DISTRIBUTIONAL EFFECTS OF VALUE-ADDED TAX IN GHANA

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Abstract
The introduction of VAT in Ghana and the subsequent upward adjustments in VAT rates have always been met with varied, sometimes extreme public protests on the basis that increase in VAT rates increases cost of living through increases in consumer prices. This paper examines the distributional aspects of Ghana’s VAT using data the last three rounds of the Ghana Living standard surveys as well as monthly consumer prices data. The preliminary finds shows that the increases in the VAT rates were associated with high CPI for the various househould expenditure categories. However, the expenditure groups that take greater proportion of the total expenditure of households in the lower quintile and rural localities (relative to those of the higher quintile and urban households) recorded greater increase in the CPI during the period surrounding the implementation of the new VAT rate increase.

JEL Classifications: E31, E62, H22, H25

Keywords: Value-added Tax, Consumer price index, inflation, tax shifting
1. Introduction

Value-added tax (VAT) as well as increases in its standard rates have become central components of fiscal reforms around the world (OECD, 2016; KPMG, 2015; PwC and IPA, 2013; Benedek, de Mooij, Keen, & Wingender, 2015). Between 2007 and 2013, fifteen European Union countries increased their standard rates. Poland and Slovak even tied VAT rate increase to public debt, such that VAT rates should automatically be increased with increase in public debt until such a time that public debt falls below a certain threshold (Owens, 2011). This practice is gaining popularity in developing countries. Already, Ghana has increased its VAT rate on three occasions and South Africa has increased it twice. This practice is likely to catch up with the rest of Africa especially in times where there is a strong global preference for consumption taxes over income taxation.

Admittedly, increasing in VAT rate may have positive tax revenue effect, however, it has raised a number of distributional concerns in terms of increased consumer prices, high tax burden and reduced welfare. The seminal work by Sah (1983) shows suggests that in examining the welfare effects of indirect taxation such as value-added tax, an important emphasis should be placed on how it affects relative prices. It is further argued that in an accommodating monetary policy regime, prices of consumer goods are more likely to increase by the amount of the tax. This is because that tax creates a cost or “wedge” that could either cause consumer prices to rise (relative to factor income) or factor incomes to fall (relative to consumer prices).

Indeed, theory clearly establishes that raising indirect tax rate (such as VAT rate) could affect relative prices although the extent of the pass through depends on the nature of market competition (see for example ECB, 2011; Bird & Gendron, 2007; Weyl & Fabinger, 2013; Delipalla & Keen, 1992 and Stern, 1987); Jenkin (1871), Bulow & Pfleiderer(1983) and Anderson, Palma, & Kreider (2001)). In a perfect competitive market with constant returns to scale in production in which the supply of consumption goods is perfectly elastic, indirect taxes are fully shifted to consumer. Empirical evidence are found in Carbonnier (2007) and Trannoy (2011) for France; Smart (2011) for Canada; Crossley, Low, & Sleeman (2014) for the UK; Carare & Danninger (2008) for Germany; Kosonen (2013) for Finland; and Batista Politi & Mattos (2011) for Brazil. Others report some evidence of full pass through or

Moreover, from a theory, a uniform and comprehensive VAT is expected to impose a equal burden on all consumption expenditure (Tait, 1988). In this regard, VAT is expected to be proportional, absorbing an equal share of the consumption expenditure of all tax-payers. However, the Engel’s Law clearly points out that low-income people (relative to higher income counterparts) spend a larger proportion of their income on the consumption of food. This implies that subjecting food and basic necessities to VAT undermines the principle of equity and redistribution. This view, no doubt, has informed most governments especially those in developing countries, in granting exemptions, reduced rates and zero rates on basic necessities such as food and water supply under VAT regimes. The exemptions and zero rates are considered as a form of in-kind indexed transfers to address the inherent distributional concerns, to fulfill a redistributive goal and to reduce the incidence and severity of poverty by reducing the tax burden on poor households.

Ghana’s experience with value-added tax (VAT) remains an exceptional case in Africa for two reasons: First, as part of measures to raise additional revenues, VAT rate has been increased several times (more than any other Africa country). The VAT was re-introduced in 1998 at rate of 10 percent. In May 2000, the rate was increased to 12.5 percent, and further to 15 percent in September 2004. The latest one was in January 2015 where the rate was increased to 17.5 in principle. A number of exemptions have also been provided over the years (see appendix). Second, the introduction of VAT and its subsequent upward adjustments in rates have always been met with varied, sometimes violent public protests (some of which have led to the loss of human lives). Typical examples are the 11th May 1995 VAT demonstration which led to the death of four people and leaving several others in various degrees of injuries (Osei, 2000; Africa Confidential, 1995; IRB, 1996) and the 1st July 2014 episode where several young business executives and professionals disregarded heavy rain downpour to go to the main streets in the national capital to protest against the new 17.5 percent VAT rate (Kokutse, 2014).

