OVERVIEW OF TAX ADMINISTRATIONS: STRUCTURE; INCOME, RESOURCES AND PERSONNEL; OPERATION AND DIGITALIZATION

ISORA (International Survey on Revenue Administration)

Santiago Díaz de Sarralde Miguez

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Overview of Tax Administrations: structure; income, resources and personnel; operation and digitalization

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ISBN: 978-9962-722-04-5

Graphic Design: CIAT Communication and Publications Coordination

Quote: Díaz de Sarralde, Santiago (2019). *Overview of Tax Administrations: structure; income, resources and personnel; operation and digitalization. ISORA*. Inter-American Center of Tax Administrations (CIAT)

Acknowledgments

We thank Gaspar Maldonado and Julio Lopez of the CIAT Tax Studies and Research Directorate, who played an essential role in the selection and treatment of data sources used. We also want to thank the representatives of the ISORA Technical Working Group from the International Monetary Fund, the Intra-European Organization of Tax Administrations and the Organization for Economic Cooperation and Development

Executive Summary

ISORA

- In **ISORA**, we manage information from the tax administrations of 159 countries representing 90.37% of world GDP and 88.5% of the total world population in 2017 (more than 6,600 million people). Among them are 37 CIAT member countries, accounting for 39% of GDP and 37.1% of the population.
- 33% of the countries present at ISORA are classified as "high income" in accordance with the guidelines of the World Bank, 28 as "upper middle income", 23 "lower middle income" and 15% " Low income ", providing information on all continents and regions, with the only significant deficiency in the area of North Africa and the Middle East.
- This paper summarizes the institutional structure, organization and autonomy of Tax Administrations (TAs), their income, resources and personnel, and basic characteristics of their operation, with particular attention to the digitalization of the Tax Administrations, for the last year available (2017).

Institutional structure, organization and autonomy

- TAs adopt a wide variety of **institutional frameworks** , with a prevailing structure of a single directorate within the relevant ministry (SDMIN), almost 40%, compared to 8.8% of structures that distribute competencies in multiple directions (MDMIN) . These are followed by configurations such as semi-autonomous unified bodies (USB) (22%) or with (24.5%) a supervisory board (USBB). 5% of them have some other structure not classifiable in the above (e.g. cabinet rank).
- Concerning its **responsibilities**, ISORA analyzes the involvement of TAs in tasks of customs administration and social security (although the survey focuses on the administration of internal revenues), with an average of 37% in the first case and 18 % in the second. By income level, the degree of integration of internal taxes and customs increase with income (35% in high-income countries, compared to almost 48% in low ones), while the opposite happens with the integration of the management of social security contributions (above 20% of countries of high and upper-middle income, compared to 4.3% in low CIAT member countries resemble the world average in this respect (35% integrate customs and 16.2% integrate social security).
- On average the most frequent **organizational structure** is by function (41.5%), followed by those based on the different segments of taxpayers (22.6%) and the various taxes (18.9%). A hierarchy that is repeated for CIAT countries, although the aggregate reaching a higher percentage are administrations organized by function (51.4%). In lower middle and low-income countries, organization by function and tax type are less common, while the taxpayer segments option increases, reaching 60.9% of Low-income countries administrations (LICs).
- Data regarding the **location of personnel involved in the fight against fraud** generally show, without large differences by income level, highly centralized structures (around 60% to 70% in CIAT countries), with a reduced regional (21.4%) and local role (11.3%).
- Up to 76% of administrations claim to have **autonomy** to design their internal structure (with high levels across all income strata), 67.3% for managing their operating budget and, somewhat less, and 55.3% to manage the capital budget. The budgetary autonomy increases with the income level. CIAT countries show high levels of autonomy in all three dimensions, with 81.1% responsible for their own internal structure, 75.7 for their operating budget and up to 67.7% for the capital budget.

Collection and budgets

- The **collection** (internal revenue) managed by the TAs (what we might consider their results or their workload) is on average 16.65% of GDP, with a wide variability (from 3.5 to 48.1%) and a volume by groups of countries growing with the income level (10.2 - 14.2 -15.2 - 22.2 percent for low / medium-low / upper-middle income / high, respectively). The average for CIAT member countries is slightly lower than the global average and very close to that of the countries of upper-middle income (15.41%).
- As for the **budgets** of the TAs to carry out their activity, in global average they account for 0.207% of GDP, distributed in operating budget (90.5% of the total, 0.187% of GDP) and capital budget (9.5% remaining; 0.020% of GDP). By income levels, the budget has an inverse relationship with income, going from 0.177% of GDP in high-income countries, up to 0.251% in low. Similarly, the share of capital budget also decreases with income: just 3.8% of the total in high-income countries, compared with 13.4% in low. CIAT countries have on average the tightest budgets, 0.171% of GDP, distributed between operating and capital in a way very similar to high-income countries (96% operating, 4% capital).
- On average, to collect one hundred monetary units costs 1.53. This **cost** decreases with the level of income: from 2.67% in low - income countries, up to 0.84% in high-income countries. CIAT countries have an average cost of 1.24%, only higher than the one recorded by the high-income countries.
- ISORA provides detail regarding the **composition of the budget**. The weight of wages in total operating expenditures, which represents an average of two thirds (66.71%), being quite stable across groups of countries, although it peaks in high-income (where wages account for 73.18% of the operating budget). Spending on the training of the administrations´ personnel costs on average 0.87% of operating expenditure and is clearly higher the lower the income (from 0.54% in high-income, up to 1.52% in the low). In CIAT, the average is relatively low, with 0.63% of the operating expenditure used on training.
- The expenditure on Information and Communications Technologies (ICT) is on average 6.35% of operating expenditure and 56.15% of capital expenditure, and in this case, it is decreasing in both indicators with the income level (from 10% of operating and 73% of capital in high-income countries, up to 3.4% and 21.2% in low-income countries). CIAT countries invest in ICT a percentage of operating expenditures similar to the average, while their share in capital expenditures reaches 70%.

Personnel

- The **number** of inhabitants (or working age citizens) increases exponentially with decreasing income level, from 1,524 inhabitants per worker in high-income countries, to 13,297 in low income (from 788 to 5,158 active population). The opposite is true in terms of active taxpayers, from 610 to 53 for PIT, from 77 to 11 for CIT and 89 to 4 for VAT. Within this global picture, the CIAT countries show average values in population indicators, whereas the indicators based on the number of taxpayers of the various taxes are far above average, which shows a high workload in relative terms.
- The vast majority of workers in TAs (more than 90% in all groups of countries) are in a **permanent, full-time position**, counting also generally with high **qualification** (on average about 20% have a Master degree or higher, while another 40% have a university degree).
- The **distribution of the staff by age** shows a higher aging with increasing income and a marked difference between high-income countries and the rest. If we summarize the data by age brackets in a single figure, the results would be 46.3 years in high income; Upper-middle income 41.5; 40.5 lower-middle income; 40 low-income. The global average would be 42.6 years, and 44.5 for the CIAT countries.

- Within CIAT, we find countries with relatively very aged workforces such as Portugal, Spain, Italy, USA, Netherlands and Brazil, with an average age of just over 50 years, as well as countries with a relatively young administration (under 40), including Angola, Dominican Republic, Bolivia, Guatemala, Ecuador, Belize, Guyana and Honduras, the youngest with an average of 34.5 years.
- Given the high degree of stability of TAs' employees, the average age of their workforce is highly correlated with **their experience** in these tasks. The number of years of service, although high in all cases, decrease with income level: While in high-income countries up to 39% has over twenty years of experience, this percentage drops to 8.5% in low-income countries.
- In CIAT, by country, Portugal, Italy, Netherlands, France, Argentina, Paraguay and El Salvador would exceed 15 years of average experience (Portugal reaching 17.9), while it would not exceed 10 years in Guatemala, Ecuador, Panama, Bolivia and Honduras (the latter with 100% of new employees given the recent and complete renovation of its workforce).
- Data over **staffing by gender** distinguish the percentages of men and women in all the organization and in executive positions. On global average women make up 52.2% of the workforce, while occupying 42.7% of executive positions, 9.5 percentage points lower.
- Results by groups of countries show that, overall, the participation of women decreases with the countries' income level, both the overall workforce (62.7% in high-income to less than half, 29. 9%, in low-income) and executive positions (from 49.4 to 27.4%). However, the gap between these two indicators - global staff and executive positions- is lesser in low-income countries (only 2 points) than in high-income (13.3 percentage points). Data available for CIAT countries show a very similar situation to the average (55.6 for women in the workforce and 47.2% in executive positions, 8.5 points difference), with large differences between administrations.
- In relation to **remuneration policies**, two-thirds of countries report linking performance to payments and rewards and almost the same percentage (63.5%) raises wages in positive cases (high-income countries excel in these two aspects, reaching 80.4% and 74.5%, respectively). Less frequent are the "negative" incentives: denial of annual increases (42.8%) or reduced wages (28.9%) for poor performance. In these aspects of linkage between performance and remuneration, the CIAT countries, on average, have modest results: only 59.5% link them; 54.1% increase wages; 24.3% may decrease them; and 27% can deny annual increases.
- Finally, in terms of staffing, ISORA asks TAs several questions about the presence in their workforces of **sector specialists**. This happens in 72.3% of cases, with experts in quantitative analysis standing out -data systems analysts (69.8%), data scientists (37.1%) and data analysis directors (35.2%)- compared to smaller percentages of administrations that have specialists in the human factor -psychologists (18.9%), behavior specialists (9.4%) or ethnographers (3.1%)-.
- This general pattern is particularly pronounced in countries of lower-middle, and low income while in CIAT member countries it is broken in part, almost half of their TAs (48.6%) having specialists in psychology in their workforces.

Operation and digitalization of Tax Administrations

- A vast majority of TAs (84.3%) has offices or **special programs for large taxpayers** that, on average, contribute to more than half of their net income (57.3%). The role of this segment of taxpayers is inversely related to income level of countries, from 43.7% of revenue in high-income countries to 70.4 in low-income (the average is close to CIAT overall average, 55%). Something similar happens with the existence of simplified regimes for small taxpayers, present in 53.5% of countries, but increasing this percentage from 39.2 in high-income to 78.3 in low (again in CIAT the figure is close to the average with 56.8%).

- Concerning special programs for **small and medium enterprises** (those not included in the previous section), the results provide a more complex picture, with a growing presence in low income countries not correlated with its relevance in terms of collection (the highest percentage, 31.5%, was recorded in high- income). Finally, the segmentation of the management of **high income/ high wealth taxpayers** (HNWI, High Net Wealth Individuals) is almost absent in lower income countries (only 8.7%, with a minimum tax collection relevance, 0.3%), while their presence begins to be relevant in higher income countries, reaching a maximum of 5.7% of collection in upper-middle income countries. In both cases, the revenue-collection role in CIAT countries is above the world average (24.6% for programs of small and medium enterprises versus 20.2% in average and 4.6 for HNWI - versus 3.8% -).
- The results show that **face-to-face registration** is still the most important channel (67.3% of countries and 70.5% of registrations). Regarding alternative channels, the use of applications (via web or smartphone) has advanced significantly against the paper record (51.6% of countries offer the ICT alternative, reaching 48.1% of records made, compared with 59.7% and 51.5% for paper). By income level, large differences are observed in the adoption of these new technologies, up to 72.5% in high-income, compared to 21.7% in the low-income. By number of registries, high-income countries have also a greater percentage through applications (51.7%) compared to traditional channels.
- CIAT countries exceed the average in adoption of ICTs by applications (64.9 versus 51.6 average) and register the lowest percentage recorded for the "paper option" (40.5 of countries, compared with 60% on average).
- Regarding procedures for submitting **tax returns**, compulsory electronic filing (for all or some taxpayers) is around 50% for all taxes, except the personal income tax, where it would affect one-third , and is closely related to income levels -in low-income countries it is around 30%, compared with approximately 70% of in high-income. Electronic submission option does not exist in only about 15% of the countries-for all taxes-, although again there are large differences by income level. In high income ones only between 5.9% (Corporate Income Tax-CIT-) and 3.9% (Personal Income tax -PIT-, withholdings, VAT) do not offer this possibility; while in low-income, this channel is not available in 34.8 (CIT), 43.5 (PIT), 34.8 (withholdings) or 30.4% (VAT) of the countries.
- In the CIAT member countries, the availability and mandatory electronic filing it is widespread in all tax figures, especially in its global form (affecting all taxpayers) whose implementation is above the global average and, except for CIT, over the average of high-income countries (CIT 45.9, PIT 29.7; withholdings 37.8, VAT 40.5, versus average global percentages of 32.7 for CIT; 13.8 for PIT; 27.7 for withholdings; 28.8 for VAT).
- Focusing on the channels effectively used for the tax returns, electronic filing -with not completely pre-filled forms with information from TAs- is the majority option on average (67.5 CIT, PIT 49.8; 69% VAT), the paper returns being the second option in importance (25.3 CIT, PIT 29.7; 24.3% VAT).
- Adding the various forms of electronic declaration compared to paper filing, differences by income levels are clear. In high-income countries paper is used in much lower percentages (17.3 CIT, PITs 25.0, 12, 2 VAT) than in in low-income countries (63.1 CIT; 59.9 PIT; 63.8 VAT); while the opposite occurs with the electronic declaration (80.5 CIT, PIT 72.1; 83.0 VAT in high-income; 36.9 CIT, PIT 40.1; 36.2 VAT in low-income).
- In this area, CIAT member countries generally have the lowest percentages for the use of paper (8.1 CIT, 15.8 PIT, 9.1 VAT) and the highest in implementation of electronic declaration (83.6 CIT, 76.7 PIT; 75.6 VAT), with several countries that have one hundred percent of electronic declarations (Argentina, Brazil, Costa Rica, Italy, Mexico, Peru and Portugal).
- As for the **payment channels**, the three most commonly used are: "In person at bank offices or other than those of TA" (41.2% of payments and 37.2% of its value); "Online" (33.4% of payments and 38.9% of its value); and "In person at the offices of the TA"

(23.9% of payments and 22.4% of the amount). Payment by mobile applications, mail and other recorded low percentages.

- In terms of incorporating digital channels, again large differences are observed by income level: the online payment in high-income countries accounts for 52.4% of the number of payments and 58.8% of its value; vs. a percentage of 6.7 and 7.1%, respectively, in low-income countries.
- CIAT member countries again show a high implementation of digital channels for payment, online payment reaching up to 60% of the total value of payments received, the highest aggregate percentage of countries considered. In the individualized data by country it can be seen that this percentage increases to levels higher than 80% in Argentina, Bermuda, Chile, Ecuador, Guatemala, India, Italy, Mexico, Nicaragua, Costa Rica and the Netherlands (in the last two, 100% of payments are made online).
- Continuing with the supply of **digital services**, the use of internet portals to provide information to taxpayers is widespread, with percentages above 90% in all countries.
- However, differences by income level reappear when we ask about the existence of tools and calculators on the websites of the TAs (86.3% in high-income countries, compared with 52.2% in low-income), integrated taxpayers accounts management that provide a comprehensive overview of the taxpayers in all major taxes (62.7% in high-income countries, which decreased to 41.7 in middle-income-low), online services offered to taxpayers- to update data, access to their tax history, requirement of agreements, etc. (86.3 for high income, 34.8% in low), digital mailbox (82.4 in high income; 34.8% in low-income) or the existence of mobile applications (present in 45.1% of high-income countries, versus 27.8% in middle or low-income).
- The existence of electronic invoicing systems is an exception, finding its full implementation in countries of medium-low (30.6%) and upper-middle income (36.4%).
- For its part, the CIAT member countries show on average a high deployment of digital services, surpassing even the high-income countries in areas such as incorporating tools on websites (89.2%), electronic invoicing (35.1%) or electronic mail (86.5%). By country, several of them have implemented all tested technologies (Argentina, Brazil, Chile, Italy, Peru, Portugal and Spain).
- Regarding **electronic invoicing**, an important aspect is that this technological innovation is not led by high-income countries, which recorded the lowest degree of implementation (23.5%), surpassed by lower income countries (29, 5 medium-high, medium-low 27.8%, 26.1% lower).
- Looking ahead, electronic invoicing still seems to be a higher priority for the lower-income countries (countries that are planning to introduce electronic invoicing: 19.6 of high income, upper middle income 36.4; lower middle income 38.9; low-income countries 43.5%).
- In relation to the use of the electronic invoicing system: in 85.7% of cases, it is used to monitor compliance of tax obligations and in 42.9% for preparing pre-filled returns.
- CIAT countries would lead the degree of implementation by groups, with 40.5%. As for the use of the information contained in invoices, their data show a high degree of use in terms of monitoring compliance -in 86.7% of cases, where the VAT is the main beneficiary (used in 80% of cases, followed by -40 CIT%, and 33.3% for PIT -), while their use as a tool for preparing prefilled statements is still less common (40% average). Some cases are highlighted, such as Mexico or Chile, where the information is used for all purposes of compliance monitoring and prefilled returns.
- On average, the total **uncollected debt** – tax arrears- increased in 2017 from 30.9 to 34.9 percent of revenue, highlighting a high amount in the countries of upper-middle income (which increased from 48.2% to 52.5% of revenue). As for the **results of audits**, on average total additional assessments amounted an equivalent to 7.2% of annual revenues, reaching the highest percentage (12.2%) in low-income countries. In all cases, CIAT countries present figures very close to the average values in these matters.

