What Works to Improve Lives?

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What Works to

IMPROVE GOVERNMENT EFFICIENCY, TAX COMPLIANCE, AND FINANCIAL RESILIENCE

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PREFACE

This publication is one of a series of five monographs produced by the Inter-American Development Bank to take stock of the lessons learned from impact evaluations of investments supported by the IDB Group for over a decade across a wide range of economic and social development sectors. The aim of the evaluations and these five monographs is to identify policies and programs that work, enhance the use of rigorous evidence for decision-making, and ultimately improve the lives of the people of Latin America and the Caribbean.

The coverage of IDB Group impact evaluations discussed in the five monographs is not meant to be exhaustive of all evaluations supported by the Group, but rather to summarize lessons on topics with multiple completed evaluations on a common intervention or outcome.

This monograph is authored by Mariano Bosch, Verónica Frisancho, María Paula Gerardino, Oscar A. Mitnik, Gaston Pierri y Carlos Scartascini. Carola Álvarez, Leonardo Corral, Andrés Gómez-Peña, and Sebastián Martínez coordinated the production of the five monographs and provided strategic input and guidance throughout the process. Luisa Blanco, Eduardo Fajnzylber and Philip Keefer provided valuable comments on earlier drafts. The monograph series was edited by David Einhorn. Gaston Cleiman led art direction and graphic design of this publication.

This monograph series would have not been possible without the valuable time and contributions of the many researchers, counterparts in governments, survey firms, partner organizations, and, above all, participants in the evaluations discussed in this volume.

What Works to Improve Lives?

INTRODUCTION

Public spending is essential to finance public services that are not provided by the market, and governments need sustainable sources of funding for social programs and public investment.

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Public spending is essential to finance public services that are not provided by the market, and governments need sustainable sources of funding for social programs and public investment. Poor management of government spending wastes resources, erodes public trust, hampers growth opportunities, and limits possibilities to reduce poverty and inequality (Izquierdo, Pessino, and Vuletin 2018). Taxation is the key tool that governments use to raise revenues and finance their spending. Taxation not only pays for public goods and services; it is also a key ingredient in the social contract between citizens and the government. Tax evasion undermines public revenue, which in turn can lower productive public spending and erode the government's capacity to effectively provide quality public goods and services. In addition, government spending could be much more effective and sustainable if it were paired with strategies that promote financial resilience in citizens and firms. This document reviews the evidence on how to improve public spending, taxation, and financial resilience, with a particular focus on Latin America and the Caribbean.

In recent years, there has been growing demand from Latin American and Caribbean citizens for greater provision of higher-quality government services. Improved provision of such services is also consistent with **United Nations Sustainable Development Goal 16 (Peace, Justice and Strong Institutions)**, which outlines the need to promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels. To achieve this goal, it is important to better understand what specific programs and policies can help governments improve how they fund and provide public services to their people.

Governments can take advantage of digital technologies to improve the delivery of services, reduce costs, and empower citizens. However, the speed and scope of this transformation depends on governments' institutional capacity. Obstacles to the delivery of services in the region include lack of citizen information about the available services and how to access them; lack of government information about which citizens are eligible and are in fact using the services; and high transaction costs of using and providing services. The incorporation of digital technologies can mitigate these obstacles.

However, technology alone is not enough. Breakdowns in public sector performance are often evaluated via compliance (e.g., with health advice or tax obligations), take-up (e.g., vaccinations, savings programs), and engagement (e.g., parents with their children's education). Noncompliance, limited take-up, and insufficient engagement could be the result of incomplete information, mistrust, disinterest, or other behavioral distortions. Fortunately, digital technologies also open up a broader menu of behavioral interventions that change citizen attitudes towards tax compliance, savings, and the use of health services, among other matters. The solutions emerging from behavioral economics offer cheap and easy-to-implement responses to problems of compliance, take-up, and engagement.

Behavioral interventions that seek to reduce tax evasion and align the behavior of individuals and firms with government goals could go a long way towards increasing fiscal sustainability. In addition, nudging people to save – both through precautionary savings and savings for old age – can be key to the fiscal sustainability of public policies and to providing government services to the people who most need government support. In this context, the need for a digital revolution in government services is critical, especially in times of COVID-19. Governments must rely more than ever on technology to provide basic services to citizens.

The following are some key lessons on "what works" to improve actions by governments and citizens that can result in greater government efficiency, tax compliance, and financial sustainability and resilience:

- **Improve government spending**. The use of information and communication technology (ICT) can improve the transparency of government processes and reduce costs. Government can leverage the power of ICT in transformative ways, from improving the efficiency of tax collection and public procurement to increasing access to healthcare services. It can also improve government accountability, helping to build public trust. In this sense, it is necessary to link technology to the different government control mechanisms and encourage citizen participation. However, for citizen monitoring to be effective, it is not enough that the information is available;

citizens must also have the knowledge and the ability to make their monitoring of government activities actionable.

- **Increase tax compliance through nudges**. To finance institutional improvements and provide quality services to citizens, it is necessary to increase citizens' fiscal commitment. Increasing voluntary compliance by citizens requires considering taxpayers' incentives, beliefs, and cognitive abilities. Behavioral economics can be helpful when devising choice architecture or messages ("nudges") to increase taxpayers' willingness to comply, engage in fiscal exchange with government, and change social norms. But details matter. Messages must be both properly designed and targeted. The method of communication for delivering those messages also matters, and it should be selected with the target audience in mind. Incentives and awards are also useful tools to increase tax compliance, but how they are designed affects their effectiveness and sustainability. Incentives may not work if they are not visible and sustainable.

- **Promote financial resilience and citizen savings.** While increasing tax compliance is important, not all the burden should fall on the State. Financial knowledge, savings and financial resilience by citizens should also be encouraged. Increasing financial knowledge can effectively change behavior. Nudging people to save can be cost-effective even though the impact of programs to increase savings tends to be small in magnitude. Default and commitment mechanisms can be effective in increasing savings. Preliminary evidence in Latin America and the Caribbean shows that fostering the adoption of these mechanisms is challenging due to high informality and low bankarization (i.e., low access to and use of financial services). Going forward, it will be crucial to continue testing innovative ways to implement automatic savings plans. Another area that merits further exploration is the design of financial products for specific population segments.

These dimensions will be reviewed in depth in three broad sections of this monograph that will outline the main lessons learned for each dimension and explore ideas for future work with a special focus on establishing what works best for implementing these dimensions in a practical setting.

What Works to Improve Lives?

What Works to IMPROVE GOVERNMENT EFFICIENCY

Citizens are increasingly concerned about the transparent and efficient use of public resources. They are demanding more public services and have higher expectations for the quality of public services provided by their government.

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Citizens are increasingly concerned about the transparent and efficient use of public resources. They are demanding more public services and have higher expectations for the quality of public services provided by their government. Three out of four people in Latin America and the Caribbean today show little or no confidence in their national governments, around 80 percent believe corruption is widespread (OECD and ECLAC 2018), and nearly half think that most officials are involved in corruption cases (LAPOP 2018). Mistrust in institutions jeopardizes social cohesion, limiting the enforcement of the social contract between citizens and governments (Fukuyama 1995).

In this context, governments in the region face many challenges to improve the way they spend money to serve citizens. First, the adoption of ICT has been slow, with less than 30 percent of government procedures available to be done entirely online (Roseth, Reyes and Santiso 2018), even though this situation changed with the pandemic. Second, some countries still have inefficient and outdated administrative systems that limit the ability to embrace ICT to change processes – low adoption of digital technologies in government generates inefficiencies that could be as large as 4.4 percent of the region's GDP (Izquierdo, Pessino, and Vuletin 2018). On the positive side, although scarce, some technology-related policies have emerged in the region, such as citizen participation initiatives to improve accountability in service delivery (Ferraz, Finan, and Moreira 2012) and the efficiency of public works (Pierri and Lafuente 2020).

Over the last decade, the IDB Group has supported the efforts of countries to foster effective digital transformation by promoting the use of ICT within government. These efforts can improve government processes and guide the behaviors of civil servants to promote a well-functioning public sector that responds better to the changing demands of citizens. However, the evidence presented in the literature is still scarce. For this reason, the IDB has actively promoted knowledge generation in the region to foster evidence-based practices in this area. This section presents some of the key results of the use of ICT in improving tax collection, public spending, and government services.

EVIDENCE FROM IMPACT EVALUATIONS SUPPORTED BY THE IDB GROUP

Three main lessons have emerged from 12 IDB Group impact evaluations conducted throughout the region to determine the effectiveness of different types of digital tools that seek to improve government efficiency, efficacy, and service delivery.

(1) The use of ICT has the potential to improve the effectiveness of tax collection.

(2) ICT can increase the efficiency of public spending and access to public services.

(3) Online information platforms and citizen monitoring can be effective in improving social accountability

The sections that follow explore each of these three lessons in more detail.

