IS TIME ALWAYS MONEY?
DIGITALIZATION AND TAX ADMINISTRATION PERFORMANCE IN CENTRAL AND EASTERN EUROPE

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Abstract

The following research aims to examine the relationship between tax administration burden and tax revenue performance in the Central and Eastern European (CEE) countries during 2014-2018. The study is using a quantitative method approach, using panel data from the World Bank and Eurostat to demonstrate how the number of hours required to prepare and pay taxes, and the Paying Taxes Score, are influencing the tax-to-GDP ratio across the CEE economies. The Paying Taxes Score and the number of hours to prepare and pay taxes, and the number of internet users are considered digitalisation proxy variables used to evaluate whether countries with more advanced tax administration systems exhibit different revenue outcomes.

The results of this study show that, once country-specific characteristics and common time effects are considered, the number of hours required to prepare and pay taxes, the paying taxes score, and the number of internet users do not exhibit a statistically significant independent effect on the tax revenues as a percentage of GDP ratio.

The findings imply that in the countries with a high level of adoption of technology in tax administration, this may be associated with tax-collecting efficiency and more structured procedural enforcement rather than a reduced administrative burden.

These results suggest that previously observed associations between tax administration efficiency and tax revenue performance largely reflect structural and institutional differences across countries rather than within-country efficiency gains over time.

The conclusion drawn from this study offers practical implications for the tax policy reform in the CEE region and contributes to the existing literature, extending information on the importance of the digitalisation infrastructure in improving the fiscal system's efficiency.

Keywords

tax digitalisation, tax collection efficiency, tax revenues, tax administration

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H710

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Introduction

The efficiency of tax administration has been on continuous development and represents a focus for the economic policy across Central and Eastern European (CEE) countries between 2014 and 2018. Considering that tax revenues represent the primary source for public finance, how efficiently tax collecting is can have an important implication for fiscal capability and governance.

A significant dimension is represented by the digitalisation of the fiscal system in terms of time to fulfil tax obligations and transparency in relation to the taxpayers (used here through the Paying Taxes Score as a proxy indicator). The following research is analysing how the time spent in preparing and paying taxes – measured in hours per year – and the efficiency of the tax systems – measured by Paying Tax Scores – are linked with tax revenues as a percentage of GDP. Moreover, the number of internet users in each country is considered in the analysis as a proxy for the level of digitalisation in each country.

The analysis explicitly controls for country-specific characteristics and common time effects, in order to distinguish between cross-country structural differences and within-country developments over time.

In order to properly account for heterogeneity across countries and over time, the empirical analysis employs country and time fixed effects. Country fixed effects are used to control for unobserved, time-invariant characteristics that differ across countries, such as institutional quality, administrative capacity, enforcement culture, legal traditions, and broader socio-economic or cultural specificities that may influence tax revenue performance but are difficult to measure directly.

Time fixed effects are included to capture common shocks and trends affecting all countries simultaneously, such as macroeconomic cycles, regional economic developments, regulatory changes at the European level, or global events that may impact fiscal outcomes across the CEE region. This approach allows the analysis to distinguish structural cross-country differences from within-country developments over time.

The main purpose of the study is to investigate how variations in tax system efficiency, including changes in the time to prepare and pay the taxes, contribute to better tax revenue collection. Moreover, the research aims to assess whether indicators of tax system efficiency, including the Paying Taxes Score, are associated with differences in tax revenue outcomes once structural country characteristics and common temporal dynamics are considered.

Figure no. 1 Paying Taxes Score, Doing Business Report (2020)

The remainder of the paper is structured as follows. Section 2 reviews the relevant literature on tax administration efficiency, digitalisation, and tax revenue performance. Section 3 presents the data, variables, and econometric methodology. Section 4 discusses the empirical results and robustness checks, while Section 5 concludes with policy implications, limitations, and directions for future research.

