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Application of digital technology in enhancing tax revenue collection: the case of micro businesses in Tanzania

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ABSTRACT

In spite of the importance of Micro Businesses (MBs) in forming a wide tax base, there isn't a clear practical approach to tax administration of MBs in many developing countries. Specifically, there is limited information on how digital technology can address tax administration challenges for MBs. This paper explores the potentials of digital technology to enhance tax revenue collection and its administration to Micro Businesses in the Tanzanian context. The data on tax administration, challenges impeding tax administration to MBs, and the potential of digital technology used in tax administration were collected by questionnaire and interview. Interviews were conducted with 24 informants from Tanzania Revenue Authority, and 137 Micro Business candidates from various business sectors were provided with a questionnaire in Dar es Salaam, which is the head office of tax administration and the economic hub of Tanzania. Thematic approach was used to analyse the qualitative data. Descriptive statistics was used to analyse quantitative data through SPSS. The findings revealed that the current tax practices to MBs do not comply with tax theories of low administration cost, wide tax base, and simple-to-administer tax procedure. The findings revealed that the challenges like lack of record keeping, lack of knowledge on tax payment procedures, unknown tax collection channels, and multiple taxes can be tackled by establishing strong relationship mechanisms between TRA and MBs and using digital technology solutions to tackle challenges. The study suggests some digital technology solutions to address the challenges. Leading to that practical aspect of tax administration that can guide policy makers and tax administrators was introduced.

KEYWORDS

tax administration, digital technology, tax avoidance, input tax and micro businesses

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Использование цифровых технологий в целях повышения налоговых поступлений (на примере микробизнеса Танзании)

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АННОТАЦИЯ

Несмотря на важную роль микробизнеса для формирования широкой налоговой базы, во многих развивающихся странах не сформировался ясный практический подход к его налоговому администрированию. В частности, нет достаточной информации о том, как можно решить проблемы налогового

администрирования микробизнеса с помощью цифровых технологий. В статье исследуются возможности применения цифровых технологий для повышения сбора налогов и налогового администрирования микробизнеса в Танзании. Данные о налоговом администрировании, о проблемах, тормозящих налоговое администрирование микробизнеса и о возможностях цифровых технологий в налоговом администрировании получены путем анкетирования и интервью. Были проинтервьюированы 24 представителя налогового управления Танзании, проанкетированы 137 представителей различных сфер микробизнеса в Дар-эс-Саламе, являющемся экономическим центром и местом расположения налоговой администрации Танзании. Для анализа качественных данных использован тематический подход, для анализа количественных данных использована описательная статистика с применением пакета SPSS. Результаты показали, что текущая практика налогообложения микробизнеса не соответствует налоговым теориям о низких административных расходах, широкой налоговой базе и простоте налоговых процедур. Результаты показали, что такие проблемы, как отсутствие учета, незнание процедур уплаты налогов, неясные каналы сбора налогов и множественность налогов, могут быть решены путем построения прочных взаимоотношений между налоговой администрацией и микробизнесом, а также путем применения цифровых технологий. Для решения выявленных проблем предложены некоторые цифровые технологические решения. Представлены практические рекомендации по улучшению ситуации, которые могут быть применены в политике и налоговом администрировании.

КЛЮЧЕВЫЕ СЛОВА

налоговое администрирование, микробизнес, цифровые технологии, неформальные операции, уход от налогов, вмененный налог, Танзания

1. Introduction

Micro businesses (MBs) are a form of informal businesses operating in high footfall areas such as markets, bus stands, and road junctions and densely populated residential areas from Gomera and Oreku [1]. MBs have been promoted as important enterprises to the economy and livelihood of many people in developing countries. MBs form the backbone of developing countries' economies as they comprise of a substantial part of people's livelihoods Ferranti & Ody [2]. In most African countries, MBs are directly linked to the national economic development through self-employment and contribution to the Gross Domestic Production (GDP) from Ajmeru [3] Although MBs have a significant contribution to people economies, they are still considered as belonging to the informal sector; and this has an implication in their theoretical and practical inclusion in budgeting and economic strategies of most developing countries. One of the important areas in which the exclusion of MBs in the national budgets and strategies is evident is their

involvement in the tax systems, which is either minimal or indirect in most developing countries.

The active tax systems are presumed to mobilize revenues from a wide tax base, in order to reinforce government legality, achieve fair sharing of costs, and catalyze national development. The main administrator of tax systems in many countries is the revenue authority of the country concerned from Fjeldstad and Heggstad [4] Revenue authorities have been assumed to be assisting in raising funds of meeting expenditure in social services through collecting taxes from multitude of taxpayers. Despite that the focus of most revenue authorities is on increasing tax base, the inclusion of MBs is likely to face many challenges.

Moreover, numerous studies have advocated for the usage of digital technology to enhance activities of informal practitioners, MBs inclusive see for example, Gomera [5], Kapinga [6], Mramba [7]. The mobile money service, mobile banking, mobile training, and digital marketing are examples of MBs' activi-

ties undertaken using digital technology. The use of digital technology in MBs has expanded from the level transaction to the level of connecting with other formal institutions Donner & Escobari [8] and Deen-Swarray [9]. Digital technology has also supported government, private, formal, and informal operations. The technological solution brought about by digital technology is its ability to generate and disseminating information to users at any time anywhere.

There are numerous studies on the importance of MBs in the economy Kibassa [10] and Engelschalk [11], the importance of a broad tax base to tax administration systems (Coleman & Evans [12], Kundt [13]) and the ability of digital technology to simplify operations among formal and informal practitioners from Lubua [14]. However, there is limited information on how Tanzania Revenue Authority (TRA) can effectively benefit from digital technology and include players such as MBs in tax system. This study therefore explores the potential of the use of digital technology by TRA in enhancing tax administration to MBs. The study also explores the current practice of tax administration among Tanzanian MBs, the challenges facing the tax administration, and areas where digital technology can potentially be applied to address the challenges. The paper specifically presents the exploratory picture of tax administration challenges thereon and the potential technological solution to facilitate tax administration to micro businesses. The study is based on the aspect of establishing digital technology solution to tackle challenges facing direct tax administration of MBs. In addressing the goal of this study, three specific research questions were posed.