(1) The use of ICT has the potential to improve the effectiveness of tax collection

Evidence on the use of ICT in governments is scarce, particularly in Latin America and the Caribbean. The academic literature has found positive impacts of technology on reducing waste from bureaucratic inefficiency and transaction costs (Bandiera, Prat, and Valleti 2009; Coviello and Mariniello 2014; Goldfarb and Tucker 2019), and of electronic contracting on quality improvements of public services (Lewis-Faupel et al. 2016). The use of technology has recently been found to improve government capacity (Bossuroy, Delavallade, and Pons 2019; Callen et al. 2020; Muralidharan, Niehaus, and Sukhtankar 2020) and public service provision (Ayachi et al. 2016; Bertot, Estevez, and Janowski 2016; Linders, Liao, and Wang 2018; Sirendi and Taveter 2016). In line with these findings, the IDB Group has promoted digital government reforms, such as the adoption of electronic invoicing, with the aim of increasing efficiency in public processes and improving the provision of government services.

Electronic invoicing can increase tax collection, but effects are heterogeneous over time, country, and economic activity

Electronic invoicing in Argentina began in 2007 with the gradual incorporation of certain economic sectors. The IDB Group supported this process through the Program to Enhance the Management Capacity of the Federal Administration of Public Revenue (**IDB Project #AR-L1282**). An IDB evaluation used a difference-in-differences approach to compare the group of firms that were incorporated into and adhered to the electronic invoicing system against the group that did not. The introduction of electronic invoicing in Argentina increased the level of declared sales in the construction, commerce, transportation, real estate, and professional services sectors, but not in the health sector. Specifically electronic invoicing yielded effects that varied in magnitude and depended on the year being measured. The effects on revenue ranged from 0 percent in 2008 to 10.7 percent in 2013, with positive results in 2007, 2010, 2011, 2012, and 2015 (Templado and Artana 2018).[1]

A similar evaluation was conducted in Uruguay, which introduced electronic invoicing in 2012. The IDB group supported the government in this process through the Modernizing the Tax System and Enhancing the Quality of Public Expenditure II Program (**IDB Project #UR-L1036**). The evaluation found a 3.7 percent impact on the amount of taxes paid by firms in Uruguay for a six-month period of analysis. It also found that the biggest effects on tax collection were in the manufacturing and wholesale trade sectors, while the smallest effects were in the agriculture, fishing, mining, and electricity, gas, and water sectors (Bérgolo, Ceni, and Sauval 2018).

1_ Declared sales are considered here to be a proxy for tax evasion.

In Ecuador, the IDB Group worked with the government to launch an electronic invoicing system in 2013 aimed at modernizing tax administration (**IDB Project #EC-L1120**). The bank evaluated the reform using a difference-in-differences approach with the selection of controls based on propensity score matching, identifying those taxpayers who were chosen to be part of the electronic invoicing initiative but who entered at a later stage due to the schedule. The study found no effect on tax compliance in 2014.[2] However, there was an effect in the following years, and it grew over time: the effect on value-added taxes was 17 percent in 2015 and reached 24 percent a year later (Ramírez, Oliva, and Andino 2018).

In summary, the effects of electronic invoicing systems on tax collection are not homogeneous across economic activities and countries. In those circumstances where compliance with the value-added tax (VAT) is weak, the evidence suggests that electronic invoicing can have a large impact on tax collection. Companies that make a higher proportion of their sales through withholding agents have less room to adjust their VAT payments because of the electronic invoicing adoption process.

The use of digital technologies such as tax dashboards can increase tax collection by giving the government access to relevant information for the formulation of fiscal policies

In line with the use of digital technologies to increase tax collection, the IDB Group has promoted tax dashboards to access relevant and timely information – such as tax collection trends across regions and economic activities – for policy design to address tax evasion and improve tax collection. For example, in 2019, the Paraguayan tax administration (*Subsecretaría de Estado de Tributación* - SET) partnered with the IDB through operations **#PR-L1150** and **#PR-L1151** to provide unique insights into the nature of tax evasion and concrete policy tools to combat it. One of the tools that emerged from this collaboration is a tax dashboard that displays key indicators of interest in terms of the formulation of

2_ Risk of noncompliance manifests when taxpayers know that their previously private information is now publicly and automatically accessible, so they feel more controlled by the authority and increase voluntary compliance.

economic policies aimed at economic recovery and tax compliance. Pierri et al. (2021) show that having a tool like the tax dashboard is useful for governments, especially in times of economic crisis like COVID-19. This tool provides a deep understanding of the drivers of tax evasion, such as the economic sectors and regions with low levels of tax compliance and firms under-declaring the VAT. This tool also promotes the optimal allocation of scarce tax enforcement resources and is helpful in fiscal policy design for economic recovery. The tax dashboard allows for contrasting discrepancies in declarations between firms and their buyers, enabling a better distribution of audit efforts.

The use of tax dashboards is enhanced with programs aimed at controlling tax payments. Pierri et al. (2021) show evidence of the impact of audit programs on reducing tax evasion in Paraguay. Using a synthetic difference-in-differences methodology, and valuable information obtained from the tax dashboard, the authors evaluate the effect of audits on declared sales, purchases, and tax payment by firms during 2018–2019. The findings show that audits were effective in reducing tax evasion: taxable sales reported by firms significantly increased by an average of 1.5 percent after the audit, with the effect persisting for two to three months.

The evaluations mentioned in this section demonstrate that advancing digital transformation improves institutional capacity and ensures the transparency of tax collection. Electronic billing systems facilitate tax collection control and increase the efficiency of government in combatting tax evasion. But the potential of e-government tools is not limited to revenue management. The discussion of the next lesson shows how the use of electronic contracting systems promotes efficiency in public contracting, generating savings for the government, in addition to promoting transparency in government processes for the benefit of citizens.

(2) ICT can increase the efficiency of public spending and access to public services

The increased use of digital technologies and tools to process procurement contracts has the potential to improve transparency and generate savings

In 2016, the Argentine government launched a series of reforms to modernize government, including implementation of an electronic purchasing platform, COMPR.AR, that enables all public procurement processes to be carried out electronically. The IDB Group supported the government with these reforms through the Program to Support Transparency and Integrity Reforms in Argentina (IDB Project #AR-L1303). The program sought to increase efficiency by reducing administrative costs for public officials and eliminating the need for (non-digital) face-to-face procedures. Transparency was increased through free access to public bidding processes via the Internet. As a result, COMPR.AR has become a model for public policy in Latin America and the Caribbean.

Due in part to its evidence-based policymaking model, COMPR.AR has turned out to be one of the most important components of the reform program. The intervention allowed for the identification of central corruption nuclei, such as the public procurement area, using an evidence-based approach. COMPR.AR was implemented in a staggered manner in more than 176 purchasing offices nationwide and now covers more than 26,900 purchase orders per year. The results of COMPR.AR have been extremely promising, generating significant benefits in terms of savings, and improvements in terms of efficiency and transparency. Those benefits have accrued both to the government as well as to suppliers, who increased their participation in public tenders. Box 1 illustrates how COMPR.AR benefited one IT provider in Argentina.

Box 1. How a Small Business Benefited from Argentina's Streamlined Procurement Process

Gustavo Fariña is a small provider of information technology products and services in Córdoba, Argentina whose main clients are federal, state, and local governments. His sales tripled over three years thanks, he says, to COMPR.AR, a digital platform that streamlines the government's procurement process.

Fariña remembers the red tape he used to face. He says he once lost a business opportunity because he handed in a document an hour late. Handling paperwork often entailed covering hundreds of miles in one day to reach a government office. And while Fariña lost out, the loss was even greater for the government. He noted, "I was selling my product for US$400 a piece. But the winning provider sold his for US$1500!"

Since 2016, however, COMPR.AR has channeled all public purchases through one digital platform. Now everything from procurement opportunities to purchasing orders can be found online. This contrasts with only a few years ago, when Fariña would have needed a representative in each of Argentina's 23 provinces just to find out about the latest offers. Purchases can also be made much faster now, saving the government up to 11 days per purchase.

Fariña says he can now do business all over the country. At the same time, he acknowledges that other providers thousands of miles away can also bid in Córdoba, his home province: "Before there were perhaps 3 or 4 of us. Now we are dozens." However, he says that the competition does not worry him and he views it as healthy.

An impact evaluation of COMPR.AR, using a difference-in-differences identification strategy based on the gradual rollout of the platform across various public offices showed that as the duration of public procurement processes declined, the prices ultimately paid by the government decreased, representing annual government savings in excess of US$35 million (considering only the 50 most purchased products), approximately 4.4 percent of total public purchases (de Michele and Pierri 2020). Adoption of the platform was also associated with increased competition, measured by the numbers of bidders. In all, the reform enhanced the efficiency and transparency of public procurement, which translates into the Argentine government (and thus society) receiving more products for the same amount of resources. This evidence contributes to the literature on the effect of technology on reducing waste due to problems of bureaucratic inefficiency (Bandiera et al. 2009; Coviello and Mariniello 2014), streamlining processes, and increasing transparency and dissemination of information (Lewis-Faupel et al. 2016).

