

TANZANIA REVENUE AUTHORITY

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The Effects of a Risk-based Approach to Tax Examinations: Evidence from Tanzania

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• 1. Introduction



• 2. Empirical strategy and Data



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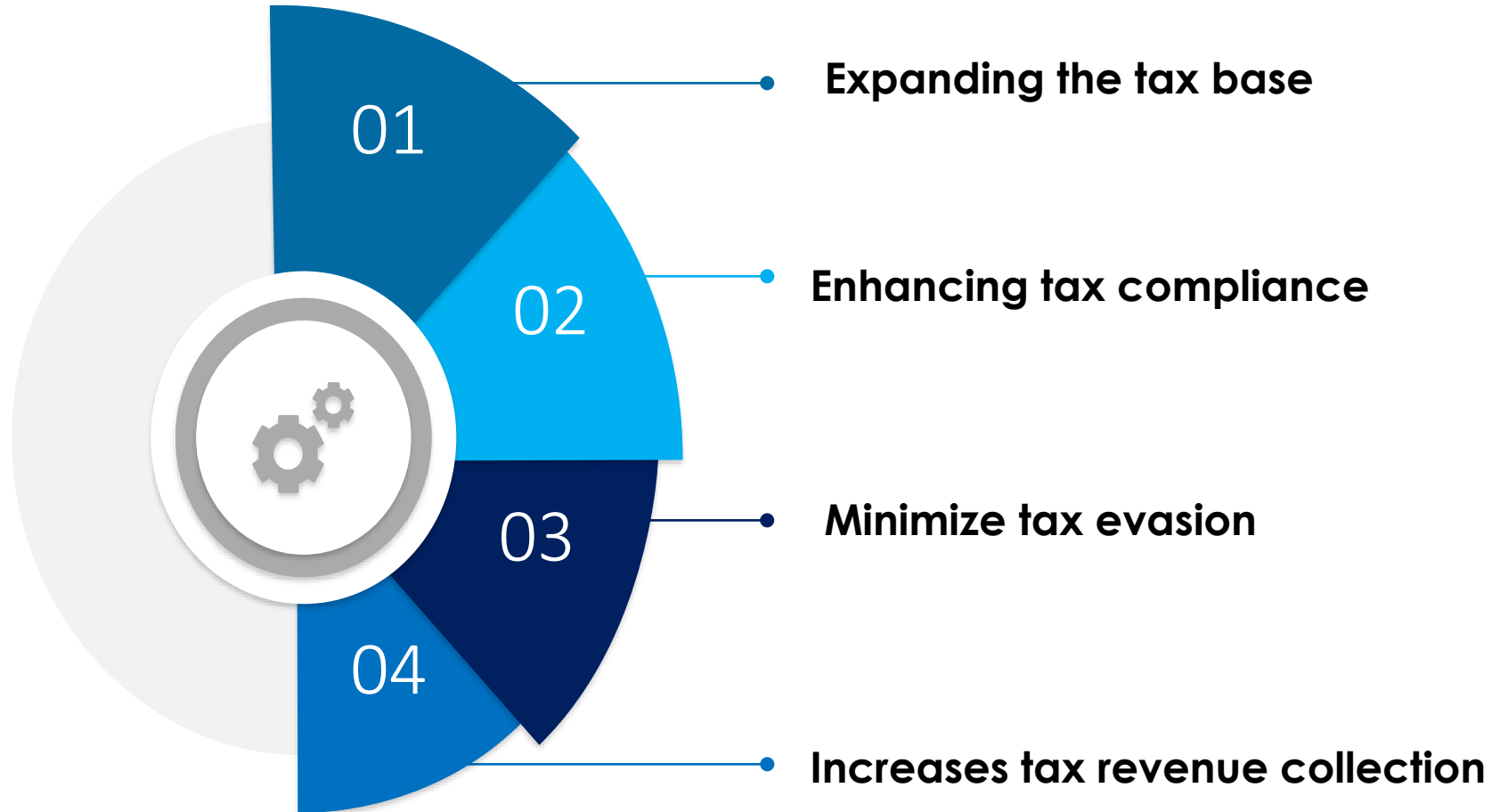
• 4. Results



• 5. Conclusion and Recommendations

INTRODUCTION

Main Focus and Functions of Tax Administrations



INTRODUCTION

- **Tax and Supporting the Tax Systems are the key in 17th Sustainable Goals;**
 - **There are strong commitments among developing partners to supporting developing countries.**

- **Various enforcement strategies including random audits and examinations are used by Tax Authorities;**
 - **Risk based approaches and machine learning in these process are limited;**
 - **These new methods hold great promises for improving detection probabilities of non-compliant taxpayers (Khwaja et al 2011)**

- **Limited systematic evidence on the impact of these risk based strategies is observed in literature;**
 - **In our understanding no earlier studies investigating how risk based compliance interventions work in low-income developing countries.**

INTRODUCTION

- This paper attempts to fill the gap by;
 - Examining the revenue impacts of a risk based tax examination pilot implemented in Tanzania.