RQ1: What are the current tax administration practices of TRA to MBs?

RQ2: What are the challenges impede TRA in the administration of taxes to MBs?

RQ3: What are the potentials technological solutions to tax administration challenges that suit the MBs operations?

2. Literature review

2.1. Informal operations within Micro businesses (MBs)

Informal business employs majority of the populations in many developing countries. This is despite the fact that the main characteristics of such businesses are fully or partially outside of the government regulation, taxation, and is given less attention by different authorities Ahmad [15] and Ajmeru [3]. However, informal businesses accounts for big proportion of the gross national products (GNP) in sub-Saharan Africa from Elly [16]. In developing countries informal employment is more common than formal employment from Coleman and Evans [12]. Tanzania was found to be one of Africa's largest informal economies engaging 57.9% of the working age from Fjeldstad and Heggstad [4]. One of the common practices of informal business is Micro Business activities.

Micro Businesses (MBs) consist of firms with zero to ten employees that mainly belong to poverty driven sector with lack of resources and poor business record from Gomera [5]. Tanzanian MBs are very small businesses that are located in densely populated areas with permanent but simple structures of buildings. MBs have significant impact in the economic system through self-employment in sectors such as food processing, clothes, electronic, agricultural products, manufacturing, and academia just to name but a few from Gomera and Mikko [17].

Most of the micro businesses have a dominant owner-manager working alone or being assisted by at least one family member from Gomera [18]. MBs exist all over the world but they are more prevalent in developing countries including Tanzania. MBs as for other practitioners in the informal sector are the foundation of most economies that produce legal commodities and services but are not registered and do not comply with government regulations. Since MBs are informal in nature, local administrative authorities, revenue authorities, and other

institutions cannot have accurate statistics of the presence of MBs in their localities. Majority of Tanzanian MBs are located in urban areas with high population pressure. For example, almost 14.7% of MBs are located in Dar Es Salaam from Satta [19]

Tanzanian MBs have been left behind in the tax system for a long time now despite their fast growth since 2010s Diao [10]. Exclusion of MBs in the tax system is attributed to the following: tax generates significant cost to the firm or business, and lack of record keeping Dube & Casale [20]. Almost 72.1% of Tanzanian MBs do not keep proper records for tax assessment from Maskaeva [21]. This makes MBs non-supportive to tax compliance and revenue collections. In addition, MBs lack awareness on how to compare presumptive taxes with formal sector taxes. This makes MBs harbor misguided assumption that they are being charged unfairly. Such perceptions make MBs have low morale and non-compliant with tax payments form Dube and Casale [20].

2.2. Taxing MBs in Tanzania

Tax authorities are important pillars for the collection of national revenue through taxation. Tax is the amount of money collected from the income generated or value added by citizen from employment, or a business undertaken Mahangila [14]. The need of taxing MBs catalyzed by deficit in the national budget form Dube & Casale [20]. For example, in 2015, the average tax collection in Tanzania was below 12%, which was presumed to be lower compared to the average tax collection in other countries in East Africa from Mahangila [14]. In addition, Tanzania has a narrow tax base whereby domestic revenue to GDP is about 15% compared to the national average of the other countries in Sub-Saharan Africa, which is 17% from Maskaeva [21] Moreover, Tanzania's Tax revenue is not enough in meeting the government expenditure, as the average collection was TZS 12.6 trillion against TZS 33.1 trillion-budgeted expenditure for the year 2019. Due to budget deficit of TZS 20.5 trillion, the Tanzanian practitioners

and researchers are called on to think of different ways of increasing revenue.

The TRA introduced presumptive tax to focus on individuals who cannot keep records and are not qualified for Value Added Tax (VAT) registration from Haji [22]. Tax presumptive is considered as the best option of administering tax to individuals earning less than TZS 20 million per year Haji [22] In TRA, presumptive tax is administered by the Department of Domestic Revenue. Presumptive taxes are simplified regimes that are levied on the presumed, rather than on the actual income of formal or informal enterprises Ogembo [23], Mintz & Chen [24]. This is designed basing on sales turnover, rent payable by a client, and business premises. MBs are required to submit business location, rental deeds, and business ID for tax presumption. The question as to whether the client is taxed appropriately has no clear answer because tax assessment depends only on the available often-incomplete information.

Apart from presumptive tax, MBs are required to make other contributions such as environmental cleaning levy, business registration fees, agent fee, and car parking fees, and market fees for those operating in the market areas. Fees are collected by municipal and submitted to the government by the responsible authority. Moreover, in 2018, MBs in Tanzania including street hawkers were required to be registered and be issued with identification cards. However, the process needs practitioners and researchers' support from Meinzer [25] to achieve tangible results.

In Tanzania, IT has also improved compliance among taxpayers, which in turn, has boosted revenue collections. Currently, TRA uses a number of electronic tax administration systems which include systems with the most Integrated Tax Administration System (ITAX), Taxpayer Identification System (TIN), Computerized Motor Vehicle Registration System (CMVRS), Customs Administration System (ASYCUDA++) and Computerized Drivers' License System (CDLS). All these have reduced

the pressure of manual operations. Variable Tax assessment brackets are automated online, and a customer can fill in the required information and print it out for tax payment from Maskaeva [21].

In addition, the TRA recently introduced Block Tax Management System (BMS) with the aim of bringing more tax payers in the tax system. The set-up of BMS consists of areas of trading concentration that are mapped up in small segments. These segments are based on geographical, administrative set-up or a combination of streets to form a block. However, the informal sector is still not scheduled to adopt this system since business registration of informal practitioners is low. The system has also been proved to be one sided in usage as it helps tax authority only to trace taxpayer.

2.3. Challenges facing Tax Administration to MBs

Micro Business are still not fully included in the TRA tax targets net, this is attributed to a number of challenges that prevent the accommodation of these firms into the tax system. These challenges include most tax regulations do not accommodate MBs, lack of accuracy MBs' information, and lack of proper records from MBs from Elly [16] and Haji [22].

