J-PAL
ABDUL LATIF JAMEEL POVERTY ACTION LAB

Improving tax compliance through reminder messages for taxpayers

Last updated: Juli 2022

Sending tax reminder messages to taxpayers is a cost-effective strategy to increase short-term tax compliance. Governments looking to improve tax compliance should invest in sending simple deterrence-framed messages to taxpayers.

Photo credit: Philipimage | Shutterstock

Summary

Tax revenues are a necessary input for governments to provide public goods and services for their citizens. However, tax compliance remains a challenge, . Estimates from 2020 suggest that countries lose up to $427 billion annually due to corporations and individuals moving their profits and wealth offshore.[1], In the United States alone, the most recent estimate from the Internal Revenue Service suggests total yearly losses of $1 trillion in all unpaid taxes by corporations and individuals in 2021.[2]

To boost compliance, governments in high- as well as low- and middle-income countries may communicate with taxpayers through mailed letters, digital or phone correspondence, or in-person visits to remind them of their tax obligations.

A review of 36 randomized evaluations and a quasi-experimental evaluation in 32 countries shows that sending simplified tax reminder messages is a highly cost-effective strategy to increase short-term tax compliance. Deterrence messages that emphasize the legal consequences of noncompliance and/or the risk of being audited are the most effective at increasing compliance. These messages outperform nondeterrence messages that emphasize social norms around tax payments, induce social pressure, or highlight notions of fairness and the provision of public goods. To enhance effectiveness, governments should ensure that deterrence messages are simple and have a credible threat of enforcement and target messages to taxpayers for

whom it is typically easier to evade taxes. They should also consider combining a deterrence framing with additional framings around social norms, social pressure, or fairness.

Supporting evidence

Sending simplified messages to taxpayers is a highly cost-effective strategy to increase tax compliance.

Governments that sent a message to taxpayers reminding them about their tax obligations increased tax compliance relative to not communicating with taxpayers in 22 of 25 randomized evaluations.[1], [2], [3], [4], [5], [6], [7], [8], [9], [11], [12], [13], [14], [16], [17], [18], [19], [20], [21], [22], [23], [24]

In addition, reminder messages with simplified language or any kind of persuasive tone (including framings around deterrence, social norms, social pressure, or fairness) worked better than standard communication with taxpayers (i.e., lengthier requests to file tax returns and/or to pay taxes without additional framings) in nine randomized evaluations.[25], [26], [27], [28], [29], [30], [31], [32], [33], In some of these cases, only simplifying the government's existing communication without adding any new persuasive language still had a positive impact on compliance—for instance, simplified messages increased tax filing compliance in Belgium by 2.6 percentage points over a comparison group mean of 31.7 percent (an 8 percent increase).[25]

These interventions were highly cost-effective when measured. In Austria, messages corresponded to a net revenue per mailing of €15 and, with 100,000 annual mailings sent by the authority, to €1.5 million of additional revenues per year.[3], In Belgium, researchers estimate that persuasive messages sent to taxpayers increased tax collection by US$18.4 million at a predicted cost of only US$83,486.[25], In Costa Rica, the return on the strongest message was US$19 per letter sent. [14], In Guatemala and Poland, respectively, researchers estimate the most effective letter would have generated 36[5], and 28 times[27], more revenue than its implementation costs if scaled up. In Uganda, researchers estimate a 6x rate of return per message sent on average and a 13x rate of return for deterrence messages.[21], Even in Bangladesh, where tax authorities hand delivered compliance letters, the benefit-cost ratio was estimated at 5 to 1.[17]

Among alternative persuasive messages, deterrence messages that emphasize the legal consequences of noncompliance and/or the risk of being audited are most effective in increasing taxpayers' compliance.

Deterrence messages increased tax compliance relative to no communication in randomized evaluations in Argentina,[1], Colombia,[7], [19], Costa Rica,[14], Denmark,[4], and the United States.[2], Examples of these deterrence messages included listing the actual fines and potential legal steps the government might follow in case of noncompliance,[7], warning taxpayers that their assets and bank accounts could be embargoed in the case of delinquency,[19], and indicating that taxpayers had been selected for a special tax audit where their tax returns would be closely investigated.[4], In Haiti, even though in-person delivery of tax invoices decreased tax compliance, adding a deterrence framing to these tax invoices mitigated this negative effect.[20]

In other studies, researchers compared the effectiveness of deterrence messages against other message types. These included messages that induced social pressure, messages that appealed to taxpayers' civic duty or sense of obligation to pay taxes, messages that highlighted the importance of taxes for public goods, or simple deterrence-free reminders.

