COVID-19-induced cash flow constraints and the burden of taxation in Kenya[1]

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We use rich administrative microlevel tax data from the Kenya Revenue Authority to study the changes in tax collection following the COVID-19 outbreak. First, using data on Value Added Tax (VAT) and on Payroll Tax (PAYE), we find sharp declines in both tax revenues and in the number of firms paying taxes. These outcomes later recovered for the VAT, but remained around 20% lower than pre-COVID levels for the PAYE. Second, we study the changes in tax outcomes after the removal of the tax-relief measures introduced as a consequence of the early wave of COVID-19. Following this removal, the total value of tax payments increased only for the PAYE, but not the number of firms making payments either for the PAYE or the VAT. Finally, we discuss the Voluntary Tax Disclosure program, under which taxpayers can disclose previously undisclosed tax liabilities, and an experiment aimed at increasing take up of the program.

Introduction and Background

The COVID-19 health crisis has brought serious consequences and challenges for the global economy. While governments in high-income countries can respond with a considerable larger margin to this unexpected shock -mitigating the negative effects through fiscal and monetary support measures- emerging economies have fewer resources and tools available to face these adverse circumstances. In this context, public finances are a key area affected by the crisis, as the fall in economic activity has brought with it a sharp contraction in tax collection. In addition, many countries adopted tax-relief measures aimed at alleviating the economic crisis. While tax relieves have contributed to attenuate the economic suffering, they have also led to counterpart a greater deterioration in the fiscal accounts.

In this context, Kenya is no exception. To prevent the spread of the virus, on March 15th 2020, Kenyan authorities shut down all schools and directed all public and private sector workers to work from home. In parallel, the government promoted a series of measures in the period April 2020 to December 2020, which aimed at alleviating the economic impacts induced by these restrictions. These measures included, among others:

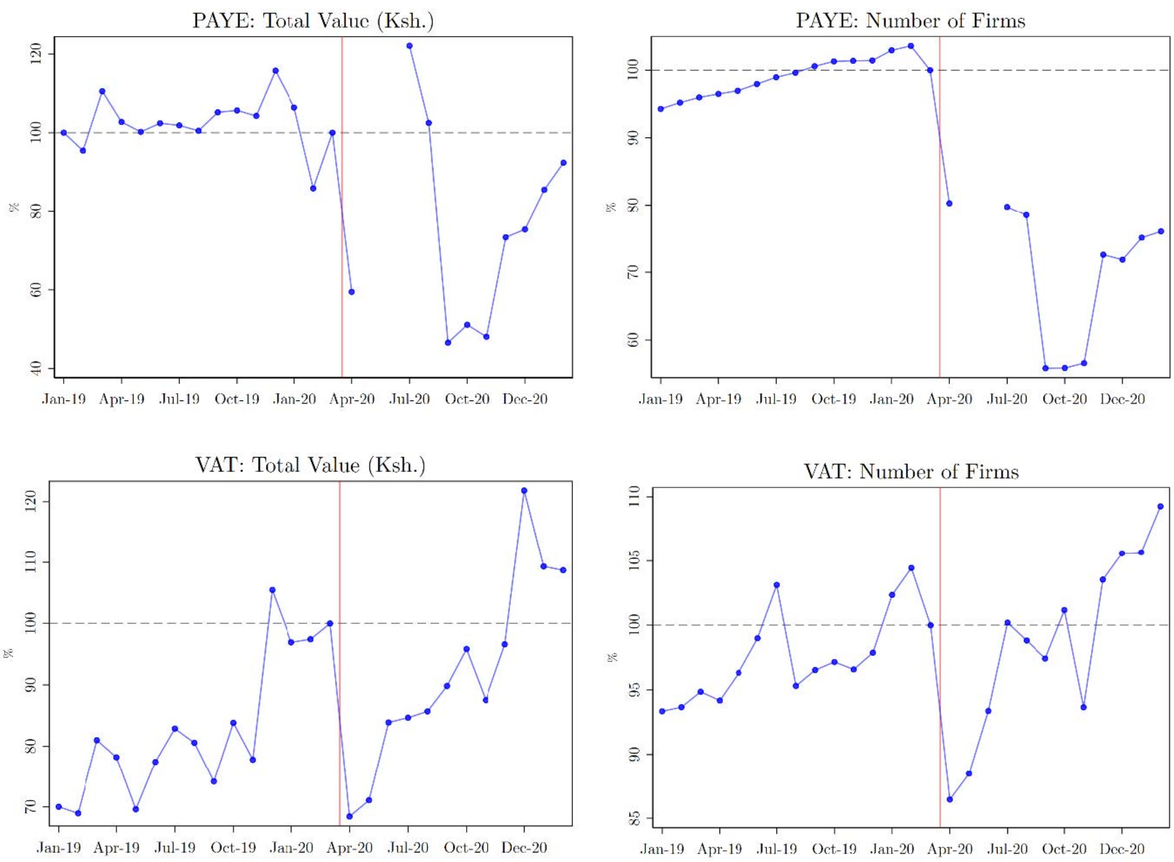
1. 100% tax-relief for low income earners.
2. Decrease of the payroll tax "Pay-As-You-Earn" (PAYE) rate from 30% to 25% for the highest PAYE band.

