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学位論文及び審査結果の要旨

横浜国立大学

氏　　　　　　　名	CHILIMA YAMIKANI ISAAC
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論　文　審　査　委　員	主査　横浜国立大学　伊集 守直　教授 横浜国立大学　植村 博恭　教授 横浜国立大学　佐藤 清隆　教授 横浜国立大学　山崎 圭一　教授 横浜国立大学　茂住 政一郎　准教授

論文の要旨

With ever increasing social and public service, goods and infrastructure demands on the public purse, the domestic resource mobilization agenda is increasing in priority with special emphasis on tax revenue and its administration particularly in developing countries. With that has come an embrace for tax reforms to boost revenue collection capacities and performance. To evaluate reforms and assess tax revenue performance, typical measures used fall short.

The introductory chapter demonstrates that use of such typical measures as the share of tax revenue in GDP may be a mere indicator of tax capacity, which of course tends to be low in poor economies as a consequence of large agricultural sectors and other economic constraints. However, weak capacity does not necessarily mean the tax system's performance or revenue performance is poor as has often been implied. The thesis argued here is that to better gauge performance we should estimate the proportion of change or responsiveness of a tax revenue to changes in its base (or GDP), i.e. tax revenue productivity.

In this case ideally, at least a one to one change would be indicative of good revenue performance even if the current tax capacity is weak or low. This idea is briefly illustrated in the general introduction and shows that high tax capacity OECD countries evident by high tax-to-GDP ratios (even with the exclusion of social security contributions) may have weak or less than proportionate tax revenue to GDP responsiveness. At the same time some sub-Saharan African countries with relatively and/or significantly weaker capacities evidenced by lower tax-to-GDP ratios have more than proportionate responsive rates. Though this reflects that African tax systems have developed relatively more in recent decades unlike OECD systems which matured long before (and thus does not necessarily imply nor mean SSA country systems perform better), it highlights the deficiency of using tax ratios alone and the need to explore other measures to gauge current performance. One such measure employed is tax buoyancy, which estimates the responsiveness of tax revenue to changes in the tax base, typically as percentage changes.

Thus, the primary objective in chapter 2 was to demonstrate this by estimating the responsiveness of various tax categories (including international standard classifications) in Malawi to their bases. Given limited 1979 to 2017 annual time series, an autoregressive distributed lag (ARDL) model was used, which also estimates dynamic responsivity i.e. short run or within period responsiveness, and long run responsiveness of taxes to their bases. We found that real personal income tax is the most responsive to real GDP in both the short and long run in Malawi, followed by the consumption tax real VAT in response to real household final consumption. The performance of custom duties, which is a lump sum of import taxes was found to be weak as determined by a low responsive rate. Overall total tax revenue in Malawi, which accounts for about 17 percent of GDP, responds by 0.46 percent and 0.8 percent in the short run and long run respectively to a 1 percent change in real GDP.

This analysis focuses on the performance of the tax in relation to its base alone on which the tax is imposed, however tax categories and total tax revenue can be exogenously affected by other factors; structural (or economic) and policy factors, social and demographic factors, and institutional factors among others. An overview of previous empirical studies suggests that the impact of some variables on revenue performance is sensitive to the set of countries and time period of analysis. Consequently, Malawi shows a significant changing pattern of the economic structure beginning around the turn of the new century. This shifting pattern, thesis subject matter, and the desire to fill a literature gap presented Malawi as a timely case to investigate, to affirm and/or discover how some variables, called determinants, exogenously affect tax revenue performance.

Accordingly, in chapter 3 we investigate how structural variables, fiscal attributes, and other macroeconomic policy variables relate with total tax revenue generation. Applying ARDL model estimation to 1980 to 2016 annual time series, we affirm the agriculture share of GDP is significant, and negative for revenue generation. However, the emerging services sector share is positive, and a strong significant predictor, as are per capita GDP, broad-money supply and the official exchange rate. Trade openness, which is significantly driven by soaring imports, also features as significantly positive. On the other hand, the evidence presented suggests that domestic debt disincentivises tax revenue collection, but external debt induces it in the long run.

In sum, chapters two and three thus demonstrate the use of tax revenue productivity as a measure to gauge performance of tax revenue in response to its base and in response to other exogenous factors. Chapter one however, using the same concept focused on the other aspect of the thesis; the inadequacy of typical performance indicators to evaluate reforms, and the proposal to employ tax revenue productivity as a unit of analysis.