- The pilot was implemented planned jointly by TRA and the Finnish Tax Administration (VERO); Financed by the Government of Finland.

- The intervention intended to flagging taxpayers for tax examinations on the basis of data driven risk assessment;
 - It was designed to improve the existing practice of choosing taxpayers to be examined which relied more on staff discretion.

 - The intervention was limited/implemented in personal income/corporate income taxation.

INTRODUCTION

Description of the piloted intervention;

Objective of the piloted intervention;

Objective 03

focusing examination efforts on risky taxpayer

Objective 04

treating taxpayers equally to uphold the principles of fairness and justice in taxation;

Objective 02

improving the skills of the tax officers

Objective 01

increasing revenue collection,

Objective 05

reducing the time spent on examining taxpayers with limited risks



EMPERICAL STRATEGY AND DATA

- **Diff-in-diff;**

$$Y_{it} = \alpha + \beta Dar_i + \gamma POST_t + \delta Dar_i \times POST_t + \theta X_{i,t} + \varepsilon_{i,t} \quad (1)$$

- **Where** **Yit:** Is the outcome variable (Taxable Income);
Dari: is the treatment variable (equal to 1 if the tax office is in Dar es Salam region).
POST-variable receives value one after July 1st 2019
- **Administrative firm level panel data collected by Tanzania Revenue Authority (TRA).**
 - **Each income year contains more than 25,000 observations.**
 - **Covers the time period from 1st July 2015 to 30th June 2020.**

EMPERICAL STRATEGY AND DATA

Description of data;

Table 1: The number of firms with adjustments to taxable income

Financial year	Control group	Treatment group	Total
2016/17	1,270	2,808	4,078
2017/18	1,753	4,392	6,145
2018/19	1,984	5,754	7,738
2019/20	2,434	8,069	10,503

Source: authors' estimates based on ITAX data.

- # of firms with adjusted taxable income increases from one FY to another in both treatment and control group
- **Table 2:** summarizes the number of adjustments that have taken place during the pilot period for the treatment group

Table 2: Number of adjusted taxable income by tax region

Tax region	Number	Percentage(%)
Ilala	1,302	70.84
Kariakoo	35	1.90
Kinondoni	379	20.62
LTD	9	0.49
Temeke	113	6.15
Total	1,838	100.00

- Observed that Ilala has relatively more adjusted income cases (70.8%);
- This could be explained by;
 - relatively low knowledge of recording and reporting financial transaction (taxpayers);
 - High response of taxpayers to adheres TRA regulations or;
 - Impact of the piloted intervention.

EMPERICAL STRATEGY AND DATA



Table 3: Descriptive statistics before and after the treatment period.

	Before		After	
	Control	Treatment	Control	Treatment
<i>All firms</i>				
Taxable Income				
Adjusted taxable income, TZS millions	112.484 (369.45)	506.175 (6,440.84)	164.286 (1,239.85)	818.018 (8,997.48)
Log adjusted income	3.353 (1.66)	3.444 (2.02)	3.050 (1.88)	3.302 (2.20)
Company type				
Limited company	0.595 (0.49)	0.738 (0.44)	0.687 (0.46)	0.726 (0.45)
Sole proprietor	0.389 (0.49)	0.252 (0.43)	0.292 (0.45)	0.263 (0.44)
Tax type				
Corporate Tax	0.609 (0.49)	0.746 (0.44)	0.707 (0.46)	0.736 (0.44)
Personal Income Tax	0.391 (0.49)	0.254 (0.44)	0.293 (0.46)	0.264 (0.44)
Industry type				
Agriculture	0.014 (0.12)	0.004 (0.06)	0.014 (0.12)	0.008 (0.09)
Mining	0.026 (0.16)	0.011 (0.10)	0.019 (0.14)	0.011 (0.10)
Construction	0.047 (0.21)	0.066 (0.25)	0.049 (0.22)	0.084 (0.28)
Manufacturing	0.066 (0.25)	0.063 (0.24)	0.048 (0.21)	0.056 (0.23)
Wholesale and retail	0.375 (0.48)	0.307 (0.46)	0.276 (0.45)	0.309 (0.46)
Information & communication	0.093 (0.29)	0.102 (0.30)	0.084 (0.28)	0.097 (0.30)
Transportation & storage	0.012 (0.11)	0.033 (0.18)	0.022 (0.15)	0.037 (0.19)
Finance, insurance & real estate	0.060 (0.24)	0.110 (0.31)	0.048 (0.21)	0.091 (0.29)
Services	0.257 (0.44)	0.254 (0.44)	0.378 (0.49)	0.254 (0.44)
Observations	5007	12954	2434	8069