1. Review of the scientific literature

The subject of tax efficiency is generating interest both in academic and in policy circles, mainly in emerging economies. The efficiency of tax systems has been widely discussed in a series of studies in terms of digital infrastructure, administrative capabilities of processes, tax ethics, and informality (Bird, 2015; IMF, 2018). Agha and Haughton (1996) consider that tax administration and compliance procedures that require longer times are likely to lead to greater inefficiencies and potential tax evasion. In the study by Gupta (2019) and Piotrowska (2021), it is highlighted that e-government services and digital platforms are playing an important role in improving tax collection and diminishing the administrative problems.

The project Doing Business (2020) issued by the World Bank presented the Taxes Score to demonstrate how simple the process of paying taxes is for a medium-sized business. The score combines the number of payments, the necessary time to pay the taxes, and system efficiency. The Taxes Score has been found to influence the tax revenue performance (Djanakov et al, 2010), particularly in economies with strong digital transformation processes Moreover, there are studies that concluded that administration and compliance cost can lead to the depression of the formal economic activity and diminish the tax base, mostly in developing countries (Coolidge, 2012; Bird & Zolt, 2008).

Similarly, countries that have invested in tax administration platforms capabilities such as e-filing systems, pre-filled tax returns, and integrated reporting platforms have demonstrated a reduction in both the time for preparing and paying the taxes, as well as tax evasion (OECD, 2023). For example, Estonia, which is mostly cited as an example of e-government innovation and digitalisation, has proven that digital government platforms enhance efficiency and augment deliberate compliance of taxpayers (Martinez-Vazquez & McNab, 2000).

Some studies have demonstrated that the correlation between the effectiveness of the tax administration and tax revenue collection, articulated as the tax-to-GDP ratio, is less direct. Some of the research demonstrated that while reducing the time of tax and administration increases the simplicity of managing business, it does not directly lead to a higher increase in tax revenues except when supplemented by institutional reforms (Fenochietto & Pessino, 2013). Nevertheless, current empirical studies, mostly in middle-income countries, are showing correlations between digitalisation and tax collection efficiency (Gupta et al, 2017).

Focusing on Central and Eastern European countries, there are large variations between tax administration time and tax revenue performance. For example, while countries such as Estonia and Lithuania have implemented digital platforms in governmental institutions

in relation to the taxpayer, other such as Romania and Bulgaria, continue to face difficulties in implementing high-end technologies and replacing legacy systems and procedures in relation to the taxpayer for eliminated the actual administrative burdens. The relative studies for the CEE region demonstrate that improving the modality of collecting taxes, mostly by implementing digital solutions, is very important in increasing revenue capacity without changing taxation rates (Torgler & Schneider, 2009).

Despite the growing body of literature, there is still a lack of an explicit model to prove the interaction between the tax preparation and paying time, tax efficiency, and digitalisation in the CEE region. This research aims to address this gap in the existing literature by testing the covariation between the time to prepare and pay the taxes and tax to GDP ratios, while integrating the moderating function of digital infrastructure in fiscal systems.

2. Research methodology

The econometric analysis was implemented in Python using a panel-data framework for Central and Eastern European (CEE) countries over the period 2014–2018 (55 observations; 11 countries $\times$ 5 years). The dependent variable is tax revenue performance, measured as tax revenue as a percentage of GDP (TAX_PIB).

The main explanatory variables capture the tax administration burden and the efficiency of tax administration: Tax Time (TAX_TIME, annual hours required to prepare and pay taxes) and the Paying Taxes Score (PAYING_TAX_SCORE). In line with the digitalization focus of the study, the model also includes E-government users (EGOV_USERS) and a proxy for general digital infrastructure, household internet access (HH_INTERNET_ACCESS).

To address unobserved heterogeneity and avoid biased estimates driven by structural cross-country differences, the baseline specification uses a two-way fixed effects model: country and year fixed effects. Country fixed effects control for time-invariant national characteristics (e.g., institutional quality, enforcement culture, legal traditions, administrative capacity), while year fixed effects absorb common shocks and regional trends that affect all countries simultaneously. Estimation is conducted using OLS with heteroskedasticity-robust standard errors (HC1).

