dominant economy in the Southern African Customs Union (SACU), and indeed the Southern Africa Development Community region. Limited production of food and manufactured products in Namibia leaves its residents with little choice even when imports of these products become more costly. Therefore the variable E_2 was dropped from the analysis. National income is, however, a positive and significant determinant of demand for imports at the 0.01 level.

In order to determine the medium to long-term effects of the VAT zero-rating of basic commodities on government revenue, it was first necessary to determine the autonomous expenditure multiplier specified in Equation (14) in the preceding section.

$$\text{From (b) above, } c(1-t) = 0.641 \tag{i}$$

$$\text{From (a) above } t = 0.282 \tag{ii}$$

$$\text{Substituting the value of } t \text{ in (i) above gives } c = 0.89 \tag{iii}$$

$$\text{The estimated import function is: } M = 996.019 + 0.543Y \tag{iv}$$

where m (marginal propensity to import) $= 0.543$.

Substituting these values of *c*, *t* and *m* into Equation (14) gives the value of the autonomous expenditure multiplier as:

$$\frac{\partial Y^*}{\partial A} = \gamma = \frac{1}{[1-0.89(1-0.282)+0.543]} = 1.1$$

As stated earlier, zero-rating VAT on all the basic commodities in 2008 reduces the VAT paid by all Namibian households by N\$310.4 million per year, which represents the annual increase in the disposable income of all households. With a marginal propensity to consume out of disposable income of 0.89, total expenditure by households on goods and services will increase by N\$276.3 million per year. In the medium to long term, after the economy has had sufficient time to settle, national income will, *ceteris paribus*, have increased by this amount times the autonomous expenditure multiplier, that is, by N\$276.3 × 1.1 million = N\$303.9 million per year. Taxes which are responsive to changes in the level of national income will have increased by this amount (N\$303.9 million) times the marginal tax rate ($t = 0.282$), that is, by N\$303.9 million × 0.282 = N\$85.7 million per year as a result of the 2008 zero-rating, compensating for just over a quarter of the annual revenue loss to the government of N\$310.4 million.

5. Conclusions and policy recommendations
Conclusions
This paper has used a partial equilibrium model based on real sector equilibrium to analyse the possible medium to long-term effects of the 2008 zero-rating of VAT on basic commodities in Namibia. Using the 1993/1994 and 2003/2004 NHIES results, this study has found that the annual loss in government revenue attributable to the 2008 VAT zero-rating, *ceteris paribus*, is an estimated N\$310.4 million per year. Taxes which are responsive to income will have increased by an estimated N\$85.7 million per year, compensating for just over one quarter of the annual loss in government revenue with a N\$224.7 million loss remaining. This low compensation for annual loss in taxes is a critical policy concern which the government will have to address.

Recommendations
Since Namibia is a member of SACU, which operates with uniform taxes on international trade, it has no discretion over the rates of tax on international trade. Alternative sources of government revenue for which the Namibian government has discretion can only be found in other forms of taxes, including direct taxes, and in domestic taxes on goods and services. The following options are available for the government to attempt to raise the additional revenue of N\$224.7 per annum to cover the shortfall occasioned by the introduction of VAT zero-rating in 2008:

- Increase direct taxes, such as corporation tax, income tax and social security contributions, which are based on an individual's ability to pay.

- Increase the VAT (indirect tax) rate on specific (luxury) goods and services consumed mostly by rich households, although this option would reintroduce a complex VAT system with multiple rates and greater distortionary effects.

- Increase the statutory VAT rate on all other commodities not zero-rated, with no provision for exemption. This would still lead to an ideal VAT system with only two rates – a zero rate and the higher statutory rate.

- Increase other taxes, such as taxes on property, business licences, stamp duty and fees, which accounted for only 1.5 per cent of total annual tax revenue between 1990 and 2008.

- Raise revenue from non-tax sources to compensate for the annual net loss in revenue as a result of the VAT zero-rating effected in 2008.

- Undertake external borrowing. The government could seek access to the cheaper credit extended to member countries by the international financial institutions and utilise contemporary borrowing instruments such as the Eurobond.

Notes

1. It is important to draw a distinction between exempting a commodity from VAT and having it zero-rated. When a commodity is zero-rated, the producer continues to claim a rebate on VAT on intermediate inputs used, as is the case in Namibia. However, when a commodity is exempted from VAT, the producer cannot claim a rebate on the VAT on intermediate inputs.

2. Non-tax revenue includes revenue from: state-owned enterprises; rent, concessions and royalties; fines and asset forfeiture; fees from permits; and user fees.

