

Estimating Ghana's Tax Capacity and Effort

*William Gabriel Brafu-Insaidoo and
Camara K. Obeng*

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Abstract

The main objective of the study is to estimate and analyze Ghana's tax potential and effort and to determine how much more tax the country could generate based on its desired expenditure needs. To achieve this objective, a stochastic tax frontier model has been analyzed using annual secondary data, covering the period 1985 to 2014. The analyses indicate that an increase in the taxable base and institutional improvements help to increase Ghana's optimum tax potential. The study also reveals that political institutional improvement reduces inefficiency in Ghana's tax system. In addition, the study finds that Ghana has enough of a tax gap to be exploited to meet its rising expenditure needs.

Introduction

The international development community acknowledges the central role played by an effective tax system in the economic development of nations worldwide. As a result the international donor community, including multilateral institutions and the Group of Twenty (G-20) would want to ensure that the assistance they offer to developing countries to develop and strengthen their tax systems achieve the intended purpose. In addition, low-income countries perceive higher tax revenue mobilization as a means to reduce their overreliance on foreign aid and influence the decisions of international investors (United Nations, 2002; World Bank 2005 and 1997).

Ghana has been experiencing persistent fiscal budget deficits since 1992, with the highest deficits, expressed as percentage of gross domestic product (GDP), recorded in 1997 (8.2%), in 2000 (8.62%), in 2008 (11.2%) and in 2012 (11.8%). These recorded government budget deficits have been the result of rising public expenditure that had not been matched by a growth in revenue and have prompted government to search for possible ways to increase tax revenues in tandem with measures aimed at expenditure rationalization. Successive governments have taken measures to increase revenue mobilization, particularly through a number of tax initiatives, but have also been mindful of the need to ensure that such measures do not distort economic activities. (Ministry of Finance and Economic Planning, Government of Ghana's Annual Budget Statements, 2006–2007 and 2011 to 2014). However, government will only be successful if the decision to increase revenue mobilization is adequately informed by the extent to which the country has successfully harnessed its true tax potential. This means that an assessment of the extent to which the country has collected tax compared to what could be reasonably expected given its economic potential would inform effective tax policy in the country.

Nevertheless, no country-specific study has been found on Ghana's tax potential and extent to which the country has harnessed its tax potential. Studies on tax revenue in Ghana that has been identified include: Twerefou, Fumey, Osei-Assibey and Asmah (2010), Brafu-Insaidoo and Obeng (2008), and Kusi (1998). Twerefou et al. (2010) analyzed the buoyancy and elasticity of Ghana's tax system from 1970 to 2007 and found that the overall tax system was buoyant and elastic in the long run, but not buoyant in the short run. In addition, they found that tax revenue responds more to the taxable base than the taxable base responds to income. Conversely, Brafu-Insaidoo and Obeng (2008) did not find import tariff revenue to be buoyant or elastic in Ghana in their study on the impact of import liberalization on import tariff revenue in Ghana covering the period from 1965 to 2003. Kusi (1998) also analyzed the revenue productivity of Ghana's overall tax system by estimating the tax buoyancy and elasticity covering the period from 1983 to 1993. He found that tax reform, successive devaluations of the exchange rate and import liberalization contributed to an improvement in the revenue productivity of Ghana's overall tax system.

However, the use of the buoyancy and elasticity method of measuring a country's tax effort does not directly assess the impact of economic structure and characteristics of the country in influencing government tax collection. Their role is implicitly assumed in the framework adopted. The public finance literature suggests that the taxable capacity of a country does not only depend on its taxable base, but also on its peculiar economic conditions and characteristics.

A large number of identified empirical studies on estimating tax potential and tax effort that used the conventional "international tax comparison" method are cross-country and panel-data studies. Such studies include Stotsky and Wolde-Mariam (1997), Bothole (2010), Minh Le et al. (2012) Davoodi and Grigorian (2007), Fenochietto and Pessino (2013), Steenekamp (2007) and Abdalaziz (2012). Also, some recent studies on tax capacity have used stochastic frontier analysis (SFA). Examples of such studies are Langford and Ohlenburg (2015) and Ndiaye and Korsu (2011) for a cross section of countries over time, and Alfirman (2003) and Garg et al. (2014) at the sub-national level for Indonesia and Mexico, respectively. The use of the SFA is growing very fast: it has been employed for sub-national tax capacity and effort analysis (Jha et al., 1999 for India; Alfirman, 2003 for Indonesia; and Castañeda and Pardinias, 2012 for Mexico); and tax capacity analysis across countries (Fenochietto and Pessino, 2013; Cyan et al., 2013; Langford and Ohlenburg, 2015; and Fenochietto and Pessino, 2013). The stochastic frontier approach affords the authors the opportunity to predict technical inefficiency in revenue collection and then investigate its determinants. In addition, the SFA has been used in country specific studies to estimate the tax capacity and effort of specific countries, among which Alfirman (2003) for Indonesia, Garg et al. (2014) for India, and Castañeda and Pardinias (2012) for Mexico. The country-specific studies used datasets consisting of panel data.