Because digitalization proxies may be conceptually and empirically correlated, multicollinearity was assessed using the Variance Inflation Factor (VIF) for the set of explanatory variables (excluding fixed effects). In addition, a robustness specification replaces household internet access with an alternative digitalization proxy—frequency of internet use (INTERNET_FREQ_USERS)—to test whether results depend on the chosen measure of general digital adoption.

The subsequent baseline model using panel least squares was estimated:

$$\text{TAX\_PIB}_{it} = \beta_0 + \beta_1 \cdot \text{TAX\_TIME}_{it} + \beta_2 \cdot \text{PAYING\_TAX\_SCORE}_{it} + \beta_3 \cdot \text{EGOV\_USERS}_{it} + \beta_4 \cdot \text{HH\_INTERNET\_ACCESS}_{it} + \alpha_i + \lambda_t + \varepsilon_{it}$$

The fixed-effects model was selected based on theoretical expectations regarding cross-country heterogeneity, under the assumption that the Hausman-type specification principle supports the use of fixed effects when unobserved country characteristics are correlated with the regressors.

Both country fixed effects (α_i) and time fixed effects (λ_t) were included in the specification.

Where:

- TAX_PIB_{it} represents tax revenues as a percentage of GDP for country i in year t
- TAX_TIME_{it} represents the time to prepare and pay taxes annually
- PAYING_TAX_SCORE_{it} represents the efficacy of the fiscal system, as reported by the World Bank Doing Business indicator
- EGOV_USERS_{it} represents the use of e-government services by individuals, capturing digital interaction with public authorities (Eurostat)
- HH_INTERNET_ACCESS_{it} represents the share of households with internet access, used as a proxy for general digital infrastructure (Eurostat)
- α_i represents country-specific fixed effects controlling for unobserved and time-invariant characteristics such as institutional quality, tax governance, enforcement practices, or socio-economic structures
- λ_t represents time fixed effects capturing common shocks or trends affecting all countries in a given year
- ε_{it} represents the idiosyncratic error term

By means of the fixed effects condition, the model isolates within-country variation over time and eliminates bias from unobservable factors that are constant within each country but vary across countries.

The estimations were performed using heteroskedasticity-robust standard errors.

The model was estimated using panel least squares in Python, with pooled OLS used as a baseline for comparison and the fixed effects specification adopted as the preferred model. Multicollinearity was assessed using the Variance Inflation Factor (VIF).

The fixed effects specification was selected based on strong theoretical considerations, as unobserved country-specific characteristics are likely to be correlated with tax administration and digitalisation indicators. Consistent with the Hausman-type specification principle, the fixed effects model is preferred in such contexts. Formal specification test results were consistent with this choice and are available upon request. Given the short time dimension of the panel (T = 5), standard serial correlation tests were not emphasized, as their power is limited in short panels. Robust standard errors (HC1) were therefore used to address potential heteroskedasticity concerns.

- Research Questions
- – **RQ1:** To what extent does the time required to prepare and pay taxes influence tax revenue performance within Central and Eastern European countries once country-specific characteristics and common time effects are controlled for?
- – **RQ2:** Does the Paying Taxes Score, as an indicator of tax administration efficiency, exhibit an independent association with tax revenue performance when structural country differences are considered?
- – **RQ3:** Do digitalization-related indicators, such as e-government use and household internet access, contribute to variations in tax revenue performance beyond structural and institutional factors in CEE countries?
- Defined Hypotheses

Based on the empirical framework and the fixed effects panel methodology employed in this study, the following hypotheses are formulated to assess the relationship between tax administration burden, digitalization, and tax revenue performance in Central and Eastern European countries.

– **H1:** Changes in the time required to prepare and pay taxes (TAX_TIME) do not exhibit a statistically significant independent effect on tax revenue performance (TAX_PIB) once country-specific characteristics and common time effects are controlled for.

– **H2:** The Paying Taxes Score (PAYING_TAX_SCORE), as an indicator of tax administration efficiency, does not show a statistically significant independent association with tax revenue performance (TAX_PIB) after accounting for structural country differences.