3. Other taxes include liquor licences, fishing boat and factory licences, hunting and fishing licences, prospecting licences and claims, fishing quota levies, and gambling licences.

4. A computable general equilibrium (CGE) model, which captures the economic and social impacts of policy reforms on the various sectors of the economy would have been the ideal model for this analysis. However, since the model has not been developed and operationalised for Namibia, it is not possible to use it in this report. Therefore, a simpler partial analytical framework was developed to assess and quantify the potential impacts of the 2000 and 2008 VAT zero-rating of basic commodities on household income and government revenue in the short, medium and long term.

5. Whether it refers to a bilateral real exchange rate or a multilateral real exchange rate, Equation (7) compares the cost of goods and services produced in the domestic economy with the cost of goods and services produced abroad.

6. With the exception of *mahangu*, which is grown by some of the Namibian households for own consumption, all other goods and services are sourced from markets.

7. While the coefficient of the lending rate is negative, in conformity with the marginal efficiency of capital theory of investment, and significant at the 0.01 level, the fact that changes in the lending rate account for only 49.6 per cent of total variation in gross private investment is an indication that there are other important factors that influence the decision to invest in Namibia. The search for these other factors is beyond the scope of this paper.

8. While the coefficient of E_1 is negative and significant at the 0.01 level, in conformity with the hypothesis that demand for exports is a decreasing function of the real exchange rate, the fact that changes in the real exchange rate explain only 49.3 per cent of total variation in demand for exports is an indication of the existence of some other important determinants of demand for exports which have not been considered as explanatory variables. These are the factors that do not fall within the control of domestic policy-makers but have a huge influence on the global conditions of supply of, and demand for, the country's exports.

References

Alderman, H. and del Ninno, C. (1999), "Poverty issues for zero rating value-added tax in South Africa", *Journal of African Economies*, Vol. 8 No. 12, pp. 182-208.

Buettner, T. and Erbe, K. (2012), "Revenue and welfare effects of financial sector VAT exemption", TAxFACts Schriftenreihe No. 2012-02, Friedrich-Alexendar-Universitt Erlangen – Nuremerg.

Ebrill, L.M., Keen, M., Bodin, J.P. and Summers, V. (2001), *The Modern VAT*, International Monetary Fund, Washington, DC.

Giesecke, J.A. and Tran, N.H. (2009), *Modelling Value-Added Tax in the Presence of Multi-Production and Differentiated Exemptions*, Centre of Policy Studies, Monash University, Clayton.

GRN (2009), *National Accounts 2000-2008*, Central Bureau of Statistics, National Planning Commission, Windhoek.

Monoz, S. and Sang-Wook, C.S. (2003), "Social impact of a tax reform: the case of Ethiopia", Working Paper No. 03/232, International Monetary Fund, Washington, DC.

Onaolapo, A.A., Aworemi, R.J. and Ajala, O.A. (2013), "Assessment of value added tax and its effects on revenue generation in Nigeria", *International Journal of Business and Social Science*, Vol. 4 No. 1, pp. 220-225.

Pagan, J.A., Soydemir, G. and Tijerina-Guajardo, J.A. (2001), "The evolution of VAT rates and government tax revenue in Mexico", *Journal of Contemporary Economic Policy*, Vol. 19 No. 4, pp. 424-433.

Further reading

GRN (1994), *Namibia Household Income and Expenditure Survey 1993/94*, Central Bureau of Statistics, National Planning Commission, Windhoek.

GRN (2003), *2001 Population and Housing Census*, Central Bureau of Statistics, National Planning Commission, Windhoek.

GRN (2004), *Namibia Household Income and Expenditure Survey 2003/04*, Central Bureau of Statistics, National Planning Commission, Windhoek.

GRN (2008), *A Review of Poverty and Inequality in Namibia*, Central Bureau of Statistics, National Planning Commission, Windhoek.

Kearney, M. and van Heerden, J.H. (2004), "Zero-rating food in South Africa: a computable general equilibrium analysis", *South African Journal of Economic and Management Sciences*, Vol. 7 No. 3, pp. 521-531.

Odada, J.E. (2008), "An overview of structural transformation of the Namibian economy", in Bank of Namibia (Ed.), *Structural Transformation of the Namibian Economy: Insights from Other Countries, Bank of Namibia's 10th Annual Symposium Publication*, Bank of Namibia, Windhoek, pp. 16-69, available at: www.bon.com.na (accessed 20 October 2013).

Tait, A. (1988), *Value Added Tax: International Practice and Problems*, International Monetary Fund, Washington, DC.

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