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Introduction

The following pages summarize some of the most relevant information contained in the ISORA survey (International Survey on Revenue Administrations) for the last available year (2017). They review the institutional structure, organization and autonomy of Tax Administrations (TAs), their income, resources and personnel, and basic characteristics of their operation, with particular attention to the digitalization of the Tax Administrations (taxpayer segmentation, registration channels, return filing and payment; provision of electronic services, electronic invoicing systems; tax arrears; audit results).

After a brief introduction to coverage and history of ISORA, the content is organized into **three chapters** and discuss the results of the survey, summarized in **45 tables and 22 graphs**[1] which offer information aggregated by groups of countries (depending on their income level) and individually for the CIAT member countries.

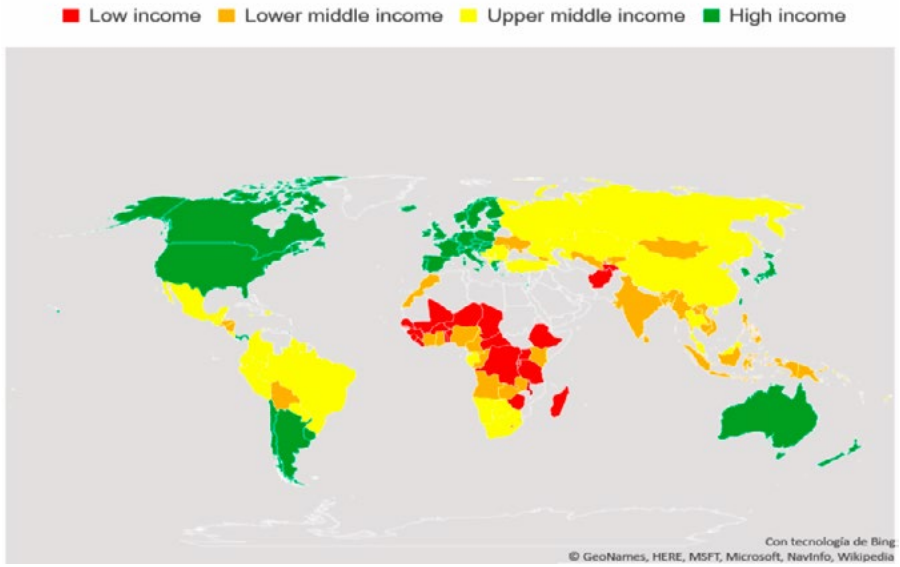
1 All the tables and graphs are of own elaboration, from the information collected in ISORA and consulted in July 2019

1. ISORA: the international survey on tax administrations

ISORA is the result of joint efforts by the **IMF, IOTA, OECD, ADB[2] and CIAT**, a single, homogeneous survey of domestic revenue administrations that complements and continues the efforts already made in this area in previous years -BID, CAPTAC-RD, CIAT (2012); CIAT (2016); "Tax Administration Comparative Information Series" OECD since 2004, the IMF RA-FIT platform, etc.

The survey gathers data on tax collection, institutional structure, budget and human resources, segmentation and taxpayer registration, filing and payment, taxpayer service and tax education, coactive debt collection, inspection, audit and investigation of tax fraud and conflict resolution mechanisms.

Graph 1: Countries integrated into ISORA, classified by income level



ISORA keeps information on tax administrations from 159 countries representing 90.37% of world GDP and 88.5% of the total world population in 2017 (more than 6,600 million people). Among them are 37 CIAT member countries, accounting for 39% of GDP and 37.1% of the population.

33% of the countries present at ISORA are classified as "high income" in accordance with the guidelines of the World Bank, 28 as "upper middle income", 23 "lower middle income" and 15% " low income ", providing information on all continents and regions, with the only significant deficiency in the area of North Africa and the Middle East.

In this paper we analyze the latest available results, compiled in 2018-2019 for the previous year (2017).

2 Asian Development Bank

2. Institutional structure, organization and autonomy of Tax Administrations

2.1. Institutional structure and competencies in customs and social security

Although TAs adopt a wide variety of institutional frameworks, a single Directorate prevails generally, within the relevant ministry (SDMIN). They are almost 40%, compared to 8.8% of structures that distribute competencies in multiple directorate (MDMIN) -, followed by the configurations as semi-autonomous unified bodies without (22%) or with (24.5%) a supervisory board (USB; USBB). 5% of TAs have some other structure not classifiable in the above (e.g. cabinet rank).

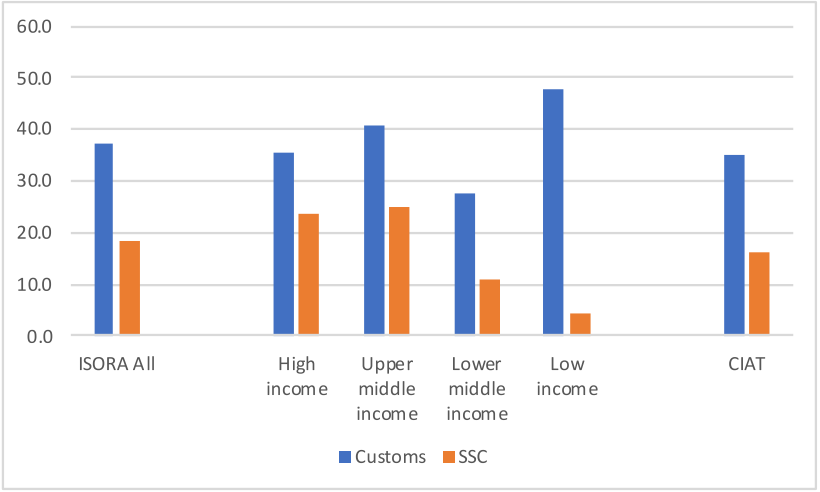
Even if some differences exist by income levels (for example, an increasing percentage of SDMIN with decreasing income or USB in those of high income), no clear pattern can be derived depending on the income of the countries. Similarly, the CIAT member countries follow the average pattern with 46% organized as a single directorate (SDMIN) and 35% as a unified semi-autonomous agency with a board (USBB).

Table 1: Institutional framework and integration of customs and social security

Countries	Institutional framework					Customs	SSC
%	SDMIN	MDMIN	USB	USBB	OIA		
ISORA All	39.6	8.8	22.0	24.5	5.0	37.1	18.2
High income	33.3	11.8	37.3	15.7	2.0	35.3	23.5
Upper middle income	38.6	9.1	18.2	27.3	6.8	40.9	25.0
Lower middle income	41.7	5.6	22.2	25.0	5.6	27.8	11.1
Low income	43.5	8.7	0.0	43.5	4.3	47.8	4.3
CIAT	45.9	2.7	10.8	35.1	5.4	35.1	16.2

As for its responsibilities, ISORA analyzes the involvement of TAs in tasks of customs administration and social security (although the survey focuses on the administration of Internal Revenue), with an average of 37% in the first case and 18% in the second. Regarding income levels, in general it can be said that more integrated tax and customs administrations appear with decreasing income level (35% in high-income countries, compared to almost 48% in low), while the opposite happens regarding the integration of the management of social security contributions (over 20% of countries with high and medium-high income, compared to 4.3% in low). Furthermore, the CIAT member countries average is similar to the world average in this respect (35% integrate customs and 16.2% the social security).

Graph 2: Integration of customs and social security



2.2. Organizational structure and the fight against fraud

On average, the most common organizational structure is by function (41.5%), followed by those based on different segments of taxpayers (22.6%) and the various taxes (18.9%). A hierarchy that is repeated for CIAT countries, although the higher percentage consists of administrations organized by function (51.4%).

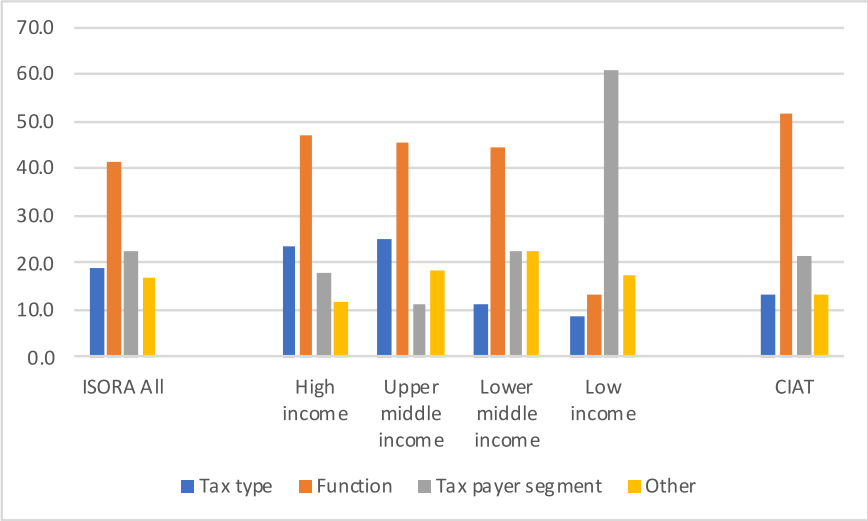
By income levels, significant differences are observed. In countries of lower middle income and low income patterns, the structure by function and tax type are less common. Most are organized around taxpayer segments, reaching 60.9% of low-income administrations, something that has its counterpart in the importance of a small number of large taxpayers in these countries (an aspect that we will deepen into at the section on the segmentation strategies).

Moreover, data regarding the location of personnel involved in the fight against fraud and evasion offer an approach to a greater or lesser centralization of the basic functions of the administrations. The results of the survey show generally, without large differences by income level, highly centralized structures (around 60%, reaching 70% in the CIAT countries), with a reduced regional role (21.4%) and local role (11.3%).

Table 2: Organizational structure and centralization of the fight against fraud

Countries	Organizational structure				Location staff tax fraud			
%	Tax type	Function	Tax Payer segment	Other	Centralized	Regionalized	Localized	not Appl
ISORA All	18.9	41.5	22.6	17.0	62.3	21.4	11.3	5.0
High income	23.5	47.1	17.6	11.8	60.8	27.5	7.8	3.9
Upper middle income	25.0	45.5	11.4	18.2	63.6	18.2	9.1	9.1
Lower middle income	11.1	44.4	22.2	22.2	58.3	16.7	19.4	5.6
Low income	8.7	13.0	60.9	17.4	65.2	26.1	8.7	0.0
CIAT	13.5	51.4	21.6	13.5	70.3	16.2	10.8	2.7

Graph 3: Organizational structure



2.3. Autonomy of Tax Administrations

Up to 76% of administrations claim to have autonomy to design their internal structure (with high levels in all income levels), 67.3% for managing their operating budget and, somewhat less, 55.3% to manage the capital budget. The budgetary autonomy increases with income level (with the exception of capital budget management in the administrations of low-income countries). CIAT countries show high levels of autonomy in all three dimensions, with 81.1% responsible for their own internal structure, 75.7 for their operating budget and up to 67.6% for the capital budget.

Individualized data of CIAT countries show the diversity of choices made by countries regarding their TAs' structure.

Institutionally, the main exceptions to the most widespread standards are Costa Rica (adopting a structure with shared competence in different Directorates), Guatemala (with a Tax Superintendence, SAT) and Honduras (whose Revenue Management Service -SAR- has ministerial rank). As for their competences in different areas of internal taxes, only Argentina, Aruba, Brazil, Canada, the Netherlands and Peru participate in Social Security.

The decentralization of the personnel to combat fraud is related, in most cases, with political decentralization of states and/or their geographical extention - Argentina, Bolivia, Brazil, Canada, India, Mexico, USA, ... - while most show a high degree of autonomy (with the exception of Angola, Belize, Bermuda, Costa Rica, Kenya, Mexico, Panama, Peru and Suriname).

Table 3: Administration autonomy

Countries	Administration autonomy		
%	Internal Structure	Operating Budget	Capital Budget
ISORA All	76.1	67.3	55.3
High income	86.3	78.4	66.7
Upper middle income	70.5	63.6	50.0
Lower middle income	63.9	61.1	47.2
Low income	91.3	60.9	56.5
CIAT	81.1	75.7	67.6

Graph 4: Administration autonomy

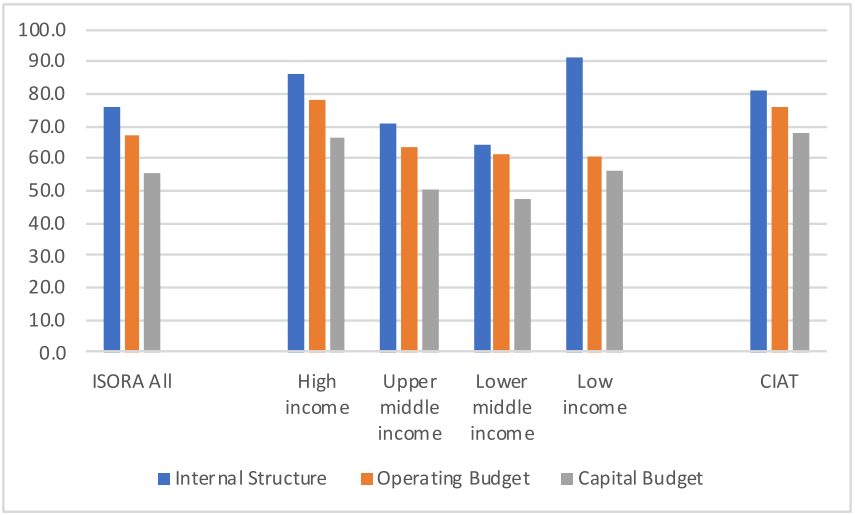


Table 4: Institutional structure, organization and Tax Administrations autonomy

CIAT	Institutional framework	Customs	SSC	Organizational structure	Location staff tax fraud	Autonomy internal structure	Autonomy operating budget	Autonomy capital budget
Angola	USBB	Yes	No	Taxpayer segment	Centralized	No	No	No
Argentina	USBB	Yes	Yes	Function	Regionalized	Yes	Yes	Yes
Aruba	SDMIN	No	Yes	Taxpayer segment	Centralized	Yes	Yes	Yes
Barbados	USBB	No	No	Function	Localized	Yes	Yes	Yes
Belize	SDMIN	No	No	Tax type	Centralized	Yes	No	No
Bermuda	SDMIN	No	No	Tax type	Centralized	No	No	No
Bolivia	USBB	No	No	Function	Regionalized	Yes	Yes	Yes
Brazil	SDMIN	Yes	Yes	Function	Localized	Yes	Yes	Yes
Canada	USBB	No	Yes	Function	Regionalized	Yes	Yes	Yes
Chile	USB	No	No	Function	Regionalized	Yes	Yes	Yes
Colombia	USB	Yes	No	Function	Centralized	No	Yes	Yes
Costa Rica	MDMIN	No	No	Function	Centralized	Yes	No	No
Dominican Republic	USBB	No	No	Other	Centralized	Yes	Yes	Yes
Ecuador	SDMIN	No	No	Other	Centralized	Yes	Yes	Yes
El Salvador	SDMIN	No	No	Taxpayer segment	Centralized	Yes	Yes	No
France	SDMIN	No	No	Tax type	Centralized	Yes	Yes	Yes
Guatemala	OIA	Yes	No	Other	Centralized	Yes	Yes	No
Guyana	USBB	Yes	No	Tax type	Centralized	Yes	Yes	No
Honduras	OIA	No	No	Other	Centralized	Yes	Yes	Yes
India	SDMIN	No	No	Function	Localized	Yes	Yes	Yes

CIAT	Institutional framework	Customs	SSC	Organizational structure	Location staff tax fraud	Autonomy internal structure	Autonomy operating budget	Autonomy capital budget
Italy	USB	No	No	Function	Centralized	Yes	Yes	Yes
Jamaica	USBB	No	No	Taxpayer segment	Centralized	No	Yes	Yes
Kenya	USBB	Yes	No	Taxpayer segment	Centralized	Yes	No	No
Mexico	USBB	Yes	No	Function	Localized	Yes	No	No
Morocco	SDMIN	No	No	Taxpayer segment	Regionalized	Yes	Yes	Yes
Netherlands	SDMIN	Yes	Yes	Taxpayer segment	Centralized	Yes	Yes	Yes
Nicaragua	USB	No	No	Function	Centralized	Yes	Yes	Yes
Nigeria	USBB	No	No	Function	Centralized	Yes	Yes	Yes
Panama	SDMIN	No	No	Function	Centralized	No	No	No
Paraguay	SDMIN	No	No	Function	Centralized	Yes	Yes	Yes
Peru	USBB	Yes	Yes	Function	Centralized	Yes	No	No
Portugal	SDMIN	Yes	No	Function	Centralized	Yes	Yes	Yes
Spain	USBB	Yes	No	Function	Centralized	Yes	Yes	Yes
Suriname	SDMIN	Yes	No	Tax type	Activity does not exist	No	No	No
Trinidad and Tobago	SDMIN	No	No	Function	Centralized	Yes	Yes	Yes
United States	SDMIN	No	Yes	Taxpayer segment	Regionalized	Yes	Yes	Yes
Uruguay	SDMIN	No	No	Other	Centralized	No	Yes	Yes

3. Income, resources and personnel

3.1. Income and resources

Collection (Internal Revenue) managed by TAs (what we might consider their results or their workload) is on average 16.65% of GDP, with a wide variability (from 3.5 to 48.1%) and a volume by groups of countries growing with the income (10.2, 14.2,15.2 and22.2 percent for low / medium-low / upper-middle income / high, respectively). The average for CIAT member countries is slightly lower than the global average and very close to that of the countries of upper-middle income (15.41%).

Of course, these figures should not be confused with the global fiscal pressure, since they only include taxes managed by the administrations of internal revenue from the central government[3]. At the same time, it is obvious that the amount is determined not only by the efforts or the quality of work performed by these administrations, but is influenced by multiple circumstances (especially tax policy and socio-economic circumstances of countries) that are outside their control. In any case, they provide us with a reference for estimating the size of their activities and follow the evolution of the indicators over time.