This study fills the research gap by estimating Ghana's maximum tax potential, which is the estimated stochastic tax frontier, and determines how well the country has performed in tax collection relative to its true maximum potential. By using the stochastic frontier analysis (SFA) technique, it answers the question of how much potential tax revenue is being lost, and it provides a potentially more policy-relevant measure of tax potential (capacity) and effort. In addition to the provision of more policy-relevant estimates of the size of tax effort, the SFA technique allows for the analysis of the determinants of the tax effort. Hence, the use of the SFA technique improves the identification of the tax effort and of factors that lead to higher levels of tax effort. In addition, the study attempts to unearth the country's performance in terms of tax collection relative to what could be reasonably expected considering its economic potential, and to identify factors that best explain the tax collection performance of the country over time. The study covers the period 1985 to 2014.

The following are the key research questions answered in the study: What is the likely impact of increases in the taxable base and institutional improvements in

Ghana's tax potential?; What impact does political institutional improvement have on inefficiencies in the country's tax system?; What is the country's maximum tax potential, and how well has the country performed in relation to its tax potential?; To what extent has the country exploited its tax potential to finance its desired public expenditure?; and, How much more revenue could potentially be had from economy? The first question is posed premised on the fact that both theory and empirical studies fail to make any conclusive argument about or provide a definite answer to the above question. Some studies, such as Minh Le et al. (2012), Kusi (1998) and Twerefou et al. (2010), suggest that an expansion in the taxable base and institutional improvements would cause an increase in tax revenues, whilst other studies, including those by Gorodnichenko et al. (2009), Kloeden (2011), and Zake (2011) show that in countries such as Russia and Brazil, tax reforms and a broadening of the base have not been accompanied by increased tax revenues. The second question is posed premised on the theoretical argument that governments that are democratic and have greater constraints on the powers of the executive tend to have a greater bargaining position vis-à-vis their citizens and are more capable of enhancing the efficiency of their tax system (Rakner, 2011). The third and fourth questions are answered in the study to fill an existing research gap in studies on Ghana's tax system.

Methodology

This study uses the maximum likelihood estimation technique for the stochastic frontier analysis for the reason that it is unique when the ordinary least squares (OLS) residuals have the appropriate skewness. It is a well-known statistical technique used for fitting a mathematical model to reflect real world data. The maximum likelihood estimate of an unknown parameter can be described as the value of the parameter that maximizes the prospects of randomly representing a specific sample of observations. The maximization of the likelihood function involves an iterative optimization procedure entailing the selection of starting values for the unknown parameters and comprehensively upgrading and revising them until the values that maximize the log-likelihood function are identified. A routine solution for the stochastic frontier estimates emerges that differs from, and is better than, OLS estimates. The estimation technique for the stochastic frontier provides superior estimates of efficiency because it helps to examine changes in technical efficiencies over time in addition to underlying tax potential.

Comparing tax effort indicator with expenditure-revenue gap

To answer the second question in the study of how much more revenue could potentially be had from the economy, this study moves to another stage of analysis by estimating the expenditure-revenue gap and comparing the estimates with the

estimated tax effort of the economy. Secondly, the discussion of tax effort without reference to what the revenue will be used for diminishes the policy relevance of the exercise. This is because a country may have a high tax effort but if the level is not high enough to enable it to meet its expenditure, then the effort cannot be said to be high. In that case, policy recommendations will be required to increase the effort. Similarly, a low tax effort must be discussed in relation to the revenue requirements (expenditure) of the country. If the low tax effort raises enough revenue to enable the country to meet its expenditure then, even though the tax effort may be low, there may not be the need to recommend improvements in the tax effort. To capture this essential bit of the analysis in the study, we compute the ratio of total revenue and total expenditure and compare that with the tax efforts estimated from the stochastic frontier.