A study by Fjeldstad and Heggstad [4] revealed that local government taxation is faced with a challenge that limits the inclusion of MBs to TRA tax net. Multiple, unstructured, and excessive levies such as taxes, fines, or fees cause a huge burden to MBs. These levies were found to be charged astronomically irrespectively of the size, type, and level of earning of a particular business making it difficult for MBs to graduate to the next level of their growth. Moreover, Coleman and Evans [12] found that most MBs were not satisfied with tax practices of local authorities. Most MBs commented that tax procedures are not well organized, and this affect the amount taxable from an individual MBs. Poor tax administration was cited as a discouraging factor for many to pay taxes. Sometimes there is overestimation of

taxes that end up demoralizing taxpayers Freedman & Crawford [19].

Moreover, Nakiwala [26] revealed that despite that, tax administration to MBs is an important, TRA tax practices presume to be uneconomic. The presumption of uneconomical tax administration to MBs based on the facts like it requires high cost of monitoring, controlling, and collecting. In addition, geographical diversity of MBs causes constraints to tax administrators. It also evident that, the costs incurred in tax administration of informal practitioners in most cases outweighs the revenues generated Haji [22]. A study by Elly [16], found that it was difficult for the tax authority to administer tax from informal operations such as MBs.

Furthermore, lack of information from MBs to tax authorities has been identified as another impediment to include MBs in the tax net. The study by Slemrod and Yitzhaki [27] conducted in Ghana found that information offered by MBs was not sufficient to support revenue authority in tax administration. For example, MBs lack record keeping skills and thus depended on personal memory of their daily operations from Gomera [5]. MBs operations are informal and have very limited ability to generate information, which therefore affects the link between revenue authorities and MBs.

Another challenge is the complication of tax regulations or elimination of MBs in tax regulations. The complexity of tax laws frightens MBs in the aspect of tax compliance burden, which is presumed to follow suit after being registered by Coleman & Evans [12]. Many studies have proposed the need of strengthening the tax base by accommodating MSMEs in the TRA's tax net, as this might lead to rationalizing turnover of tax regime. The initiative may also help in pulling practitioners of the informal and semi-informal sectors into formal and hence expanding TRA tax base from Elly [16].

As for the MBs, their inclusion in the tax net may help them transform from informal to the formal sector. This transformation is envisaged to be

advantageous to MBs in terms of accessing credit, accessing formal and export markets, involvement in government procurement, and enjoying attractive business opportunities available in Government’s Nakiwala [26]. Studies undertaken realised that the MBs are not included in the TRA tax net, due to most tax regulations do not accommodate MBs, lack of accuracy MBs’ information, and lack of proper records from MBs (Elly [16], Haji [22], Fjeldstad & Heggstad [4], Freedman & Crawford [19]). In addition, TRA presume tax administration to MBs to be uneconomic due to high cost of monitoring, controlling, and collecting Haji [22], Freedman & Crawford [19], Ahmad et al. [15]. This attracted the following study to focus more on exploring the potentials of technology to enhance the inclusion on MBs in TRA’s tax net.

With this regard, the conceptual framework focused on aspects that made connecting the three research questions addressed in this study was inevitable. The aspects considered in this study are the current tax administration practices to MBs, challenges impede TRA in administering tax to MBs and potentials technological solutions for tax administration to MBs. The conceptual framework depicted in Fig. 1 was developed from the literature

review that focused on tax practices to informal sectors, challenges of tax administration to informal sector and potential of digital technology in administrating tax to informal sector.

The MBs are required to pay taxes because they generate income from their daily undertakings. However, the current tax administration to MBs as for other small businesses in Tanzania is not curtailed and lack structured framework. The study by Haji [22] observes that MBs faces multitudes of levy, which are charged by different authorities. This high tax burden creates difficulties of administering tax to informal practitioners, including MBs by Haji [22].

Tax burden minimizes the exact portion of total personal/business income as large portion is charged by the government. The multiple taxes, fines, various payments leave the MBs with less expendable capital to business owners.

In Tanzania, the digital technology has stipulated to be a potential asset to both TRA and business community by improving tax compliance and reduce administration and compliance costs from Dube [28] and Lubua [29]. Despite the adoption of technology, in several aspects, it was noticed that still a good number MBs were left out of the tax net. This motivated the current study into exploring

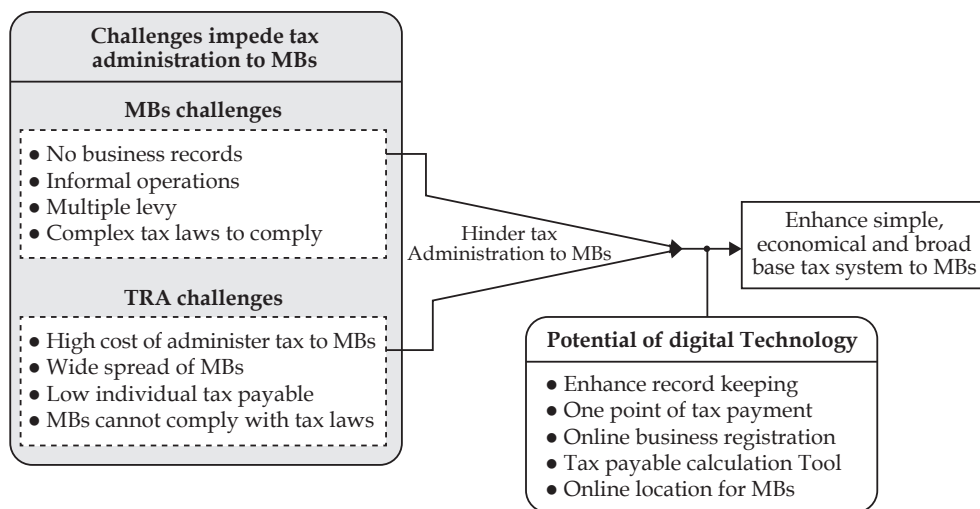


Fig. 1. Conceptual framework of the study

the possibility of using mobile technology to include MBs in the country's tax net and adoption of GPS and GIS/Remote sensing in the informal business locations as additional remake to technology aspect.