The budgets of the TAs to carry out their activity, in global average, account for 0.207% of GDP, distributed in operating budget (90.5% of the total, 0.187% of GDP) and capital (9.5% remaining; 0.020% of GDP).

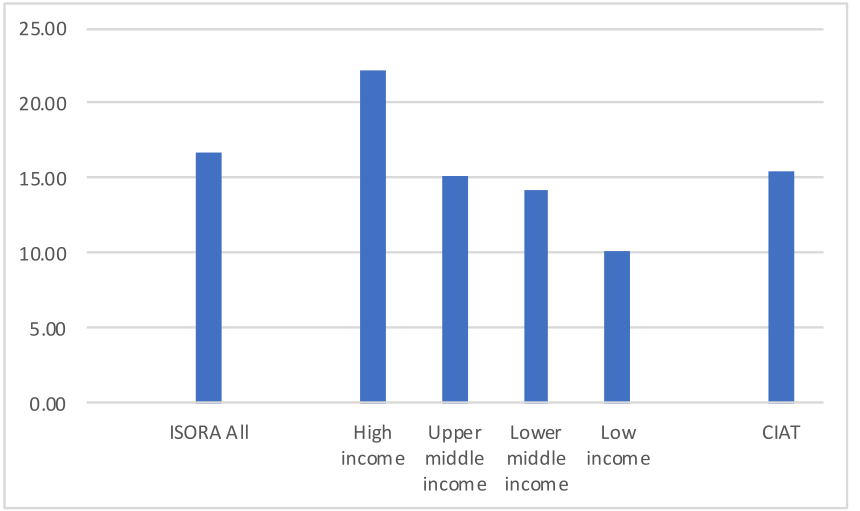
The budget has an inverse relationship with income, going from 0.177% of GDP in high-income countries, up to 0.251% in low-income countries. Similarly, the share of capital budget also decreases with income: just 3.8% of the total in high-income countries, compared with 13.4% in low.

CIAT countries[4] have on average the tightest budgets, 0.171% of GDP, distributed between operating and capital in a manner very similar to high-income countries (96% current, 4% capital).

Table 5: Revenues and budgets of the Tax Administrations

Countries	Revenue / GDP (%)	Operating expenditure% GDP	Capital expenditure% GDP	Budget / Revenue (%)
ISORA All	16.65	0.187	0.020	1.53
High income	22.23	0.170	0.007	0.84
Upper middle income	15.22	0.193	0.016	1.68
Lower middle income	14.22	0.188	0.030	1.65
Low income	10.22	0.213	0.039	2.67
CIAT	15.41	0.164	0.007	1.24

Graph 5: Tax collection of Tax Administrations



3 In CIATData (https://www.ciat.org/ciatdata/) we can consult the latest global data collection, especially for Latin America and the Caribbean.

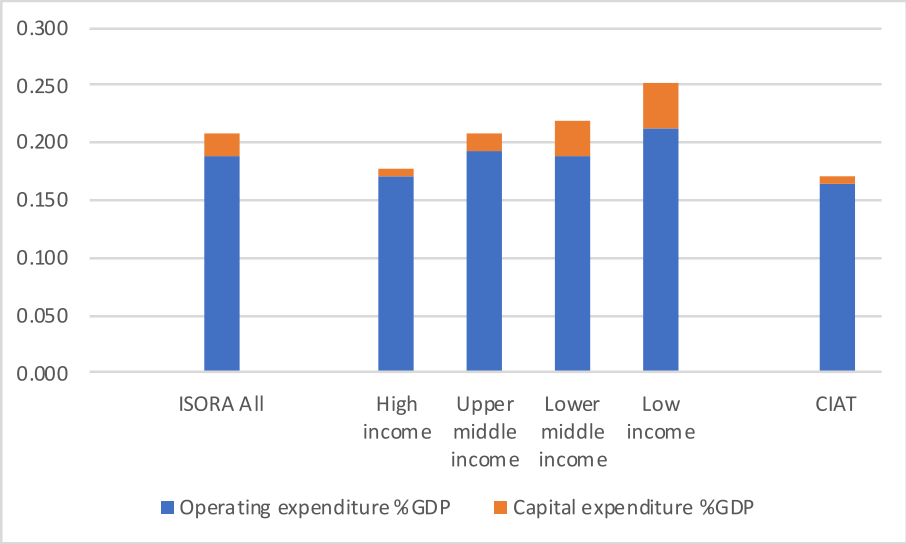
4 Data collection, budgets and personnel of the CIAT countries analyzed in the previous edition of ISORA can be consulted in Diaz de Sarralde (2018a).

The ratio between revenues collected and the budget of each TA, provides an approximation to the relative cost of the tax administration, which should not be directly identified as an indicator of efficiency for multiple reasons (the circumstances affecting potential collection that are outside the control of the administration, as we have already discussed above).

On average, collecting one hundred monetary units cost 1.53. This cost decreases as the level of income increases: from 2.67% in low-income countries, up to 0.84% in high-income countries. CIAT records an average cost of 1.24%, only higher than that recorded by the high-income countries.

ISORA provides more details regarding the composition of the budget. For example, we can analyze the weight of wages in total operating expenditures, which represents an average of two thirds (66.71%), being quite stable by groups of countries, although it peaks in high income countries (where wages account for 73.18% of the operating budget).

Graph 6: Tax Administrations budgets



Graph 7: Revenues managed compared to the Tax Administrations budgets

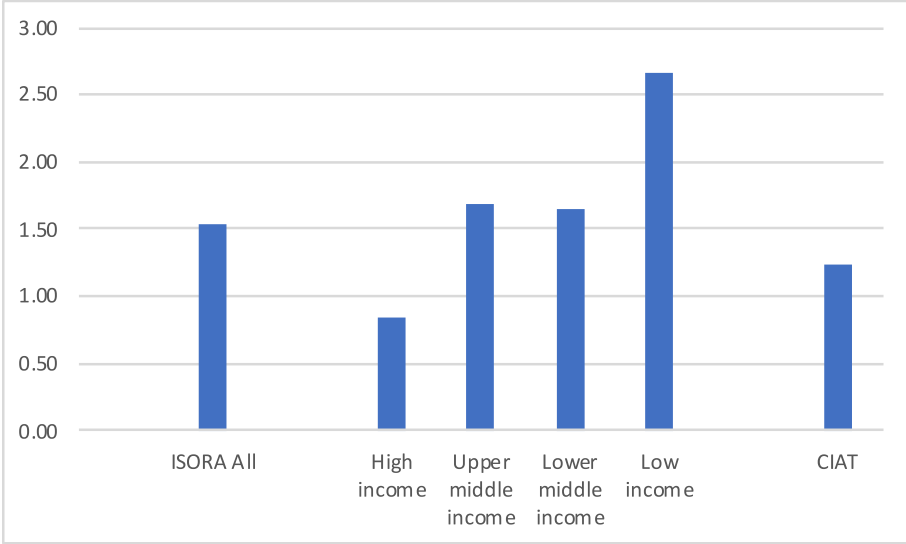


Table 6: Expenditures on wages, information technology / communications and training of TAs

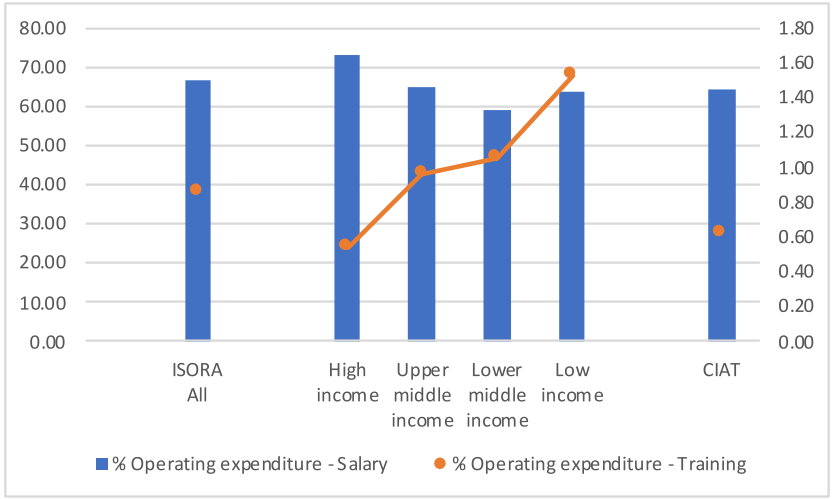
Countries	% Operating expenditure - Salary	% Operating expenditure - ICT	% Capital expenditure – ICT	% Operating expenditure - Training
ISORA All	66.71	6.35	56.15	0.87
High income	73.18	10.14	73.04	0.54
Upper middle income	64.62	4.89	51.87	0.96
Lower middle income	58.75	3.34	45.99	1.06
Low income	63.58	3.42	21.24	1.52
CIAT	64.11	6.07	70.48	0.63

Expenditures for the training of the administrations' personnel represent on average 0.87% of operating expenditure and is clearly greater with the lower income (from 0.54% in high-income, up to 1.52% in the low). In CIAT, the average is relatively low, with 0.63% of the operating expenditure on training.

The expenditure on Information and Communications Technologies (ICT) is on average 6.35% of operating expenditure and 56.15% of capital expenditure, decreasing with the income level (from 10% of current and 73% of capital in high-income countries, up to 3.4% and 21.2% in the low). CIAT countries provide ICT with a percentage of operating expenditures similar to the average, while its share of the capital reaches 70%.

For the CIAT countries, the dimension of collection managed by the TAs ranges from 3.5% in Nigeria to 33.3 in the Netherlands, while the cost of collection ranges from 0.39% in the US to exceeding 4% in Angola. This wide dispersion alsoaffects the percentage of wages in operating expenditures (from 29% of Bermuda to 94% of Colombia), training in respect to total operating expenditures (in Uruguay 0.02 compared with 3% in Nigeria), the ICT in respect to operating expenditures (0.07 in Mexico, 17.7 in the Netherlands) or ICT in relation to capital expenditure (17.8 in Nigeria, 100% in the Netherlands, India, Panama, Paraguay, El Salvador and Guatemala).

Graph 8: Spending on salaries and training



Graph 9: Spending on information and communications technologies

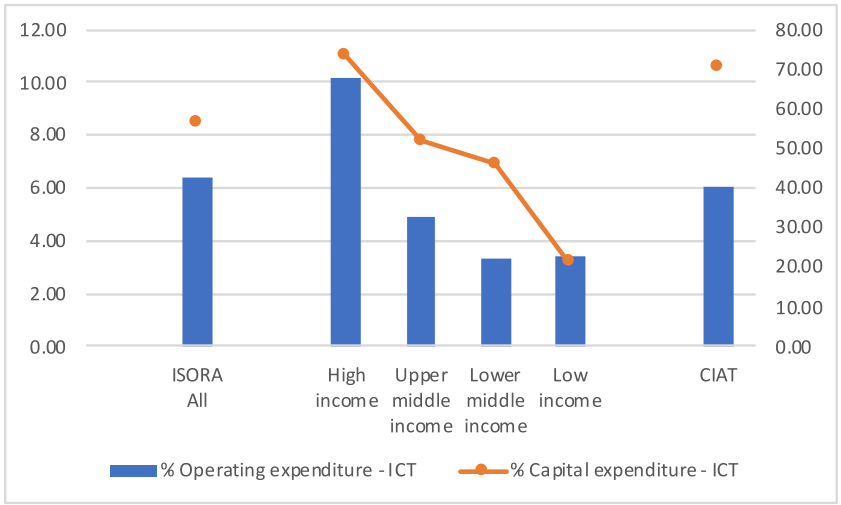


Table 7: Tax revenue and budget of the CIAT Tax Administrations

CIAT	Revenue / GDP (%)	Operating expenditure % GDP	Capital expenditure % GDP	Budget / Revenue (%)
Angola	6.37	0.265	0.010	4.32
Argentina	26.93			
Aruba				
Barbados	24.88	0.160		0.64
Belize	13.78	0.270	0.008	2.02
Bermuda				
Bolivia	24.61	0.215	0.012	0.93
Brazil	18.74	0.123	0,005	0.69
Canada	18.84	0.229	0.003	1.24
Chile	12.47	0.118	0.004	0.98
Colombia	13.22	0.084	0,005	0.67
Costa Rica	9.21	0.109	0,000	1.18
Dominican Republic	10.69	0.123	0.012	1.26
Ecuador	12.20	0.075		0.61
El Salvador	17.98	0.078	0.002	0.44
France	17.78	0.157		0.89
Guatemala	10.11	0.054	0,000	0.53
Guyana	15.48			
Honduras	18.61	0.086	0.017	0.56

CIAT	Revenue / GDP (%)	Operating expenditure % GDP	Capital expenditure % GDP	Budget / Revenue (%)
India	5.07	0.036	0,001	0.74
Italy	21.75	0.183	0.009	0.88
Jamaica	17.26	0.452	0.018	2.72
Kenya	13.00	0.059		0.46
Mexico	17.62	0.071	0,000	0.40
Morocco	12.43	0.079	0,005	0.68
Netherlands	33.27	0.254	0,005	0.78
Nicaragua	11.96	0.120	0,005	1.04
Nigeria	3.49	0.101	0.027	3.66
Panama	9.32	0.052	0.003	0.58
Paraguay	5.19	0.070	0.013	1.60
Peru	15.32	0.207		1.35
Portugal	24.24	0.262	0.010	1.12
Spain	16.67	0.107	0.004	0.66
Suriname	1410	0.179	0.004	1.30
Trinidad and Tobago	12.80	0.117	0,000	0.91
United States	15.37	0.056	0.003	0.39
Uruguay	18.58	0.166	0.003	0.91
Average	15.41	0.164	0.007	1.24

Table 8: Expenditure on wages, information technology and training of TAs from CIAT.

CIAT	% Operating expenditure - Salary	% Operating expenditure - ICT	% Capital expenditure - ICT	% Operating expenditure - Training
Angola				
Argentina				
Aruba				
Barbados	87.04	6.54		1.83
Belize	42.11			
Bermuda	29.33	2.26	96.43	0.05
Bolivia	41.96	2.84	71.20	0.24
Brazil	51.94	17.07	45.60	0.20
Canada	74.69	12.36	99.53	0.21
Chile	89.63	7.66	79.26	0.58
Colombia	94.47	5.53	0.00	0.00
Costa Rica	62.42			0.15
Dominican Republic	37.27	7.46	42.51	0.77
Ecuador	77.64			0.00
El Salvador	86.20	2.01	100.00	0.00
France	92.00	5.07		1.38
Guatemala	32.05	0.00	100.00	1.50
Guyana				
Honduras	82.73	0.14	62.32	0.69
India	59.78	10.94	100.00	0.50
Italy	57.78	5.52	45.17	0.03
Jamaica	52.65	1.36		0.51
Kenya				
Mexico	61.81	0.07	0.00	0.06
Morocco	81.59	3.17	64.21	0.20
Netherlands	72.74	17.67	100.00	2.31
Nicaragua	75.91	2.87	87.79	2.31
Nigeria	60.03	5.12	17.81	3.01
Panama	52.99	9.94	100.00	0.62
Paraguay	49.82	7.66	100.00	0.15
Peru				
Portugal	77.67	5.60	97.05	0.20
Spain	80.43	5.17	19.36	0.25
Suriname	72.12	2.50		
Trinidad and Tobago	66.08	8.46		0.07
United States	75.73	14.60	97.93	0.35
Uruguay	86.45	2.08	94.93	0.02
Average	64.11	6.07	70.48	0.63

3.2. The TAs staff

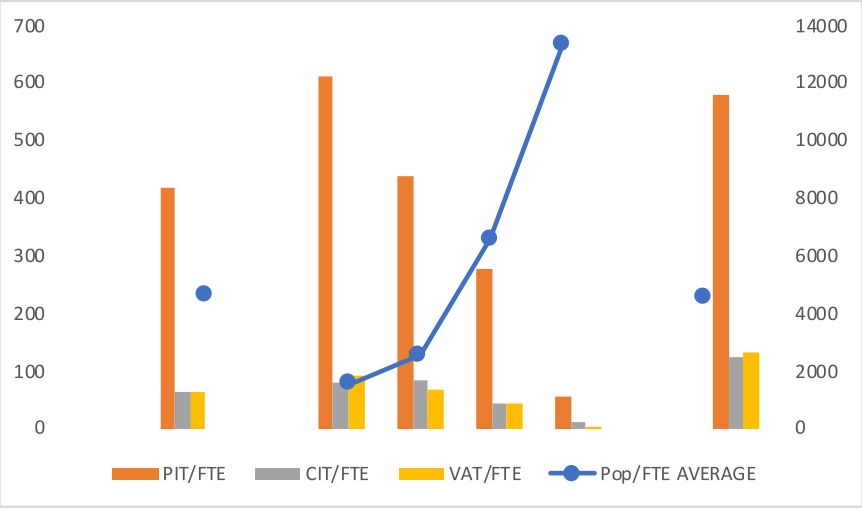
ISORA offers very detailed data from the tax administrators template, nearly one million eight hundred thousand workers (full-time equivalents FTE), of which approximately half a million correspond to the TAs of the CIAT member countries. In order to estimate in relative and comparable terms the dimension of the different TAs in this matter, the personnel is put in relation to the population (and the working age population) and active taxpayers (or total taxpayers in cases where the countries do not make this distinction between registered and active) in the main taxes (PIT, CIT, VAT).