[1] The views and opinions expressed in this paper are those of the authors and not necessarily the views and opinions of the Kenya Revenue Authority. The authors retain sole responsibility for any errors or omissions.

3. Decrease of the VAT rate from 16% to 14%, a move expected to lower the shelf prices of basic commodities.
4. Reduction of the rate of turnover tax from 3% to 1% for all micro, small and medium-size firms.
5. Decrease of the Central Bank Rate from 8.25% to 7.25% and the Cash Ratio Reserve from 5.25% to 4.25%.
6. Other measures to protect business and the public also included the voluntary reduction of salaries for top public servants, the temporary suspension of listing with credit reference bureaus for persons who default on loan obligations, or cash transfers to vulnerable members of society.

Our analysis documents a sharp decrease in tax revenues and in the number of firms paying taxes at the time COVID first hit[2]. Figure 1 provides the initial results. Outcomes are normalised by the value in March 2020. While both outcomes recovered for the VAT, they remained approximately 20% lower than the pre-COVID levels for the PAYE. It is important to highlight here that it is not possible to disentangle the relative impact of the direct consequences of COVID, of the lockdown, and of the tax-relief measures[3].

Figure 1: Revenue Outcomes for VAT and PAYE



[2] All the analysis displayed throughout the report is based on the most recent version on the data obtained from the Kenyan authorities.
[3] Note that we miss observations for May and Jun 2020 for PAYE tax because we could not obtain consistent records for these months.

Note: Number of firms measures the number of firms making positive payments in that month. Outcomes are normalised by the value in March 2020 and expressed as a percentage. Observations for May and Jun 2020 are missing for PAYE tax since we could not obtain consistent records for these months. Source: Kenya Revenue Authority.

The rest of the note is organised as follows. In section 2, we provide a brief description on the data sources used for the study. Section 3 shows the main results. In the first part, we provide some detailed analysis at the economic sector and region level for our revenue outcomes. In the second part of this section, we focus on the removal of the tax-relief measures, which took place in January 2021, a time when the COVID-19 outlook was quite stable. To understand the observed changes after the removal of these measures, we provide further analysis below to show how this event affected our main tax outcomes. Finally, section 4 concludes by describing some policy implications of these events and the Voluntary Tax Disclosure program (VTDP) which is being currently launched. The program allows taxpayers to disclose to the Commissioner tax liabilities within the period 1st January 2021 to 31st December 2023 with the aim of being granted relief of penalties and interests. To increase the take-up of the program, we developed together with KRA's Strategy, Innovation & Risk Management Department an experimental design where taxpayers receive different type of motivational messages.