3. Research design

The study adopted a mixed method research design by Creswell [30] in exploring the status of TRA in tax administration to MBs. The specific type of mixed method used is convergent parallel mixed method from Creswell [30] whereby data analysis was done simultaneously. The usage of convergent parallel mixed method was based on the fact that both qualitative and quantitative approaches provided information from participants and generated the results that answer the research questions. Under mixed approach, two types of data collection namely qualitative and quantitative were obtained through questionnaire and interview Kothari [31].

3.1. Data collection methods

The data collection tools included a series of questions about tax, TRA, and MB, which are derived from the theories outlined in section 2. Data collection tools were questionnaire for quantitative and interview guide for qualitative. These tools were used to collect both qualitative and quantitative data in a parallel approach (at the same time) using the same variables. Variables used in data collection were tax administration, challenges impeding tax administration to MBs, and the potentials of digital technology to tax administration as depicted in Fig. 1 in section two of this article. Qualitative data was collected through semi-structured interviews. This was conducted in Dar Es Salaam City, which is the head office of TRA and the economic hub of Tanzania. 24 TRA officers were interviewed, and 137 Micro Business candidates were provided with questionnaire to collect quantitative data. The informants from TRA were obtained based on friendship, professional collegiate and willingness to provide their personal views and experience on the practical experience of tax

administration towards MBs. The MBs participants were purposefully chosen based on (1) the kind of business and (2) willingness to participate in the study. Therefore, all together 161 participants from Dar Es Salaam City from various business sectors participated in the study. Because the study is of explorative nature that required more detailed and overview information from practitioners, the sample size considered satisfactory from Bryman [5].

The interview questions focused on tax administration, challenges facing tax administration to MBs and the potential of technological solution to the identified challenges. These themes were built based on the research questions, practical aspects of tax administration, and tax theories. The interviews were designed as natural dialogues around the identified themes. The interviews lasted for 15 to 25 minutes. The researcher made extensive notes on the discussions based on the prior prepared form in each theme. The TRA interviews were conducted in English while MBs interviews were conducted in Kiswahili.

After the interview, the specific aspects in each theme were further grouped in different aspects. Researchers designed the quantitative data collection tools from the aspects obtained from qualitative information. The questionnaires were divided into three themes with a number of statements most of which were identified in the prior conducted interview.

3.2. Analysis

Both quantitative and qualitative data were analyzed side-by-side approach from Creswell [30]. Whereas quantitative information was analyzed by themes and compared with qualitative information. This means the data from quantitative and qualitative approaches were analyzed separately, and then the results from each method were compared. Under the qualitative approach, content analysis from Bryman [32] was used.

The content analysis involved coding process. The coding approach involve grouping of collected data into three

themes. The themes were current tax practices to MBs, challenges hindering tax administration to MBs, and potential technology for tax administration to MBs. After having three groups of data, used to derive meanings, the relevant information of presented data was generated. For the quantitative data, descriptive statistics was used to analyse quantitative data through SPSS. In qualitative approach, content data were broken down into small groups, which were categorized into three main themes of this study. The themes were designed to establish tax administration to small business owners, the challenges of tax administration, and the potential areas where mobile technology could be used to tackle the challenges.

4. Results

This section presents the findings on the general information of the study participants, practical aspects of tax ad-

ministration to MBs, challenges thereon, and the potential of digital technology in enhancing tax administration to MBs.

4.1. General information

The primary participants of the study were 86 Micro Business owners in Dar Es Salaam City. With the expansion of scale, the total number of 137 Micro Business owners filled out and returned the questionnaire. Table 1 shows information on gender, age, education level, the kind of business and business location of MB owners participated in the study. Secondary participants in the study were 24 TRA officers who participated through the interview format. They provided their personal views on the practical experience of tax administration towards MBs. Therefore, all together 161 participants (MBs owners and TRA officers) in Dar Es Salaam City from various business sectors provided information for this study as presented in Table 1.

Table 1

General information of MBs participated in the study

Categories of respondents' information		Frequency	Percent	Cumulative Percent
Gender	Female	59	43.1	43.1
	Male	78	56.9	100.0
	Total	137	100.0	
Age of MBs	18-30	48	35.0	35.0
	31-45	70	51.1	86.1
	46-60	19	13.9	100.0
	Total	137	100.0	
MBs Education level	Primary education	54	39.4	39.4
	Secondary Education	61	44.5	83.9
	Diploma Level	15	10.9	94.9
	Bachelor	7	5.1	100.0
	Total	137	100.0	
Type of MBs Business	Food Venders	18	13.1	13.1
	Garments	16	11.7	24.8
	Fruits Venders	17	12.4	37.2
	Cosmetics	23	16.8	54.0
	Mobile money Services	22	16.1	70.1
	Electrical utilities	28	20.4	90.5
	Hardware	7	5.1	95.6
	Mixed business	6	4.4	100.0
	Total	137	100.0	
MBs business location	Local Markets	21	15.3	15.3
	Bus stop areas	55	40.1	55.5
	Road junctions	52	38.0	93.4
	Other areas	9	6.6	100.0
	Total	137	100.0	

4.2. Activities performed in Tax Administration to MBs

Through the interviews with TRA officers, we revealed that the current practices of tax administration to MBs are weak and in near to nonexistence. The respondents confirmed that local authorities conduct most of the tax practices from MBs. However, in some cases TRA apply presumptive tax system to MBs. Regarding current tax administration practices to MBs, the interviewees revealed a number of issues. We are currently having weak direct communication with MBs concerning tax payment, since very few MBs are paying taxes to TRA. Moreover, we have found that MBs are paying multiple taxes, levy, and fines to different authorities like local authorities, market authorities, and cleaning agents. This gives them a negative perception towards taxation due to high levy burden. Most MBs are willing to pay tax, however the payment system for MBs is complex and costly that does neither motivate tax authority nor taxpayers.