The major tax administration overhaul to date that has swept across Latin America and sub-Saharan Africa over the last three decades is rooted in a long history back to the immediate post-colonial periods when tax systems in developing countries modelled on centralised bureaucracies in Western economies were clearly failing. This was primarily due to compromised monitoring caused by poor communication technology, weak transportation infrastructure and record-keeping facilities. Given the weaknesses in monitoring capacity, reforms that combine some form of decentralisation and privatisation were seen to be more viable. Moreover, systems in pre-modern States that shifted residual clamancy to agents (actual tax collectors) had demonstrated some success.

Over the past three decades, over 35 modern States in the developing world have replaced centralized bureaucracies with partially decentralized and partially privatized tax administration agencies dubbed semi-autonomous revenue authorities (SARAs). The establishment of a SARA comes with high expectations for improved tax revenue performance fostered by the agency’s autonomy in general management, human resources, and financing, expected to replace political interference and corruption with efficiency and professionalism.

Studies that suggest SARAs have generally failed to increase tax revenue collections are a minority. However simply looking at tax revenue collections can be grossly misleading. An analysis of the trend in tax-to-GDP ratio as is typically done is better but has yielded inconclusive results. The objective in chapter one was thus to devise a suitable quantitative approach to evaluate SARAs and deduce whether SARAs in general have improved tax revenue performance or not.

To that end, we drew pre-reform and post-reform pair-samples from a panel of 21 countries most in sub-Saharan Africa (SSA) and Latin America and run dynamic OLS and fixed effects model regressions to estimate pairs of pre-reform and post-reform buoyancy coefficients that measure tax revenue productivity. With the exception of the Latin America sub-sample, post reform estimates were statistically different, and relatively higher by between 13 to 28 percent, with most gains by SARAs established later most of which are consequently in SSA. We thus deduced that in general SARAs have contributed to the improvement of tax revenue performance.

Though this evidence suggests optimism is warranted, true success and impact would grossly depend on individual country circumstances and the nature of the political-economy. For instance, success has proven to be inhibited when the autonomous features of SARAs are undermined say by government. Furthermore, tax revenue performance is exogenously affected by other economic, social and institutional factors many of which are outside the control of tax administration. To deduce on the potential impact SARAs have, such factors would need to be considered. While chapter one uses data that is a panel of countries and the sampling methodology to credit the assumption that such factors are unlikely to non-uniformly influence the pair samples and thus bias estimates, that would not be so in a single country assessment. Moreover, fixed effects estimation in a panel analysis controls for country specific differences. To make deductions on a single country case would thus require further assessment of some key exogenous variables, which is explored in chapter 3.

Preceding that further assessment was thus the secondary objective in the preceding chapter 2, which was to evaluate whether there was a significant shift in the responsivity or response rate of tax revenue to changes in its base following the implementation of SARA reform. Assessing a single country case also presented the opportunity to assess for potential impacts on various categories of taxes. Of the six individual tax categories examined, there was a significant positive shift in short run response rate for two taxes; domestic real VAT, and real Custom duties, in response to real household consumption and the real value of imports respectively. In the long run, there was a significant positive shift for real company income tax response rate to real GDP growth, and again domestic VAT and Custom duties. Total tax revenue and thus the tax system as a whole, improved in both the short run and long run responsiveness by 0.15 and 0.16 percentage points respectively for every 1 percent increase in real GDP in the period following the reform. The magnitude of these shifts however is not necessarily to the credit of the reform and new administration. It is fairly indicative of direction; however, an account of other exogenous variables was necessary to aid deduction, and this was the subject matter of the chapter (3) that followed.

The analysis of the determinants of tax revenue performance in chapter 3 provides evidence that shows that a number of variables are significant exogenous factors. Strong positive determinants include per capita GDP, the share of services in GDP, broad-money supply and the official exchange rate. Other significant revenue enhancing factors include rising trade openness, declining agriculture and reductions in domestic debt.

These factors are significant determinants of total tax revenue collections irrespective of tax administration. The more their implied exogenous effects are significantly different between the two periods, the less we can accredit post reform period differences to SARA administration. A graphical analysis presented in the conclusion chapter clearly illustrates that the four strong significant determinants grew at an exponential rate by comparison in the post reform period. There are visible significant differences between the two periods such that comparatively, the difference in the exogenous effect is not negligible. In particular, per capita GDP, service share, broad money supply and the exchange rate clearly depict exceptional post 2000 growth rates that surely compounded tax revenue to increase substantially.