Data and Methodology

We assembled rich databases on two VAT and PAYE payments. The database also includes information on the sector of economic activity of the taxpayer and on the Kenya Revenue Authority regional office in charge of that taxpayer. That information allows us to characterise the tax revenue dynamics by industry and region, as well as for the whole country.

First, we describe the evolution of tax payments and of the number of firms paying VAT and PAYE during the COVID-19 crisis. We normalise the outcomes to the value of March 2020, the last month before the COVID outbreak, and we express them as a percentage. Therefore, the value of each dot in the graphs below (Figures 2A, 2B, 3A, and 3B) represents the difference to March 2020. However, it is important to emphasise that any change after this month does not only reflect the influence of COVID-19, but the subsequent policy tax-relief measures and any other economic and tax related changes over this time period.

Second, we provide some evidence on the changes in tax outcomes after the Government removed the tax-relief measures in January 2021. In the spirit of a difference-in-differences methodology, we compare relative changes from December 2020 to January 2021 to changes from December 2019 to January 2020, thus netting out month fixed effects.

Results

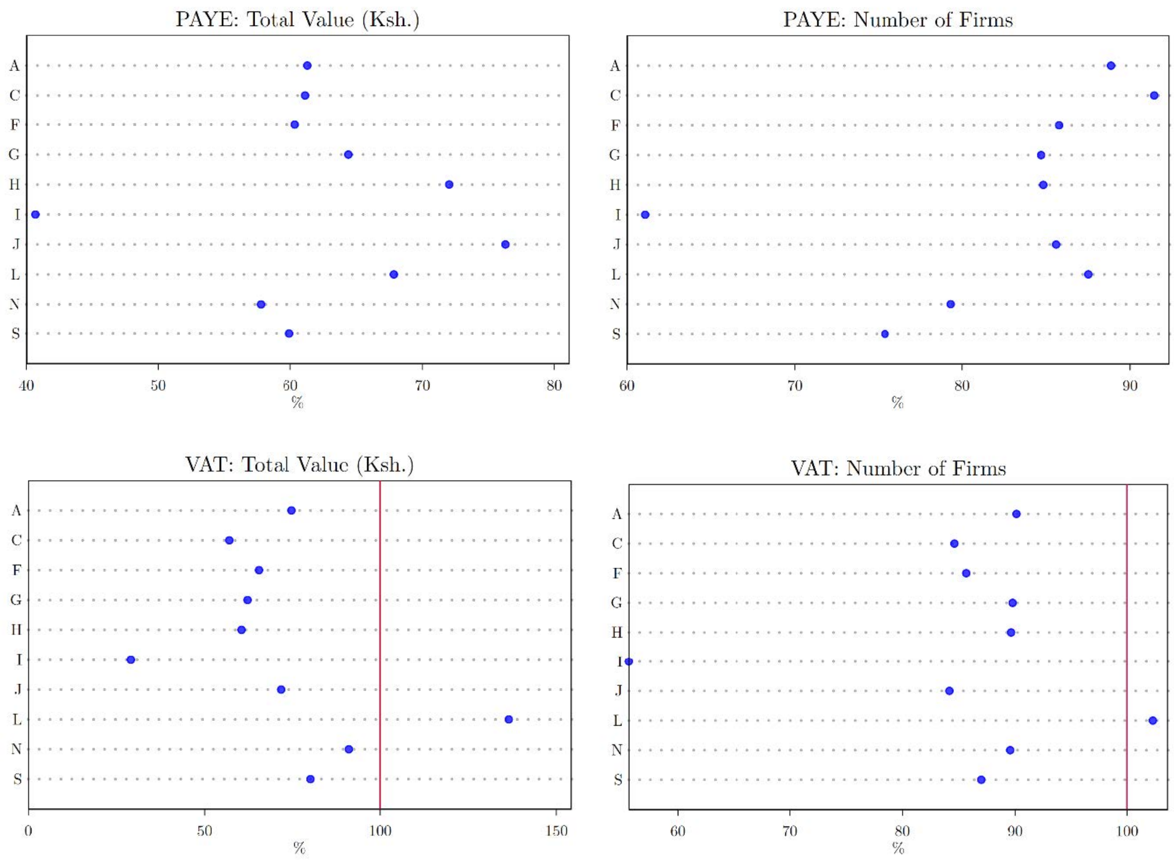
The dynamics of the tax collection after the COVID-19 outbreak