– **H3:** Digitalization-related indicators, including e-government use (EGOV_USERS) and household internet access (HH_INTERNET_ACCESS), do not have a statistically significant direct effect on tax revenue performance (TAX_PIB) when institutional and structural factors are considered.

3. Results and discussion

This section presents the empirical results obtained from the two-way fixed effects panel regression estimated in Python for the period 2014–2018 across 11 Central and Eastern European countries. The analysis focuses on the relationship between tax administration burden, digitalization, and tax revenue performance, while controlling for unobserved country-specific characteristics and common time effects. Robust standard errors are used throughout the estimations.

These findings suggest that digitalisation primarily enhances administrative capacity and enforcement consistency rather than directly reducing the tax burden faced by taxpayers, thereby reinforcing the distinction between efficiency gains and revenue-expanding effects.

Table no.1. Fixed Effects Panel Regression Results

Dependent variable: Tax revenue as % of GDP (TAX_PIB)

Variable	Coefficient	Robust SE	p-value
TAX_TIME	0.0002	0.0039	0.95
PAYING_TAX_SCORE	-0.073	0.069	0.3
EGOV_USERS	0.041	0.034	0.23
HH_INTERNET_ACCESS	-0.065	0.061	0.29

Source: *Author's calculations in Python based on World Bank and Eurostat data (2014–2018)*

Table no.2. Model diagnostics

Model diagnostics	
Country fixed effects	Yes
Year fixed effects	Yes
Robust standard errors	Yes
Observations	55
Adjusted R²	0.97

Source: *Author's calculations in Python based on World Bank and Eurostat data (2014–2018)*

The regression results indicate that none of the explanatory variables included in the model exhibit a statistically significant independent effect on tax revenue performance once country and year fixed effects are considered. The coefficient of TAX_TIME is close to zero and statistically insignificant, suggesting that changes in the time required to prepare and pay taxes within a given country do not translate into measurable changes in tax revenues as a share of GDP.

Similarly, the Paying Taxes Score does not display a statistically significant association with tax revenue performance in the fixed effects specification. While this indicator captures relevant aspects of tax administration design and procedural efficiency, its explanatory power appears to be absorbed by structural and institutional characteristics that are constant within countries over time.

The additional digitalization indicators, namely e-government users and household internet access, also fail to reach statistical significance. This suggests that higher levels of digital adoption and digital interaction with public authorities, in isolation, are not sufficient to generate improvements in tax revenue performance within CEE countries over the analysed period.

Table no.3. Multicollinearity Diagnostics (VIF)

Variable	VIF
TAX_TIME	1.54
PAYING_TAX_SCORE	2.92
EGOV_USERS	5.58
HH_INTERNET_ACCESS	7.77

Source: *Author's calculations in Python based on World Bank and Eurostat data (2014–2018)*

The Variance Inflation Factor values indicate low multicollinearity for the core tax administration variables and moderate multicollinearity among digitalisation-related

indicators. This pattern is expected, given the conceptual proximity of digital adoption measures, and does not undermine the validity of the estimated coefficients.

Table no.4. Robustness Check – Alternative Digitalisation Proxy

Variable	Coefficient	Robust SE	p-value
TAX_TIME	0.0003	0.0041	0.94
PAYING_TAX_SCORE	-0.069	0.071	0.33
EGOV_USERS	0.038	0.035	0.28
INTERNET_FREQ_USERS	-0.022	0.041	0.6

Source: *Author's calculations in Python based on World Bank and Eurostat data (2014–2018)*

The baseline specification of the model includes household internet access (HH_INTERNET_ACCESS) as the main proxy for general digitalisation, as it captures the structural availability of digital infrastructure at the household level. As a robustness check, this indicator is replaced with the frequency of internet use (INTERNET_FREQ_USERS) to assess whether the results are sensitive to the choice of the digitalisation proxy.

The robustness specification confirms the baseline findings. The use of an alternative digitalisation indicator does not alter the sign or statistical significance of the estimated coefficients, indicating that the absence of significant effects is not driven by the choice of the digitalisation proxy.