Put simply, there were significantly more revenues available to collect, or more value available for tax payers to pay a share in taxes. The question to ask then is whether the reformed agency was significantly better placed or more capable of collecting tax revenue from the increased value and bases. Perhaps yes considering the rationale for establishment, the organizational set up, and from experiences narrated in case studies. Nevertheless, the empirics here are insufficient to strictly attest to this. At best, they emphasize that within the magnitude of the positive change in performance, the reformed agency only had some part.

The model in chapter two estimated that the long run responsiveness of real total tax revenue improved by 0.16 percentage points for every 1 percent increase in real GDP. Considering chapter 3 posits that the exogenous factors are significant, and noting the visible pre-reform post-reform differences and thus the implied exogenous effects on revenue generation, we conclude at best, that the significant portion of this increased performance in Malawi, was due to the exogenous effects from the changing patterns of structural and macroeconomic factors that surely biased upwards post reform period tax revenue performance.

審査結果の要旨

本論文は、途上国における税収生産性（Tax Revenue Productivity）の変動要因を分析することを目的としている。アフリカおよび南米諸国では、政府から一定の独立性をもつ徴税機関（SARA: Semi-Autonomous Revenue Authority）を設立することで、より効果的な税収調達を行おうとする取り組みが進められてきた。本論文の課題は、徴税機関改革による増収効果を分析することと、一国の税収調達において、課税ベースの変化とマクロ経済的要因の変化が与える影響分析することにある。本論文は序章と終章、本論としての 3 章から構成されている。序章において先行研究を整理し、アフリカ・南米諸国の税務行政改革の歴史的経緯を概観したうえで、第 1 章において、アフリカ・南米諸国における徴税機関の設立が税収生産性に与えた影響を推定している。第 2 章と第 3 章では、マラウィにおける税収生産性の変化を、それぞれ課税ベースとマクロ経済的要因から推定している。そして、終章において全体の結論を導いている。

第 1 章は、アフリカ・南米 21 か国を対象として、1980 年から 2014 年までの時系列データを利用しながら、徴税機関（SARA）の設置前後での税収変化について、Panel Dynamic OLS による推定を行っている。その結果、SARA 改革後には全体として、実質 GDP の変化に対して、実質税収額の増加率が 13%から 28%の間で上昇していることなどの点を明らかにしている。第 2 章は、マラウィを対象として、1979 年から 2017 年までの時系列データを利用しながら、SARA 改革前後の課税ベースの変化に対する税収変化の反応度について、Autoregressive Distributed Lag (ARDL) モデルに基づく推定を行っている。その結果、個別税目、直接税と間接税、あるいは租税制度全体での課税ベースの変化に対する短期と長期の税収変化を推定しており、SARA 改革を受けて、実質 GDP の変化に対する租税制度全体の反応度は 0.29%ポイント上昇したことを明らかにしている。第 3 章は、同じくマラウィを対象として、1980 年から 2016 年までの時系列データを利用しながら、経済構造要因やマクロ経済変数が税収生産性に与える影響について、ARDL モデルに基づく推定を行っている。その結果、産業構造の変化や政府債務、貿易開放度や為替レートなどの税収変化との関係を示したうえで、税収変化に影響を与えうる経済構造や、長期的に税収を増加させるマクロ経済変数や経済政策のあり方についての示唆を導いている。

本論文は、アフリカ・南米諸国の SARA 改革が税収生産性に与えた影響を包括的に分析し、その

効果や地域的特徴を明らかにしている点や、一国分析における SARA 改革の前後での課税ベースとマクロ経済的要因に対する税収生産性の変化を明らかにしている点に、高い学術的成果が認められる。また、本論文で構築した分析モデルにより他国における同様の税収生産性分析が可能になることや、それを踏まえた比較分析へ発展する可能性があり、その点でも高い学術的意義が認められる。ただし、本論文では租税政策の変化を含めた分析は行っていないため、今後は制度変化を組み込んだ分析を発展させていくことが期待される。

以上のことから、本論文審査委員一同は、本学府の博士号審査基準③に照らして、Chilima Yamikani Isaac 氏の学位請求論文「Assessing Tax Revenue Productivity in Developing Countries: New Quantitative Evaluations and Determinants of Performance」が博士（経済学）の学位を授与するに値するものとして、判断する。