These two dimensions provide a divergent panorama whose explanation lies in the very different economic and demographic structures of countries. Thus, the number of inhabitants (or people of working age) increases exponentially with decreasing income level, from 1,524 inhabitants per worker in high-income countries, to 13,297 in low-income (from 788 to 5158 in terms of workforce). The opposite is true in terms of active taxpayers, from 610 to 53 in the PIT, from 77 to 11 in CIT and 89 to 4 in VAT.

Table 9: TAs staff

	Staff employed	Pop / FTE	ActPop / FTE	PIT / FTE	CIT / FTE	VAT / FTE
Countries	TOTAL	AVERAGE				
ISORA All	1780585	4611	2065	417	61	61
High income	741032	1524	788	610	77	89
Upper middle income	784970	2538	1229	440	83	67
Lower middle income	209529	6570	2757	276	42	42
Low income	34673	13297	5158	53	11	4
CIAT	478667	4505	1995	580	123	130

Graph 10: TAs staff



Although there are many causes of this divergence in the workload arising from the various indicators, it is quite likely that demographic -higher population growth and a less developed economic structure in low-income countries- and economic circumstances -with decreasing income accompanied by greater informality, underground economy, weakness of direct taxation and dependence on a few large taxpayers- explain these differences.,.

Within this global picture, the CIAT countries show average values in population indicators, whereas indicators based on the number of taxpayers relative to the various taxes are far above average, which shows their high workload in relative terms. By country, the data show the wide variety of circumstances, from the small number of taxpayers per employee in Guatemala (the result of the shortcomings of its economic structure, since by population the values are close to the average) to the high workload in countries as diverse as Aruba, Brazil, Chile, Nigeria or Paraguay.

Table 10: TAs staff. CIAT

CIAT	Staff employed	Pop / FTE	ActPop / FTE	PIT / FTE	CIT / FTE	VAT / FTE
Countries	TOTAL	Average %	Average %	Average %	Average %	Average %
Angola	3,739	7965.8	3289.3	1213.3	33.4	
Argentina	21.703	2039.9	917.0	49.6	16.1	49.2
Aruba	34	3096.0		1671.8	232.9	346.4
Barbados	322	887.3	473.4			
Belize	141	2657.3	1222.3	1333.6	178.1	34.4
Bermuda	23	2845.3				
Bolivia	1,726	6403.0	2950.9	41.1	142.0	150.5
Brazil	21.797	9601.7	4784.1	1236.5	918.3	
Canada	43,216	849.4	465.0	687.6	79.9	80.4
Chile	4,971	3632.0	1803.1	1972.4	292.3	216.9
Colombia	9,388	5226.4	2814.4	233.4	46.1	45.7
Costa Rica	942	5207.8	2429.4	510.1	182.8	112.7
Dominican Republic	2,960	3637.5	1716.5	57.8	50.5	59.7
Ecuador	3,348	4965.6	2425.4	339.5	46.0	385.5
El Salvador	1,001	6371.5	2841.2	371.8	38.9	109.9
France	104.873	640.0	289.5	484.9	21.0	37.3
Guatemala	4,948	3418.3	1376.9	1.0	0.5	20.7
Guyana	1,152	675.2	276.6	223.2	2.9	2.8
Honduras	1,128	8213.7	3823.6	100.6	24.9	59.8
India						
Italy	38.639	1567.1	658.9	727.5	58.3	126.6
Jamaica	2,163	1336.2	694.2	18.5	5.0	7.4
Kenya	4,941	10058.7	3916.7			
Mexico	27.534	4691.0	2109.1	2278.3	70.5	324.9
Morocco	5,190	6886.2	2449.8	193.1	65.7	101.9
Netherlands	31.547	543.1	288.3	377.5	24.1	58.8
Nicaragua	1,541	4034.8	1907.6	54.4	15.1	18.0
Nigeria	6,660	28661.6	8852.7	177.7	482.5	400.4
Panama	886	4625.9	2248.0	157.9	89.3	45.2
Paraguay	987	6901.0	3430.4	61.1	336.5	481.9
Peru	10,742	2994.4	1666.6	709.8	110.5	110.2
Portugal	10,995	936.2	470.6	474.3	43.1	62.8
Spain	25.152	1851.6	913.1	787.6	63.0	136.8
Suriname	691	815.3	320.4			
Trinidad and Tobago	1,015	1348.9	664.4	28.1	25.7	16.9
United States	81.229	4009.9	2012.4			
Uruguay	1,343	2573.9	1317.3	1403.4	121.1	176.9
Total/Average	478.667	4504.7	1994.7	579.9	123.1	130.4

The vast majority of workers in TAs (more than 90%) are permanent and full-time, generally highly qualified (on average about 20% have a Master's degree or higher, while another 40% reach a university degree). The table for CIAT countries allows observing again the variability of individual data, with countries where the percentage of those with a Master's degree or equivalent exceeds 30% (Aruba, Ecuador or Morocco) or in which the college graduates ratio approaches or exceeds 70% (Brazil, Chile, Costa Rica, Nigeria and Peru).

Table 11: Professional stability and staff training

Countries	Revenue administration staff (%)		
Countries	Full-time permanent	Master's degree or above	Bachelor's degree
ISORA All	94.6	19.3	40.9
High income	90.6	19.6	32.5
Upper middle income	94.2	16.3	43.0
Lower middle income	98.1	23.9	43.5
Low income	99.2	17.3	51.6
CIAT	92.3	12.4	42.8

Table 12: Labor stability and staff training. CIAT

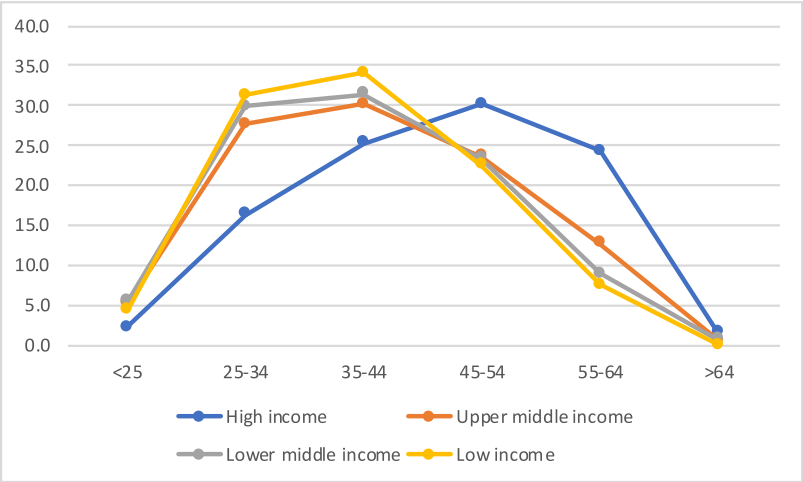
CIAT	Revenue Administration staff		
Countries	Full-time permanent	Master's degree or above	Bachelor's degree
Angola	74.0	1.6	46.4
Argentina	99.6	4.0	50.6
Aruba	100.0	32.4	14.7
Barbados	99.4	18.6	28.0
Belize	100.0	2.8	20.6
Bermuda	100.0	13.0	34.8
Bolivia	100.0	1.4	10.8
Brazil	100.0	0.6	75.9
Canada	70.1		
Chile	100.0		68.4
Colombia	80.8	6.5	30.8
Costa Rica	100.0	20.7	66.9
Dominican Republic	100.0	16.6	63.4
Ecuador	95.0	36.0	51.9
El Salvador	100.0	8.7	56.9
France	82.4	29.0	33.3
Guatemala	87.1	9.5	41.5
Guyana	100.0		
Honduras	99.8	8.3	57.4
India			
Italy	92.5	10.3	37.6
Jamaica	87.4	10.5	33.8
Kenya		7.2	43.7
Mexico	99.5	1.9	41.9
Morocco	100.0	37.0	31.3
Netherlands	70.7	17.9	38.4
Nicaragua	100.0	7.8	38.0
Nigeria	100.0	18.4	67.6
Panama	100.0	13.1	39.2
Paraguay	78.9	10.3	44.5
Peru	66.8	9.1	68.0
Portugal	100.0	3.3	47.3
Spain	100.0		
Suriname	85.1		24.7
Trinidad and Tobago	82.7	4.4	11.8
United States	79.6		
Uruguay	99.9		48.9
Average	92.3	12.4	42.8

Staff distribution by age indicates a greater aging in the higher income countries and a marked difference between high-income countries and the rest. If we summarize the data by age steps in a single figure - taking the core values of each intermediate range and limit values at both ends - the results would be: high income 46.3 years; Upper middle income 41.5; Lower middle income 40.5; 40 in low income. The global average would be 42.6 years and 44.5 for the CIAT countries.

Table 13: Staff age structure of TAs

	Permanent revenue administration staff - Age groups (%)					
Countries	<25	25-34	35-44	45-54	55-64	>64
ISORA All	4.5	24.6	29.2	25.5	15.2	0.9
High income	2.3	16.4	25.3	30.1	24.3	1.6
Upper middle income	5.2	27.6	30.2	23.6	12.7	0.7
Lower middle income	5.5	30.0	31.4	23.3	9.0	0.8
Low income	4.4	31.3	34.1	22.5	7.6	0.1
CIAT	2.5	21.4	28.0	26.7	19.8	1.7

Graph 11: Age structure of TAs' personnel



Within CIAT, we find countries with relatively very aged payrolls such as Portugal, Spain, Italy, USA, Netherlands and Brazil, with an average age of just over 50 years, and countries with a relatively young administration (under 40), including Angola, Dominican Republic, Bolivia, Guatemala, Ecuador, Belize, Guyana and Honduras, the latter the youngest with an average of 34.5 years.

Table 14: Age structure of the TAs' personnel. CIAT

CIAT	Permanent staff Revenue Administration - Age groups					
Countries	<25	25-34	35-44	45-54	55-64	>64
Angola	1.1	32.8	40.6	16.8	8.7	0.0
Argentina	1.0	8.8	23.3	36.1	28.2	2.6
Aruba	0.0	23.5	20.6	35.3	20.6	0.0
Barbados	6.3	25.3	25.0	21.9	18.8	2.8
Belize	10.6	34.0	30.5	22.0	2.8	0.0
Bermuda	0.0	8.7	30.4	26.1	34.8	0.0
Bolivia	1.9	37.1	37.7	15.6	6.3	1.4
Brazil	0.2	8.3	21.4	33.2	31.1	5.9
Canada	0.8	11.2	25.5	36.4	23.6	2.6
Chile	0.9	18.6	33.0	25.8	16.0	5.7
Colombia	0.9	12.6	24.8	30.6	27.6	3.5
Costa Rica	0.0	17.0	26.6	30.6	24.4	1.4
Dominican Republic	7.8	31.6	29.5	20.1	9.2	1.8
Ecuador	0.5	35.2	53.3	9.2	1.7	0.1
El Salvador	0.3	17.8	27.6	36.2	14.1	4.1
France	0.7	10.3	21.6	32.2	34.6	0.5
Guatemala	4.2	35.1	41.2	11.2	7.1	1.1
Guyana	14.4	33.9	27.8	16.4	7.4	0.1
Honduras	9.1	53.6	26.4	8.2	2.7	0.1
India						
Italy	0.0	4.2	21.6	27.7	42.7	3.8
Jamaica	4.8	28.0	35.8	22.3	8.9	0.1
Kenya	0.5	24.2	33.9	26.4	15.0	0.0
Mexico	4.1	31.4	26.2	26.0	10.5	1.8
Morocco	1.0	36.6	20.6	27.4	14.4	0.0
Netherlands	0.9	10.5	15.6	29.0	43.1	0.9
Nicaragua	3.6	22.6	26.6	29.1	16.9	1.2
Nigeria	0.1	11.5	42.9	38.5	6.9	0.0
Panama	4.5	20.5	28.3	23.7	19.5	3.4
Paraguay	0.0	15.7	31.5	34.7	17.2	1.0
Peru	1.9	30.8	24.8	26.4	12.1	3.9
Portugal	0.0	1.1	20.8	32.4	44.0	1.6
Spain	0.0	4.0	13.1	40.7	40.1	2.1
Suriname	0.0	26.0	17.6	32.4	24.1	0.0
Trinidad and Tobago	5.2	23.8	34.6	24.6	11.3	0.4
United States	0.1	6.9	19.2	34.2	32.6	7.0
Uruguay	1.0	16.5	27.0	20.3	33.1	2.1
Average	2.5	21.4	28.0	26.7	19.8	1.7

Given the high training degree of TAs' employees, the average age of their workforce is highly correlated with their experience in these tasks. Years of service, although elevated in all cases, decrease with income level and while in high-income countries up to 39% has over twenty years of experience, this percentage drops to 8.5% in low-income countries. Again, if we calculate an approximate average (taking the central values of each intermediate range and the limit values at the two ends) the average of all countries would be 12 (close to 12.6 years for CIAT) 13.8 for high-income countries, 11.8 for medium-high, 11.2 in medium-low and 9.3 in low income.

In CIAT, by country, Portugal, Italy, Netherlands, France, Argentina, Paraguay and El Salvador would exceed 15 years of average experience (Portugal arriving to 17.9), while it would not exceed 10 years in Guatemala, Ecuador, Panama , Bolivia and Honduras (the latter with 100% of new employees given the recent and complete renovation of its workforce).

Table 15: Years of service of the TAs' personnel

Permanent revenue administration staff - Length of service (years; %)				
Countries	<5	5 to 9	10 to 19	>20
ISORA All	24.6	21.4	27.0	27.0
High income	18.4	15.4	26.9	39.3
Upper middle income	27.4	19.2	28.8	24.6
Lower middle income	27.2	25.3	25.2	22.3
Low income	32.8	34.2	24.5	8.5
CIAT	23.4	17.9	26.9	31.8

Graph 12: Years of service of the TAs' personnel

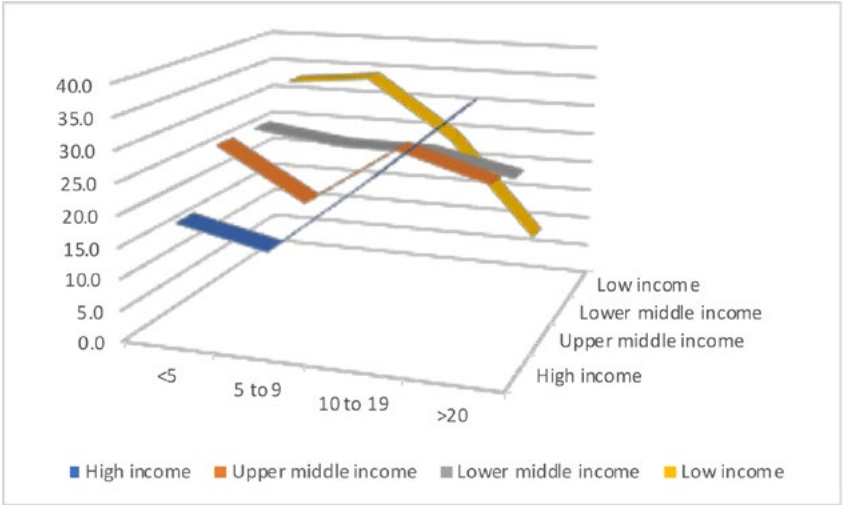


Table 16: Years of service of TAs' employees. CIAT

CIAT	Permanent revenue administration staff - Length of service (years; %)			
Countries	<5	5 to 9	10 to 19	>20
Angola	33.4	29.4	20.3	17.0
Argentina	9.6	13.2	20.2	56.9
Aruba	26.5	5.9	23.5	44.1
Barbados	14.4	15.6	41.9	28.1
Belize	24.8	27.7	27.0	20.6
Bermuda	17.4	17.4	43.5	21.7
Bolivia	56.4	33.4	6.7	3.5
Brazil				
Canada	10.9	22.6	37.1	29.4
Chile	24.1	16.1	32.1	27.7
Colombia	17.4	23.0	14.8	44.8
Costa Rica	15.9	15.4	25.6	43.1
Dominican Republic	32.5	19.4	35.1	13.1
Ecuador	39.2	21.5	39.3	0.0
El Salvador	5.4	17.2	32.2	45.3
France	10.1	10.2	23.2	56.6
Guatemala	38.8	21.5	39.7	0.0
Guyana	27.4	24.4	35.0	13.2
Honduras	100.0	0.0	0.0	0.0
India				
Italy	7.6	9.1	23.6	59.7
Jamaica	15.9	17.8	43.5	22.8
Kenya	20.3	17.3	30.6	31.7
Mexico	34.9	16.4	29.0	19.7
Morocco	19.7	22.9	12.3	45.1
Netherlands	13.9	4.4	20.8	60.8
Nicaragua	17.7	15.3	43.5	23.4
Nigeria	5.8	40.9	17.6	35.7
Panama	52.9	22.3	10.8	13.9
Paraguay	14.1	11.3	16.4	58.2
Peru	38.3	12.5	16.6	32.5
Portugal	0.5	3.1	29.6	66.8
Spain	11.0	13.7	42.8	32.5
Suriname				
Trinidad and Tobago	10.7	21.7	36.9	30.7
United States	4.9	21.2	31.6	42.3
Uruguay	24.7	25.5	10.1	39.7
Average	23.4	17.9	26.9	31.8

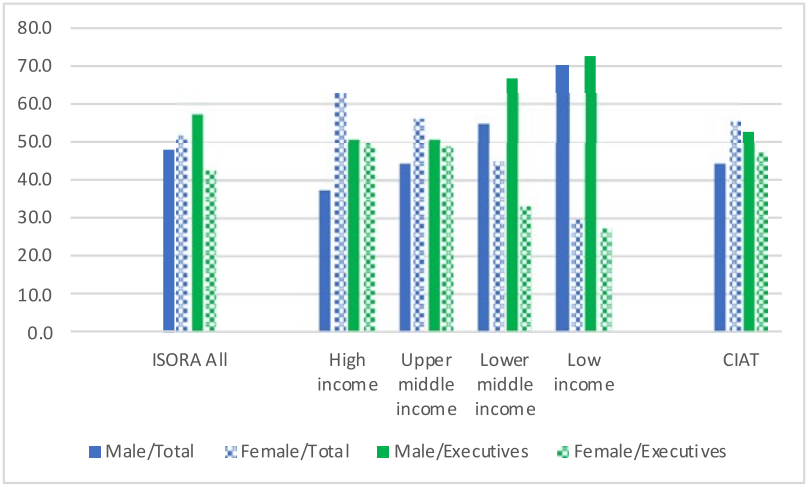
Data by gender composition of staff distinguish the percentages of men and women in all the payrolls and in executive positions. In global average, women make up 52.2% of the workforce, while occupying 42.7% of executive positions, 9.5 percentage points lower.