The central basis for these public protests is that upward adjustment in VAT rate has been key contributory factor in exacerbating the cost of living by increasing consumer prices and
at the same imposing greater tax burden especially on the poor. The key question therefore is, does the increase in VAT rate actually increase consumer prices and burdens the people disproportionally? Are the observed national patterns preserved at the different income groups and sub-national levels? This paper, therefore, contributes to the VAT policy discourse in Africa by examining the distributional aspects of the four different VAT rates in Ghana. Specifically, first, the study examines the co-movement between VAT rate and consumer prices of goods and services consumed by different income brackets. Second, the study examines the VAT burden on the households across expenditure distributions. Third, in discussing VAT burden, one critical question that emerges is does the use of exemption and the zero-rated policies actually benefit the poor more than the rich? In this sense, the study further evaluates the extent to which in-kind indexed transfers in the form of zero-rated and exemption benefits the different households.

2. Methodology and Data

Trends in the CPIs of the various expenditure categories are first provided and examined for each episode of VAT rate increase. The trends cover three months before and six months after the implementation of the each new VAT rate. This is to provide a quick understanding of the pattern and direction of the CPI during and after the implementation of new VAT rates.

Examining the distributive effects of an indirect tax begins with the computation of total tax liability. The traditional approach multiplies individual total expenditure on goods and serves by the statutory tax rate (in this case the VAT rate). This approach has been used by a number of tax incidence studies in Africa (see for example Younger, Sahn, Haggblade, & Dorosh, 1999; Alderman & Ninno, 1999; Fourie and Owen, 1993; Davis and Kay, 1985). The tax burdens are then computed as a percentage of the total expenditure on goods and services and the results compared across consumption distribution. In this case, the tax will be regressive if poorer households pay proportionally greater share of the tax than higher income households, relative to total expenditures. It is progressive if the shares are proportionally greater for the wealthy and neutral if the tax shares are equal over overall
In this study, following the literature we examine the VAT burden across expenditure distribution rather than on income because the income data in the GLSS are not accurately reported. In most cases reported incomes are half of the reported consumption.

This approach is deemed to be an accurate first-order approximation of the incidence of final consumption taxes such as a VAT or excise duties on consumer goods (Ahmad & Stern, 1991). However, it is based on the strong assumption that indirect taxes are entirely borne by the final consumer (see Thomas, 2015; Leahy, Lyons, & Tol, 2011; Decoster, Loughrey, O’Donoghue, & Verwerft, 2010; Pechman, 1985; Musgrave, Case and Loebard, 1974). The key drawback with the use of statutory tax rate is that it does not account for the indirect effects of the tax imposed. In reality, taxes may have both direct and indirect effects. For example, a 10 percent VAT on say good A will directly affect the price of good A, but also induce a change in the price of good B which require good A as input. In this case, the tax burden will be the sum of the direct and indirect effects of the tax which reflects in the both price increase in the product in question and all other products that use it as input.

The use of national input-output tables to trace the effect (both direct and indirect) of the tax to the final consumer has gained popularity. For example, Cornwell and Creedy, (1996) used the approach to examine the price effect of carbon taxes in Australia. Proops, Faber and Wagenhals (1993) also used it for Britain and Germany while Labanderia and Labeaga (1999) for used it for Spain. Specifically, the approach has been used by Thomas (2015) to estimate the distributive implications of VAT reforms for New Zealand, Newhouse & Zakharova (2007) for the case of the Philippines, Brashares, Speyer, & Carlson (1988) for the USA.

In this study both approaches are adopted for robustness purposes. With the first approach, the four statutory VAT rates are applied on consumption expenditure data in the various rounds of the Ghana Living Standard Surveys (GLSS). In particular, the 10 percent VAT rate (which was effective June 1998) is applied on the fourth round of the GLSS (which covers a period of 12 months from April 1998 to March 1999). The 15 VAT rate (which as effective September 2004) is applied to the fifth round of the GLSS (which covers the period September 2005 to September 2006) and the sixth round which covers the period
18th October 2012 to 17th October 2013. Finally the current VAT rate – 17.5 percent (effective January 2015) is applied to the most recent GLSS (i.e. seventh round) released in 2018. Unfortunately, the 12.5 percent VAT rate was not applied to any consumption data because the rate was in operation from May 2000 to August 2004 during which time no living standard survey was conducted. For the second approach, the study follows Newhouse & Zakharova (2007) by using a simple input-output model based on the input-output table for Ghana is used to estimate the extent to which the increases in VAT rates affect consumer prices. Since our study focuses on the four episodes of VAT rate increase, we estimate the price effects from four different input-output tables. For example, 2001 input-output table (IOT) is used to simulate the price effects of the 1998 episode of VAT (rate was 10 percent). The 2001 IOT is used for the May 2000 episode, the 2005 table for September 2004 episode of VAT increase and finally, the 2015 table for the January 2015 episode of VAT rate increase.