Figure 1 above shows that in April 2020, as COVID hits the country and relief measures are introduced, the value of tax payment falls by 40% for PAYE and by 30% for VAT compared to March 2020. Especially for PAYE, these changes are larger than any of the month-to-month changes experienced in the previous year. We also observe a decrease in the number of firms making payments in any given month, more pronounced for PAYE than VAT.

The two taxes show different patterns of recovery, as can be seen in the same figure. For VAT, both the total value of payments and the number of firms making payments recovers relatively quickly, while for PAYE, both outcomes are well below pre-COVID levels even one year after the initial shock.

Figures 2A and 2B examine the immediate (1-month) and medium-term (6-month) changes after the COVID shock by sector of economic activity. They show values of the outcome relative to March 2020. For instance, a dot located in the line of the 60% indicates that the amount is 60% as high as it was in March 2020. We focus on the ten sectors with the highest number of taxpayers. Consistent with the above discussion, in all sectors, all outcomes are below 1 in Figure 2A, indicating shrinkage. The sharpest decrease is observed in the *Accommodation and Food Service Industry* for both taxes.

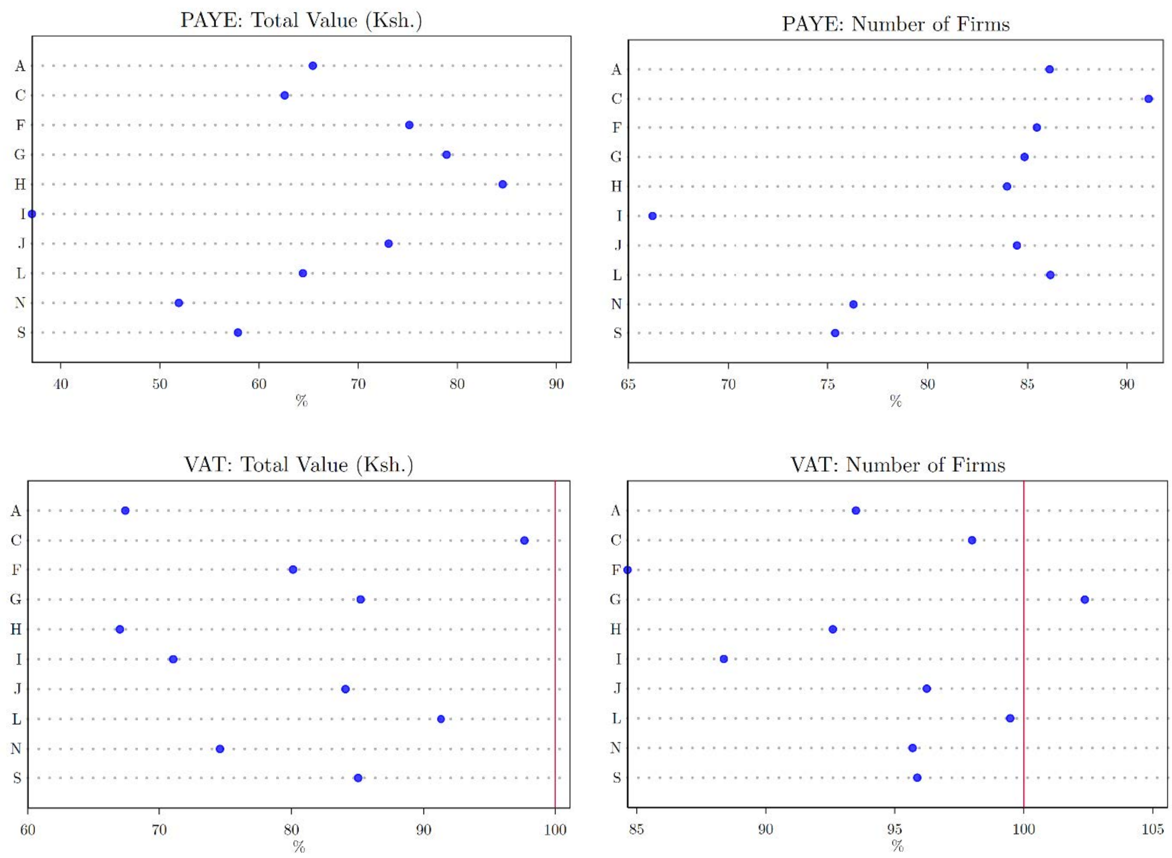
Figure 2A: Revenue outcomes in April 2020 as a share of the March 2020 value, by Sector