The results by groups of countries show that, overall, the participation of women decreases with income level, both in the overall workforce (62.7% in high-income to less than half, 29.9, in low-income) and executive positions (from 49.4 to 27.4%). However, the gap between these two areas -overall participation and executives positions - is much smaller in low-income countries (only 2 points) than in high-income (13.3 percentage points).

Table 17: Staff distribution by gender

Permanent revenue administration staff - Gender distribution (%)				
Countries	Male / Total	Female / Total	Male / Executives	Female / Executives
ISORA All	47.8	52.2	57.3	42.7
High income	37.3	62.7	50.6	49.4
Upper middle income	44.2	55.8	50.8	49.2
Lower middle income	55.0	45.0	66.5	33.5
Low income	70.1	29.9	72.6	27.4
CIAT	44.4	55.6	52.8	47.2

Graph 13: Staff distribution by gender



Data available for CIAT countries show a very similar situation to the average (55.6 for women in the workforce and 47.2% in executive positions, 8.5 points difference), with large differences between administrations.

Table 18: Staff distribution by gender. CIAT

CIAT	Permanent revenue administration staff - Gender distribution (%)			
Countries	Male / Total	Female / Total	Male / Executives	Female / Executives
Angola	53.3	46.7	68.2	31.8
Argentina	54.3	45.7	59.9	40.1
Aruba	29.4	70.6	0.0	100.0
Barbados	37.5	62.5		
Belize	26.2	73.8	0.0	100.0
Bermuda	4.3	95.7	0.0	100.0
Bolivia	42.3	57.7	48.0	52.0
Brazil	61.7	38.3	84.3	15.7
Canada	41.5	58.5	49.8	50.2
Chile	48.1	51.9	54.1	45.9
Colombia	43.0	57.0	37.6	62.4
Costa Rica	40.7	59.3	38.8	61.2
Dominican Republic	41.0	59.0	47.8	52.2
Ecuador	38.1	61.9	67.6	32.4
El Salvador	50.5	49.5	61.2	38.8
France	40.4	59.6	48.9	51.1
Guatemala	55.4	44.6	60.0	40.0
Guyana	42.8	57.2		
Honduras	41.2	58.8	38.5	61.5
India				
Italy	49.5	50.5	69.0	31.0
Jamaica	25.3	74.7	50.0	50.0
Kenya	59.8	40.2	73.5	26.5
Mexico	45.4	54.6	50.7	49.3
Morocco	52.2	47.8	67.3	32.7
Netherlands	60.9	39.1	67.2	32.8
Nicaragua	48.3	51.7	62.5	37.5
Nigeria	61.4	38.6	100.0	0.0
Panama	36.1	63.9	45.7	54.3
Paraguay	58.4	41.6	50.0	50.0
Peru	57.0	43.0	63.0	37.0
Portugal	40.5	59.5	57.3	42.7
Spain	47.0	53.0	72.2	27.8
Suriname	56.7	43.3	56.5	43.5
Trinidad and Tobago	25.6	74.4		
United States				
Uruguay	36.5	63.5	40.4	59.6
Average	44.4	55.6	52.8	47.2

Regarding remuneration policies, two-thirds of countries report linking performance and rewards payments and almost the same percentage (63.5%) raises wages in positive cases (high-income countries excel in these two aspects, reaching 80.4% and 74.5%, respectively). Less frequent are the "negative" incentives: denial of annual increases (42.8%) or reduced wages (28.9%) for poor performance.

Table 19: Remuneration and performance

Remuneration - performance (%)				
Countries	Linked pay and reward	Increased remuneration for good performance	Poor performance can result in reduced salary	Poor performance can result in denial of annual increment
ISORA All	67.3	63.5	28.9	42.8
High income	80.4	74.5	35.3	49.0
Upper middle income	59.1	54.5	18.2	38.6
Lower- middle income	66.7	63.9	36.1	33.3
Low income	56.5	56.5	26.1	47.8
CIAT	59.5	54.1	24.3	27.0

In these aspects of linkage between performance and remuneration, CIAT countries on average have modest results: only 59.5% link them; 54.1% increase wages; 24.3% diminish them; and 27% can deny annual increases. By countries, there are cases where the four dimensions are answered positively (such as the Netherlands, Trinidad and Tobago and the United States) with a large number of countries where wages have no direct link to performance.

Table 20: Remuneration and performance. CIAT

CIAT	Remuneration - performance (%)			
Countries	Linked pay and reward	Increased remuneration for good performance	Poor performance can result in reduced salary	Poor performance can result in denial of annual increment
Angola	No			
Argentina	Yes	Yes	No	No
Aruba	No			
Barbados	No			
Belize	Yes	Yes	No	Yes
Bermuda	Yes	Yes	No	No
Bolivia	Yes	Yes	No	No
Brazil	Yes	Yes	Yes	No
Canada	Yes	Yes	No	Yes
Chile	Yes	Yes	Yes	No
Colombia	No			
Costa Rica	Yes	No	Yes	Yes
Dominican Republic	Yes	Yes	No	No
Ecuador	No			
El Salvador	No			
France	No			
Guatemala	No			
Guyana	No			
Honduras	No			
India	No			
Italy	Yes	Yes	No	Yes
Jamaica	Yes	Yes	No	Yes
Kenya	Yes	Yes	Yes	Yes
Mexico	No			
Morocco	Yes	Yes	Yes	No
Netherlands	Yes	Yes	Yes	Yes
Nicaragua	Yes	Yes	No	No
Nigeria	Yes	Yes	No	No
Panama	No			
Paraguay	No			
Peru	Yes	Yes	No	No
Portugal	Yes	Yes	No	Yes
Spain	Yes	Yes	Yes	No
Suriname	No			
Trinidad and Tobago	Yes	Yes	Yes	Yes
United States	Yes	Yes	Yes	Yes
Uruguay	Yes	No	No	No
Average	**59.5**	**54.1**	**24.3**	**27.0**

Finally, in terms of staff, ISORA raises several questions to TAs about the presence of sectorial specialists in their workforces. This is something that happens in 72.3% of cases, outstanding the existence of experts in quantitative data analysis -data systems analysts (69.8%), data scientists (37.1%) and data analysis directors (35.2%) - compared to smaller percentages of administrations that have specialists in the human factor -psychologists (18.9%), behavior specialists (9.4%) or ethnographers (3.1%) -.

This general pattern is particularly pronounced in lower-middle income countries, and low income while in CIAT member countries, the pattern is broken in part by having specialists in psychology in almost half of the TAs' workforces (48.6%).

Table 21: Specialists within the TAs

Capability - Specialist positions in the administration (%)							
Countries	Specialists	Data scientists	Psychologists	Ethnographic Researchers	Chief analytics officer	Behavioral Researchers / Scientists	Computer systems analysts
ISORA All	72.3	37.1	18.9	3.1	35.2	9.4	69.8
High income	84.3	49.0	23.5	5.9	51.0	19.6	80.4
Upper middle income	68.2	31.8	31.8	0.0	25.0	6.8	65.9
Lower middle income	61.1	22.2	8.3	0.0	22.2	2.8	61.1
Low income	78.3	47.8	4.3	4.3	39.1	4.3	73.9
CIAT	86.5	37.8	48.6	2.7	32.4	13.5	86.5

Table 22: Specialists within the TAs of CIAT

CIAT	Capability - Specialist positions in the administration (%)						
Countries	Specialists	Data scientists	Psychologists	Ethnographic Researchers	Chief analytics officer	Behavioral Researchers / Scientists	Computer systems analysts
Angola	Yes		Yes			Yes	Yes
Argentina	Yes	Yes	Yes		Yes		Yes
Aruba	Yes				Yes		Yes
Barbados	Yes						Yes
Belize	No						
Bermuda	No						
Bolivia	Yes						Yes
Brazil	No						
Canada	Yes	Yes	Yes		Yes		Yes
Chile	Yes	Yes	Yes		Yes	Yes	Yes
Colombia	Yes		Yes		Yes		Yes
Costa Rica	Yes	Yes	Yes				Yes
Dominican Republic	Yes		Yes				Yes
Ecuador	Yes	Yes	Yes		Yes	Yes	Yes
El Salvador	Yes						Yes
France	Yes	Yes					Yes
Guatemala	Yes	Yes	Yes				Yes
Guyana	Yes						Yes
Honduras	Yes		Yes				Yes
India	Yes						Yes
Italy	Yes	Yes	Yes		Yes		Yes
Jamaica	Yes	Yes	Yes		Yes		Yes
Kenya	Yes						Yes
Mexico	Yes	Yes	Yes		Yes		Yes
Morocco	No						
Netherlands	Yes	Yes	Yes			Yes	Yes
Nicaragua	Yes				Yes		Yes
Nigeria	Yes						Yes

CIAT	Capability - Specialist positions in the administration (%)						
Countries	Specialists	Data scientists	Psychologists	Ethnographic Researchers	Chief analytics officer	Behavioral Researchers / Scientists	Computer systems analysts
Panama	Yes						Yes
Paraguay	Yes		Yes				Yes
Peru	Yes	Yes	Yes				Yes
Portugal	No						
Spain	Yes	Yes			Yes		Yes
Suriname	Yes						Yes
Trinidad and Tobago	Yes						Yes
United States	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Uruguay	Yes		Yes				Yes
Average	**86.5**	**37.8**	**48.6**	**2.7**	**32.4**	**13.5**	**86.5**

4. Operation and digitalization of Tax Administrations

4.1. Taxpayer segmentation[5]

A vast majority of TAs (84.3%) has offices or special programs for large taxpayers, which on average, contribute to more than half of their net revenue (57.3%). The role of this segment of taxpayers is increasing as decrease the income level of countries, from 43.7% of revenue in high-income countries to 70.4 in low. (CIAT average is close to the global average, with 55%).

Something similar happens with the existence of simplified regimes for small taxpayers present in 53.5% of countries, but this percentage increases from 39.2 in high-income to 78.3 in low (again in CIAT the figure is close to the average with 56.8%).

Regarding the special programs for the segment of small and medium enterprises (those not included in the previous section), the results provide a more complex picture. Their presence increase the lower the income (from 29, 4 in the high-income ones to 69.6 in low, averaging around 40%) but not their importance in collection (the highest percentage, 31.5%, is recorded in high-income countries).

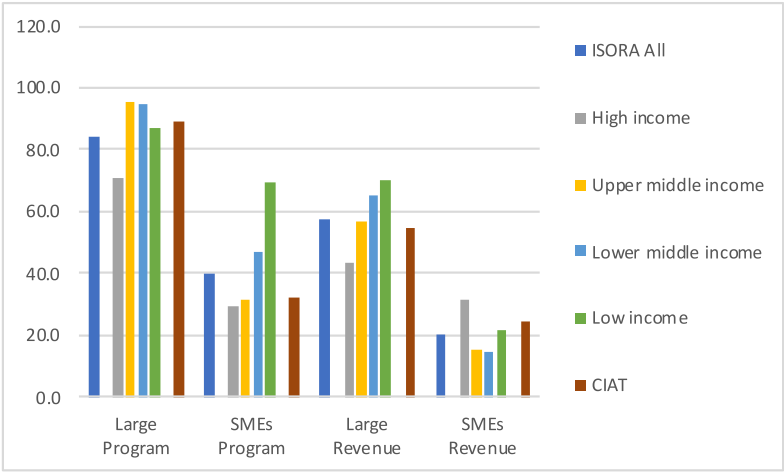
Finally, the segmentation of taxpayers of high income/high wealth (HNWI, High Net Wealth Individuals) is almost absent in lower income countries (only 8.7%, with a minimum tax collection relevance, 0.3%), while their presence begins to be relevant in the higher income countries, reaching a maximum in collection terms of 5.7% in upper-middle income countries.

In the latter two cases, their role in the collection of CIAT countries is above the world average (24.6% for programs of small and medium enterprises -compared to 20.2% average- and 4.6% in HNWI -versus 3.8 %-).

Table 23: Taxpayers' segmentation programs

Segmentation programs (% of countries;% of TOTAL net revenue)[6]							
Countries	Large Taxpayers	Net revenue	HNWI	Net revenue	Simplified income tax small taxpayers	SMEs	Net revenue
ISORA All	84.3	57.3	23.3	3.8	53.5	39.6	20.2
High income	70.6	43.7	37.3	3.9	39.2	29.4	31.5
Upper middle income	95.5	56.8	18.2	5.7	50.0	31.8	15.6
Lower middle income	94.4	65.0	22.2	2.1	63.9	47.2	14.8
Low income	87.0	70.4	8.7	0.3	78.3	69.6	21.7
CIAT	89.2	55.0	35.1	4.6	56.8	32.4	24.6

Graph 14: Taxpayer segmentation programs (% of countries)



5 The taxpayer segmentation strategies have been analyzed for the previous edition of ISORA in Diaz de Sarralde (2018b).

6 The collection rates for each taxpayer segments correspond to responses from countries that have implemented them, but their total sum does not reach 100% since they proceed from potentially different groups.

The results reveal the importance of taxpayer segmentation policies in terms of revenue and operations of administrations, especially with regard to large taxpayers in countries with lower incomes (which was already reflected in the choices of operational organization analyzed the second section).

The individual data for the CIAT countries show how the percentage of revenue from these programs or offices for large taxpayers exceeds 70% in Bolivia, Costa Rica, Dominican Republic, Guyana, Morocco, Nicaragua and Nigeria (where it reaches 89%) .

Table 24: Taxpayers' segmentation programs. CIAT

CIAT	Segmentation programs (Number of countries;% of the total net revenue)						
Countries	Large Taxpayers	Net revenue	HNWI	Net revenue	Simplified IT regime for small Taxpayers	SMEs	Net revenue
Angola	Yes	40.0	No		Yes	No	
Argentina	Yes	43.0	Yes	0.0	Yes	Yes	D
Aruba	No		No		No	No	
Barbados	No		No		No	No	
Belize	Yes	D	No		No	No	
Bermuda	No		No		No	No	
Bolivia	Yes	77.5	No		Yes	No	
Brazil	Yes	61.0	No		Yes	Yes	2.2
Canada	Yes	D	Yes	D	No	Yes	D
Chile	Yes	38.1	Yes	5.0	Yes	Yes	32.6
Colombia	Yes	39.0	No		No	No	
Costa Rica	Yes	75.0	No		Yes	No	
Dominican Republic	Yes	75.0	No		Yes	No	
Ecuador	Yes	42.0	Yes	D	Yes	No	
El Salvador	Yes	68.0	No		No	No	
France	Yes	28.0	No		Yes	No	
Guatemala	Yes	48.0	No		Yes	No	
Guyana	Yes	70.0	No		No	No	
Honduras	Yes	54.0	Yes	D	Yes	Yes	D
India	Yes	D	No		Yes	No	
Italy	Yes	28.5	Yes	D	Yes	Yes	D
Jamaica	Yes	56.0	Yes	16.0	No	Yes	D
Kenya	Yes	D	Yes	D	Yes	Yes	D
Mexico	Yes	D	No		Yes	No	
Morocco	Yes	79.0	No		Yes	No	
Netherlands	Yes	69.2	Yes	D	No	Yes	30.2
Nicaragua	Yes	74.2	No		Yes	No	
Nigeria	Yes	89.0	No		No	No	
Panama	No		No		No	No	
Paraguay	Yes	68.0	No		No	No	
Peru	Yes	57.9	No		Yes	No	
Portugal	Yes	45.4	Yes	D	Yes	Yes	34.0
Spain	Yes	40.0	Yes	D	Yes	Yes	24.0
Suriname	Yes	D	No		No	No	
Trinidad and Tobago	Yes	62.0	No		No	No	
United States	Yes	17.0	Yes	2.0	No	Yes	D
Uruguay	Yes	39.0	Yes	0.0	Yes	No	
Number/Average	**33**	**55.0**	**13**	**4.6**	**21**	**12**	**24.6**

NOTE: "D": no data

4.2. The taxpayers' registry

Turning now to the indicators relating to classical processes of the tax administration operations (registration, declaration, payment, etc.) and their relation to the digitalization of Tax Administrations, ISORA analyzes the registration channels open to taxpayers and their relative contribution to the process.

The results show that face-to-face registration is still the channel with more presence (67.3% of countries and 70.5% of records). Regarding alternative channels, the use of applications (via web or smartphone) has advanced significantly against the paper record (51.6% of countries offer apps, reaching 48.1% of registries made, compared with 59.7% and 51.5% for paper).