Finally, to have a sense of the extent to which the zero-rating of certain products reduces the effect of VAT on impact of zero-rating on the regressiveness of VAT, the approach of Jasen & Calitz (2017) is adopted. First, household spending patterns on the zero-rated items are computed across the distribution (deciles). Multiplying expenditure on the zero-rated and exempted items by the corresponding VAT rate gives the amount of tax to be paid. The resultant values are then computed as proportion of total expenditure and are compared across different income groups to ascertain whether offering the zero-rating and exemptions benefit the poor more than the rich or otherwise.

**Data**

Three sets of data are utilised in this study: monthly CPI (spanning from January 2000 to December 2017), Ghana input-output data for selected years (2001, 2005, 2015) and Ghana living Standard Survey (GLSS) (Rounds 4, 5, 6 and 7). The monthly CPI data is used to examine the trends in the CPI for the various expenditure categories after the introduction of VAT and subsequent increases in the VAT rate. The CPI data. The proportion of total expenditure that would have been spent on the VAT exempt products if those products were not exempted are computed for the 10 percent, 15 percent and 17.5 percent. These goods
and services are based on the ‘Classification of Individual Consumption According to Purpose’ (COICOP). The data is sourced from the Ghana Statistical Service database (www.statsghana.gov.gh).

The input-output tables are used to estimate the changes in relative prices following the increase in VAT rate. The study focuses on three four episodes of VAT (1998, 2000, 2004 and 2015), hence, input-output tables for four selected years that closely correspond to the various VAT episodes are used. Specifically, the 1999 input-output table (IOT) is used to simulate the price effects of the 1998 episode of VAT (rate was 10 percent). The 2001 IOT is used for the May 2000 episode, the 2005 table for September 2004 episode of VAT increase and finally, the 2015 table for the January 2015 episode of VAT rate increase. The input-output tables are sourced from Eora multi-region IO database (http://www.worldmrio.com/countrywise).

Finally, the Ghana Living Standard Surveys (GLSS) – household data – is used to estimate the distributive effect of VAT. The GLSS is a nationally representative expenditure survey. It has detailed information on household consumption expenditure and income. It has extensive information on household socio-demographic characteristics. The fourth round (i.e. GLSS 4) cover a period of 12 months from April 1998 to March 1999. The fifth round which covers a period of 12 months (September 2005 to September 2006). The sixth round which covers the period 18th October 2012 to 17th October 2013 and finally the seventh round (the most recent) which covers the period 2015-2016. The GLSS contain detailed information of household expenditure on the various expenditure categories for the all the income and expenditure groups.

4. Results and Discussions

This section presents and discusses the results.

4.1 Trends in CPI before and after increase in VAT rate

Examining the latest three rounds of the GLSS shows the following: (i) rural households spend more (relative to urban households) on food and non-alcoholic beverage, alcoholic
beverage and tobacco, clothing and footwear, furnishing, household equipment and maintenance, and medical care and health expenses. (ii) Urban households spend more (relative to rural households) on housing and utility (water, gas, and electricity), transport, communication, education, and restaurants and hotels. (iii) Lower quintile households spend more (relative to higher quintile households) on food and non-alcoholic beverage, alcoholic beverage and tobacco, clothing and footwear, furnishing, household equipment and maintenance, and medical care and health expenses. (iv) Higher quintile households spend more (relative to lower quintile households) on housing and utility (water, gas, and electricity), transport, communication, education, and restaurants and hotels.

Figure 1 shows the trends in the national consumer price index for three months before and the six months after the implementation of the VAT rate increase for all the three episodes of VAT rate increase in Ghana. For the first episode, the VAT rate increased from 10 percent to 12.5 percent, effective May 2000. The second episode was the increase from 12.5 percent to 15 percent, effective September 2004. The third was the increase from 15 percent to 17.5 percent, effective January 2015.