The TRA confirmed the existence of presumptive tax departments, which mostly deal with MBs, however the departments seem to fail reach most of MBs through tax campaign and training. Moreover, there is no full record for this group of taxpayers, therefore there is a failure to recognize their direct contribution to nation income and public revenue generation. The department has no continuous measure and system to meet the taxpayers, also most of MBs have specifically decided to remain at the bracket of presumptive tax and assume not to grow and graduate to another level. Participants revealed that TRA have no direct contact to MBs for either training or tax collection. Some TRA officers confirmed to provide training through radio, television and visiting some of MBs. "We are not providing active and continuous training to all kind of MBs; rather selecting few for training and follow-up. They added that selection of MBs to training depend on their nature and business environment.

In addition, from the interviews it was revealed that, the business registration

process is considered very complex resulting to having too few MBs willing to register their business. Moreover, the Government (TRA) was found to be aware of the working environment and the type of MBs' businesses although not to a large extent. Therefore, confirming that tax administration to MBs is not active.

On top of qualitative information, the quantitative data of this study revealed that, MBs have no proper system for direct tax payment and have unrecognized businesses, which are surrounded by business uncertainties. Additionally, it was established that MBs face multiple tax liabilities from different authorities. However, MBs are willing to contribute to the national development. In order, to eliminate multiple taxes to MBs, participants advised that TRA should be the only authority of collecting and administering levy or tax to all taxpayers. Moreover, participants insisted that there should be a mechanism of introducing active tax system to informal practitioners in the country.

The quantitative findings, as summarized in Table 2, present the information of the current tax administration as ranked by MBs. These resulted from the Likert scale questionnaire contain number of statements as depicted in the Table 2 below with their relative values.

From the data depicted in Table 2, observations were made that there were some items confirmed to have low mean value and high value of standard deviation. TRA do not provide training to MBs (mean 2.77, std 1.742). MBs registered their business with local authorities (mean 2.88std, 1.620). MBs have no proper system for direct tax payment (mean 3.05, std 1.716). The low mean and the high standard deviation were confirmed to be affected by the business type as presented in the original individual respondents. This confirmed the claim made by TRA officers that nature of the business of those MBs can affect simplicity of administrating tax. It was also observed that food venders, fruit venders and garment MBs are not tax friendly when compared to cosmetics, electricity supplier, hardware and mobile money services.

Table 2

Aspects of current practices of tax administration to MBs					
S/N	Aspects reveal current Tax Administration to MBs	Minimum	Maximum	Mean	Std. Deviation
1	TRA do not provide training to MBs	1	5	2.77	1.742
2	MBs registered their business with local authorities	1	5	2.88	1.620
3	MBs have proper communication with authorities at business places	1	5	3.94	0.811
4	MBs' business types and locations are recognized by the Government	1	5	4.17	0.871
5	MBs have no proper system for direct tax payment	1	5	3.05	1.716
6	There is poor relationship between TRA and MBs	3	5	4.8	0.541
7	MBs face multiple tax payment to different authorities	1	5	4.47	0.718
8	MBs prefer TRA as only tax authority	1	5	4.26	0.970
9	Informal operation of MBs lead to exclusion from direct involvement of national development	1	5	4.28	0.897
10	MBs are willing to contribute in national development	2	5	4.46	0.630
11	MBs advised to have active tax system	3	5	4.35	0.671

4.3. Challenges

The study found that TRA does not charge tax to MBs directly due to difficulties associated with administering tax to small taxpayers. The data collected revealed that there are challenges regarding complex tax laws and regulations above the level of understanding of MBs and thus hindering compliance. In addition, TRA confirmed that most of the MBs are operating informally without any business records or business registration. Moreover, there is lack of proper tax administration mechanism to MBs whereas there is no single authority, which is liable to collect levy from MBs, this discourages MBs from complying with tax payment procedures. Another identified challenge is lack of information flow from authorities to MBs.

Additionally, the respondents revealed that currently TRA does not use technology in tax administration to MBs. This is due to lack of updated skills among their staff on technology and absence of software that can effectively connect MBs and TRA. It revealed that the incapability

of designing and operating the software application for taxing different groups of taxpayers may affect the tax administration initiative to MBs. Some interview respondents revealed that "We have not the technological incubation for software and system development. This may affect technological capacity of the institution. Additionally, TRA to involve MBs in the form of presumptive tax because these firms have poor information system, have no permanent address, leading to high tax administration costs.

Besides, the quantitative data revealed that there are challenges that hinder tax administration to MBs. These are affecting both sides MBs and TRA. The statements in the Likert scale questionnaire were analysed to retrieve quantitative information derived from descriptive statistics as presented in Table 3. Specifically, the MBs owners felt that there was no proper tax bracket, which relate to the income level of MBs (mean 4.04, std 0.969). Moreover, MBs were not aware of revenue collection channels (mean 4.50, std 0.708). Additionally, the, presence of multiple taxes dis-

couraged MBs from paying taxes (mean 4.50, std 0.620)

The factors hindering tax administration include wide spread of MBs, informal operations of MBs, and poor understanding of tax procedures. In addition, MBs owners indicated that, MBs fail to pay proper taxes due to lack of record keeping (mean 4.26, std 0.825). Others include MBs lacking knowledge on record keeping (mean 4.45, std 0.727). MBs lacking knowledge on Tax payment procedures under TRA (mean 3.23, std 1.693)

The MB owners were not able to access business services from local authorities due to informal operating (mean 3.21, std 1.738) and sometimes lack of specific locations for MBs business operations (mean 3.15, std 1.643). Additionally, MBs operate in difficult environments (4.56, std 0.513) and their businesses were found not to continue for the foreseeable future (to lack going concern aspect) (mean 3.09, std 1.680). The findings show that, there are challenges in taxing this informal sector, ranging from underreporting of taxable income, lack of authority and mechanisms of monitoring activities of the informal sector, and businesses in the informal sector are not registered and do not abide by taxation ethics.

The findings of this study have identified a number of challenges impeding the inclusion of MBs into direct tax systems. These challenges include lack of proper recording for MBs, high cost of tax administration, lack of official records concerning MBs, wide dispersion of MBs and their informal nature of operations.