The solid evidence from **COMPR.AR** has justified keeping the intervention in place, even after a change of government. The data generated from the program has had additional benefits for the government. Through **COMPR.AR**, information can be collected to geographically locate all providers and ensure the greatest participation of bidders, increasing competition in each public bidding process. In addition, it is possible to construct historical information on business pricing as well as productive capacity. Finally, thanks to the success of **COMPR.AR**, similar initiatives and reforms have been implemented in Dominican Republic, Honduras, Paraguay and Peru.

Careful scrutiny is needed of the design, details, and instruments of a policy in order to avoid unintended incentives that may affect the behavior and work of civil servants and undermine the policy's intended goal

In the public sector, audits are generally intended to monitor compliance with existing rules and serve as a valuable resource to promote good governance. On the one hand, existing research has found that public sector audits reduce corruption (Avis, Ferraz, and Finan 2018) and increase electoral accountability (Ferraz and Finan 2008). Similarly, an increase in audit risk has been shown to curb corruption in road construction (Olken 2007) and public procurement (Zamboni and Litschig 2018).

Investing in the rigorous management and development of human talent has also been shown to increase the efficiency of the teams in charge of processing and managing anti-corruption reports and complaints (Pierri y Lafuente 2022). On the other hand, there is also some evidence of limited effectiveness of audits due to factors such as the displacement of corruption to other areas in response to the lower spending by local bureaucrats (Lichand and Fernandes 2019). In addition, there is evidence of the quality of the audits themselves being affected by the relationships between the auditor, bureaucrats, and public institutions (Chu et al. 2021), among others. In particular, public procurement audits are designed to review contracting processes to determine their completeness, accuracy, and compliance with guidelines. However, an impact evaluation in Chile revealed that traditional "auditing-by-checklist" approaches may unintentionally discourage the use of more regulated, complex, and transparent procurement modalities, such as auctions, since they have more steps and checks compared to other less-regulated modalities. Using a regression discontinuity design and taking advantage of the Chilean Comptroller Agency's scoring system to determine which entities were to be audited, the evaluation found that, contrary to the policy goal, audits led procurement officers to reduce the use of public auctions and increased the use of direct contracting, a less transparent and competitive purchase modality. The reduction in competition had real economic effects, hurting new, large, and out-of-region suppliers that were less likely to win the contracts. This type of favoritism is likely to undermine entrepreneurship and innovation, as it creates barriers for new entrants (Gerardino, Litschig, and Pomeranz 2017).

ICT can improve efficiency in access to public services

Cuesta et al. (2020) study the impact of introducing new digital government tools to improve access to and the delivery of public services, as developed by Uruguay's Ministry of Health and national e-government agency (*Agencia de Gobierno Electrónico y Sociedad de la Información y del Conocimiento* - AGESIC) in collaboration with the IDB Group. They consolidated information coming from a registry of health users, an electronic clinical history of patients, and the medical appointments system, and designed and implemented an online application to schedule

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The use of digital technologies such as tax dashboards can increase tax collection by giving the government access to relevant information for the formulation of fiscal policies.

PAP smear appointments for women. The authors conducted a field experiment in Montevideo randomizing the entire female population of public health users to four treatment arms and one control group. Treated women received SMS messages with either an encouragement to schedule appointments at their local clinic as they would usually schedule them, or to schedule online using the link to the application. The study also paired each of the encouragement messages with either benefit- or risk-framed information about the PAP smear, thus generating four treatment groups. The results show that the intervention more than doubled medical appointments and attendance rates over a 12-week period. Most of the effects were driven by women who received behaviorally oriented messages and were also encouraged to use digital government tools. These women attended the screening appointments about three times more often than the control group, while those motivated only with messages attended 1.5 times more. The results highlight the potential of investing in digital government tools to decrease transaction costs and increase take-up of public services.

The evidence generated at the IDB Group contributes to and aligns with the literature that shows that new technologies in the public sector, particularly digital government, can reduce transaction costs, improve efficiency (Goldfarb and Tucker 2019), and expand public service uptake. These results also complement a recent wave of studies that support the reduction of the knowledge gap on the use of technology in developing countries to improve government capacity (Bossuroy, Delavallade, and Pons 2019; Callen et al. 2020; Muralidharan, Niehaus, and Sukhtankar 2016, 2020) and the delivery of public services (Ayachi et al. 2016; Bertot, Estevez, and Janowski 2016; Linders, Liao, and Wang 2018; Sirendi and Taveter 2016).

During the COVID-19 pandemic, when numerous activities have moved online, the adoption of digital tools and ICT by governments has become crucial to address the crisis. Countries that already had digital tools to carry out several of their activities have been able to face the crisis more successfully. For example, Argentina's **COMPR.AR** made it possible to streamline public purchases of emergency services. In Uruguay, the online medical scheduling platform protected healthcare processes from being interrupted, despite the complex sanitary situation. In this sense, the crisis validated the need to advance in the adoption of digital government tools.

The evaluations presented in this section show that digital government – specifically e-procurement, online appointment scheduling, and electronic invoicing systems – offer many possibilities for the future. However, the progress of these initiatives and knowledge about their effectiveness is still in an early stage.

(3) Online information platforms and citizen control can be effective in improving social accountability

Evidence on the role of citizen monitoring in terms of accountability and the fight against corruption is recent. The academic literature has not found conclusive effects of community-based monitoring programs on reducing corruption. While some studies show positive impacts of citizen monitoring programs on the provision of public services, such as health services and construction of public roads (Bjorkman and Svensson 2009; Berman et al. 2017), other studies show that these types of interventions have no effect (Olken 2007; Banerjee et al. 2010; Sexton 2022). Because of this, more regional evidence is needed to provide conclusive policy recommendations. With the objective of involving citizens in cost-effective government.

Transparent access to public information through online platforms increases the accountability of authorities, improves the efficiency of public spending, and reduces corruption

The empirical evidence from the IDB Group shows that access to public information can be useful to control corruption. Through the Sectoral Framework of Transparency and Integrity, the IDB Group has promoted the use of digital technologies to ensure greater access to information as well as greater efficiency and effectiveness in public management.

For example, Lauletta et al. (2019) show that implementation of the *MapaRegalías* platform in Colombia could increase efficiency in the execution of investment projects.[3] Along the same lines, Rossi, Vazquez, and Cruz (2020) find that the *MapaInversiones* platform in Costa Rica could improve the performance of investment projects.[4] However, while access to this type of information is relevant for accountability, it needs to be actionable by citizens, as discussed below.

Combining digital government tools with citizen monitoring programs has the potential to increase the efficiency of public works

This is the lesson of the **Citizen Control Monitors** (*Monitores Ciudadanos de Control* - MCC) Program of Peru's Comptroller General of the Republic (*Contraloría General de la República del Perú* - CGR). The MCC program consists of "low-cost" audits by volunteers who visit public works and make a simple evaluation of their status. This simple citizen-driven monitoring is complemented with access to information through digital government tools such as InfObras.[5] An evaluation supported by the IDB Group (**IDB Project #PE-T1398** and **#PE-L1240**) studied the impact of the MCC program on the efficiency of public works (Pierri and Lafuente 2020). The authors use a regression discontinuity design that takes advantage of the program's policy to establish that eligible public works must have a budget of less than 10 million soles. They found positive impacts in terms of improved efficiency of public works. Specifically, the program had a significant impact on reducing cost overruns of public works executed by

3_ *MapaRegalías* is an online platform whose objective is to facilitate access to and use of public information for citizens and public officials to monitor the public use of resources, allowing them to consult geo-referenced information and data on royalties from the extractive sector. The platform is available at **http://maparegalias.sgr.gov.co/**.
4_ *MapaInversiones* is an online platform where citizens can see geo-referenced information, make inquiries, and check the progress of public investment projects. The goal of the platform is to reduce the cost of accessing information on the use of public resources, potentially increasing the incentives to monitor the execution of public investment projects. The platform is available at **http://mapainversionescr.mideplan.go.cr/**.
5_ *InfObras* is a web system that seeks to strengthen transparency in the execution of public works at the national level through access to information on the monthly progress and articulation of information on public works.

construction firms from approximately 29 to 20 percent.[6] This evaluation generated evidence on the effect of strategic social accountability interventions that combine access to public information through digital government tools with citizen participation mechanisms that make the use of information actionable. It also shows that this type of program generates positive synergies between the control mechanism, as exercised by the CGR, and society. This low-cost program complements government control and helps to expand coverage over certain infrastructure that would otherwise be difficult to supervise with limited auditing resources. The program has also been key during the COVID-19 pandemic (Pierri 2021). Box 2 shows how the MCC supported the monitoring of public resources during the pandemic.