Note: For each sector, the dot represents the outcome value in April 2020 relative to the value of the same outcome in March 2020. Sectors: A - Agriculture, Forestry and Fishing, C – Manufacturing, F – Construction, Wholesale and Retail Trade, H - Transportation and Storage, I - Accommodation and Food Service, J - Information and Communication, L - Real Estate Activities N - Administrative and Support Services, S - Other Service Activities.

Figure 2B shows the values in September 2020 compared to March 2020. For PAYE most sectors are still well below the March 2020 level, a phenomenon which is again more pronounced in the *Food and Accommodation industry* in both outcomes. On the other hand, VAT partially bounces back in several sectors both in terms of revenues and in terms of number of firms making payments, thus displaying a slight improvement compared to April. In terms of revenue, he most affected sectors are *Transportation and Storage* and *Agriculture, Forestry and Fishing* in terms of revenue, followed by *Accommodation and Food Service Industry*. In terms of number of firms, all sectors have values of 85% or above.

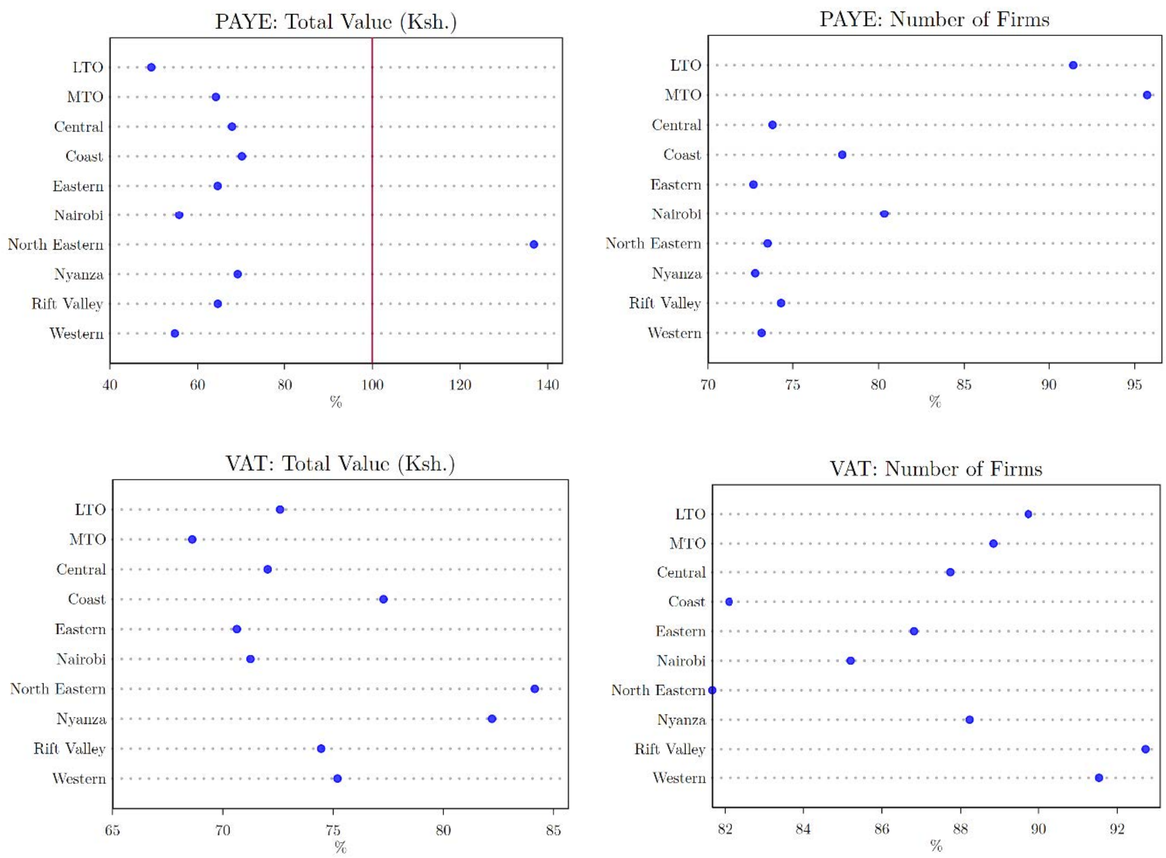
Figure 2B: Revenue outcomes in September 2020 as a share of the March 2020 value, by Sector