By income level, large differences are observed in the adoption of these new technologies. They are present up to 72.5% in high-income, compared to 21.7% in the low-income. By number of registries, high-income countries also make a greater percentage through applications (51.7%) compared to traditional channels.

CIAT countries exceed the average in terms of adoption of computerized registry by applications (64.9 versus 51.6 average) and the lowest percentage recorded for the "paper" option (40.5 countries, versus 60% on average). The disaggregated data of the table by countries provide further details on the available channels and the relative use of each.

Table 25: Registration channels

Registration channels (% of countries)						
Countries	Apps	Telephone	E-mail	Paper	Face-to-face	Others
ISORA All	51.6	10.1	22.0	59.7	67.3	19.5
High income	72.5	13.7	35.3	70.6	70.6	29.4
Upper middle income	56.8	13.6	27.3	56.8	70.5	22.7
Lower middle income	36.1	5.6	11.1	44.4	61.1	13.9
Low income	21.7	4.3	4.3	60.9	69.6	4.3
CIAT	64.9	10.8	18.9	40.5	81.1	24.3
REGISTRATION CHANNELS (% of Registrations)[7]						
	% Apps	% Phone	% Email	% Paper	% F-t-F	% Others
ISORA All	48.1	17.3	15.9	51.5	70.5	41.9
High income	51.7	24.0	5.0	31.6	43.3	44.1
Upper middle income	44.3	3.5	12.2	60.0	78.1	9.4
Lower middle income	45.5	35.0	36.3	56.6	78.9	48.1
Low income	35.7	3.0	1.0	69.2	77.4	100.0
CIAT	46.3	24.0	7.3	54.9	70.6	28.5

7 The percentages of registration for each of the channels correspond to responses from countries that have implemented them, not having the total amount to 100% since they come from potentially different groups.

Graph 15: Registration Channels (% of countries)

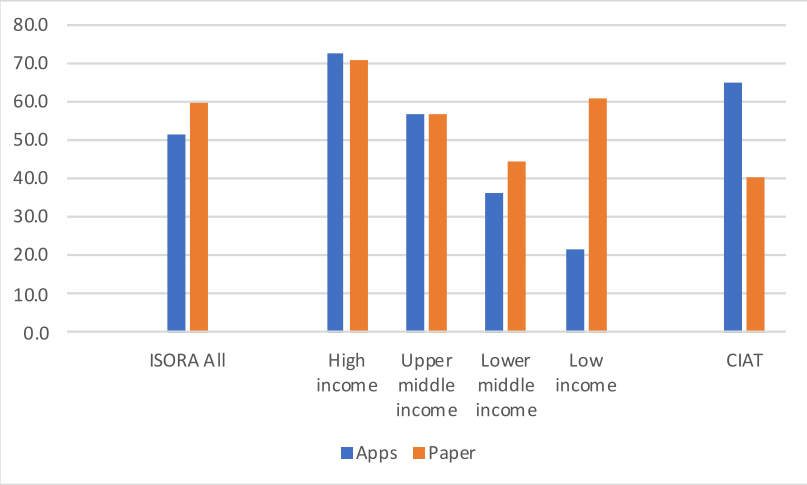


Table 26: Registration channels. CIAT (% countries)

CIAT	Registration channels (% of countries)					
Countries	Apps	Telephone	E-mail	Paper	Face-to-face	Others
Angola					Yes	
Argentina	Yes			Yes	Yes	
Aruba				Yes	Yes	
Barbados	Yes	Yes	Yes		Yes	
Belize			Yes	Yes	Yes	
Bermuda			Yes	Yes	Yes	
Bolivia	Yes				Yes	Yes
Brazil	Yes				Yes	
Canada	Yes	Yes	Yes	Yes	Yes	Yes
Chile	Yes				Yes	
Colombia					Yes	
Costa Rica	Yes				Yes	
Dominican Republic	Yes			Yes		
Ecuador					Yes	Yes
El Salvador					Yes	
France	Yes		Yes		Yes	
Guatemala	Yes			Yes		
Guyana				Yes		
Honduras					Yes	
India	Yes			Yes		
Italy	Yes				Yes	Yes
Jamaica	Yes			Yes	Yes	Yes
Kenya	D	D	D	D	D	D
Mexico	Yes				Yes	
Morocco					Yes	Yes
Netherlands						Yes
Nicaragua					Yes	
Nigeria	Yes			Yes	Yes	
Panama	Yes				Yes	
Paraguay	Yes					
Peru	Yes				Yes	
Portugal	Yes				Yes	
Spain	Yes	Yes	Yes	Yes	Yes	Yes
Suriname	Yes	Yes	Yes	Yes	Yes	Yes
Trinidad and Tobago	Yes			Yes	Yes	
United States	Yes			Yes	Yes	
Uruguay	Yes				Yes	
Number	24	4	7	15	30	9

NOTE: "D": no data

Table 27: Recording channels. CIAT (2/2)

CIAT	Registration channels (% of registrations)					
Countries	% Apps	% Phone	% Email	% Paper	% F-t-F	% Others
Angola					100.0	
Argentina	100.0			0.0	0.0	
Aruba				D	D	
Barbados	D	D	D		D	
Belize			2.0	10.0	88.0	
Bermuda			20.0	60.0	5.0	
Bolivia	D				100.0	D
Brazil	D				D	
Canada	59.0	24.0	0.0	6.0	3.0	8.0
Chile	88.3				11.8	
Colombia					100.0	
Costa Rica	35.3				64.7	
Dominican Republic	33.8			66.3		
Ecuador					97.7	2.3
El Salvador					100.0	
France	D		D		D	
Guatemala	2.0			98.0		
Guyana				100.0		
Honduras					100.0	
India	D			D		
Italy	29.0				40.0	31.0
Jamaica	D			99.0	99.0	D
Kenya						
Mexico	59.5				40.4	
Morocco					98.6	1.3
Netherlands						100.0
Nicaragua					100.0	
Nigeria	D			D	D	
Panama	40.0				60.0	
Paraguay	100.0					
Peru	27.0				73.0	
Portugal	28.4				71.6	
Spain	D	D	D	D	D	D
Suriname	D	D	D	D	100.0	D
Trinidad and Tobago	D			D	D	
United States	D			D	D	
Uruguay	0.0				100.0	
Average	**46.3**	**24.0**	**7.3**	**54.9**	**70.6**	**28.5**

NOTE: "D": no data

4.3. Submitting tax returns

Regarding the procedures for submitting returns, ISORA analyzes the mandatory electronic filling for the main taxes (CIT, PITs, employee withholdings, VAT).

In general, the mandatory electronic filing (for all or some taxpayers) is around 50% for all taxes- except the individual income tax, where would only affect one-third- and is closely related to income level -in low-income countries it stands at around 30%, compared with approximately 70% in high-income countries-.

The electronic option for submitting returns does not exist only in about 15% of the countries -in all taxes-, although again there are large differences by income level. In high income, only between 5.9% (CIT) and 3.9% (PIT, withholdings, VAT) does not offer this possibility; while in low-income countries the channel is not available in 34.8 (CIT), 43.5 (PIT), 34.8 (withholdings) or 30.4% (VAT) of countries.

Table 28: Compulsory electronic declaration. CIT

Countries	E-filing mandatory CIT (%)			
	Yes, for all	Yes, for some	No	not available
ISORA All	32.7	20.8	25.2	14.5
High income	47.1	21.6	17.6	5.9
Upper middle income	29.5	20.5	31.8	11.4
Lower middle income	27.8	27.8	27.8	13.9
Low income	17.4	13.0	21.7	34.8
CIAT	45.9	21.6	16.2	13.5

Table 29: Electronic. Mandatory declaration for PIT

Countries	E-filing mandatory PIT (%)			
	Yes, for all	Yes, for some	No	not available
ISORA All	13.8	19.5	42.8	15.7
High income	7.8	27.5	52.9	3.9
Upper middle income	20.5	13.6	45.5	13.6
Lower middle income	19.4	22.2	38.9	13.9
Low income	4.3	13.0	21.7	43.5
CIAT	29.7	27.0	29.7	10.8

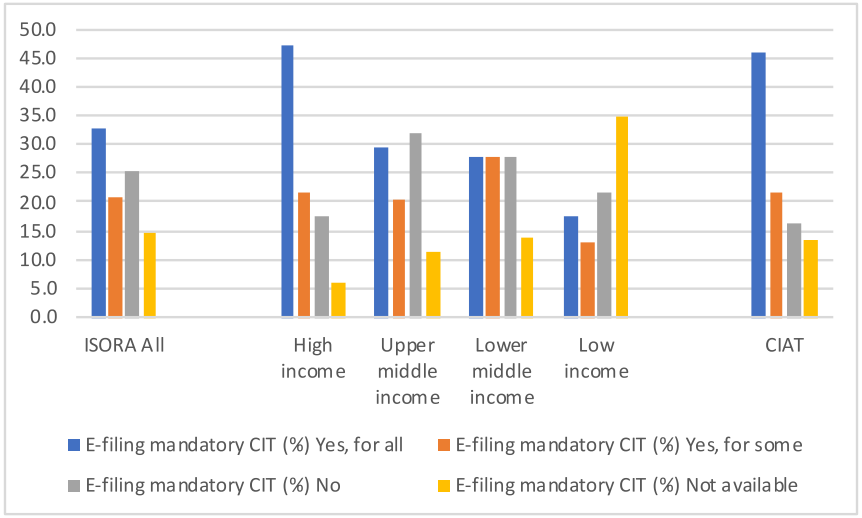
Table 30: Compulsory electronic declaration. Employers' withholdings

Countries	E-filing mandatory withholdings Employer (%)			
	Yes, for all	Yes, for some	No	not available
ISORA All	27.7	23.9	22.0	15.7
High income	31.4	35.3	11.8	3.9
Upper middle income	31.8	15.9	29.5	15.9
Lower middle income	22.2	27.8	25.0	19.4
Low income	17.4	13.0	21.7	34.8
CIAT	37.8	24.3	16.2	10.8

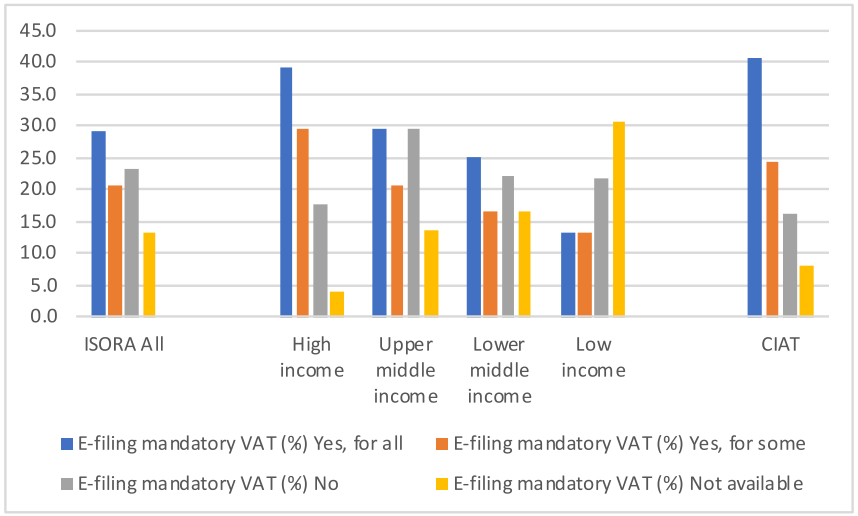
Table 31: Compulsory electronic declaration for VAT

Countries	E-filing mandatory VAT (%)			
	Yes, for all	Yes, for some	No	not available
ISORA All	28.9	20.8	23.3	13.2
High income	39.2	29.4	17.6	3.9
Upper middle income	29.5	20.5	29.5	13.6
Lower middle income	25.0	16.7	22.2	16.7
Low income	13.0	13.0	21.7	30.4
CIAT	40.5	24.3	16.2	8.1

Graph 16: Compulsory electronic declaration. CIT



Graph 17: Compulsory electronic declaration. VAT



In the CIAT member countries, the availability and mandatory electronic filing it is widespread in all tax figures, especially in its global form (affecting all taxpayers). Its implementation is above the global average and, except for the CIT, higher than the average of high-income countries (45.9 CIT, 29.7 PIT; 37.8 withholdings, VAT 40.5, versus 32.7 average percentages for CIT; 13.8 for PIT; withholdings 27.7; 28.8 VAT).

Table 32: Compulsory electronic declaration. CIAT

CIAT	mandatory E-FILING			
Countries	CIT	PIT	Employers witholdings	VAT
Angola	No	No		
Argentina	Yes, for all	Yes, for all	Yes, for all	Yes, for all
Aruba	E-filing not available	E-filing not available	E-filing not available	E-filing not available
Barbados	E-filing not available	No	No	No
Belize	E-filing not available	E-filing not available	E-filing not available	E-filing not available
Bermuda			Yes, for some	
Bolivia	Yes, for some	No	Yes, for some	Yes, for some
Brazil	Yes, for all	Yes, for all	Yes, for all	Yes, for all
Canada	Yes, for some	Yes, for some	Yes, for some	Yes, for some
Chile	Yes, for some	Yes, for some	Yes, for some	Yes, for some
Colombia	Yes, for all	Yes, for some	Yes, for all	Yes, for some
Costa Rica	Yes, for all	Yes, for all	Yes, for all	Yes, for all
Dominican Republic	No	No	No	No
Ecuador	Yes, for all	Yes, for all	Yes, for all	Yes, for all
El Salvador	No	No	No	No
France	Yes, for all	Yes, for some		Yes, for all
Guatemala	Yes, for all	Yes, for all	Yes, for all	Yes, for all
Guyana	No	No	No	No
Honduras	Yes, for some	Yes, for some	Yes, for some	Yes, for some

CIAT	mandatory E-FILING			
Countries	CIT	PIT	Employers witholdings	VAT
India	Yes, for all	Yes, for some	Yes, for some	
Italy	Yes, for all	Yes, for some	Yes, for all	Yes, for all
Jamaica	E-filing not available	E-filing not available	E-filing not available	Yes, for all
Kenya	Yes, for all	Yes, for all	Yes, for all	Yes, for all
Mexico	Yes, for all	Yes, for all	Yes, for all	Yes, for all
Morocco	Yes, for some	Yes, for some	Yes, for some	Yes, for some
Netherlands	Yes, for all	Yes, for some	Yes, for all	Yes, for all
Nicaragua	Yes, for all	Yes, for all	Yes, for all	Yes, for all
Nigeria	No	No	No	No
Panama	Yes, for all	Yes, for all		Yes, for all
Paraguay	Yes, for some	Yes, for all		Yes, for some
Peru	Yes, for all	Yes, for all	Yes, for all	Yes, for all
Portugal	Yes, for all	Yes, for some	Yes, for all	Yes, for all
Spain	Yes, for all	No	Yes, for all	Yes, for some
Suriname	E-filing not available	E-filing not available	E-filing not available	E-filing not available
Trinidad and Tobago	No	No	No	No
United States	Yes, for some	No	Yes, for some	
Uruguay	Yes, for some	No	Yes, for some	Yes, for some

Focusing on the channels effectively used for filing the returns, electronic filing -not completely pre-filled with information from the TA- is the majority option in average (67.5 CIT, 49.8 PIT; 69% VAT), but it is, being the paper return the second option in importance (25.3 CIT, 29.7 PIT; 24.3% VAT).

Table 33: Receiving channels for returns. CIT

CIT (% of Total tax returns received)					
Countries	Paper	Electronic fully pre-filled (Deemed acceptance)	Electronic fully pre-filled (confirmation required)	Electronic not prefilled or partially prefilled	Other channels
ISORA All	25.3	1.7	1.5	67.5	4.0
High income	17.3	0.0	3.1	77.4	2.2
Upper middle income	26.7	4.9	0.1	59.6	8.6
Lower middle income	24.1	0.0	0.0	75.9	0.0
Low income	63.1	0.0	0.0	36.9	0.0
CIAT	8.1	0.0	0.0	83.6	8.4

Table 34: Receiving channels for returns. PIT

PIT (% of Total tax returns received)					
Countries	Paper	Electronic fully pre-filled (Deemed acceptance)	Electronic fully pre-filled (Confirmation required)	Electronic not prefilled or partially prefilled	Other channels
ISORA All	29.7	8.9	7.5	49.8	4.1
High income	25.0	14.4	11.0	46.7	2.9
Upper middle income	31.1	4.9	5.9	49.9	8.3
Lower middle income	25.3	0.0	0.0	74.7	0.0
Low income	59.9	0.0	0.0	40.1	0.0
CIAT	15.8	1.3	17.4	58.0	7.5

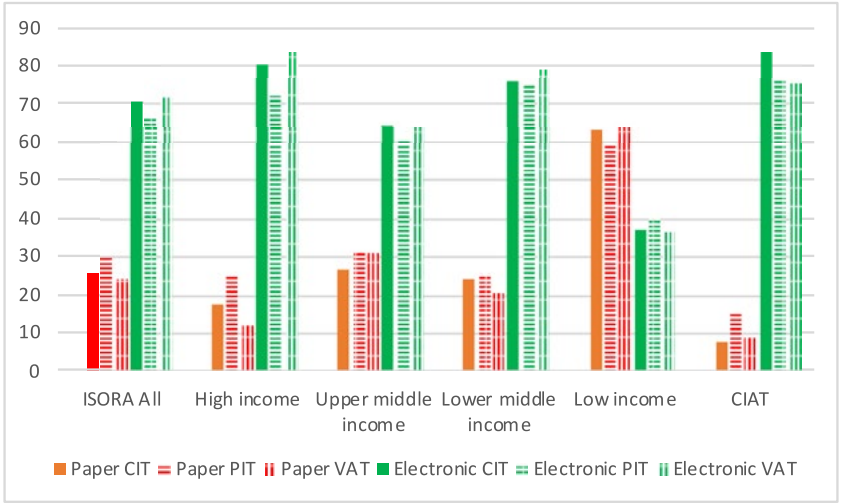
Table 35: Receiving channels for returns. VAT

VAT (% of Total tax returns received)					
Countries	Paper	Electronic fully pre-filled (Deemed acceptance)	Electronic fully pre-filled (confirmation required)	Electronic not prefilled or partially prefilled	Other channels
ISORA All	24.3	0.1	2.7	69.0	3.8
High income	12.2	0.0	3.9	79.1	4.8
Upper middle income	31.1	0.5	2.9	60.3	5.3
Lower middle income	20.8	0.0	0.0	79.2	0.0
Low income	63.8	0.0	0.0	36.2	0.0
CIAT	9.1	0.0	0.9	74.7	15.3

Aggregating the various forms of electronic declaration compared with the paper return, the differences by income levels are clear. In high-income countries, paper is used in much lower percentages (17.3 CIT, 25.0 PIT, 12,2 VAT) than in low-income (63.1 CIT; 59.9 PIT; 63.8 VAT); while the opposite occurs with electronic filing (CIT 80.5; 72.1 PIT; 83.0% VAT in high-income, 36.9 CIT, 40.1 PIT; 36.2% VAT in low-income).