Note: Before reflects the time period 1 June 2016 to 30 June 2019 and after the period 1 July 2019 to 20 June 2020.

Standard errors are shown in parenthesis

- Characteristics of firms in the controlled and uncontrolled firms before and after pilot intervention are compared;
- Firms in the treatment area are larger and more profitable.
- The largest number of firms are from the service sector and wholesale and retail.
- During the analysis we lose 1,318 observations from the treatment group and 153 observations from the control group.

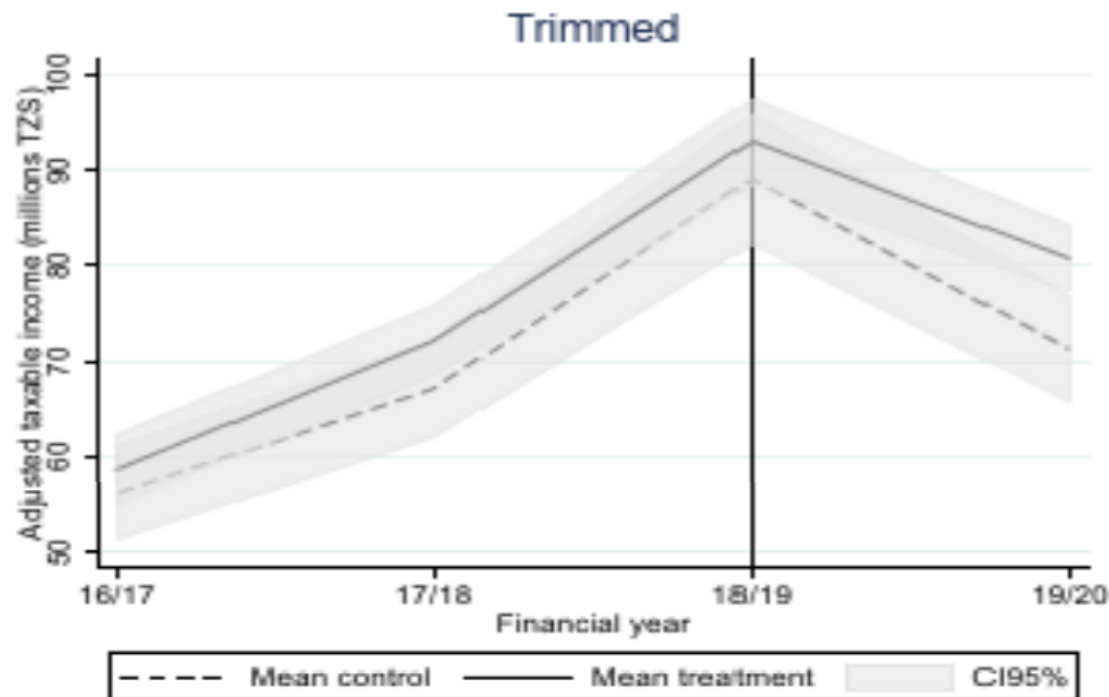
GRAPHICAL INSPECTION

Diff-in-diff Assumption;

- Parallel trends before and after sample selection

- a crucial assumption in the Difference-in-Differences (Diff-in-Diff) method;

- in the absence of treatment, the average difference in outcomes between the treatment and control groups remains constant over time.
- After the intervention we can now measure the casual effect evolved and measure the difference.