Note: For each sector, the dot represents the outcome value in September 2020 relative to the value of the same outcome in March 2020. Sectors: A - Agriculture, Forestry and Fishing, C – Manufacturing, F – Construction, Wholesale and Retail Trade, G - Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles, H - Transportation and Storage, I - Accommodation and Food Service, J - Information and Communication, L - Real Estate Activities N - Administrative and Support Services, S - Other Service Activities.

Figures 3A and 3B present a similar analysis broken down by region (i.e., the former Provinces of Kenya). We also include separate (nationwide) values for the Large Taxpayer Office (LTO) and the Medium Taxpayer Office (MTO). From March to April 2020, the largest declines are indeed for the LTO (PAYE) and the MTO (VAT) in terms of the total amount collected through each tax. The number of firms making positive payments has been less affected, and the decline seems to be quite homogeneous for both taxes. North Eastern area turns out to be the least affected region in terms of revenue, possibly due to the fact the COVID-19 was not yet hitting the area.

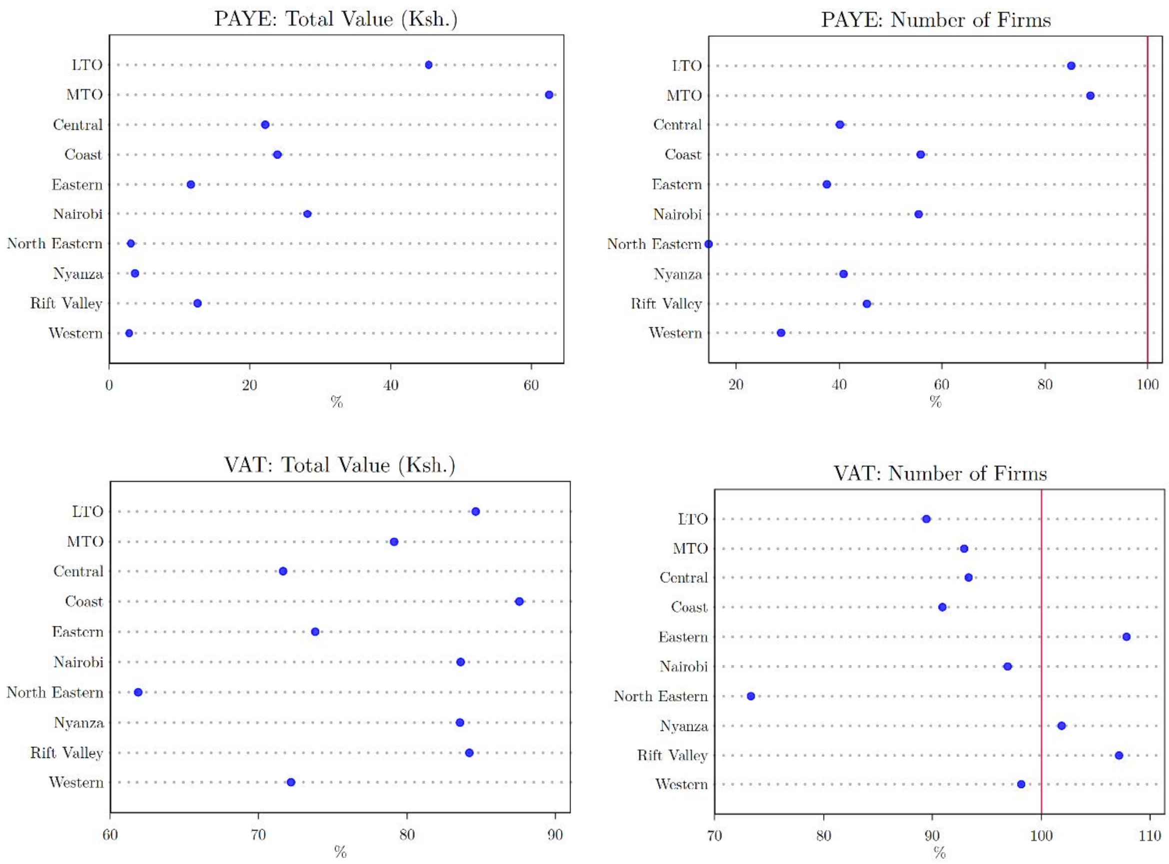
Figure 3A: Revenue outcomes in April 2020 as a share of the March 2020 value, by Taxpayer Unit and Region



Note: For each province, the dot represents the outcome value in April 2020 relative to the value of the same outcome in March 2020. We include separate (nationwide) values for the Large Taxpayer Office (LTO) and the Medium Taxpayer Office (MTO).

Six months later, that is, by September 2020 (Figure 3B) none of the regions have been able to recover to pre-COVID levels for either of the two outcomes in both taxes. Several regions collect even less than 20% of the PAYE amounts they had collected in March. In the case of VAT, values display a better dynamic, but only 3 regions (Eastern, Nyanza, and Rift Valley) have outcome values above 100% for the number of firms making payments. Unlike the comparison between March and April, now North Eastern region is most affected region.