In this area, CIAT member countries have generally lower percentages of use of paper (8.1 CIT; PIT 15.8; 9.1% VAT) and the highest of introducing electronic declaration (83, 6 CIT; PIT 76.7; 75.6% VAT), with several countries where one hundred percent of the declarations are filed electronically (Argentina, Brazil, Costa Rica, Italy, Mexico, Peru and Portugal)[8].

Graph 18: Presentation channels for tax returns



8 In connection with pre-made or pre-filled statements, see the recent working document CIAT- GIZ (2019) on the subject.

Table 36: Channels for presenting tax returns. CIAT

CIAT	% Of all tax returns received *					
Countries	Paper			Electronic		
	CIT	PIT	VAT	CIT	PIT	VAT
Angola						
Argentina	0.0	0.0	0.0	100.0	100.0	100.0
Aruba						
Barbados						
Belize						
Bermuda						
Bolivia						
Brazil	0.0	0.0		100.0	100.0	
Canada	10.7	15.9	12.9	89.3	84.1	87.1
Chile	0.5	0.2	1.0	99.5	99.8	15.8
Colombia	1.2	15.5	0.1	98.8	84.5	99.9
Costa Rica	0.0	0.0	0.0	100.0	100.0	100.0
Dominican Republic	3.3	10.9	4.1	96.7	89.1	95.9
Ecuador						
El Salvador	0.0	0.0	10.5	100.0	100.0	89.5
France	10.3	47.1		89.7	52.9	
Guatemala	0.0	0.0	0.0	0.0	0.0	0.0
Guyana						
Honduras						
India						
Italy	0.0	0.0	0.0	100.0	100.0	100.0
Jamaica						
Kenya						
Mexico	0.0	0.0		100.0	100.0	
Morocco	29.1	96.9	11.2	70.9	3.1	88.8
Netherlands	0.0	2.3	0.0	100.0	97.7	100.0
Nicaragua						
Nigeria						
Panama						
Paraguay	0.1	0.0	0.1	99.7	100.0	98.8
Peru	0.0	0.0	0.0	100.0	100.0	100.0
Portugal	0.0	0.0	0.0	100.0	100.0	100.0
Spain	0.0	0.0		100.0	75.9	
Suriname						
Trinidad and Tobago	100.0	100.0	100.0	0.0	0.0	0.0
United States						
Uruguay	6.0	27.0	5.3	26.6	47.7	34.2

* Plus "others" when not adding 100%

4.4. Tax payment modalities

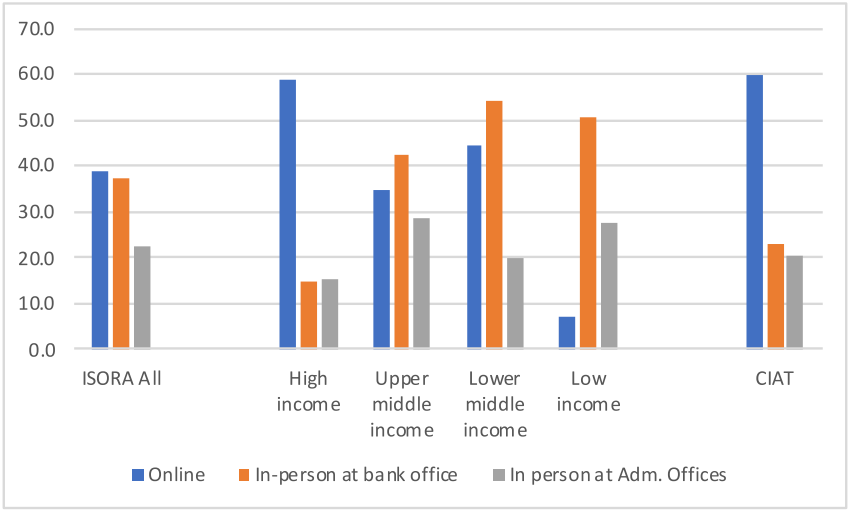
As for the payment channels, the three most commonly used are "In person at bank offices or other than those of the TA" (41.2% of payments and 37.2% of its value); "Online" (33.4% of payments and 38.9% of its value); and "In person at the offices of the TA" (23.9% of payments and 22.4% of the amount). Payment by mobile applications, post mail and other recorded low percentages.

Table 37: Payment channels

Countries	Mobile App[9][10]		On-line		In-person at bank office	
	Number	Value	Number	Value	Number	Value
ISORA all	0.0	0.0	33.4	38.9	41.2	37.2
High income	0.0	0.0	52.4	58.8	17.8	14.8
Upper middle income	0.0	0.0	25.6	34.9	49.4	42.3
Lower middle income	0.1	0.1	36.6	44.6	63.2	54.2
Low income	0.0	0.0	6.7	7.1	48.4	50.5
CIAT	0.1	0.0	48.4	60.0	32.4	23.0
Countries	**In person at Adm. offices**		**Via post**		**Other**	
	Number	Value	Number	Value	Number	Value
ISORA all	23.9	22.4	3.8	3.6	5.3	4.4
High income	16.1	15.4	5.8	4.5	6.5	3.5
Upper middle income	32.4	28.4	0.6	2.1	5.2	6.0
Lower middle income	20.8	19.9	0.0	0.0	9.6	9.0
Low income	29.4	27.4	7.5	7.1	0.0	0.0
CIAT	18.4	20.2	3.6	1.3	7.2	3.0

In terms of incorporating digital channels, again large differences are observed by income level: the online payment in high-income countries accounts for 52.4% of the number of payments and 58.8% of its value; in contrast, the percentage is 6.7 and 7.1%, respectively, in low-income countries.

Graph 19: Modes of payment: the three main channels (in % of value)



CIAT member countries again show a high implementation of digital channels, online payment reaching up to 60% of the total value of payments received, the highest aggregate percentage of the countries considered. In the individualized data by country it can be seen that this percentage increased to levels higher than 80% in Argentina, Bermuda, Chile, Ecuador, Guatemala, India, Italy, Mexico, Nicaragua, Costa Rica and the Netherlands (in the last two 100% payments are made online).

9 Utilization rates of pay channels correspond to responses from countries that have implemented them, not reaching it sum the 100% as potentially they come from different groups.
10 Mobile Application: an electronic wallet service provided by mobile service provider (i.e. not via traditional banking system).

Table 38: Payment channels. CIAT (1/2)

CIAT	Mobile App		On-line		In-person at bank office	
Countries	Number	Value	Number	Value	Number	Value
Angola				47.0		
Argentina	0.0	0.0	50.3	93.2	29.0	2.2
Aruba	0.0	0.0				
Barbados			68.3			
Belize			12.1	17.8		
Bermuda	0.0	0.0	52.7	83.8	0.0	0.0
Bolivia				5.1		94.9
Brazil	0.0	0.0	3.0	7.0	57.0	43.0
Canada	0.0	0.0	60.0	66.0	20.0	22.0
Chile	0.0	0.0	90.7	94.6	9.3	5.4
Colombia						
Costa Rica	0.0	0.0	100.0	100.0	0.0	0.0
Dominican Republic	0.0	0.0	72.0	72.0	18.0	25.0
Ecuador			70.0	95.0	30.0	5.0
El Salvador			15.0	44.2	76.9	34.1
France	1.0		13.0		0.0	0.0
Guatemala	0.0	0.0	98.0	98.1	2.0	1.9
Guyana						
Honduras			17.0	34.0	83.0	66.0

CIAT	Mobile App		On-line		In-person at bank office	
Countries	Number	Value	Number	Value	Number	Value
India	0.0	0.0	80.2	89.8	19.8	10.2
Italy	0.0	0.0	64.7	96.2	35.3	3.8
Jamaica				57.0		
Kenya						
Mexico	0.0	0.0	38.0	99.0	62.0	1.0
Morocco	0.0	0.0	50.0	76.3	18.0	1.5
Netherlands	0.0	0.0	100.0	100.0	0.0	0.0
Nicaragua			98.2	98.2		
Nigeria						
Panama			0.1	0.1	51.1	51.1
Paraguay	0.0	0.0	25.0	68.0	74.0	10.0
Peru	0.0	0.0	20.4	19.5	79.5	80.5
Portugal	0.0	0.0	0.1	1.1	79.8	69.8
Spain						
Suriname						
Trinidad and Tobago	0.0	0.0	0.0	0.0	0.0	0.0
United States			59.3	57.0	0.6	24.8
Uruguay						
AVERAGE	**0.1**	**0.0**	**48.4**	**60.0**	**32.4**	**23.0**

Table 39: Payment channels. CIAT (2/2)

CIAT	In person at Adm. Offices		Via Post		Other	
Countries	Number	Value	Number	Value	Number	Value
Angola		53.0				
Argentina	0.0	0.0	0.0	0.0	20.7	4.6
Aruba			0.0	0.0	0.0	0.0
Barbados			31.7			
Belize	88.0	82.0				
Bermuda	47.3	16.2			0.0	0.0
Bolivia						
Brazil	0.0	0.0	0.0	0.0	40.0	50.0
Canada	0.0	0.0	20.0	12.0	0.0	0.0
Chile	0.0	0.0	0.0	0.0	0.0	0.0
Colombia						
Costa Rica	0.0	0.0	0.0	0.0	0.0	0.0
Dominican Republic	10.0	3.0	0.0	0.0	0.0	0.0
Ecuador						
El Salvador	8.1	21.6				
France	1.4		0.0	0.0	84.6	
Guatemala	0.0	0.0	0.0	0.0	0.0	0.0
Guyana	100.0	100.0			0.0	0.0
Honduras						
India	0.0	0.0	0.0	0.0	0.0	0.0
Italy	0.0	0.0	0.0	0.0	0.0	0.0
Jamaica		28.0				5.0
Kenya						
Mexico	0.0	0.0	0.0	0.0	0.0	0.0
Morocco	32.0	22.2	0.0	0.0	0.0	0.0
Netherlands	0.0	0.0	0.0	0.0	0.0	0.0
Nicaragua	1.8	1.8				
Nigeria						
Panama	48.9	48.9	0.0	0.0	0.0	0.0
Paraguay	1.0	22.0	0.0	0.0	0.0	0.0
Peru	0.0	0.0	0.0	0.0	0.0	0.0
Portugal	19.9	27.0	0.0	0.0	0.2	2.1
Spain	0.0	0.0	0.0	0.0		
Suriname						
Trinidad and Tobago	100.0	100.0	0.0	0.0	0.0	0.0
United States	0.8	0.1	27.3	14.6	12.0	3.5
Uruguay						
AVERAGE	18.4	20.2	3.6	1.3	7.2	3.0

4.5. Digital services

Continuing with the inclusion of digital services[11] , the use of internet portals to provide information to taxpayers is widely widespread, with percentages above 90% in all countries aggregates.

However, differences by income level reappear when asked about the existence of tools and calculators on the TAs' websites (86.3% offer them in high-income countries, compared with 52.2% in low-income). The integrated management of taxpayers' accounts, providing a comprehensive overview of the taxpayers in all major taxes, is available in 62.7% of high-income countries, and decreases to 41.7 in middle-low income countries. The online services offer to taxpayers -to update data, access to their history, requests for agreements, etc.- show also differences (86.3 for high income, 34.8% in low), as well as the digital mailbox (82.4 for high income; 34.8% in low) or the existence of mobile applications (present in 45.1% of high-income countries, versus 27.8% in middle-low income).

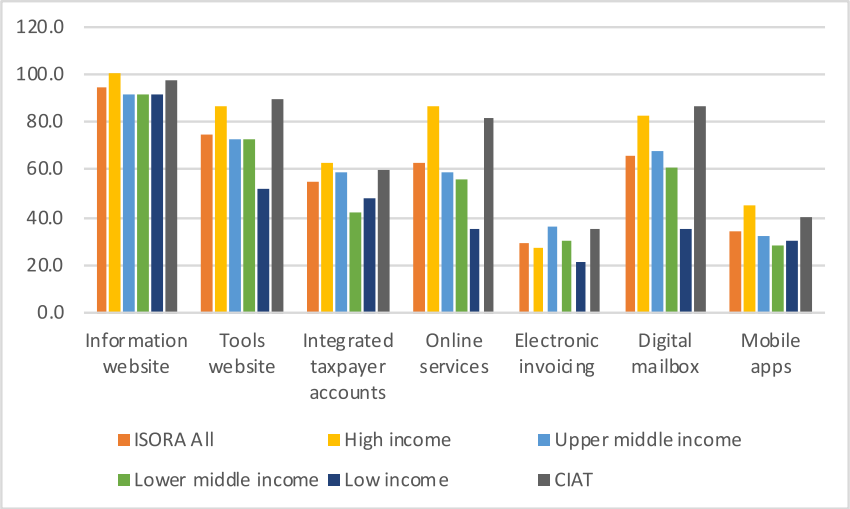
The existence of electronic invoicing systems is an exception, finding its full implementation in countries of medium-high (36.4%) and middle-low income (30.6%).

11 In Diaz de Sarralde (2018b) these aspects to the previous edition of ISORA are analyzed.

Table 40: Provision of electronic services

Provision of e-services							
Countries	Information website	Tools website	Integrated taxpayer accounts	Online services	Electronic invoicing	Digital mailbox	Mobile app
ISORA All	94.3	74.2	54.7	62.9	29.6	66.0	34.6
High income	100.0	86.3	62.7	86.3	27.5	82.4	45.1
Upper middle income	90.9	72.7	59.1	59.1	36.4	68.2	31.8
Lower middle income	91.7	72.2	41.7	55.6	30.6	61.1	27.8
Low income	91.3	52.2	47.8	34.8	21.7	34.8	30.4
CIAT	97.3	89.2	59.5	81.1	35.1	86.5	40.5

Graph 20: Provision of electronic services (% of countries)



Moreover, the CIAT member countries show on average a high deployment of digital services, surpassing even the aggregate of high-income countries in areas such as incorporating tools on websites (89.2%), electronic invoicing (35.1%) or electronic mailbox (86.5%)[12] . By country, several of them have implemented all the analyzed technologies (Argentina, Brazil, Chile, Italy, Peru, Portugal and Spain).

12 Regarding the issue of electronic communications with the taxpayer, more detail can be found in the CIAT workingpaper, Redondo (2019).

Table 41: Provision of electronic services. CIAT

CIAT	Provision of e-services						
Countries	Information website	Tools website	Integrated taxpayer accounts	Online servicesl	Electronic invoicing	Digital mailbox	Mobile apps
Angola	Yes	No	No	Yes	No	Yes	No
Argentina	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Aruba	Yes	Yes	Yes	Yes	No	Yes	No
Barbados	Yes	Yes	No	Yes	No	Yes	No
Belize	Yes	Yes	No	No	No	No	No
Bermuda	Yes	No	No	Yes	No	Yes	No
Bolivia	Yes	Yes	No	Yes	Yes	Yes	Yes
Brazil	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canada	Yes	Yes	No	Yes	No	Yes	Yes
Chile	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Colombia	Yes	Yes	Yes	Yes	No	Yes	No
Costa Rica	Yes	Yes	No	No	No	Yes	No
Dominican Republic	Yes	Yes	Yes	Yes	No	Yes	Yes
Ecuador	Yes	Yes	No	Yes	Yes	Yes	Yes
El Salvador	Yes	Yes	No	Yes	No	Yes	No
France	Yes	Yes	Yes	Yes	No	Yes	Yes
Guatemala	Yes	Yes	Yes	Yes	Yes	Yes	No
Guyana	Yes	Yes	No	No	No	Yes	No
Honduras	Yes	Yes	Yes	Yes	No	Yes	Yes
India	Yes	Yes	Yes	Yes	No	Yes	Yes
Italy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Jamaica	Yes	Yes	Yes	Yes	No	Yes	No
Kenya	Yes	Yes	Yes	Yes	Yes	Yes	No
Mexico	Yes	Yes	Yes	Yes	Yes	Yes	No
Morocco	Yes	Yes	No	No	No	Yes	No
Netherlands	Yes	Yes	No	Yes	No	No	Yes
Nicaragua	Yes	Yes	Yes	No	No	No	No
Nigeria	Yes	Yes	Yes	Yes	No	Yes	No
Panama	Yes	No	No	No	No	Yes	No
Paraguay	Yes	Yes	Yes	Yes	No	Yes	No
Peru	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Portugal	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spain	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Suriname	No	No	No	No	No	No	No
Trinidad and Tobago	Yes	Yes	Yes	Yes	No	Yes	No
United States	Yes	Yes	No	Yes	No	No	No
Uruguay	Yes	Yes	Yes	Yes	Yes	Yes	No
%	97.3	89.2	59.5	81.1	35.1	86.5	40.5

4.6. Electronic invoicing

Regarding electronic invoicing, ISORA raises a number of questions about its implementation and features. It highlights that this technological innovation is not led by high-income countries, which register a lower degree of implementation (23.5%), surpassed by lower income countries (29.5% medium-high; 27.8% medium-low; 26.1% lower). CIAT countries[13] group would lead the degree of implementation, with 40.5%.