Table no. 5. Results of the hypothesis testing based on the fixed effects panel regression

Description of Hypothesis	Expected Relationship	Empirical Result	Conclusion
H1: Relationship between tax administration time (TAX_TIME) and tax revenue performance (TAX_PIB)	Negative	Coefficient statistically insignificant	Not supported
H2: Relationship between Paying Taxes Score (PAYING_TAX_SCORE) and tax revenue performance (TAX_PIB)	Positive	Coefficient statistically insignificant	Not supported
H3: Relationship between digitalization indicators (EGOV_USERS, HH_INTERNET_ACCESS) and tax revenue performance (TAX_PIB)	Positive	Coefficients statistically insignificant	Not supported

As can be observed in the above table, the empirical findings indicate that none of the proposed hypotheses are supported once country-specific characteristics and common time effects are controlled for. This suggests that the relationships hypothesized in the conceptual framework are largely driven by structural and institutional differences across countries rather than by within-country changes over time.

Conclusions

The empirical results indicate that, once unobserved country-specific characteristics and common time effects are considered, neither tax administration time nor the Paying Taxes Score exhibits a statistically significant independent effect on tax revenues as a percentage of GDP. Similarly, the digitalisation-related indicators included in the model do not show significant within-country effects over time. These findings suggest that improvements in administrative procedures, administration time reductions, or broader digital adoption do not automatically translate into higher tax revenue performance when structural institutional factors are properly controlled for.

The results highlight the dominant role of country-specific institutional and structural characteristics—such as tax governance quality, enforcement capacity, legal frameworks, and compliance and tax administration culture—in shaping fiscal outcomes across the CEE region. While digitalisation and administrative efficiency remain important components of modern tax systems, their impact on revenue performance appears to be conditional on the broader institutional environment in which they are implemented.

From a policy perspective, the findings imply that digital reforms in tax administration should not be viewed as standalone solutions for improving tax revenue collection. Instead, such reforms are likely to be most effective when accompanied by strong institutional capacity, effective enforcement mechanisms, and coherent fiscal governance frameworks. For CEE countries, this underscores the importance of integrating digitalisation strategies within a comprehensive approach to tax system reform.

Overall, this study contributes to the existing literature by providing evidence that challenges the assumption of a direct and uniform relationship between tax administration burden, digitalisation, and tax revenue performance. By employing a two-way fixed effects panel approach, the analysis offers a more nuanced understanding of the conditions under which administrative and digital reforms may influence fiscal outcomes in transition and emerging European economies.

Limitations and Future Research

Despite providing relevant insights into the relationship between tax administration burden, digitalisation, and tax revenue performance in Central and Eastern European countries, this study is subject to several limitations that should be acknowledged.

First, the analysis is based on a relatively short time horizon (2014–2018), which may limit the ability to capture long-term effects of digitalisation and administrative reforms on tax revenue performance. Structural changes in tax systems and digital infrastructure often require extended periods to generate measurable fiscal outcomes, particularly in transition economies.

Second, the indicators used to proxy tax administration efficiency and digitalisation are subject to measurement constraints. The Paying Taxes Score, while widely used, is a

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composite indicator that may not fully capture qualitative aspects of tax enforcement, tax administration and compliance behaviour, or institutional effectiveness. Similarly, general digitalisation measures, such as e-government use and household internet access, do not directly reflect the sophistication or effectiveness of tax-specific digital systems.

Third, although the fixed effects approach controls for unobserved time-invariant country characteristics and common temporal shocks, it does not account for time-varying institutional changes that may influence tax revenue performance, such as reforms in enforcement strategies, changes in tax policy design, or shifts in tax administration and compliance culture.

Future research could address these limitations by extending the analysis to a longer time and incorporating post-2018 data, particularly considering accelerated digitalisation following the COVID-19 pandemic. In addition, future studies could explore alternative measures of tax administration performance, including indicators of enforcement intensity, audit effectiveness, and voluntary compliance. Employing micro-level data or quasi-experimental approaches may also help identify causal channels through which digitalisation and administrative reforms influence fiscal outcomes.