Note on the horizontal axis:
The 0 represents the effective month of the VAT rate. The -3 to -1 respectively indicate the third to the first month before the effective month of the VAT increased. The 1 to 6 respectively indicate the first to the sixth month after the effective month of the VAT increase.

**Source:** by author, based on data from Ghana Statistical Service database 2017

On a whole, the CPIs show upward trend over the period for all the three episodes of the VAT rate increases. Specifically, the CPI starts increasing from the three months before the effective month for the implementation of the new rate. This increase in the CPI becomes more pronounced in the effective month (month zero) and persists over the six-month period after the effective month. A notable exception is the September 2004 episode. Here the CPI was on a downward trend until the first month after VAT effective month where it shot up by more than two points (from 147.6 to 148.9). Thus, in general, the trends seem to provide some support to the notion that VAT rate hikes is associated with increases in relative prices.

### 4.1.1. Does the increase in CPI vary across lower quintile/rural and higher quintile/urban households?

Having observed that VAT rate increases are associated with increases in relative prices, the next question of interest is does the change in relative price differ among goods and services consumed by lower quintile households and higher quintile households? We examine this question episode by episode.

Figures 2 compares the trends in the CPI for expenditure groups of the lower quintiles/rural households and upper quintile/urban households for the May 2000 episode of VAT rate increase.
Note on the horizontal axis:
The 0 represents the effective month of the VAT rate. The -3 to -1 respectively indicate the third to the first month before the effective month of the VAT increased. The 1 to 6 respectively indicate the first to the sixth month after the effective month of the VAT increase.
Source: by author, based on data from Ghana Statistical Service database 2017

Interestingly, all the three expenditure groups with the highest CPI are those consumed by the higher quintile and urban households. These are communication, transport and hotel and restaurants. However, the increase in the CPI following the implementation of the VAT appears to be drastic among goods/services consumed by the lower quintile/rural households. For example, the CPI of food and non-alcoholic beverage increased from 42.96 in the third month preceding the effective month to 46.05 and to 49.23 in the second and first month preceding the to effective month respectively. However, the CPI increased to 54.67 in the effective month and further to 58.06 in the first month proceeding the effective month. This drastic jump in the CPI persisted in the subsequent months. Similarly, the CPI for clothing and footwear was 50.06 in the third month preceding the effective month, but increased steadily to 57.18 in the effective month and to 73.24 in the sixth month after the
implementation of the new rate. The CPI for alcohol and tobacco also followed the same trend, recording 42.96 in the preceding third month but increased drastically to 45.96 in the effective month and further to 54.19 in the third month after the implementation.

Figure 3 shows the trends in CPI for the September 2004 episode of VAT increase.

Like previous episode, Hotel and Restaurants, Housing and Utility, communication and Transport (all of which are goods that take greater proportion of higher quintile and urban households expenditure) although recorded the highest CPI throughout do not show appreciable increase. Rather, the expenditure items that take higher proportion of the expenditure of lower quintile and rural households recorded lower but increasing CPIs during the period. For example, the CPI for food and non-alcoholic beverage increased from 143.68 in the effective month to 147.03 and 153.22 in the first and second months respectively, after the effective month. That of clothing and footwear increased from 132.5 in the third month preceding effective month to 134.73 in the last month preceding the effective month and further to 137.63 in the effective month. This increase in CPI persisted and by the sixth month, it had increased to 145.26. Alcohol and Tobacco recorded the lowest but steady increase in CPI throughout the period, increasing from 124.40 in the third month preceding the effective month to 125.35 in the effective month and further to 132.03
in the sixth month.

The trends observe for the January 2015 episode (i.e. increase in VAT rate from 15 percent to 17.5 percent) largely confirming the observations made in the previous episodes (see figure 4).

![Figure 4: Trends in CPI before and after the January 2015 episode of VAT rate increase (from 15 to 17.5 percent)](image)

The expenditure items that take higher proportion of the expenditure of lower quintile households recorded relatively higher CPIs. Prominent among them are housing and utility, and transport expenditure groups. Also, like previous episodes, clothing and footwear, alcohol and tobacco, food and non-alcoholic, expenditure groups exhibited steady increase in their CPIs. For example, Food and non-alcoholic beverages recorded a CPI of 114.06 in the immediate year before the effective month. However, this increased by about 6 basis points to 120.53 in the effective month and further to 123.64 in the fifth month. Similarly, the CPI for tobacco and alcohol expenditure group which was 124.11 in the third month preceding the implementation of the new VAT rate, increased to 142.2 and further to 153.2 in the effective month and the fifth month respectively.
4.2 Changes in prices

Table 1 shows the changes in the commodity prices across the various sectors in the economy for the four VAT rates.