Deterrence messages were more effective than these other message types at improving compliance in randomized evaluations in 17 low-, middle-, and high-income countries (Austria,[3], Belgium,[25], Chile,[18], the Democratic Republic of Congo,[35], the Dominican Republic,[32], Ethiopia,[9], Germany,[28], Guatemala,[5], Latvia,[11], Mexico,[23], Norway,[13], Poland,[26], the United Kingdom,[12], the United States,[36], [22], Uganda,[21], Uruguay,[27], and Venezuela[8],). In contrast, in Rwanda, researchers found friendly approaches to taxpayers (i.e., gentle reminders and messages with information about how tax

revenues are spent) were generally more effective than deterrence-based messages that highlighted the possibility of being fined and prosecuted. However, in this context, small taxpayers (i.e., corporations with low- and medium-sized revenues) were still responsive to the deterrence messages.[6]

Furthermore, deterrence messages might also indirectly increase taxpayers' compliance with other taxes not mentioned in the message as well as indirectly increase the chances that their neighbors pay their taxes too. In Argentina, sending taxpayers a deterrence message for one tax (the property tax) increased compliance for another tax (the gross sales tax) by making penalties and enforcement more top-of-mind in general.[37], In Colombia, 13 percent of taxpayers who received a deterrence message made payments on other taxes they owed that were not mentioned in the message.[7], In Austria, households who received no messages were more likely to comply with their tax obligations when their neighbors received deterrence-framed messages.[38]

Deterrence messages are most effective when they have a credible threat of enforcement.

In Costa Rica, the effects of deterrence messages sent to firms were strongest when the firms also received an example of a third-party report of their firm's transactions—a signal of the government's ability to monitor their compliance.[14], Similarly, in Finland, the strongest deterrence messages were ones that included information about third-party verification.[33], In contrast, in a quasi-experimental evaluation in Ecuador, deterrence messages only increased firms' tax payments by a small amount despite including third-party information.[39], This was likely because they may not have perceived a threat from the tax authority's enforcement capacity. Only 10–20 percent of notified firms responded to the tax authority's email requests for amended tax returns. In this context, the government could only legally prosecute a firm for tax evasion if it sent the firm an in-person notification, which is a more expensive and time-consuming delivery method.[39]

Deterrence messages are also stronger when sent to taxpayers for whom it is typically easier to evade taxes.

In seven randomized evaluations where governments sent deterrence messages to either individuals or firms, these messages improved tax compliance the most when sent to taxpayers who could more easily evade taxes in the status quo. In Venezuela, the overall effect of deterrence messages was mainly driven by the impact on small firms (with less than US$4,700 in sales) that, due to their size, were likely not subject to strong tax monitoring in the past.[8], In Chile, deterrence letters were only effective at increasing compliance for firms whose transactions were not already covered by the paper trail generated by transactions under the value-added tax.[18], In Israel, deterrence messages sent to corporations that were expected to be honest—excluding those already under investigation and those recently audited—did not improve compliance when compared to no communication.[34] In the case of individuals, in the United States, audit threats were only effective when sent to individuals with self-employment or farm income—who are usually more prone to evasion.[2], In Rwanda, the effects of deterrence messages were concentrated among small taxpayers (i.e., corporations with low- and medium-sized revenues).[6], In Germany, these effects were almost entirely driven by taxpayers who previously evaded taxes.[28], In Denmark, audit threat letters only had an impact on taxpayers' statements for self-reported income—with no impact on income verified by third parties.[4]

Evidence is mixed on whether other persuasive messages can increase tax compliance on their own.

Messages that appealed to norms of equity, fairness, social pressure, and recognition, or provided information about public goods did not increase tax compliance relative to a simple reminder or no message in randomized evaluations in 11 countries (Argentina,[1], Austria,[3], Chile,[18], the Democratic Republic of Congo,[41], Germany,[28], Israel,[34], Latvia,[11], Papua New Guinea,[24], Switzerland,[15], Uganda,[21], the United States).[40], In addition, sending messages invoking public goods in Belgium,[25], and social norms in Belgium and the United Kingdom (i.e., telling taxpayers "over 95% of [community] residents pay their council tax"),[29] reduced tax compliance compared to sending standard annual tax bills and requests to pay taxes.

In contrast, these types of nondeterrence messages did increase tax compliance in nine other randomized evaluations, including in Ethiopia,[9], Haiti,[20], Mexico,[23], Norway,[13], Poland,[26], and Uruguay.[27], In Bangladesh[17], and in a second study in the United Kingdom,[30], these messages increased compliance when sent to taxpayers who already demonstrated some form of non-compliant behavior–for instance, when sent to individuals or firms that had not paid their taxes the previous year. In Colombia, a message with a moral appeal ("Colombia—a commitment we can't evade") that was effective at increasing compliance also included some deterrence-framed text,[7], making it difficult to distinguish which framing was most effective. Further research would be helpful in understanding which conditions and mechanisms make nondeterrence messages more or less effective. Their effectiveness may vary based on the initial perceptions and beliefs of taxpayers, the type of tax and how revenues are spent, and local norms and beliefs about taxation.[11]

Combining a deterrence framing with additional social norms, pressure, or fairness messages can increase deterrence messages' effectiveness even further.