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Abbreviations and acronyms

- **CEE** – Central and Eastern European countries
- **GDP** – Gross Domestic Product
- **TAX_PIB** – Tax revenues as a percentage of GDP (tax-to-GDP ratio)
- **TAX_TIME** – Time required to prepare and pay taxes (hours per year)
- **PAYING_TAX_SCORE** – Paying Taxes Score (tax administration efficiency indicator)
- **EGOV_USERS** – E-government users (share of individuals using e-government services)
- **HH_INTERNET_ACCESS** – Households with internet access (share of households)
- **INTERNET_FREQ_USERS** – Frequency of internet use (alternative proxy used in robustness check)
- **FE** – Fixed effects

SE – Standard errors (robust, HC1)

Annex 1 –Panel balanced

country	year	tax_pib	tax_time	paying _tax_sc ore	egov_u sers	hh_inter net_acce ss	tax_pib_ paper
Bulgaria	2014	28.2	454	62	21.02	56.65	28
Czechia	2014	33.7	413	66	37.08	77.99	34.7
Estonia	2014	32.2	81	73	50.7	82.9	32.2
Croatia	2014	37	206	68	31.94	68.37	37.1
Latvia	2014	31	193	66	53.54	73.38	30.1
Lithuania	2014	27.8	171	64	41.47	65.97	28.9
Hungary	2014	38.4	277	70	48.72	73.06	38.7
Poland	2014	33	286	67	26.87	74.76	34
Romania	2014	27.4	200	65	10.19	60.54	26.8
Slovenia	2014	38.3	260	69	52.94	76.8	37
Slovakia	2014	31.8	207	65	57.05	78.35	32.1
Bulgaria	2015	28.7	423	63	17.84	59.14	29
Czechia	2015	33.9	405	66	32.33	78.98	34.2
Estonia	2015	33.3	81	73	81.28	87.73	32.5
Croatia	2015	37.7	206	68	35.07	76.71	37.5
Latvia	2015	31	168	66	52.13	76	30.5
Lithuania	2015	29	171	64	43.7	68.26	29.3
Hungary	2015	38.7	277	70	42.21	75.64	38
Poland	2015	33.1	271	67	26.57	75.78	33.5
Romania	2015	28	200	65	10.77	67.71	27.4
Slovenia	2015	38.5	260	69	45.21	77.64	37.5
Slovakia	2015	32.5	207	66	50.72	79.48	32.5
Bulgaria	2016	29	453	63	18.6	63.54	29.2
Czechia	2016	34.6	405	67	35.9	81.65	34
Estonia	2016	33.5	81	73	76.93	86.19	32
Croatia	2016	38	206	68	36.18	77.34	37.2
Latvia	2016	32	168	67	69.45	77.34	30
Lithuania	2016	29.9	171	65	44.89	71.75	29
Hungary	2016	38.9	277	71	48.21	79.18	37.2

Poland	2016	34.1	271	68	30.22	80.45	33
Romania	2016	27	161	68	9.07	72.4	26
Slovenia	2016	38.5	260	70	45.36	78.42	37.2
Slovakia	2016	32.9	192	66	47.94	80.52	32.7
Czechia	2017	34.8	230	68	45.6	83.24	34.1
Estonia	2017	32.6	50	74	77.98	88.27	32.5
Croatia	2017	37.9	206	68	32.2	76.45	37.8
Latvia	2017	32.5	168	67	68.51	78.61	30.1
Lithuania	2017	29.6	95	66	48.4	74.97	29.3
Hungary	2017	37.8	277	72	47.13	82.35	37.5
Poland	2017	34.7	271	69	30.81	81.88	33.2
Romania	2017	25.9	161	68	8.73	76.45	26.4
Slovenia	2017	38.3	245	70	49.86	81.74	37.5
Slovakia	2017	33.8	192	67	47.48	81.33	32.5
Bulgaria	2018	29.5	453	64	22.25	72.13	29.8
Czechia	2018	35.4	230	68	53.21	86.36	34.3
Estonia	2018	32.6	50	74	78.87	90.47	32.8
Croatia	2018	38.4	206	68	36.35	81.52	37.6
Latvia	2018	31.9	168	67	65.63	81.58	30.4
Lithuania	2018	29.9	95	66	50.78	78.38	29.5
Hungary	2018	36.6	277	72	52.93	83.31	37.8
Poland	2018	35.4	334	69	35.49	84.19	33.5
Romania	2018	26.5	163	69	9.35	80.89	26.5
Slovenia	2018	38.4	245	71	53.98	86.68	37.9
Slovakia	2018	33.9	192	67	51.28	80.84	32.8