A comparison of the average actual with the IO-effective tax rates shows that the latter are much higher, so that the indirect effects of taxes that are passed through the I-O table is important.

Table 1: Price Changes from VAT increases

<table>
<thead>
<tr>
<th>SECTORS</th>
<th>10% VAT</th>
<th>12.5% VAT</th>
<th>15% VAT</th>
<th>17.5% VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>0.147</td>
<td>0.158</td>
<td>0.185</td>
<td>0.217</td>
</tr>
<tr>
<td>Fishing</td>
<td>0.109</td>
<td>0.135</td>
<td>0.163</td>
<td>0.195</td>
</tr>
<tr>
<td>Mining and Quarrying</td>
<td>0.208</td>
<td>0.219</td>
<td>0.308</td>
<td>0.388</td>
</tr>
<tr>
<td>Food &amp; Beverages</td>
<td>0.153</td>
<td>0.153</td>
<td>0.178</td>
<td>0.205</td>
</tr>
<tr>
<td>Textiles and Wearing Apparel</td>
<td>0.137</td>
<td>0.147</td>
<td>0.167</td>
<td>0.194</td>
</tr>
<tr>
<td>Wood and Paper</td>
<td>0.162</td>
<td>0.163</td>
<td>0.189</td>
<td>0.222</td>
</tr>
<tr>
<td>Petroleum, Chemical and Non-Metallic Mineral Products</td>
<td>0.588</td>
<td>0.366</td>
<td>0.391</td>
<td>0.432</td>
</tr>
<tr>
<td>Metal Products</td>
<td>0.243</td>
<td>0.234</td>
<td>0.257</td>
<td>0.295</td>
</tr>
<tr>
<td>Electrical and Machinery</td>
<td>0.274</td>
<td>0.271</td>
<td>0.288</td>
<td>0.315</td>
</tr>
<tr>
<td>Transport Equipment</td>
<td>0.143</td>
<td>0.167</td>
<td>0.183</td>
<td>0.207</td>
</tr>
<tr>
<td>Other Manufacturing</td>
<td>0.121</td>
<td>0.145</td>
<td>0.173</td>
<td>0.202</td>
</tr>
<tr>
<td>Recycling</td>
<td>0.111</td>
<td>0.130</td>
<td>0.155</td>
<td>0.183</td>
</tr>
<tr>
<td>Electricity, Gas and Water</td>
<td>0.200</td>
<td>0.258</td>
<td>0.401</td>
<td>0.491</td>
</tr>
<tr>
<td>Construction</td>
<td>0.161</td>
<td>0.200</td>
<td>0.226</td>
<td>0.248</td>
</tr>
<tr>
<td>Maintenance and Repair</td>
<td>0.110</td>
<td>0.135</td>
<td>0.164</td>
<td>0.194</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>0.231</td>
<td>0.327</td>
<td>0.518</td>
<td>0.622</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>0.023</td>
<td>0.154</td>
<td>0.180</td>
<td>0.210</td>
</tr>
<tr>
<td>Hotels and Restaurants</td>
<td>0.118</td>
<td>0.153</td>
<td>0.210</td>
<td>0.261</td>
</tr>
<tr>
<td>Transport</td>
<td>0.078</td>
<td>0.320</td>
<td>0.356</td>
<td>0.422</td>
</tr>
<tr>
<td>Post and Telecommunications</td>
<td>0.181</td>
<td>0.234</td>
<td>0.271</td>
<td>0.311</td>
</tr>
<tr>
<td>Financial Intermediation and Business Activities</td>
<td>0.745</td>
<td>0.867</td>
<td>0.912</td>
<td>1.055</td>
</tr>
<tr>
<td>Public Administration</td>
<td>0.115</td>
<td>0.143</td>
<td>0.169</td>
<td>0.191</td>
</tr>
<tr>
<td>Education, Health and Other Services</td>
<td>0.140</td>
<td>0.162</td>
<td>0.187</td>
<td>0.211</td>
</tr>
<tr>
<td>Private Households</td>
<td>0.104</td>
<td>0.130</td>
<td>0.155</td>
<td>0.182</td>
</tr>
</tbody>
</table>
4.3 Distributive effect of VAT

In order to examine distributive effect of the VAT, the expenditure burden is computed and compared across expenditure deciles. The results are presented in Figure 5 (The detailed quantitative figures are presented in Appendix). The dotted lines show the expenditure distribution of the 1998 episode of the statutory VAT rate (10 percent) applied on the 4th round of the GLSS expenditure data. The broken line show that of the 2004 episode of VAT rate (15th percent) applied on the 5th round of the GLSS expenditure data and finally the smooth line shows for the 17.5 percent VAT rate applied on the current 7th round of the GLSS.