In Australia,[31], Guatemala,[5], and Peru,[16] deterrence messages that also included text on social norms, social pressure, or fairness were more effective at increasing compliance than a deterrence-only message.

While some evidence suggests in-person visits might be more effective than other delivery methods at improving compliance, they are usually more expensive. Other delivery methods, such as SMS and emails, might be as effective as conventional letters, but further research is needed.

Randomized evaluations in Rwanda, Colombia, and Slovenia[10], have also tested the effectiveness of different delivery methods. In Colombia, personal visits were more effective at increasing tax compliance than other methods in the short term.[7], In contrast, in Rwanda letters delivered in person were not more effective than letters delivered via SMS or email–however, only about half of the intended recipients actually received in-person letters in this evaluation.[6]

Further research is needed to determine whether the positive effects of persuasive messages—and deterrence messages in particular—persist over the longer term.

In Venezuela, while deterrence messages increased tax compliance in the short term, these effects dissipated after two months. [8], In contrast, in Norway deterrence messages still had an impact one year after taxpayers received them, although the letters with moral appeals did not have effects in the long term.[13] Deterrence messages might weaken over time if taxpayers no longer find the threat of legal action credible.

Sector chair(s) or Academic lead(s)

Frederico Finan Rohini Pande

Insight author(s)

David Alzate

Abdul Latif Jameel Poverty Action Lab (J-PAL). 2022. "Improving tax compliance through reminder messages for taxpayers." J-PAL Policy Insights. Last modified July 2022.

---

1. Whalen, Jeanne. "Tax Cheats Deprive Governments Worldwide of $427 Billion a Year, Crippling Pandemic Response: Study." The Washington Post. WP Company, November 20, 2020. https://www.washingtonpost.com/us-policy/2020/11/19/global-tax-evasion-data/.

2. Rappeport, Alan. “Tax Cheats Cost the U.S. $1 Trillion per Year, I.R.S. Chief Says.” The New York Times. The New York Times, April 13, 2021. https://www.nytimes.com/2021/04/13/business/irs-tax-gap.html.

3.

---

1. Castro, Lucio and Carlos Scartascini. 2015. “Tax Compliance and Enforcement in the Pampas: Evidence from a Field Experiment.” *Journal of Economic Behavior & Organization* 116 (August): 65–82. Research Paper

2. Slemrod, Joel, Marsha Blumenthal, and Charles Christian. 2001. “Taxpayer Response to an Increased Probability of Audit: Evidence from a Controlled Experiment in Minnesota.” *Journal of Public Economics* 79, no. 3: 455–483. Research Paper

3. Fellner, Gerlinde, Christian Traxler, and Rupert Sausgruber. 2013. “Testing Enforcement Strategies in the Field: Threat, Moral Appeal, and Social Information.” *Journal of the European Economic Association* 11, no. 3 (June): 634–660.Research Paper

4. Kleven, Henrik Jacobsen, Martin B. Knudsen, Claus Thustrup Kreiner, Søren Pedersen, and Emmanuel Saez. 2011. “Unwilling or Unable to Cheat? Evidence from a Tax Audit Experiment in Denmark.” *Econometrica* 79, no. 3 (May): 651–692. Research Paper

5. Kettle, Stewart, Marco Hernandez, Simon Ruda, and Michael Sanders. “Behavioral Interventions in Tax Compliance: Evidence from Guatemala.” World Bank Policy Research Working Paper 7690, June 2016.Research Paper

6. Mascagni, Giulia and Christopher Nell. 2022. “Tax Compliance in Rwanda: Evidence from a Message Field Experiment.” *Economic Development and Cultural Change* 70, no. 2 (January). https://doi.org/10.1086/713929. Research Paper

7. Ortega, Daniel and Carlos Scartascini. 2020. “Don’t Blame the Messenger. The Delivery Method of a Message Matters.” *Journal of Economic Behavior & Organization* 170 (February): 286–300.Research Paper

8. Ortega, Daniel and Pablo Sanguinetti. “Deterrence and Reciprocity Effects on Tax Compliance: Experimental Evidence from Venezuela.” Working Paper, August 2013.Research Paper