The data

Annual secondary time series data for all variables were obtained from various sources. The study relies on qualitative information on changes in direct quantitative restrictions on international trade and the series of institutional tax administration reforms obtained from the Ghana Revenue Authority and Osei and Quartey (2005). The study period is from 1985 to 2014.

Conclusion and policy recommendations

This study has been motivated by the fact that the Government of Ghana has been searching for possible ways to increase tax revenues to finance public expenditures and to narrow the deficit without distorting economic activities too much. However, there are concerns regarding the initiatives' likely impact of unduly burdening residents or citizens. SFA has been used to estimate the country's maximum tax potential, and to determine the tax performance of the country in terms of how much tax the country has collected in relation to the true estimates of its maximum tax potential. The analysis was conducted in three stages. The first involved estimating the frontier model to investigate the determinants of the country's tax potential, and to estimate the tax potential of the country. The second stage of the analysis involved obtaining the values of the predicted inefficiency term from the first-stage regression analysis and examining factors that explain inefficiency in the country's tax system. The third stage of the analysis entailed a comparison of the estimated tax effort indicator with the public expenditure-revenue gap.

The analysis confirms the hypothesis that a country's maximum tax potential increases with increases in the taxable base. However, this was not found to be the case for all tax types. Expansions in the taxable bases for all tax types, with the exception of taxes on international trade, have not led to growth in the collection of the respective

tax types. The findings could reflect the possible existence of substantial revenue leakages, including tax evasion and corrupt practices as indicated in a study by Amoah, Asuamah and Amaning (2014). They may also be an indication of the low rates of compliance by taxpayers. However, the study finds tax institutional reforms have made an important contribution to improving tax collection and capacity in Ghana, thus confirming the hypothesis that tax-related institutional improvement is important for increasing a country's optimum tax potential. Other factors found to be important in increasing the country's tax capacity are increases in foreign loans, government current and capital expenditures in the previous period, and reductions in the levels of inflation and foreign grants in the country. Foreign grants were found to be regarded as an alternative to tax revenue mobilization by the Ghanaian government. Increased urbanization was also found to be important in improving tax revenue mobilization and capacity in the country.

The study also validates the hypothesis that a more cohesive political institution and institutionalized democracy in the form of improvements in political institutions towards greater inclusiveness reduces inefficiencies in the tax system. In addition, the findings of the study show that a rapidly growing population increases inefficiencies in the tax system because there are difficulties in administering tax with a rapidly growing population. Other factors that were found to have led to reduced inefficiencies in the tax system are a less complex tax system and increased government debt obligations.

Additionally, the study shows high levels of efficiencies in the collection of import VAT, import duty, company tax, petroleum tax and PAYE, whilst very low levels of efficiencies have been identified in the collection of self-employed tax and other tax types. These findings are also reflected in the levels of estimated tax efforts. Tax effort in the collection of import VAT, import duty, company tax, PAYE and petroleum tax have been very high, whilst tax effort in the collection of self-employed tax and other tax types has been very low. Finally, the study finds that Ghana's overall tax effort is low whilst its revenue-expenditure ratio remains fairly high. The high correlation between the country's tax effort and the revenue-expenditure gap suggests that there is a substantial tax gap to be exploited to meet the country's rising expenditure needs. Although tax effort is low, the collection rate has not been so low in terms of mobilizing domestic resources to meet the rising expenditure needs of the country.

Overall, the findings from the analysis of both direct and indirect taxes suggest that tax effort in Ghana is the result of a combination of economic, institutional/administrative and demographic characteristics, which can be influenced or controlled by government in the short or long term, and collective preferences for public goods.

In line with the findings of the study, the following recommendations are made: First, government's goal of improving tax revenues through measures that expand the taxable bases could be met if a concerted effort is made to consciously deal with

revenue leakages, which may include different forms of tax evasion, corrupt practices and high levels of informality. There is a need to promote measures that would urgently strengthen tax administration to help address tax leakages. In addition to an organized programme of action, a continuous and in-depth investigation must be carried out to address tax leakages and improve strategies to enhance taxpayer compliance. In the long term, the aim should be economic transformation of the country towards pro-growth activities and reduced informality, which would go a long way to improve the country's taxable capacity and collection. These efforts would complement the tax institutional reform initiatives that have been implemented to improve tax collection and capacity in the country.