![Fig. 5: Distribution of VAT Burdens across Expenditure Deciles](image)

The results show variations across the different episodes of VAT rates. The 10 percent VAT rate appear to be roughly progressive, the 15 percent more progressive while the 17.5 percent is regressive across expenditure distributions. Specifically, for the 10 percent VAT
rate (effective June 1998), the results show that the first expenditure decile records a VAT burden of 0.0119. This means that about 0.012 percent of the total consumption expenditure of the first decile of household goes into VAT payment. The figure increases slightly to about 0.014 percent for the sixth decile and further to about 0.015 percent for the tenth decile. The findings therefore suggest that higher (low) spending households were slightly more (less) burdened by the 10 percent VAT rate in 1998. Similar observations are made the 15 percent VAT rate where the burden increased from 0.023 percent of the total expenditure of the first decile to about 0.028 percent for the sixth decile and further to 0.034 percent for the tenth decile. This finding makes sense and it is consistent with the consumption patterns of poor and rich households. The poor households usually consume more of products that are exempt from the VAT and other taxes (e.g. unprocessed agricultural, unpacked water, restaurants, etc) while the rich may spend a great deal on restaurants, bottled and packed water, fuel, etc. The finding supports that of Muñoz & Cho (2003) for Ethiopia, where VAT was not only found to be progressive, causing greater tax burden for the poor but also exemptions did not contribute to making VAT more equitable.

In contrast to the 1998 and 2004 episodes, the results for the 2015 episode of the VAT rate (17.5 percent) rather suggest some level of regressivity over the various expenditure deciles. For example, the smooth-line in Figure 5 shows that the VAT burden for the first decile is 0.0226, implying that about 0.023 percent of the expenditure of the lowest spending households goes into payment of VAT. However, the figure reduces to 0.0145 percent for the sixth decile and further to 0.0092 percent for the tenth decile (i.e. highest spending households). The regressivity of the VAT across the expenditure distribution for the 17.5 percent VAT rate suggests that higher spending households spend a greater proportion of their total expenditure than lower spending households on items that are either untaxed or exempt from tax (for example, food, financial services, construction, etc). It could also be the case that the new VAT rate is making higher income households now buy mostly from traders who do not charge VAT.

**VAT Relief**
This session gives a sense of the extent to which the exemptions under the VAT benefits the various households. The proportion of total expenditure that would have been spent on the VAT exempt products if those products were not exempted are computed for the 10 percent, 15 percent and 17.5 percent. Since the products are exempted from VAT, this comes as a form of ‘tax relief’ to the consumers. The results are shown in Figure 6.

As shown in the dotted line, the benefits enjoyed from VAT exemption, as a percentage of total consumption, is somehow flat (neutral), hovering around 0.077 percent. Specifically, it is 0.0790 percent for the lowest spending households (i.e. the first decile) implying that if the products had not been exempted from the VAT, about 0.0790 percent of the total consumption expenditure of the first decile households will go into VAT payment. The figure reduces just slightly to 0.0770 percent of the total expenditure for the fifth decile and further to 0.075 percent of total expenditure for the tenth decile. This suggests that the low spending households enjoy more benefits from the VAT exemptions compared to the high spending households.
The neutrality of the 1998 VAT rate could be attributed to the narrow provision of pro-poor VAT exempts products. The year 1998 was still the early days of the re-introduction of the VAT after implementation failure in 1995. Therefore, many of the pro-poor exemptions in force today were not available. In 2004 when the rate was increased from 12.5 percent to 15 percent, government saw the need to introduce a number of pro-poor exemptions. As such the VAT exemption list was expanded to include many more goods and services which take a relatively larger proportion of the consumption expenditure of poorer households. Other exemptions granted include the removal of VAT on irrigation pumps in line with government’s priority of modernising agriculture and to increase international market share, particularly non-traditional crops and rice, the zero-rating of industrial raw materials to leverage manufacturers against the upfront cash flow problems associated with the VAT component of large imports of industrial raw materials, and the removal of VAT on inputs for the production of fishing nets and fishing ropes to reduce the operation cost of fishermen (Republic of Ghana, 2004). Moreover, Not only that but also all these pro-poor exemptions may have culminated in increasing the benefits under the 15 percent VAT rate. However, even when poorer households tend to benefit more in proportional terms from the VAT exemptions, it is important to emphasize that the since richer households spend relatively more amount on food and other basic goods in absolute terms, they obtain a much larger implicit cash subsidy from VAT exemptions.