Figure 3B: Revenue outcomes in September 2020 as a share of the March 2020 value, by Taxpayer Unit and Region



Note: For each province, the dot represents the outcome value in September 2020 relative to the value of the same outcome in March 2020. We include separate (nationwide) values for the Large Taxpayer Office (LTO) and the Medium Taxpayer Office (MTO).

The removal of the tax-relief measures

Table 1 reports the results of the analysis of the removal of the tax-relief measures in January 2021. The difference-in-differences coefficient in the last column compares changes between December 2020 and January 2021 to changes between December 2019 and January 2020. All values are again normalised by dividing by the March 2020 value.

Table 1: Removal of the tax-relief measures (January 1, 2021)

	(1) Dec-2019	(2) Jan-2020	(3) Dec-2020	(4) Jan-2021	(4-3) - (2-1)
PAYE Tax Payments	1.064	0.858	0.754	0.854	0.306
PAYE N. Firms	1.029	1.035	0.718	0.751	0.027
VAT Tax Payments	0.969	0.974	1.217	1.093	-0.129
VAT N. Firms	1.023	1.044	1.055	1.056	-0.020

Note: Values are normalised by the March 2020 value. The tax-relief measures were lifted in January 2021. The last column reports the difference-in-differences coefficient.

The lifting of the policy measures appears to have led an increase in the total value paid for both PAYE, but not for VAT, which shows a slight but negative change. There is no evidence of a change in the extensive margin (i.e., in the number of firms making tax payments). This result suggests that, even after the COVID-19 policy measures are lifted, many taxpayers who used to make regular payments are no longer paying taxes.