RESULTS

- **This analysis shows that the intervention affected tax revenues in the Dar es Salam region where the pilot was implemented.**
 - **The results show a 10-15% increase in adjusted taxable income, where the risk-based tax examinations were implemented.**
 - **This would suggest that use of the spreadsheet to flag risky taxpayers could improve efficiency of tax examinations and lead to an increase in tax revenues.**
 - **The impacts are found in corporate income taxes and arise predominantly from the services sector.**

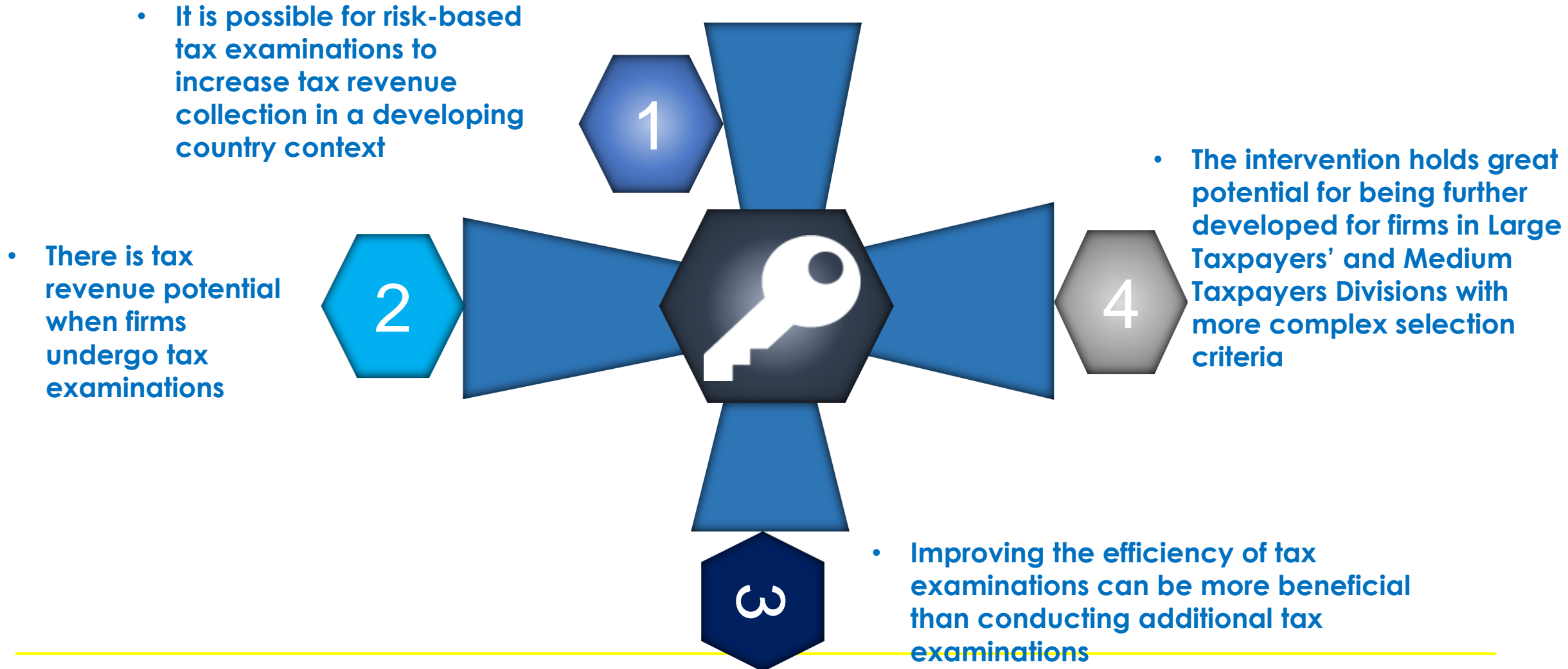
RESULTS

- **The pilot shows that the growth in tax revenue in the pilot area mainly stems from increases in the amount of tax paid.**
- **The number of firms filing income adjustments remained constant and does not affect the tax revenue collected.**
- **This highlights the fact that focusing on improving the efficiency of tax examinations is more beneficial for the TRA than conducting more tax examinations.**

RESULTS

- Finally, the pilot risk-based spreadsheet was a highly cost-effective intervention. .
 - The cost of implementing the use of the spreadsheet was very low in comparison to the gains in additional tax revenue.
 - The intervention costed approximately £60,000,
 - Estimated increase in tax revenue amounts to £18Million for the intervention period.

CONCLUSION AND RECOMMENDATION



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