However, from the data depicted in Table 3, it was confirmed that there were some responses with low mean value and high standard deviation. The responses like; MBs have no knowledge on Tax payment procedures under TRA (mean 3.23, std 1.693), MBs fail to access the services from authorities due to informal operation (mean 3.21, std 1.738), No specific locations for MBs business operations (mean 3.15, std 1.643), and MBs businesses are not concerned (mean 3.09, std 1.680), found to differ among respondents.

The low mean and the high standard deviation were confirmed to be affected by the business type as presented in the original individual respondents capture. This confirms that, there challenges affecting all MBs regardless of type and nature of the business. However, the impact of some challenges depends on the nature and type of business. Table 3 above shows that food venders, fruit

Table 3

Quantitative findings on challenges affecting tax administration to MBs

S/N	Aspects reveal challenges affect tax administration to MBs	Minimum	Maximum	Mean	Std. Deviation
1	No proper tax bracket relate to level of MBs income	1	5	4.04	0.969
2	MBs fail to pay proper tax due to lack record keeping	1	5	4.26	0.825
3	MBs have no knowledge on Tax payment procedures under TRA	1	5	3.23	1.693
4	MBs fail to access of services from authorities due to informal operation	1	5	3.21	1.738
5	MBs are not sure of revenue collection channels	1	6	4.50	0.708
6	No specific locations for MBs business operations	1	5	3.15	1.643
7	MBs are operating in difficult environment	3	5	4.56	0.513
8	MBs have no knowledge on record keeping	1	5	4.45	0.727
9	Multiple taxes demotivate MBs to pay tax	1	5	4.50	0.620
10	MBs businesses are not going concern	1	6	3.09	1.680

venders and garments revealed to be more affected by; knowledge on Tax payment procedures, lack of access of services from authorities lack specific locations for MBs business operations lack of business continuity (businesses are not going concern) when compared to cosmetics, electricity supplier, hardware and mobile money services.

Moreover, the quantitative data of this study revealed that, some of the identified challenges impede tax administration to MBs correlate with poor TRA relationship mechanisms to MBs. The data revealed the significant relationship between absence of tax bracket, lack of record keeping, lack of knowledge on tax payment procedures, unknown tax collection channels, and multiple taxes on one side with poor TRA relationship mechanisms to MBs on the other side. The correlation of the challenges impedes tax administration to MBs with poor relationship between TRA and MBs were established based on critical criteria presented in Table 4.

4.4. Potentiality of Technology

Based on the challenges aforementioned in section 4.3 above, researchers confirmed the potential solutions of addressing them. These potential solutions include the use of good number of mobile phones. However, the widely cited

solution to most of the practical challenges is the application of mobile technology. Participants revealed that despite that the current tax administration practices are faced by the various identified challenges. However, almost all MBs had mobile phones that can facilitate their operation and enhance direct involvement in the national development.

The usage of digital technology was proposed as a way of enhancing tax administration process. Digital technology was mentioned in an interview as a potential area for tackling tax administration challenges among MBs. From the findings, the study participants also revealed the available potentials on the usage of digital technology in carrying out different activities in responding to tax challenges. This paves the way of enhancing the usage of mobile tax administration for MBs.

Additionally, the respondents advised that TRA have to set strategic training plans to equip employees with the use and ability of designing technological solution to address the challenges. This might include in house training and short courses, which staff can attend to upgrade their skills as per the emerging technologies. Respondents advised that TAX institute, practitioners and other higher leaning institutions in the country

Table 4

Correlation between challenges affecting tax administration and poor tax administration MBs

Challenges Impede Tax Administration to MBs	Poor relationship between TRA and MBs	
	N = 137	
	Pearson Correlation	Sig. (2-tailed)
Absence of proper tax bracket relate to level of MBs income	0.725	0.008
Lack of tax record keeping to MBs	0.564	0.015
Lack of knowledge on Tax payment procedures for MBs	0.852	0.007
MBs fail to access services from authorities due to informal operation	0.005	0.955
MBs are not sure of revenue collection channels	0.671	0.012
No specific locations for MBs business operations	0.115	0.179
MBs are operating in difficult environment	0.027	0.755
MBs have no knowledge on record keeping	0.017	0.846
Multiple taxes demotivate MBs to pay tax	0.733	0.009
MBs businesses are not going concern	0.021	0.812

could also be part of building specific software and skills for TRA in adopting current technology for practical challenges facing tax administration.

Moreover, from quantitative data, MBs proposed the usage of digital technology for business registration (mean 4.41, std 0.692). With reference to the mobile money service, the mobile phone was recommended to be used to make direct digital payment by MBs to TRA (mean 4.57, std 0.566). In addition, participants proposed the usage of mobile record keeping system that may help them to generate information for tax purposes (mean 4.50, std 0.698). Basing on tax administration, participants re-commended that local authorities should deal with creating conducive business environment only leaving the collection of tax levy to TRA (mean 4.36, std 0.674). Moreover, they recommended that digital technology system and mobile training application services should be used to enhance tax compliance (mean 4.50, std 0.708) and having a training application to MBs (mean 4.50, std 0.698). However, having a user friendly and simple mobile tax application was among the concerns of the study participants (mean 4.49, std 0.687). The technological potentials on tax administration to MBs as presented in Table 5 indicate that TRA has opportunity of using technology to increase the tax base.

5. Discussion

From our findings, the explorative mechanism of enhancing tax administration to MBs through digital technology can be held under three themes: the current practical aspect of tax administration to MBs, challenges thereon and the potential of digital solution to the existing challenges. Therefore, this section provides answers to the research questions that contributed to the achievement of the study objectives.