It must also be acknowledged that despite the fact that institutional reforms have contributed positively to tax revenue mobilization in the country, expansions in the tax bases for most individual tax types, namely direct and domestic indirect taxes, have not translated into improvements in their collection rates. Also, there have been low levels of efficiency in the collection of specific tax types including self-employed tax, domestic excise tax and domestic VAT. The findings suggest the need to consider further reforms to some key institutional arrangements related to the aforementioned tax types to reduce tax leakages and to improve efficiency. The key institution that needs to be reformed is the Domestic Tax Revenue Division (DTRD) of the Ghana Revenue Authority (GRA). The DTRD is a merger of the operational wings of the erstwhile Value-Added Tax (VAT) Service and the Internal Revenue Service (IRS). This division is responsible for the collection of all domestic direct and domestic indirect taxes (that is, excluding customs duty and other taxes on imports and exports).

The following are possible measures that can be taken to deal with the issues of the inability of expansions in the tax bases to translate into improvements in tax revenues and to tackle low levels of efficiencies in the collection of certain tax types: With regard to direct taxes, namely individual (PAYE) income taxes, self-employed tax, company tax and other direct tax (including capital gains tax), there is a need to enhance the capacity of the DTRD of the GRA to make it more diligent in implementing tax laws and put in place administrative measures to improve taxpayer compliance by lowering compliance costs. Such measures may include the development of information technology capacities, tax mapping and taxpayer audits. Instead of offering tax amnesties to corporate entities, the DTRD of the GRA could establish taxpayer compliance systems and systems for the timely and effective detection of leakages. In addition to that, the enforcement of the tax laws must be intensified by developing taxpayer audits and prosecuting tax evaders. Measures that simplify compliance and hence reduce compliance costs would ultimately lead to increased efficiency in tax collection and an improved tax effort.

In connection with indirect taxes, namely domestic excise tax and domestic VAT, there is a need to improve on the current filing and payments system to minimize

the direct involvement of the DTRD of the GRA in calculating the tax liability of taxpayers. The launch and coming into full operation of the e-tax portal in 2014, which includes the online filing and payments system, is highly commended. It is recommended that the online system should be upgraded to include the Automated Excise Data Management System so as to allow taxpayers to file their declaration through the internet. The ultimate outcome of this initiative is an improvement in the administration and collection efficiency and productivity. Additionally, although the introduction of a VAT system is expected to reduce prospects for tax leakage, it is simply not enough to depend on the “self-policing” system of collecting VAT. There is a need to intensify intervention in the country’s VAT’s “self-policing” system to make taxpayers conscious of the fact that they are being closely monitored. The GRA may also consider introducing incentive schemes within the DTRD to reward officials within the division based on penalties realized from taxpayers. A given percentage of the penalties collected could be committed to a special fund, which would then be shared with officials of the DTRD in proportion to their levels of relative involvement in identifying offenders and collecting penalties.

With regard to both direct and indirect taxes, the exemptions policy and incentives need to be relooked. Political commitment for reforms is necessary and tax payers who are politically connected to the corridors of power, and therefore influential, must be included in tax collection through the elimination of tax exemption. The tax incentives structure also need to be reviewed considering the fact that company tax has not increased in response to expansions of the respective taxable base. In Ghana, tax incentives have become pervasive, which goes a long way to weaken tax effort.

In addition, the Ghanaian government must reduce its reliance on foreign grants as an alternative to domestic revenue mobilization. The government’s drive to increasing tax collection to enable servicing part of its debt obligations, in addition to meeting part of its expenditure, must be commended. In a similar fashion, efforts by the government to reduce inflation and thereby stabilize domestic prices improve the country’s tax revenues.

Political reforms that ensure greater inclusiveness of the citizenry in the governance of the country and which constrains the powers of the executive are proven to be effective as ways of reducing inefficiencies in the country’s tax system. When political institutions are reformed towards greater democracy, the incidence of corruption is reduced which in turn reduces inefficiencies the country’s tax system. Rather than reducing the growth of the population of taxpayers, the government may consider measures that would help improve the country’s tax administration capacity (including expansion of logistics and frequent training of personnel). There is also a need to revisit parts of the country’s constitution related to the executive powers of government to impose greater constraints on the executive and help reduce

corruption emanating from the activities of the politically influential to be exempt from tax payments.

The study also shows that there is enough tax space to exploit to meet the country's rising expenditure needs. Hence, government should make all concerted efforts to improve on its domestic revenue mobilization to meet the expenditure needs. However, improving tax revenue mobilization does not imply collecting all missed tax revenues to meet the country's expenditure needs. Measures to improve on tax effort should be implemented with a greater focus on covering the informal sector of the economy and collecting revenue from sources that are not currently subject to taxation.

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