Box 2. Citizen Monitoring in Combating Corruption in Peru

María Jiménez is determined to put an end to corruption in Peru.* The 26-year old economist is just one of many volunteers participating in the **Citizen Control Monitors Program** (*Monitores Ciudadanos de Control* - MCC), an innovative IDB-backed program that promotes transparency and citizen participation in the fight against corruption in public works.

The program is run by the Office of the Comptroller General of Peru (*Contraloría General de la República del Perú* - CGR), an autonomous entity of the Peruvian government in charge of monitoring the use of public resources.

In her numerous in-person visits to construction sites, María has witnessed many irregularities. She explains how cost overruns can be hidden in extra charges for lower-quality paint or cement. "If you use a gallon of paint that costs 25 soles instead of 42 soles, you are spending less than what you are billing."

6_ Cost overruns are defined as the percentage of updated costs of the public work with respect to the initially budgeted costs.

In an evaluation of the monitoring program, the IDB found that monitoring visits reduced cost overruns by contractors by approximately 9 percentage points.

More recently during the COVID-19 pandemic, the role of citizen monitors has been particularly important. Visits to works have been suspended, but remote monitoring strategies have been implemented to supervise the authorities' response to the emergency, especially the delivery of basic goods to affected families.

María was part of the team of volunteers that participated virtually in monitoring the government's delivery of baskets of basic goods in her province. The team reported several irregularities in the lists of beneficiaries. Thanks to the data generated, reports were issued to alert public entities about adverse situations that warranted corrective action.

María believes she is providing a service to society and that her work not only makes a difference but empowers her as a citizen. Now more than ever, promoting citizen monitoring programs is key to preventing corruption and ensuring the proper use of vital public resources in times of economic crisis. Programs like MCC in Peru will play an essential role in keeping authorities accountable in the region during the COVID-19 pandemic and beyond.

*María Jiménez is a pseudonym.

The findings of these evaluations suggest that citizen monitoring appears to be a useful mechanism to improve the provision of public services and reduce corruption. However, achieving effective citizen monitoring is complex because it requires many factors to function properly. Access to high-quality information through technology is important, but this is not enough. Information needs to be perceived as actionable – that is, the government must respond to citizen complaints and grievances, and there must be a capacity to sanction.

The lessons from these evaluations are in line with the literature on the use of strategic approaches to social accountability, which study how enabling environments for collective action combined with bolstered government capacity to respond to citizen concerns are more promising for better citizen monitoring (Fox 2015).

IDEAS FOR FUTURE WORK

ICT in the form of digital government can provide valuable data for policy decision-making and help in redesigning the way governments provide services. Technological innovations may also help improve governance by replacing some of the functions for which government personnel are responsible. But technology alone is not always enough: it requires specific or technical knowledge and proper incentives for the user to work.

Regarding online information platform initiatives, it is necessary to consider the importance of the dissemination of information, together with citizen participation mechanisms, as well as government responsiveness so that citizens can exercise their voice more effectively. To have an impact on the quality of the services delivered by the government, there must be proper interaction of these three features. Strategies that link citizen monitoring initiatives (e.g., citizen oversight of public works) with internal government control mechanisms (e.g., audits) to achieve better supervision of government actions would mean a breakthrough in achieving more comprehensive monitoring of the government.

The findings presented in this section, although quite novel, should be viewed in the context of a nascent literature. More evidence in the region and in other countries is needed to answer several other important questions. Can digital technology effectively help governments deliver better services? Can artificial intelligence help fight corruption? How can countries continue to take advantage of the benefits of the digital transformation and citizen monitoring to improve service delivery?

To answer these and other questions, the IDB Group is teaming with government partners in the region to implement innovative policy designs, coupled with rigorous evaluations, to strengthen service delivery and increase public sector efficiency so that governments can fulfill their duty to serve their citizens. Different strategies related to digital technology, artificial intelligence, and behavioral economics are being implemented by the IDB Group and might generate new evidence on their relative effectiveness. With respect to digital technology, a number of initiatives along the lines of Argentina's **COMPR.AR**'s have been proposed in the region as part of the framework of the transparency and digital governance initiative. In the case of artificial intelligence, for example, a series of algorithms has been generated through the control-lab strategy in Peru's Comptroller General to help increase the efficency of processing complaints, while seeking to reduce selection biases in prioritazing the complaints. In the case of behavioral economics, studies are being carried out in Chile with the Secretariat of Internal Taxes (*Secretaría de Impuestos Internos)* that use nudging in social networks to change the perceptions of both public officials and citizens. Some of these examples are presented in the next two sections.

What Works to Improve Lives?

What Works to
INCREASE TAX COMPLIANCE

To implement the institutional capacity reforms mentioned in the previous section – and in doing so promote quality public services – it is important to have a solid funding source.

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To implement the institutional capacity reforms mentioned in the previous section – and in doing so promote quality public services – it is important to have a solid funding source. This section presents evidence on programs that promote tax compliance and increase fiscal resources by means of behavioral interventions. This is particularly relevant in the context of Latin America, where there are high levels of tax evasion. The evidence presented in this section complements the literature on the use of tax control measures.[7]

Bergman (2021), who studied which factors were determinants to achieve higher tax compliance through a comparison of Chile and Argentina, found that social norms and institutional arrangements were crucial factors. When the rule of law is more effective, citizens are more likely to believe in punishments for noncompliance. When the contrary happens, the social norms model citizen perceptions in a way that encourages them to consider avoiding taxes and defying government authority as a much better behavior than following the law (Bergman 2021).

Tax evasion is a serious problem in Latin America and the Caribbean, hovering at a rate of 50 percent for all taxes in most countries (Corbacho, Fretes Cibils, and Lora 2013). The cost of tax evasion reached 6.3 percent of the region's GDP in 2017, equivalent to US$335 billion (ECLAC 2019). Tax evasion undermines public revenue, which in turn can lower productive public spending and erode the government's capacity to effectively provide quality public goods and services. This has a direct negative impact on the lives of citizens, as shown by the deterioration of well-being indicators in recent years, and risks perpetuating a negative spiral (OECD and ECLAC 2018).

Behavioral interventions offer promising solutions to this problem. They can increase tax compliance by making monitoring and penalties more salient, and boost tax morale by inducing reciprocity or leveraging peer effects (Rapoport, Rojas Méndez, and Scartascini 2020). These types of interventions create opportunities to test what works to change citizen behavior and generate cost-effective public policies.

7_ See Bachas and Soto (2018), Blumenthal et al. (2001), and Kleven et al. (2011). Advan, Eming, and Shaw (2017) document the effects of different policy instruments on tax compliance.

EVIDENCE FROM IMPACT EVALUATIONS SUPPORTED BY THE IDB GROUP

Three main lessons have emerged from six impact evaluations conducted by the IDB Group throughout the region:

(1) Messages to change taxpayer behavior should consider taxpayers' information and beliefs.
(2) The method used to communicate messages to taxpayers can impact the effectiveness of tax compliance interventions.
(3) The design of incentives and rewards impacts the effectiveness and sustainability of communication interventions.

The sections that follow explore each of these three lessons in more detail.

(1) Messages to change taxpayer behavior should consider taxpayers' information and beliefs

Ensuring that messages take into account taxpayers' beliefs is crucial to the success of an intervention

An intervention led by the municipality of Junín in Argentina, in collaboration with the IDB Group, redesigned the property tax bill in order to increase compliance (IDB Project #RG-T2043). The team worked to understand the effect of changes in taxpayers' perceptions and beliefs on tax morale. In a randomized experimental design, three different types of messages were sent to taxpayers, stressing **(i)** deterrence (beliefs about enforcement and fines), **(ii)** peer effects (beliefs about other taxpayers' behavior), or **(iii)** reciprocity (beliefs about the use of resources by the government). The evaluation of this intervention found that introducing such messages in tax bills had an overall positive impact on taxpayer behavior, but that some messages were more effective than others. The most effective message involved deterrence: tax compliance among taxpayers who received the deterrence message increased by almost 5 percentage points compared to the control group. On average, there was no significant effect for the messages that focused on peer effects or reciprocity (Castro and Scartascini 2015). This evidence is in line with previous literature that found a clear impact of messages surrounding deterrence, but mixed results for messages attempting to modify intrinsic motivation, reciprocity, and social norms (Luttmer and Singhal 2014).[8] Still, some interesting heterogeneous effects resulted from the non-deterrence messages. Compliance increased for taxpayers who, before the intervention, believed that noncompliance was widespread or that the provision of public goods was low. The opposite happened on the other end of the distribution, that is, the message seems to have been a disincentive for those who had complied in the past.

These results highlight two important points. First, universal messages do not always work – in this case, the authors found no average effects because the messages had positive and negative effects on different people. Second, when designing a message, it is important to understand the underlying beliefs of the recipients in order to target the messages appropriately.