Research question RQ1 asked: "What are the current tax administration practices performed by TRA to MBs?" The results revealed a number of aspects in tax administration to MBs. Several important points were revealed. Our findings revealed that the current tax practices to MBs are in the form of presumptive tax system. As identified by Ahmad [15] the presumptive tax resulted from the application of indirect methods due to number of reasons. These include simplification in terms of the taxpayers' compliance burden and tax collectors' administrative burden. The burden is through the requirements of indicators of accurately presuming the actual income of the taxpayer in order to combat tax evasion, high demand of encouraging taxpayers to keep proper records and accounts. However, through findings, we revealed that not all MBs are included in

Table 5

Quantitative findings on technological potentials on tax administration to MBs

S/N	Aspects reveal technological potentials on tax administration to MBs	Minimum	Maximum	Mean	Std. Deviation
1	MBs prefer using digital registration for business registration	1	5	4.41	0.692
2	MBs recommend presence of Direct Digital Payment system	3	5	4.57	0.566
3	MBs recommend local authorities to deal with creating conducive business environment only	3	5	4.36	0.674
4	MBs inspired to have mobile record keeping system	1	5	4.50	0.698
5	MBs inspired to have digital technology system for tax compliance	1	5	4.50	0.708
6	MBs prefer to use mobile training application	1	5	4.50	0.698
7	MBs prefer friendly and simple mobile tax application	2	5	4.49	0.687

the presumptive tax net of TRA therefore local authorities through levy and fines handle the rest.

The importance of local authority ensuring tax to MBs is due to fact that these businesses are a very significant group of income generation; however, they are expensive to administer when it comes to taxation. Therefore, local taxes and informal income collection were found to be more preferable than formal taxation collected by TRA because of the difficulty of administering a number of MBs into adhering to tax laws.

The finding revealed that MBs wishes that as the TRA has set up Large Taxpayer Offices (or units) to manage tax affairs of the large taxpayers due to its importance; then, there is a need of establishing unit to manage Micro Small and Medium Enterprise (MSMEs) due to its wide tax base. This would help different enterprises to graduate from informal to formal status and assume the brighter future of having a larger base of collecting revenue from the country as recommended by Fjeldstad & Heggstad [4].

The study confirms that, MBs are willing to be incorporated into the tax net which has the potential of enlarging tax base, increasing tax revenue, and creating a responsible society leading to sustainable source of national tax revenue. This concurs with the study of Chatama [33] which revealed that taxing the informal sector increases tax revenue and reduces tax gap. Tax administration to MBs should focus on the minimal compliance requirements, simple and straightforward administration regulations to suit MBs skills, business environment incentives, and low interactive procedures with tax authorities. The digital technology should be considered to minimize administrative costs of dealing with MBs. Thus, administrative techniques should focus on connecting the compliance aspect with the benefits of being formal.

This particular study's findings confirmed that inclusion of MBs in the tax net is a very complicated move. However, TRA have to accept that most of the citizens are of MBs nature. Thus,

they have to devise a suitable mechanism of implementing simple, administer-able, and effective tax system to MBs. Moreover, as the type and nature of MB businesses confirmed to affect some administrative aspect (refer table 3 in section 4 of this paper), the specific actions should be taken to make sure that most of these businesses are efficiently included in tax net.

The formal inclusion of MBs to tax administration should be taken care in such a way that will results in effectiveness and efficiency. The first aspect being the cost of administering small taxpayers should not outweigh the revenues raised. However, the importance of considering long benefit of tax administration to MBs is inevitable. These benefits may include long-term revenue increase from wider tax base, growth potential of MBs (effects of formalization), responsible society and economy implications (fiscal social contract).

Research question RQ2: "What are the challenges impede TRA in the administration of taxes to MBs?" The results revealed a number of important factors that affect tax administration to MBs. These challenges are categorized under different themes namely, Informal operations of MBs, which were found to be, the most significant challenge for TRA tax administration.

Lack of assurance of Government policies concerning their practitioners and area of their investment was among them. Most of the respondents argued that the current government is the only regime that potential opportunities from MBs practices are being realized. However, they were not sure whether other polices in the future would be in favor of their operations. Additionally, many informal participants lacked basic knowledge on tax education as whole. They kept on relying on taboos believing that, paying taxes to the government is an option since it has does not benefit their business, rather it kills it.

The study also revealed that participants proposed that MBs should be included in the direct tax system. However, it was observed that direct tax system

requires the keeping of appropriate books and records leading to high compliance burden in the form of costs, skill, and the required capacity. Not all these are in favour of most of micro businesses as they lack the ability to practice them as confirmed by the findings of Engelschalk [11]. The TRA also advised to consider general and specific challenges towards inclusion of MBs into the tax net. This is due to large deviation of information that can be found from different MBs because of the differences in type and nature.

Additionally, the challenges of tax administration to MBs have the root causes on characteristics of MBs. These characteristics are in relation to tax administration impracticability. The Tanzanian MBs are characterised by non-registered for tax purposes, not keeping proper records hence impossible for accuracy tax ascertainment and have no room and knowledge for filing tax returns. This is a call to attention to TRA, academicians, practitioners and software engineers to come together and to address this challenge.

However, due to the need of large tax base and importance of business growth in Tanzanian economy, the researcher calls the stakeholders to think beyond the practices of presumptive taxation to MBs. Especially given that the presumptive taxation 'involves the use of indirect means to ascertain tax liability. The presumption therefore replaces an entire tax base or at least a large portion of the base'. In other words, where the revenue authority cannot ascertain a taxpayer's income, or cannot verify the accuracy thereof, presumptive regimes allow them to presume the amount of income based on alternative observable indicators, i.e., an alternative base determined by the revenue authority. This may attract the need for MBs not to grow hence remain stagnant and reduce the tax base.

The findings revealed that the challenges like absence of tax bracket, lack of record keeping, lack of knowledge on tax payment procedures, unknown tax collection channels, and multiple taxes can be tackled through establishment of the

strong relationship mechanisms between TRA and MBs. The existence of significant correlation between the aforementioned challenges and poor relationship between TRA and MBs confirm that the revenue authority can tackle the tax challenges to MBs through strengthening the relationship mechanisms.

Research question RQ3: "What are the potentials technological solution to tax administration challenges that suit the MBs operations?" The study confirmed that the inclusion of micro business in direct tax net is considered to be in line with a simple application that can tackle the challenges to tax administration. The aforementioned challenges can be tackled.