Looking forward, electronic invoicing still seems to be a higher priority for the smaller countries is their income (countries that are planning to introduce electronic invoicing: 19.6 of high income, upper middle income 36.4; lower middle income 38.9; 43.5% lower).

13 In this regard, see the CIAT-BID (2018) guide on electronic invoicing.

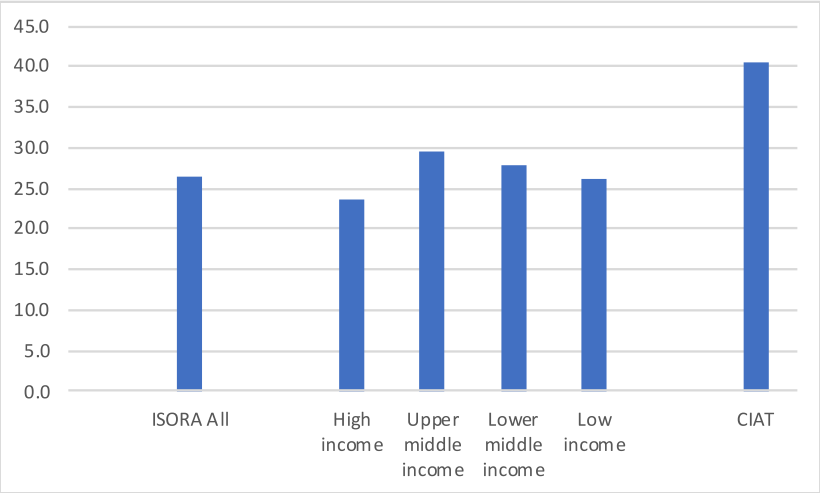
As for its technical characteristics in the countries where electronic invoicing is in force: 28.7% apply it to all taxpayers; in 76.2% of cases, invoices are digitally sent to the TA (61.9% sent all the invoices). For a 61.9%, they are sent according to a certain periodicity; in 23.8% of cases, the files are sent to the TA for approval and for 16.7%, to another entity as part of the transaction.

In relation to the use of the electronic invoicing system, in 85.7% of cases it is used to monitor compliance of tax obligations and 42.9% for preparing pre-filled statements.

Table 42: Electronic invoicing systems

	Electronic invoice system (% of total,% of Those With the system)				
Countries	**Yes**	**All Taxpayers**	**Sent digitally to TA**	**All invoices**	**Periodic. Submission**
ISORA All	26.4	28.6	76.2	61.9	61.9
High income	23.5	8.3	66.7	50.0	33.3
Upper middle income	29.5	38.5	92.3	69.2	76.9
Lower middle income	27.8	30.0	70.0	50.0	70.0
Low income	26.1	33.3	66.7	83.3	66.7
CIAT	40.5	20.0	73.3	46.7	66.7
	Planning	**Approval by TA**	**Previous validation (not TA)**	**monitor compliance**	**prefilled returns**
ISORA All	32.7	23.8	16.7	85.7	42.9
High income	19.6	41.7	0.0	83.3	41.7
Upper middle income	36.4	23.1	15.4	84.6	30.8
Lower middle income	38.9	10.0	30.0	90.0	50.0
Low income	43.5	0.0	16.7	83.3	50.0
CIAT	21.6	33.3	13.3	86.7	40.0

Graph 21: Electronic invoicing systems (percentage of countries)



Individualized data for the CIAT countries allow observing that the vast majority have already adopted some form of electronic invoicing (with different technical options) or are planning their introduction (with the significant exception of the Caribbean countries).

Table 43: Electronic invoicing systems: characteristics. CIAT

CIAT	Electronic invoice system							
	Yes	Planning	All Taxpayers	Sent digitally to TA	All invoices	Periodic. Submission	Approval by TA	Previous validation (Not TA)
Countries								
Angola	Yes							
Argentina	Yes			Yes			Yes	
Aruba	No	No						
Barbados	No	No						
Belize	No	No						
Bermuda	No	No						
Bolivia	Yes					Yes		
Brazil	Yes		Yes	Yes	Yes	Yes		
Canada	No	No						
Chile	Yes			Yes				
Colombia	Yes			Yes		Yes		
Costa Rica	No	Yes						
Dominican Republic	No	Yes						
Ecuador	Yes			Yes		Yes		
El Salvador	No	Yes						
France	Yes							
Guatemala	Yes			Yes	Yes	Yes		Yes
Guyana	No	Yes						
Honduras	No	Yes						
India	No	No						
Italy	Yes			Yes	Yes	Yes	Yes	
Jamaica	No	No						
Kenya	D							
Mexico	Yes		Yes	Yes	Yes	Yes	Yes	
Morocco	No	Yes						
Netherlands	No	No						
Nicaragua	No	Yes						
Nigeria	No	No						
Panama	No	Yes						
Paraguay	No	Yes						
Peru	Yes			Yes	Yes	Yes	Yes	Yes
Portugal	Yes		Yes	Yes	Yes	Yes		
Spain	Yes							
Suriname	No	No						
Trinidad and Tobago	No	No						
United States	No	No						
Uruguay	Yes			Yes	Yes	Yes	Yes	
%	40.5	21.6	20.0	73.3	46.7	66.7	33.3	13.3

As for the use of the information contained in invoices, CIAT data show a high degree of use in terms of monitoring compliance -86.7% of cases-, where the VAT is the main beneficiary (it is used 80% of cases, followed by CIT -40 %- and PIT -33.3%-), while its use is for of preparing pre-filled statements is still less extended (40% on average). Some cases are to highlight, such as Mexico or Chile, where the information is used for all purposes analyzed of compliance monitoring and pre-filled declarations.

Table 44: Electronic invoicing systems: use. CIAT

CIAT	Electronic invoice system							
	Monitor compliance	CIT	PIT	VAT	Prefilled returns	CIT	PIT	VAT
Countries								
Angola	Yes	Yes	Yes		No			
Argentina	Yes	Yes	Yes	Yes	No			
Aruba								
Barbados								
Belize								
Bermuda								
Bolivia	No				No			
Brazil	Yes	Yes		Yes	No			
Canada								
Chile	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Colombia	No				No			
Costa Rica								
Dominican Republic								
Ecuador	Yes			Yes	Yes			Yes
El Salvador								
France	Yes			Yes	No			
Guatemala	Yes			Yes	No			
Guyana								
Honduras								

CIAT	Electronic invoice system							
	Monitor compliance	CIT	PIT	VAT	Prefilled returns	CIT	PIT	VAT
India								
Italy	Yes			Yes	Yes		Yes	
Jamaica								
Kenya								
Mexico	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Morocco								
Netherlands								
Nicaragua								
Nigeria								
Panama								
Paraguay								
Peru	Yes	Yes		Yes	Yes		Yes	
Portugal	Yes		Yes	Yes	Yes		Yes	
Spain	Yes			Yes	No			
Suriname								
Trinidad and Tobago								
United States								
Uruguay	Yes			Yes	No			
%	86.7	40.0	33.3	80.0	40.0	6.7	33.3	20.0

4.7. Debt and results of the fight against fraud

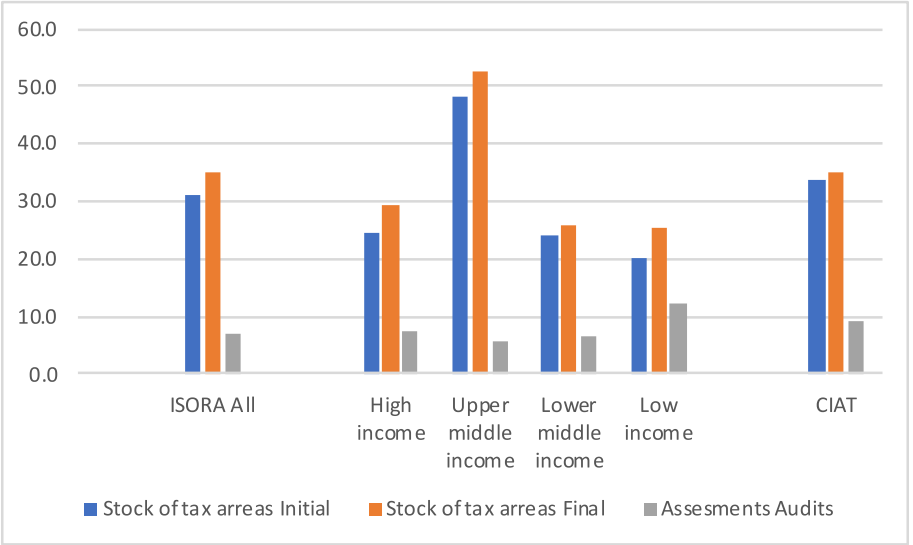
To conclude this section on the operation of administrations, we will analyze some of the main data on outstanding debts and audit results in the fight against fraud debt.

On average, the total uncollected debt -tax arrears- increased in 2017 from 30.9 to 34.9 percent of revenue, highlighting their amount in the countries of upper-middle income (which increased from 48.2% to 52.5% of revenue). As for the results of audits, on average additional assessments amounted an equivalent of 7.2% of annual revenues, with a higher percentage in low-income countries (12.2%). CIAT countries present in all cases values very close to the average in these matters[14] .

Table 45: Tax arrears and audit results (% of total annual revenue)

% Revenue	Stock of tax arrears		Assesments
Countries	Initial	Final	Audits
ISORA All	30.9	34.9	7.2
High income	24.7	29.4	7.3
Upper middle income	48.2	52.5	5.7
Lower middle income	24.2	25.9	6.5
Low income	20.0	25.6	12.2
CIAT	33.8	34.9	9.2

Graph 22: Tax arrears and audit results (in % of total annual revenue)



Although these data are of great interest, as many other complementary information appearing in ISORA, the final figures should be analyzed with caution, given the relatively low response rate and different methods of recording and valuation among countries -about debt as well as about fighting the fraud- which sometimes make these data hardly comparable.

14 On the issue of collection and enforcement CIAT-GIZ-BID (2016) handbook can be consulted for more information.

5. Final remarks

For TAs, ISORA provides a framework for identifying strengths, weaknesses and best practices, both globally and by income level or geographic areas.

In particular, regarding CIAT member countries, the results show the significant progress of the organization's TAs. These administrations, with a high degree of autonomy and despite having relatively modest budgets, manage their operation with low costs in relation to their collection (the average cost stood at 1.24%, superior only to the average recorded in high-income countries) even having a workforce that face a heavy workload in relative terms.

This is facilitated by the technological breakthrough that is reflected in the survey data:

- CIAT countries exceed the average adoption of IC technologies through applications and register the lowest percentage of the "paper" option.
- Availability and mandatory electronic filing is widespread in all tax figures, especially in global form (affecting all taxpayers); this implementation is above the global average and, except in the case of CIT, above the average of high-income countries. In this area, the CIAT member countries generally have the lowest percentages of paper use and the highest in implementation of electronic declaration, with several countries where one hundred percent of the returns are electronically presented (Argentina, Brazil, Costa Rica, Italy, Mexico, Peru and Portugal).
- They show high implementation of digital channels, online payment reaching up to 60% of the total value of payments received, the highest aggregate percentage of countries considered. In the individualized data by country, we can see that this percentage increased to levels higher than 80% in Argentina, Bermuda, Chile, Ecuador, Guatemala, India, Italy, Mexico, Nicaragua, Costa Rica and the Netherlands (in the last two, 100% payments are made online).
- As for the introduction of digital services, the results surpass even the percentages of high-income countries in areas such as incorporating tools on websites (89.2%), electronic invoicing (35.1%) or mailbox e (86.5%). By country, several of them have implanted all the technologies analyzed (Argentina, Brazil, Chile, Italy, Peru, Portugal or Spain
- The leadership of the CIAT countries is especially noteworthy in the implementation of the electronic invoicing and its use in the field of compliance monitoring -in 86.7% of cases- and preparation of pre-filled returns -a 40% on average-. Some cases are highlighted, such as Mexico or Chile, where the information is used for all the analyzed purposes of compliance monitoring analyzed and prefilled returns.

We hope that in the future ISORA will keep helping to identify outstanding issues for global TAs and in particular the CIAT member countries. (the aging of the workforce, the combination of experience and renewal; acquiring new digital skills; the appropriate link between payment and performance, improvements in methods of conflict resolution and collection of tax arrears, improving auditing procedures, etc.)

Participating administrations (through their registered users on the IMF website) can access all the data detailed by country (more than a thousand questions) to do their own studies. Other agencies and researchers can access the data published by CIAT (see CIATData, Tax Management https://www.ciat.org/gestion-tributaria/), OECD (2017) and the IMF (2019).

ISORA will keep being carried out on a bi-annual period (with the next round to be held in 2020 to collect data from 2018 and 2019), with the ambition to provide the best information available to global tax administrations.

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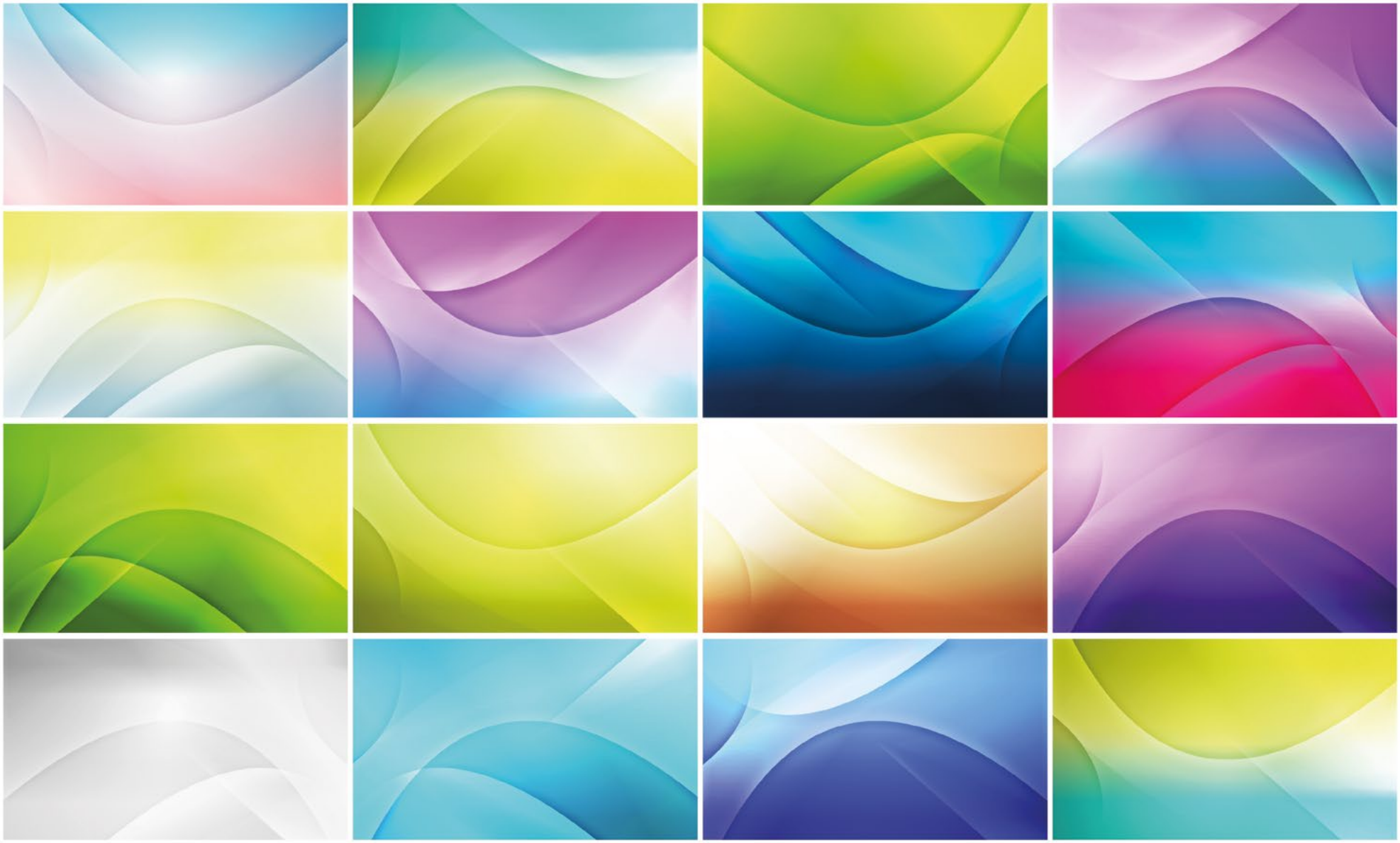

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