Interventions that are effective may also have positive spillovers

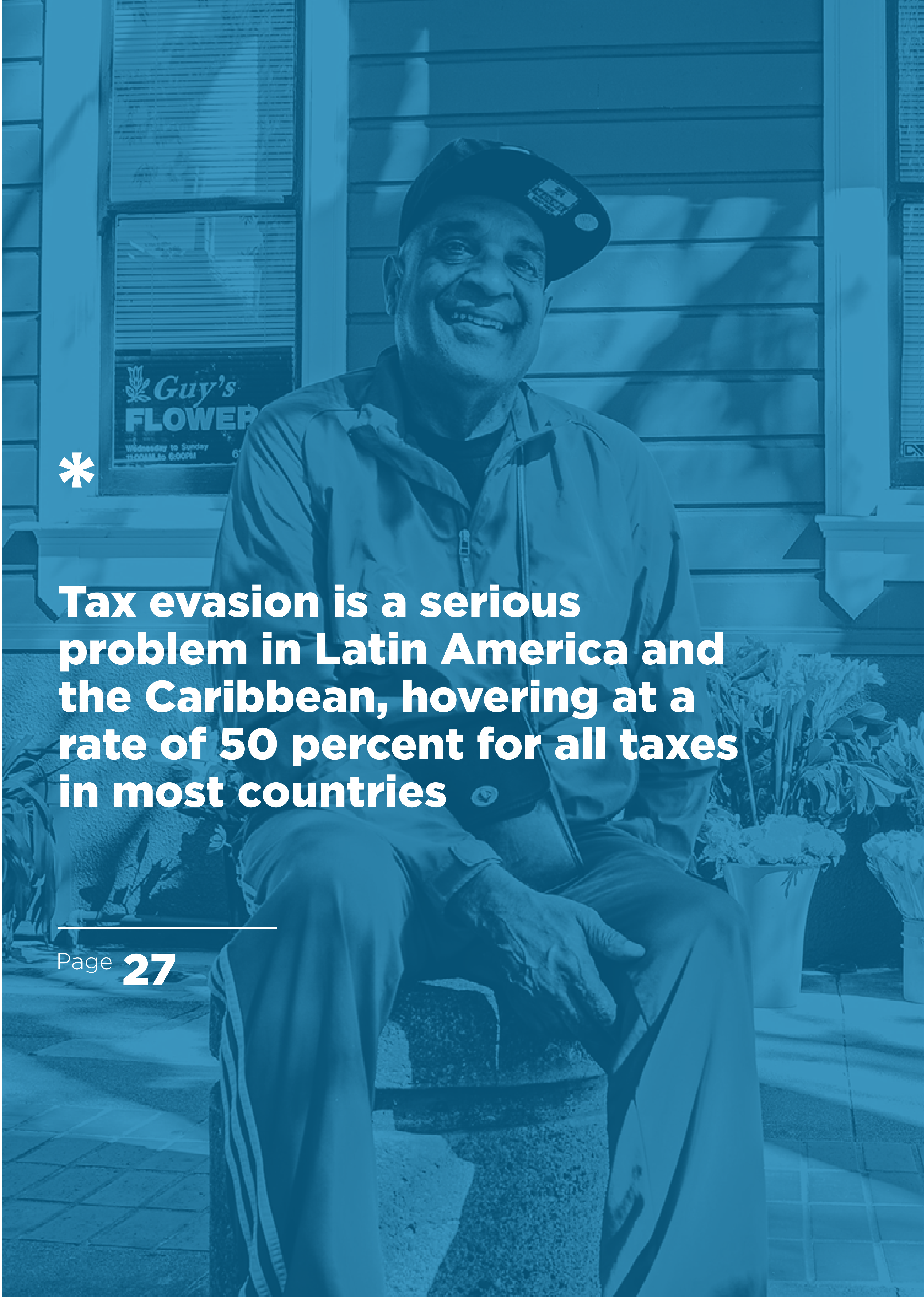
In Argentina, the IDB Group supported the Tax Compliance in LAC, Increasing Tax Morale at the Subnational Level Program (**IDB Project #RG-T2043**), which was designed to understand the effect of messages

8_ Intrinsic motivation (deterrence) refers to the motivation of individuals to pay taxes or feel guilt or shame for failure to comply. Reciprocity refers to the willingness to pay taxes in exchange for benefits that the government provides to taxpayers or to others even though their pecuniary payoff would be higher if they did not pay taxes. Social norms (peer effects) refer to the fact that individuals may be influenced by peer behavior and the possibility of social recognition or sanctions from peers.

on tax compliance. López-Luzuriaga and Scartascini (2019) tested whether enforcement of one tax creates positive spillovers (i.e., higher compliance) on other taxes. The study compared the effect of receiving a deterrence message for the property tax bill on declaration of the gross sales tax. Using a difference-in-differences methodology and combining the data from the Junín experiment with administrative data on gross sales tax declarations, the evaluation found a weak positive spillover effect from deterrence of the property tax on declaration of the gross sales tax. The evaluation showed that increasing the salience of fines and enforcement for nonpayment of property taxes increased the declaration of gross sales taxes by 2 percent. In other words, when taxpayers think that enforcement of one tax implies higher enforcement of all taxes, spillovers may be positive.

Designing effective policies that avoid negative changes in taxpayer behavior requires considering the context and the potential unintended consequences that those policies may generate

Limited attention affects people's ability to make good choices, but governments can improve decision-making by providing simpler and more salient information. For example, the IDB Group supported a field experiment undertaken during a tax amnesty in Argentina (**IDB Project #RG-K1199**). The experiment investigated whether the redesign of communication notices sent to taxpayers to increase salience and reduce cognitive costs could increase the likelihood that taxpayers would pay attention to the message and improve their understanding of the benefits of tax amnesty. The results showed that messages reducing cognitive costs made taxpayers more likely to enter the tax amnesty. Moreover, the amount collected from the treatment group exceeded that from the control group by up to 8 percent. Improved communication can have its drawbacks, however. While taxpayers were more willing to pay their past debts, they were also more likely to reduce their compliance with current tax bills. The reason is simple: increasing the salience of tax amnesties reduces the incentives to pay today (Castro and Scartascini 2019).



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Tax evasion is a serious problem in Latin America and the Caribbean, hovering at a rate of 50 percent for all taxes in most countries

(2) The method used to communicate messages to taxpayers can impact the effectiveness of tax compliance interventions

Different mechanisms for delivering messages to taxpayers can have varying levels of effectiveness and heterogeneous effects depending on the type of taxpayer

In the same way that the type of message can produce varying effects on tax compliance, the delivery mechanism may also have heterogeneous effects. Therefore, in addition to identifying the best wording for a message, it is important to carefully select the channels through which that message reaches taxpayers. In Colombia, the IDB Group supported the Increasing Tax Compliance and Efficiency through Innovative Policy Tools in LAC Program (**IDB Project #RG-T2298**), which worked to increase the government's revenue collection capacity and the overall efficiency of tax collection systems. Under this program, taxpayers with unpaid liabilities were randomly assigned to a control or treatment group. Taxpayers in the treatment group were assigned to one of three communication mechanisms: a letter, an email, or a personal visit. These taxpayers all received the same message that informed them of outstanding liabilities and warned them of the consequences of not paying, with the only difference being the form of delivering the message.

An impact evaluation of this intervention found that the effect on tax compliance differed considerably across delivery methods: the probability that taxpayers made any payment, conditional on receiving the treatment, was 8.5 percent for the group that received letters, 17 percent for email, and 88 percent for personal visits. There are several reasons why different methods of communication may generate different responses. These include a differential update of the enforcement probability distribution, social forces (people tend to react more when asked in person), and certain "mechanical" reasons (e.g., differential contact rates). In the case of the Colombia study, the personal visit was most effective: when taxpayers were visited in person and informed of their outstanding liabilities and the consequences of not paying, their perception of the probability of being prosecuted apparently increased more than if they had received an email or a letter (Ortega and Scartascini 2020).

However, different methods also have different costs, so the tax agency must determine the optimal enforcement vector in terms of the marginal benefit of each method. In the Colombian case, the average amount collected was around US$590 per email, US$550 per letter, and over US$2,000 for in-person visits, with respective variable costs of US$0, US$0.50, and US$8 (Ortega and Scartascini 2020). A simple cost-benefit analysis indicates that the net benefit of each letter and email sent was about the same, but much lower than the benefit of each personal visit attempted. Therefore, increasing the number of personal visits instead of relying on impersonal methods seems to be highly cost-effective. However, the relative effectiveness of the visit seems to be explained in part by how rare they are. Hence, a universal personal visits campaign may become less effective in the long run because taxpayers may not internalize enforcement in the same way if such visits become very common. Using a combination of methods targeted to different types of taxpayers seems to be optimal in equilibrium.