Moreover, this study confirmed that, the application of mobile tax administration to micro businesses is based on tax principles of fairness, efficiency, administrative capacity, and simplicity, just to mention a few. Basing on the simplification of the tax structure with regards to administrative and compliance costs, the study confirmed that with mobile technology, the MBs registration, record keeping, and inbuilt tax computation within the tool can enhance administrative capacity. The administrative issues include registration, payment, information access, assessment, audit, litigation and the appeal system, sanctions, and penalties.

The initial cost of establishing digital system for tax administration to MBs may be regarded as high but, once the system is in full operation, the cost of future administrative activities would be reduced significantly. As the system, focus on managing large numbers of MBs it may also reduce the number of administrators and hence, reducing the costs such as transportation and other operating expenses. Additionally, this also can assist MBs in record keeping not only for tax purposes but also for other business transactions.

This study, among other things, confirmed that through taxing the MBs, TRA has the opportunity of transforming their informal operations into formal economy. The inclusion of MBs in direct tax net may

result into initiating formalization operations in their informal undertakings. Through technology, transformation is simplified, making it easier to master tax process, and motivating MBs into joining the tax net. Despite the aforementioned challenges, the simplicity approach may be useful to other many informal practitioners as well.

Innovation in tax system is necessary in making tax administration to MBs possible as can support massive sharing of information at low cost Dube [20] and James [34]. Apart from a change of perceptions of both authority and taxpayers, the technological movement is important. The digital technology should focus on outreach, and integration that create trust between MBs and TRA. The effective application of digital taxation, among other things, is presumed to enhance TRA outreach to micro business, creates transparency and a two-way communication in case of payable tax and tax incentives.

As it argued that a good tax system should be simple for a taxpayer to comply from Tanzi [35], then it is recommended that TRA should think of a mobile application, which would have a very simple user interface that can calculate tax and determine taxable amount. The study established that high economic and developmental expectations are often loaded with information generation by keeping and sharing it. Through technologies, the developing countries can outperform and reach their citizens at all levels of development. The study confirmed that the mobile technology could be one of the potential areas to invest in in the transformation of informal to formal practitioners. This finding is consistent with various initiatives which have been in Tanzania on mobile technologies for small-scale practitioners such as farmers from Misaki [36], street vendors Mramba [37], MBs finance Gomera & Oreku [1], and women entrepreneurs Kapinga [6]. This opens up the way for different authorities in seeing the potentials of using technology-based innovations to formalize the informal practitioners and enable them

benefit from the initiative. Moreover, other technological projects in healthcare, agriculture, education, governance, and business have shown great potential and the importance of inclusion in development through technology. Based on the results of this study, the following technological solutions are suggested:

- Technological base that can enhance the relationship between TRA and MBs.
- Record keeping technologies for improved business performance indicators.
- Technologies that help in MBs registration and maintenance of database for their operations and geographical areas of operations (Business registration and monitoring technologies).

Technological base that can enhance the relationship between TRA and MBs.

Technologies for enhancing the relationship between TRA and MBs might have high importance for tax administration. The current mechanisms of physical tax administration have been identified in this study as weak and inappropriate. Therefore, through proper means of communication, record keeping, training on tax payment procedures, online channel of tax collection, and single authority for tax to MBs may improve the practices of revenue collection to MBs. This area of technology can lead to reliable information channels that could be used to check certain taxable amounts to be levied to an individual MB owner. In addition, the study suggests that there is a need of applying mobile technology in providing training to MBs to enable them to comply with taxation practices.

Moreover, the enabling factors for mobile technology usage to MBs have being revealed in various studies from Azom & Muying [38], Baguma [39] and Gomera [18]. Where, it was noticed that despite the MBs' low capital, most of them own smart mobile devices and are using them for business operation. This gives the opportunity to research community, practitioners, police makers and authorities to invest on formalize operations of different informal sectors. Record keeping technologies for improved business performance indicators.

From the findings, the study confirmed that both TRA and MBs would benefit from proper record keeping. The current modes of record keeping have several limitations, which include unsystematic record keeping, unclear record, and insufficient information for tax calculations, it has been shown that poor record keeping affect business performance, as nothing can be properly indicated to measure performance of MBs. The study confirms the need of record keeping as identified in the study of Gomera [5]. The usage of record keeping technology might be offered in different forms of application such as marketing, bookkeeping, or tax-based application.

Technologies for MBs registration and database for MBs operations and geographical areas of operations (business registration and monitoring technologies), the findings confirmed that, technological solution might be developed to help automate business registration process. The study results imply that when MBs make application for business license, they will have to do full registration online using an application whereby the same information will be connected to TRA and to the local authorities. This might provide a viable solution for MBs statistics and appropriate amount can be collected from them throughout the financial year. The registration will also locate the kind of business and business area, which might be formalized.

6. Conclusion

The importance of MBs in the generation of national income to developing countries cannot be undermined. The Tanzanian tax administration authority is advised to take a serious consideration of the widening tax base for its potential

in the national development. However, as the tax administration theory indicates that using low costs in administering tax, the technological would provide a potential solution for the initiative.

The study appeals that exempting the MBs from tax laws and regulation do not give them room to grow instead it creates irresponsible society. The challenge of tax administration cost must be addressed effectively through digital technology whereby, tax laws and regulations, can be an inbuilt aspect.

Although, the study confirmed the presence of challenges in taxing MBs, including them in the tax net is paramount. This would include providing them with special places for business and enabling them to make online registration basing on areas of their business. In this regard, TRA is advised to consider MBs as the tax hub that may stimulate and improve both revenue collection and build a responsible society in the country.

Themes of the study are broad and can be considered as explorative in nature. Therefore, every identified issue such as tax administration of low-income earners, challenges, or potential technological solution call for in depth research in the area. The future research may be directed on action research or design research in order to find out practical solution to the identified practical challenges. This may involve designing, developing, and testing technological-based solutions for tax administration to low-income earners. Moreover, MBs is just a small part of the informal operations in Tanzania and other developing countries. As the players in the informal sector are crucial in the national development, the study recommends that future studies should consider other players in the informal operations.

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