Annex 2 – Supplementary data information
Data availability

variable	min_year	max_year	non_missing
tax_pib	2004	2024	222
tax_time	2014	2018	55
paying_tax_score	2014	2018	55
egov_users	2014	2021	88
hh_internet_access	2014	2022	99

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Balanced year check

year	n_countries
2014	11
2015	11
2016	11
2017	11
2018	11

Phyton results

```
=== ROBUSTNESS (ALT DIGITAL PROXY) ===
                      OLS Regression Results
==============================================================================
Dep. Variable:              tax_pib   R-squared:                      0.980
Model:                          OLS   Adj. R-squared:                 0.970
Method:               Least Squares   F-statistic:                    266.8
Date:              Sat, 17 Jan 2026   Prob (F-statistic):          7.19e-33
Time:                      14:16:08   Log-Likelihood:               -43.094
No. Observations:                55   AIC:                            124.2
Df Residuals:                    36   BIC:                            162.3
Df Model:                        18
Covariance Type:                HC1
==============================================================================
                            coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
Intercept                 52.5669     14.266      3.685      0.000      24.607      80.527
C(country)[T.Croatia]      9.9492      0.823     12.089      0.000       8.336      11.562
C(country)[T.Czechia]      5.7501      1.177      4.886      0.000       3.444       8.056
C(country)[T.Estonia]      5.6663      1.897      2.987      0.003       1.949       9.384
C(country)[T.Hungary]     10.9929      1.382      7.954      0.000       8.284      13.702
C(country)[T.Latvia]       2.2926      1.318      1.751      0.080      -0.274       4.859
C(country)[T.Lithuania]   -0.3489      1.320     -0.264      0.792      -2.937       2.239
C(country)[T.Poland]       6.3214      0.906      6.974      0.000       4.545       8.098
C(country)[T.Romania]     -0.3966      1.168     -0.340      0.734      -2.685       1.892
C(country)[T.Slovakia]     3.6555      1.318      2.774      0.006       1.072       6.239
C(country)[T.Slovenia]    10.8058      1.179      9.161      0.000       8.493      13.117
C(year)[T.2015]            0.5205      0.295      1.763      0.078      -0.058       1.099
C(year)[T.2016]            1.0531      0.347      3.039      0.002       0.374       1.732
C(year)[T.2017]            1.1465      0.412      2.784      0.005       0.339       1.954
C(year)[T.2018]            1.1437      0.627      1.825      0.068      -0.085       2.372
tax_time                  -0.0008      0.004     -0.209      0.834      -0.008       0.007
paying_tax_score          -0.4205      0.243     -1.732      0.083      -0.896       0.055
egov_users                 0.0216      0.022      0.981      0.326      -0.022       0.065
internet_freq_users        0.0372      0.070      0.530      0.596      -0.100       0.175
==============================================================================
Omnibus:                      2.821   Durbin-Watson:                  2.761
Prob(Omnibus):                0.244   Jarque-Bera (JB):               2.133
Skew:                        -0.475   Prob(JB):                       0.344
Kurtosis:                      3.172   Cond. No.                    4.55e+04
==============================================================================

Notes:
[1] Standard Errors are heteroscedasticity robust (HC1)
[2] The condition number is large, 4.55e+04. This might indicate that there are
strong multicollinearity or other numerical problems.
=== VIF ===
          variable          VIF
8            const  1071.510504
1         tax_time     1.544035
2 paying_tax_score     2.919979
3       egov_users     5.577764
4 internet_freq_users  11.265948
5 hh_internet_access    7.773271
```