The observed trend under the 15 percent VAT rate could not be preserved when the VAT rate was increased to 17.5 percent effective January 2015. As shown by the smooth line in Figure (6), the benefits tend to be higher for the higher expenditure deciles than for the lower deciles. The first decile would have spent an additional 0.1263 percent of their total expenditure on VAT if there had not been any exemptions, increasing to 0.1347 percent for the seventh decile and 0.1397 percent for the tenth decile. This may be attributed to two factors. First, as noted by Harris et al. (2017), the relative contribution to total consumption of monetary expenditure compared to subsistence production and barter across the consumption distribution differ considerably. Particularly, for the poorest deciles, subsistence and barter – which is untaxed, constitute a significant proportion of total consumption than monetary expenditure. This implies that the bottom deciles tend to
benefit less directly from exemptions. Second, Gale & Harris (2010) argue that the granting of exemptions and zero-rating is fundamentally ineffective since middle-income and wealthy taxpayers consume these exempted and zero-rated products more than low-income households do. Moreover, this practice generates complexity in administration, thereby providing incentives for tax avoidance as consumers substitute between zero-rated/exempt goods and fully taxable goods.

Another observation from the results is that for each of the scenarios examined, the VAT relief tends to be greater than the VAT burden for all households.

![Fig. 7a: Burden vs Relief under 10 percent VAT Rate](image)

![Figure 7b: Burden vs Relief under 15 percent VAT rate](image)

![Fig. 7c: VAT Burden and Relief under 17.5 percent VAT rate](image)

*Source: Constructed by author based on 4th, 6th and 7th Rounds of Ghana Living Standard Survey*

The results implies that higher spending households in Ghana spend a greater proportion of their total expenditure on goods that attract VAT while low spending households spend a greater proportion of their total expenditure on the items that are zero-rated or exempt under the VAT.
5.0 Conclusion

Putting together all the observed trends for all the three episodes, the picture that emerges is the relative prices (measured by the CPI) generally tend to be higher in the three month-period before and the six-month period after the implementation of new VAT rate increase in Ghana. More specifically, the expenditure groups that take the highest proportion of the total expenditure of households in the higher income quintiles and urban areas generally recorded higher CPI than those that take the highest proportion of expenditure of households in the lower quintiles and rural localities. However, the expenditure groups that take greater proportion of the total expenditure of households in the lower quintile and rural localities (relative to those of the higher quintile and urban households) recorded greater increase in the CPI during the period surrounding the implementation of the new VAT rate increase. Second, On a whole the results implies that the increase in the VAT rate to 17.5 exposes the regressivity of the VAT system.

References


44(4), 1438–1470.


Appendix

CLASSIFICATION OF EXEMPT SUPPLIES UNDER GHANA'S VAT ACT 870

1. Agricultural Food Items in the Raw State and selected live animals
   • All live animals, animal products in its raw state
   • Agricultural and aquatic food products in the raw state produced in Ghana: these include
     • Maize, sorghum, millet, tubers, guinea corn, rice, fish, (other than ornamental fish),
       crustaceans, mollusks, vegetables and fruits, nuts, coffee, cocoa, shea butter; and edible
       meat and offal of the animals provided that the processing is restricted to salting,
       smoking or similar processes, but excluding pate, fatty livers of geese and ducks, and
       similar products.
     • Some live animals bred or raised in Ghana: cattle, sheep, goat, swine, and poultry
     • salt for human consumption, including table salt.

2. Selected Agricultural Inputs
   • Agricultural chemicals, feed and feed ingredients: fertilizers, acaricides, insecticides,
     fungicides, nematicides, herbicides, growth regulators, pesticides, veterinary drugs and
     vaccines, feed and feed ingredients other than food, drugs and vaccines for
     domesticated animals generally held as pets
   • Seeds and seedlings: seeds, bulbs, rooting, and other forms of propagation of edible
     fruits, nuts, cereal crops, tubers and vegetables, including the seedlings and cuttings
   • Fishing equipment: gear designed exclusively for fishing, including boats, nets, floats,
     twines, and hooks, raw material for use in the production of nets and twines and goods
     produced for fishing