Most tax agencies use letters to communicate with taxpayers. However, other technologies exist that could be more effective. For example, the IDB Group and Colombia's National Tax Agency (*Dirección de Impuestos y Aduanas Nacionales* - DIAN) conducted a field experiment using phone calls to reduce tax delinquencies (**IDB Project #RG-T2298**). DIAN randomly assigned tax debtors (firms and individuals) to a phone call operation to discuss existing debts and to invite them to a meeting at the local tax agency office. The evaluation found that the probability of payment was almost 27 percentage points higher than in the control group, which received standard letters. When speaking with a tax agent, taxpayers tend to commit to attend the meeting and pay the owed tax. However, many taxpayers who commit to pay in the future do not actually make the payment when the time comes. The lesson here is that personal interactions are important, but they must be paired with easy-to-follow-up and immediate actions. Moreover, the delivery mechanism of the message can have heterogeneous effects on different types of taxpayers. Phone calls, for example, may not be that effective for reaching business owners because it is natural that it would be more difficult to reach and generate payment from a firm rather than from an individual, given that it is easier to reach the person making the payment decision in the latter case (Mogollón, Ortega, and Scartascini 2019). These results highlight the need to design interventions that carefully consider the target audience and choose the delivery mechanism accordingly.

Along the same lines, Cuesta, Reyes, and Roseth (2019) show how the complexity of the written language used by government agencies in Latin America can affect citizens' learning costs. The study showed that clarifying content via modifications in language, content order, and formatting can reduce citizens' learning costs. Plain language thus has positive effects for both individuals and public institutions.

(3) The design of incentives and rewards impacts the effectiveness and sustainability of communication interventions

Depending on the type of incentive or reward, the effects on tax compliance may be more or less persistent over time

Positive incentives and rewards are helpful in increasing tax compliance. In Argentina, the city of Santa Fe organized a lottery to reward responsible taxpayers and improve compliance with property taxes (Box 3). These individuals were publicly recognized in local media and awarded with the construction or renovation of a complete sidewalk. The IDB Group supported this program (**IDB Project #RG-K1199**), which represented an innovative policy tool. An IDB Group impact evaluation exploited this natural experiment and estimated that the lottery made winners on average 3.1 percentage points more likely to pay their tax obligations on time over the period studied. Compared to their peers, lottery winners were also 3 percentage points more likely to continue paying on time, as this effect persisted for at least three years after the intervention. To assess how much of the effect was generated by the lottery itself (being publicly recognized by the municipality) and how much was generated by the construction of the sidewalk, the evaluation made use of the fact that almost no construction was initiated immediately after the lottery winners were announced and that not every winner received a new sidewalk. Those selected in the lottery and recognized publicly by the government as responsible taxpayers were about 5 percentage points more likely to comply (short-term effect). Those who received the sidewalk were about 7 percentage points more likely to comply (persistent effect). In this case, recognition served only as a short-term incentive, while the provision of a durable and visible good had more persistent and broader effects (Carrillo, Castro, and Scartascini 2017).

Box 3. The *Premio al Buen Contribuyente* Lottery in Argentina

Santa Fe is the eighth largest city in Argentina, with about 391,000 residents. The municipality collects real estate property taxes that are proportional to the assessed values of properties, and property tax rates are identical for all properties within the city. Taxpayers are billed monthly, but the bill is delivered to the owner's address every three months. From the moment they receive the bills, owners have approximately 10 days to pay the first month of the trimester bill before its first due date. Late payments are charged a monthly interest rate of 3 percent.

In an effort to reward responsible taxpayers and improve property tax compliance, in January 2009, the municipal government of Santa Fe organized a lottery called the Good Taxpayer Award (*Premio al Buen Contribuyente*) that made winners eligible for a full sidewalk construction or renovation. The prize had an additional purpose: to showcase a "model" sidewalk as an enticement for residents to adopt it. The sidewalk renovations included the removal of the old sidewalk, sewerage adjustments, and convenient features such as a trash receptacle that would not be accessible to animals. The main distinctive characteristic of this sidewalk was that it contained a "green line," a section of the sidewalk that could be neither covered nor asphalted and that was dedicated to plants and trees (also provided by the municipality). This type of sidewalk increases water absorption, a relevant feature in a city prone to torrential precipitation.

The rules of the lottery were officially announced on December 16, 2008 (Decree 1716). Lottery rules were straightforward. Owners of residential units, commercial properties, and/or vacant lots were eligible to participate in the lottery as long as they had paid their 2008 property tax liabilities by January 12, 2009. Each eligible property received a unique number, and 400 properties were randomly chosen from a set of 72,742. The lottery took place on February 27, 2009. City officials contacted each of the winners and announced lottery results in local newspapers.

There were no concerns about potential biases in the lottery. It was conducted by Santa Fe's Provincial Lottery using standard procedures: eligible properties received a unique number, and 400 numbers were chosen at random. A public notary was present at the time of the lottery to guarantee that the process was fair.

IDEAS FOR FUTURE WORK

To change taxpayer behavior, messages should consider taxpayers' beliefs. The method chosen to communicate those messages can also impact the effectiveness of a taxpayer compliance intervention and should be chosen with the target audience in mind. Moreover, the design of incentives and rewards to encourage tax compliance must consider the persistence of the effects over time. Much evidence indicates that poorly designed incentives do not work and may even backfire (Rapoport, Méndez, and Scartascini 2020; Carrillo, Castro, and Scartascini 2017).

The IDB Group is teaming up with partners, mostly governments, to design and implement innovative policies that are paired with rigorous evaluations to determine their effectiveness.[9] These interventions are looking at ways to improve the collection of delinquent taxes, increase formality, and better inform the citizenry about how public funds are being spent in order to strengthen the fiscal exchange. They are also exploring the role of digital tools, such as electronic invoice systems, tax dashboards (Pierri, Best, Blanco, and Monreale 2021),[10] and artificial intelligence (De Oliveira and Muñoz 2020) in increasing tax payments.[11]

However, the literature in Latin America and the Caribbean is still at an early stage and more evidence is needed to gain a better understanding of the connection between technology, incentives, and government expenditure and revenue collection (Pierri and de Michele 2020).

Access to data is also critical for designing and implementing more effective interventions. Big data are moving the frontier of possibilities that could help design and monitor better policies by providing access to information about billions of transactions taking place in the economy every day. Big data can also be used to create measures of behavioral traits that would allow governments to target messages and interventions even further. However, big data can prompt privacy concerns. Transparency is key to addressing security and privacy challenges, so handlers of big data should disclose information, especially in the public sector, about what they gather and for what purposes.

9_ Through the PROFISCO program in Brazil, for example, the IDB Group has approved loans to the Brazilian states of Piauí, Pará, Maranhão, and others to contribute to the state's fiscal sustainability through modernization of finance management, improvement of tax administration, and improvement of public spending management.
10_ For example, the COVID-19 Tax Dashboard shows information on the financial health of all VAT-registered firms in Paraguay. The dashboard could be used to inform a number of key decisions related to recovery from the pandemic. First, by displaying how firms are performing in different geographic regions and sectors, it can help the government target efforts towards those most affected. Second, it could be used to track in real time how the impact of the pandemic is evolving and how effectively government measures (e.g., cuts in the VAT) are performing (Pierri, Best, Blanco, and Monreale 2021).
11_ Teresa is a virtual, artificial intelligence-powered conversational assistant that offers services to taxpayers in the state of Piaui, Brazil. It was developed by the State Secretariat of Finance under the IDB Group's PROFISCO Project (Oliveira and Muñoz 2020).

Finally, the design of interventions must be carefully considered:

- Messages must not only be appropriately designed but must also be appropriately targeted.
- The method of communication matters, and it matters differently for different taxpayers.
- Incentive mechanisms may not work if they are not visible and consistent over time.
- When evaluating impact, it is important to look at effects beyond the tax that was targeted during the intervention. That is because the intervention can generate spillovers on other taxes, which may increase or decrease the overall impact (López-Luzuriaga and Scartascini 2019). Policymakers should invest in diagnosis, design, and evaluation (Rapoport, Méndez, and Scartascini 2020).

What Works to Improve Lives?

What Works to STRENGTHEN FINANCIAL RESILIENCE

In recent years, an increasing share of the fiscal budget of countries in the region has been assigned to either conditional or unconditional (i.e., noncontributory pension schemes) cash transfers that are intended to bring people out of poverty and support vulnerable populations.

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In recent years, an increasing share of the fiscal budget of countries in the region has been assigned to either conditional or unconditional (i.e., noncontributory pension schemes) cash transfers that are intended to bring people out of poverty and support vulnerable populations. These programs are also highly impactful on public spending, accounting for up to 5 percent of GDP for some countries in the region in 2015 (Izquierdo, Pessino, and Vuletin 2018). The average percentage of total government spending that went towards pensions in Latin America and the Caribbean in 2015 was 5.9 percent of GDP, and it is expected to increase to 13.9 percent of GDP by 2065. While citizens' demands continue to increase, the limits on governments' resources constrain their capacity to keep up. Social spending could be much more effective and sustainable if it were paired with strategies that contributed to building up the financial ability of households and firms to cope with idiosyncratic and aggregate shocks.