It is important to emphasise that these results are only valid under the parallel trend assumption: given that we are identifying from month-to-month changes we cannot fully rule out confounders that arise from other month-year specific shocks. This means that there may be other factors influencing our outcome variables at the same time the tax-relief measures are removed, but under this framework we not able to identify and disentangle such effects from the potential impact of the removal of the tax-relief measures.

Policy Implications

Our analysis shows that, even after the relief policy measures were lifted, tax payments did not fully recover. Partially in response to the COVID related challenges, the Voluntary Tax Disclosure Initiative was launched in early 2021. Through this program, taxpayers can disclose tax liabilities from the 2015-2020 period that were previously undisclosed for the purpose of being granted relief of penalties and interest of the tax disclosed.

The authors are working with the KRA's Strategy, Innovation & Risk Management Department on a large-scale experimental evaluation of different types of motivational messages aimed at increasing take-up of the program. Since our analysis allowed the Kenya Revenue Authority to identify taxpayers that were making regular tax payments before the COVID-19 crisis and stopped doing so, even after the policy measures (restrictions and tax-reliefs) were lifted, the revenue authority was able to set these taxpayers as their primary target for the randomised message campaign.

Out of a total of 9,000 eligible taxpayers, more than 2,000 have been reached through the program by the Kenya Revenue Authority and received a motivational message. We use two different types of messages, one focused on the Voluntary Tax Disclosure Program and one focused on the civic duty to pay taxes[4]. Half of the treated taxpayers receives the first type of message (with details on the Voluntary Tax Disclosure Program), while the other half receives the second type (with a focus on civic duty). The remaining 7,000 firms belong to the control group. Using administrative data on tax filling and tax payments, we plan to evaluate the treatment effects of the intervention on compliance outcomes.

This note is based on research conducted as a part of PEDL [ERG 7884](#).

[4] Both type of messages can be found in the Appendix section.

Appendix

Sample message T1 (with details on the Voluntary Tax Disclosure Program)

Dear TP,

The Kenya Revenue Authority (KRA) would like to emphasize its commitment to its mission of fostering compliance, even in these hard times presented by the covid-19 crisis.

The Authority also wishes to inform you of a new program hereby referred to as the Voluntary Tax Disclosure program (VTDP) that you may take advantage of especially given these hard business times. In this program, you can confidentially disclose tax liabilities that were previously undisclosed to the Commissioner for the purpose of being granted relief of penalties and interest of the tax disclosed for tax periods of up to 5 years prior to 1st July 2020. This is from 1st July 2015 to 30th June 2020.

The program provides you an opportunity to disclose any taxes on income that you may not have previously declared and to do so without being imposed with punitive penalties and interest. At the end you will be issued with a VTDP certificate, which shall serve as evidence that you took advantage of the VTDP for the taxes of the periods specified in that certificate.

Taxpayers that have been incompliant with their tax obligations are urged to file and pay their due taxes immediately, both to avoid penalties and fines, and to bolster the government's continued efforts and commitment to service delivery in the spirit of "TULIPE USHURU TUJITEGEMEE.

For more information about the program, you may contact KRA on 07xxxxxxxx, email: ….@kra.go.ke or visit your tax service station.

Regards

Sample message T2 (with focus on civic duty)

Dear TP,

The Kenya Revenue Authority (KRA) would like to emphasize its commitment to its mission of fostering compliance, even in these hard times presented by the covid-19 crisis.

Taxpayers that have been incompliant with their tax obligations are urged to file and pay their due taxes immediately, both to avoid penalties and fines, and to bolster the government's continued efforts and commitment to service delivery in the spirit of "TULIPE USHURU TUJITEGEMEE.

For more information about the program, you may contact KRA on 07xxxxxxxx, email: ….@kra.go.ke or visit your tax service station.

Regards