3. Educational inputs and services
   • Educational inputs: textbooks and supplementary readers on the Ministry of
     Education approved list, newspapers, atlases, charts, maps and music ( does not apply to
     imported newspapers, architectural and similar plans, and drawings, scientific and
     technical works, periodicals, magazines, trade catalogues, price lists, greeting cards,
     almanacs, calendars, diaries and stationery
   • Education services: services supplied to students as part of the education program
     provided by any one of the following establishments that is duly registered or licensed by
     the Minister for Education (a) a day care, including adult day care, provider; (b) a pre-
     primary, primary, or secondary school; (c) a technical college, community college or
     university; (d) an educational institution established for the promotion of adult education,
     vocational training or technical education; or (e) an institution established for the
     education or training of physically or mentally challenged persons;

4. Medical services and supply
- Medical supplies: means equipment and accessories for the supply of medical services as determined by the Minister responsible for Health.
- Medical services: supply of a medical, dental, nursing, midwifery or paramedical service where the service is performed by or under the supervision and control of a person who is registered as being qualified to perform that service by the Minister for Health, other than spa, gymnasium and similar services.
- Locally produced pharmaceuticals.
- Mosquito nets, whether or not impregnated with chemicals.

5. Transportation
   Domestic transportation of passengers by road, rail, water, but not including the supply of haulage or the rental or hiring of passenger and other vehicles.

6. Utilities
   Water (excluding bottled and packaged water), domestic use of electricity.

7. Housing, land, construction services:
   - (a) Immovable property, including land, attributable to a dwelling, but excluding the sale of immovable property by an estate developer; (b) land used or to be used for agricultural purposes; and (c) civil engineering public works, including roads and bridges.
   - Accommodation in a dwelling: any building, premises, structure or any place or any part of these which is not a commercial rental establishment and which is used predominantly as a place of residence or abode of a natural person or which is intended for use as a place of residence or abode of a natural person, together with any appurtenances belonging to the place and enjoyed with the place.

8. Accommodation:
   - accommodation in a hotel, motel, inn, boarding house, guest house, hostel or similar establishment in which lodging is regularly or normally provided to five or more persons on a daily, weekly, monthly, or other periodic charge;
   - (b) accommodation in a house, flat, apartment, or room, (i) which is regularly or systematically leased or held for lease as residential accommodation for continuous periods of not more than forty-five days in the case of each occupant of the house, flat, apartment or room; or (ii) which is leased with utilities and furnishings provided by the lessor;
   - (c) accommodation in a house, flat, apartment, room, caravan, houseboat, tent or caravan or camping site which constitutes an asset, including a leased asset of a business undertaking or a separately identifiable part of a business undertaking carried on by a person who (i) leases or holds for leasing as residential accommodation, a house, flat, apartment, room, caravan, houseboat, caravan or camping site in the course of the business undertaking; and (ii) regularly or normally leases or holds for lease as residential accommodation, the house, flat, apartment, room, caravan, houseboat, caravan or camping site for continuous periods of not more than forty-five days in the case of each occupant; or
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. (d) any other accommodation designated by the Minister by Regulations to be a commercial rental establishment other than the accommodation specified under (e), (f) and (g).

. (e) accommodation in a boarding establishment or hostel operated by any employer solely or mainly for the benefit of the employees of that employer or of a related person of that employer or their dependents, if the establishment or hostel is not operated for the purpose of making profits from the establishment or hostel for the employer or a person related to the employer;

. (f) accommodation in a boarding establishment or hostel operated by a local authority or an educational establishment approved by the Minister for Education otherwise than for the purpose of making profits from the establishment or hostel; or

. (g) accommodation in a registered hospital, maternity home, nursing home, or clinic.

. Dwelling: any building, premises, structure or any place or any part of these which is not a commercial rental establishment and which is used predominantly as a place of residence or abode of a natural person or which is intended for use as a place of residence or abode of a natural person, together with any appurtenances belonging to the place and enjoyed with the place;

9. Financial Services: financial services, excluding financial services rendered for a fee, commission, or a similar charge; and (c) life insurance and reinsurance, whether or not rendered for a fee, commission or a similar charge.

10. Petroleum Products: crude oil and hydrocarbon products: (a) petrol; (b) diesel; (c) liquefied petroleum gas; (d) natural petroleum gas; and (e) kerosene.

11. Machinery, appliances and parts: machinery and parts of machinery specifically designed for use in the following activities: (a) agriculture, veterinary practice, fishing and horticulture; (b) mining as specified in the mining list; (c) manufacturing; (d) railway and tramway; (e) upstream petroleum operations as specified in the petroleum list; and (f) dredging


13. ZERO-RATING

. Exports
. Goods shipped as stores

14. INSTITUTIONAL RELIEFS

. President
. Diplomatic Missions (imports)
. Technical Assistance Schemes with Agreements
. Emergency relief

Source: www.gra.gov.gh
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