Many households in Latin America and the Caribbean are vulnerable and financially fragile. Data from the Global Findex Survey reveal that only 4 out of 10 people in the region report being able to come up with the financial resources needed to cover an unexpected shock (Demirgüç-Kunt et al. 2017). This vulnerability is even more acute among the poorest 20 percent of households, among which only 2 out of 10 people can overcome such an emergency.[12]

Despite notable achievements in terms of access to financial savings products and financial depth in Latin America and the Caribbean, low take-up rates of such products persist. Only 40 percent of households in the region have saved in the previous year, and a meager 13 percent did so at a formal financial institution. Low savings rates are particularly worrisome in the case of longer-term savings. Average replacement rates in the region under individual account pension systems are only 40 percent, even for formal workers who contribute over their entire lives (Altamirano Montoya et al. 2018). Increasing life expectancy may result in even lower pensions. Moreover, in a region where most workers are informal and do not contribute to formal pension systems, voluntary pension contributions

12_ The 2017 Global Findex survey asked respondents whether or not it would be possible to come up with an amount equal to 1/20 of gross national income per capita in local currency within the next month. For the countries of Latin America and the Caribbean, on average, that amount would be equivalent to US$714 in 2017.

can be crucial to support people in old age. However, the percentage of households in the region that save with retirement goals in mind is extremely low: only 13 percent have either formal or informal voluntary retirement savings (Demirgüç-Kunt et al. 2017).

While supply-side factors may be in part responsible for low and unequal use of savings products, there is great room for improvement on the demand front. Latin America and the Caribbean is characterized by low levels of financial knowledge, skills, and trust, which may lead to self-exclusion, especially among the least advantaged. Except for Chile, the other two countries in the region (Brazil and Peru) that participated in the financial literacy assessment portion of the Organization for Economic Co-operation and Development's 2018 Programme for International Student Assessment (PISA) ranked in the lowest 20th percentile among 20 participating countries (OECD 2020).

Knowledge about the workings of financial and pension systems is also low. In Chile, 35 years after the introduction of a mandatory individual account pension system, 74 percent of citizens were not aware of the size of the mandatory contribution they made, and 79 percent did not know what their pension fund manager charged as a commission (*Subsecretaría de Previsión Social de Chile 2015*). Moreover, lack of trust is as important as geographical distance in the list of reasons to remain unbanked (Demirgüç-Kunt et al. 2017). The region is also susceptible to the biases that intrinsic characteristics such as present bias, lack of self-control, limited attention, and inertia may impose on households' saving choices.

EVIDENCE FROM IMPACT EVALUATIONS SUPPORTED BY THE IDB GROUP

In recent years, the IDB Group has focused on two main fronts to promote financial resilience: first, the provision of savings products and schemes that can help households overcome their behavioral biases; and second, financial education. The evidence produced so far provides four important lessons:

(1) Nudging people to save can work and at a low cost, but, when effective, its impact tends to be small.

(2) When they work, these interventions are very cost-effective and worth doing.

(3) Even though commitment and default mechanisms are effective in increasing savings, fostering their adoption is challenging, and their implementation in Latin America and the Caribbean is difficult due to high informality and low bankarization.

(4) Financial education programs can effectively change financial behavior and increase trust in the financial system.

The sections that follow explore each of these four lessons in more detail.

(1) Nudging people to save can work and at a low cost but, when effective, its impact tends to be small

When reminders are effective, effect sizes are modest and tend to be short-lived

People respond to reminders that emphasize the salience of the intertemporal choices they are making. Even when targeting long-term savings goals, reminders and messages may lead to increases in savings take-up rates and balances.

The IDB Group launched the Retirement Savings Lab (**IDB Project #RG-M1277**) to seek innovative ways to help low-income workers and the self-employed save for retirement in Latin America and the Caribbean. The work in this lab is based on behavioral economics, the use of new technologies, and digital solutions. Bosch and Rubli (2019) analyzed the staggered introduction of two policies aimed at increasing savings for retirement in Mexico: an expansion of access channels for additional contributions through 7-Eleven stores, and the bundling of this policy with a media campaign providing persuasive reminders to save. Using a difference-in-differences specification at the municipality level, the study found that access alone had a small and weak effect on savings, but including the persuasive message led to a 10-12 percent increase in savings behavior that was long-lasting.

Similarly, in Brazil, the IDB Group supported the first large-scale effort by the Brazilian government to increase social security compliance of self-employed workers. The study randomized the delivery of an informational booklet to self-employed workers already affiliated with social security, and researchers found that the reminder initially increased compliance rates by 7 percentage points and payments by 15 percent (Bosch, Fernandes, and Villa 2015). This increase was concentrated around the month the booklet was delivered, but it disappeared three months after the intervention.

However, reminders are not always effective. An experimental study of recipients of remittances in the Dominican Republic shows that SMS did not lead to differential savings account openings across treatment and control groups. Moreover, the reminders actually led to a 33 percent decrease in amounts transacted through existing accounts (Dibner-Dunlap 2017).[13] Similarly, Banerjee, Martinez, and Puentes (2019) conducted an experiment with multiple treatment arms in Chile and found that monthly SMS reminders about savings goals had no effect on balances after a year but instead reduced transactional bank account balances. Bosch et al. (2020a) found that a similar intervention in Mexico, using the same strategies, did not have an impact on increasing voluntary savings for retirement.

(2) When they work, these interventions are very cost-effective and worth doing

The cost of sending massive reminders tends to be quite low

Technology and access to big data can now contribute to the personalization of content, minimizing the cost of timely and adequate reminders while maximizing saliency. For instance, Bosch, Fernandes, and Villa (2015) found that the relatively brief increase in payments outweighed the cost of sending the reminder (through a booklet) by at least a factor of two. This result suggests that nudges could be used as policy instruments that are much more cost-effective than subsidies aimed at increasing social security contributions in developing countries, particularly for the self-employed.

Similarly, in an ongoing experimental study in Colombia, Bosch et al. (2020a) sent text messages to low-income self-employed workers inviting them to save. The messages were found to be highly cost-effective: after

13_ In analyzing this decrease, the authors offer two conjectures. First, SMS recipients may have been reminded of savings goals that seemed out of reach, and, second, participants may have been encouraged to save but did so outside of the bank account under analysis, as focus group discussions revealed that it was common for participants to hold accounts in multiple institutions for different needs.

15 months of receiving text messages, workers increased their savings by US$15.87 per every dollar invested in sending SMS.

(3) Commitment and default mechanisms are effective in increasing savings, but adopting and implementing them in Latin America and the Caribbean is challenging due to high informality and low bankarization

Take-up of savings schemes introducing a new status quo through default mechanisms is more successful when enrollment is easy

International evidence shows that diverting a portion of income towards a savings program, which mimics a compulsory savings system, is extremely effective for increasing savings (Madrian and Shea 2001; Carroll et al. 2009). Building on Thaler and Benartzi (2004), work in Latin America and the Caribbean shows that this mechanism can also be effective in the region. Bosch et al. (2020b) conducted an experiment to measure the impact of providing formal workers from an asset management firm in Chile with the option to enroll in an automatic savings plan that is matched by the firm. Preliminary results of the ongoing study show that incentivizing workers to choose a new status quo to voluntarily save for retirement led to around 25 percentage point greater take-up rates when workers were given information about the savings plan and had a hassle-free enrollment process when they joined the firm.

Experimental evidence from Chile shows that the government's massive provision of debit accounts (*Cuenta RUT*) facilitated the provision of default mechanisms, yielding a 33 percent take-up rate (Banerjee, Martinez, and Puentes 2019). These automatic savings plans increased savings temporarily, between 6 and 12 months, but the effect disappeared afterward due to increased consumption.

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Technology and access to big data can now contribute to the personalization of content, minimizing the cost of timely and adequate reminders while maximizing saliency.

Scheduled savings accounts may discourage take-up if the commitment imposed is too strict

To promote savings among the poor in the Dominican Republic, the Social Development Cabinet and Banco ADOPEM partnered to offer low-cost and simplified savings accounts to the beneficiaries of the national conditional cash transfer program. The IDB Group supported this partnership through the Promoting a Savings Culture through CCTs Program (**IDB Project #DR-M1036**). The impact evaluation of this program randomly compared the introduction of a basic savings account with a soft-commitment-scheduled savings account. This second account required compliance with a savings plan agreed upon ex ante that imposed a fixed monthly deposit, a plan duration, and an earmarked purpose defined by the user, all directed towards accessing preferential interest rates. Even though the scheduled savings account did not impose a penalty when the plan was not followed, Karlan, Frisancho, and Valdivia (2019) found lower take-up rates relative to the basic account, which suggests that the ex ante level of commitment to a savings plan discouraged households from acquiring the product.

Digital payment platforms may foster the development of default schemes among informal and/or nonbanked individuals

Although default schemes are not easy to implement in the region due to the large share of self-employed and informal workers, technology increasingly provides more avenues to do so. Ongoing research in Peru takes advantage of the digital payment platform used by Cabify, a ride-hailing app, to promote the use of default mechanisms (Bernal et al. 2020). Through the app, taxi drivers are invited to automatically save part of their earnings. Preliminary results show that the automatic diversion of funds generates sticky saving habits: the rate of disaffiliation from the savings scheme is only 3.3 percent after three months. Moreover, depending on the plan chosen, drivers who enrolled in the scheme saved between US$22 and US$35 on average after three months.

(4) Financial education programs can effectively change behavior and increase trust in the financial system

Financial education tends to trigger heated debates in academic and policy forums. Many are skeptical that financial education programs can effectively improve financial skills (Willis 2011). Other evidence suggests a limited impact on financial behavior (Fernandes, Lynch, and Netemeyer 2014). However, recent survey studies have reexamined the available evidence and found that financial education can increase financial literacy, help in the development of financial capabilities, and foster greater trust in the financial system (Kaiser and Menkhoff 2017; Kaiser et al. 2020).

Starting early with school-based programs pays off

The effectiveness of financial education is particularly robust when targeting children and youth. Frisancho (2019b) reviewed the evidence on school-based financial education programs and identified impressive learning gains. The survey paper also found that the large and robust effect sizes estimated for financial programs for youth were derived from programs that delivered personal finance material through a mandatory course requirement. In comparison, voluntary after-school programs yielded meager or null effects.

Evidence from a large-scale experiment in Peru shows that school-based financial education led to large improvements in financial skills among high school students (Frisancho 2019a, 2018). Frisancho (2018) also found that personal finance lessons led to financial knowledge gains among students equivalent to a 4 percent improvement in Peru's performance on the 2015 PISA financial literacy section (see Box 4 for a case study). Novel credit bureau data gathered in this study also uncovered long-lasting effects on financial behavior: three years later, treated students were less likely to have negative records due to unpaid/delinquent bills or credit card statements.

Box 4. Financial Education in High Schools Can Foster Financial Stability

Pilot initiatives like the "Finance in my High School" (*Finanzas en mi colegio*) Program give a glimmer of hope to young Peruvians and their communities.

In the city of Piura in an arid region of northwest Peru, José Manuel Rosas was one of 90,000 beneficiaries of a project backed by government institutions, private banks, and insurance companies. His high school was among 150 across the country to receive training in financial education that targeted both students and teachers.

José Manuel has his own small business. When he isn't studying, he is downtown selling Chocotejas, a Peruvian delicacy made of melted chocolate, peanuts, and manjar (caramel made from condensed milk.) Thanks to the project, this young entrepreneur learned the ropes of a small business. Through the project, he was taught how to save and re-invest in his own business, and he has even started saving for college.

"The project has changed my life," he says. "At home we never used to make a budget, calculate our income and expenses, or figure out how much we owed if we were in debt."

The program is having long-lasting effects on financial behavior. Three years after it started, participating students were more likely to pay their bills on time and honor their credit card commitments.

Experts have found that the economy benefits greatly when households have their own finances in check. José Manuel agrees: "I am sure that if we keep this up, the economy in Peru will grow and young citizens like me will do much better."

Even when the treatment is less intensive, the provision of financial education while in high school is effective. Bosch et al. (2018) experimentally measured the impact of a one-and-a-half-hour workshop imparted by the National Association of Pension Fund Managers in Chile and found a large and significant effect two months later on financial and pension knowledge among students in technical high schools.

School-based financial education can also have spillover effects on adults

Frisancho (2018) found that, by getting trained in the content and delivering lessons in classrooms, high school teachers in Peru were able to improve their financial skills considerably. Teachers in the treatment group accrued very large financial literacy gains, doubling those identified among students. An IDB Group-financed program (**IDB Project #RG-K1462**) was particularly effective in increasing teachers' preferences for formal savings and credit instruments and in decreasing their delinquency rates in the financial system. Although high school teachers in Peru are not representative of the average adult in the region, these results can still shed light on alternative ways to deliver financial education to adults. The impressive and sustained impact on financial behavior among teachers suggests that adults may learn more by teaching others than by listening to a lecture.

Financial education can also increase trust in financial institutions

Financial education programs not only improve the quality of decision-making, they can also tackle issues of trust among citizens. Although studies that can identify a causal link between financial education and trust in financial institutions are quite scarce, the IDB Group has been able to generate promising evidence on this front. For example, Bosch et al. (2018) found that the delivery of financial education lessons in high school led not only to an increase in financial literacy, but also to an increase in trust in pension funds and the pension system as a whole in a follow-up survey two months after the course.

In Peru, Boyd and Diez-Amigo (2019) randomized the supply of a for-profit financial education program that focused on promoting savings and marketing savings products available at the financial institution implementing the training sessions. The study found that the program significantly increased familiarity with and trust in formal financial institutions and that this effect was particularly large for the implementing institution.

IDEAS FOR FUTURE WORK

Reducing the financial fragility of citizens can go a long way towards helping Latin American and Caribbean governments make public transfers and pension programs more sustainable. A key element is allowing those who are financially fragile to save more. However, formal financial institutions in the region do not provide affordable savings instruments that suit the needs of the poor and vulnerable. Despite tremendous progress in terms of physical access to savings products, the products available in the market charge administrative fees that are not affordable for many or impose minimum deposit amounts that exclude potential users with reduced cash flows (Dupas et al. 2018; Prina 2015). In fact, according to Global Findex data, 50 percent of people in Latin America and the Caribbean report not opening a bank account because it is too expensive to do so (Demirgüç-Kunt et al. 2017).

The nature of the banking business, along with an oligopolistic market structure in most countries in the region, suggests that overcoming access barriers requires government coordination or intervention. Strong institutional leadership to establish a voluntary universal pillar for all citizens both by subsidizing services and investing in network infrastructure (physical and digital) is a big part of the solution to be able to provide affordable and useful savings instruments to low-income populations on a large scale.

There are several areas yet to be explored to further foster the financial resilience of households. One of the pending challenges is to find ways to effectively provide financial education for adults. The experimental evidence on teachers discussed above (Frisancho 2018) suggests that alternative delivery strategies that move away from traditional lecture formats may be more successful. Another area not yet explored in depth is product design for specific population segments. In a region where large pockets of the population have volatile income patterns, formal financial systems have still not found a good way to cater to their needs.

The evidence on short-term and voluntary pension savings highlights that default mechanisms can be effective. However, they are difficult to implement in a context of high informality and low bankarization rates. Going forward, it will be crucial to explore innovative ways to implement automatic savings plans. Digital payment platforms can provide great mileage for the expansion of these savings products. But instances where the government directly interacts with the citizen (i.e., tax collection, permits, cash transfers) can also create opportunities and facilitate access to savings products.

CONCLUSION

This monograph has discussed a variety of program and policy interventions in Latin America and the Caribbean that aim to **(i)** enhance digital government by providing examples of how governments can best use ICT to provide better services and achieve policy goals more efficiently; **(ii)** increase tax compliance by taking advantage of the use of incentives, rewards, and clear messages in a cost-effective way; and **(iii)** improve the financial resilience of citizens, which can contribute to the fiscal sustainability of social policies.

The lessons learned from these interventions in the region offer insights into what works in several key policy areas, including:

(1) Efficiency and access to public services

- The use of ICT has the potential to improve the effectiveness of tax collection.
- ICT can increase the efficiency of public spending and access to public services.
- Online information platforms and citizen monitoring can be effective in improving social accountability.

(2) Increasing tax compliance through nudges

- Messages to change taxpayer behavior should consider taxpayers' information and beliefs.
- The method used to communicate messages to taxpayers can impact the effectiveness of tax compliance interventions.

- The design of incentives and rewards has an impact on the effectiveness and sustainability of communication interventions.

(3) Promoting financial resilience and savings

- Nudging people to save can work and at a low cost, but, when effective, its impact tends to be small.
- Even though commitment and default mechanisms are effective in increasing savings, fostering their adoption is challenging, and their implementation in Latin America and the Caribbean is challenging due to high informality and low bankarization.
- Financial education programs can effectively change financial behavior and increase trust in the financial system.

Finally, the evidence presented in this monograph from interventions and studies supported by the IDB Group shows that both ICT and behavioral interventions, although cost-efficient, tend to have small effects. This raises the concern that it may be difficult to achieve impacts at scale using only these types of interventions. Thus, there is the need to understand how these policies and programs complement each other, since they are usually implemented independently. The IDB Group will continue to fund evidence-based interventions to strengthen the capacity of governments in Latin America and the Caribbean to create better policies to improve the lives of citizens in the region.

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