9. Shimeles, Abebe, Daniel Zerfu Gurara, and Firew Woldeyees. 2017. “Taxman's Dilemma: Coercion or Persuasion? Evidence from a Randomized Field Experiment in Ethiopia.” *American Economic Review* 107, no. 5 (May): 420–442.Research Paper

10. Dörrenberg, Philipp and Jan Schmitz. 2017. “Tax Compliance and Information Provision A Field Experiment with Small Firms.” *Journal of Behavioral Economics for Policy* 1, no. 1 (February): 47–54.Research Paper

11. Jamison, Julian, Nina Mazar, and Iman Sen. 2021. “Applying Behavioral Insights to Tax Compliance: Experimental Evidence from Latvia.” *Journal of Tax Administration* 6, no. 2.Research Paper, | J-PAL Evaluation Summary

12. Hasseldine, John, Peggy Hite, Simon James, and Marika Toumi. 2007. “Persuasive Communications: Tax Compliance Enforcement Strategies for Sole Proprietors.” *Contemporary Accounting Research* 24, no. 1 (Spring): 171–194.Research Paper

13. Bott, Kristina M., Alexander W. Cappelen, Erik Ø. Sørensen, and Bertil Tungodden. 2020. “You’ve Got Mail: A Randomized Field Experiment on Tax Evasion.” *Management Science* 66, no. 7 (July): 2801–2819.Research Paper

14. Brockmeyer, Anne, Marco Hernandez, Stewart Kettle, and Spencer Smith. “Casting the Tax Net Wider: Experimental Evidence from Costa Rica.” Working Paper, October 2016.Research Paper

15. Torgler, Benno. 2004. “Moral Suasion: An Alternative Tax Policy Strategy? Evidence from a Controlled Field Experiment in Switzerland.” *Economics of Governance* 5: 235–253.Research Paper

16. Del Carpio, Lucia. “Are the Neighbors Cheating? Evidence from a Social Norm Experiment on Property Taxes in Peru.” Working Paper, December 2022. Research Paper

17. Chetty, Raj, , Mushfiq Mobarak, and Monica Singhal. “Increasing Tax Compliance through Social Recognition.” IGC Policy Brief, August 2014.Research Paper

18. Pomeranz, Dina. 2015. “No Taxation without Information: Deterrence and Self-Enforcement in the Value Added Tax.” *American Economic Review* 105, no. 8 (August): 2539–2569.Research Paper, | J-PAL Evaluation Summary

19. Mogollon, Monica, Daniel Ortega, and Carlos Scartascini. 2021. “Who’s Calling? The Effect of Phone Calls and Personal Interaction on Tax Compliance.” *International Tax and Public Finance* 28 (March): 1302–1328.Research Paper

20. Krause, Benjamin. “Balancing Purse and Peace: Tax Collection, Public Goods and Protests.” Working Paper, 2020.Research Paper

21. Cohen, Isabelle. “Low-Cost Tax Capacity: A Randomized Evaluation on Tax Compliance with the Uganda Revenue Authority.” Working Paper, November 2020. Research Paper

22. Meiselman, Ben. 2018. “Ghostbusting in Detroit: Evidence on Nonfilers from a Controlled Field Experiment.” *Journal of Public Economics* 158 (February): 180–193.
Research Paper

23. Brockmeyer, Anne, Alejandro Estefan, Karina Ramírez Arras, and Juan Carlos Suárez Serrato. “Taxing Property in Developing Countries: Theory and Evidence from Mexico.” NBER Working Paper #28637, April 2021. Research Paper

24. Hoy, Christopher, Luke McKenzie, and Mathias Sinning. “Improving Tax Compliance without Increasing Revenue: Evidence from Population-Wide Randomized Controlled Trials in Papua New Guinea.” World Bank Policy Research Working Paper #9539, 2021. Research Paper

25. De Neve, Jan-Emmanuel, Clément Imbert, Johannes Spinnewijn, Teodora Tsanklova, and Maarten Luts. 2021. “How to Improve Tax Compliance? Evidence from Population-Wide Experiments in Belgium.” *Journal of Political Economy* 129, no. 5 (May). https://doi.org/10.1086/713096. Research Paper, | J-PAL Evaluation Summary

26. Hernandez, Marco, Julian Jamison, Ewa Korczyc, Nina Mazar, and Roberto Sormani. “Applying Behavioral Insights to Improve Tax Collection: Experimental Evidence from Poland.” World Bank Working Paper, June 2017.Research Paper, | J-PAL Evaluation Summary

27. Bérgolo, Marcelo L., Rodrigo Ceni, Guillermo Cruces, Matias Giaccobasso, and Ricardo Perez-Truglia. “Tax Audits as Scarecrows.” *American Economic Journal: Economic Policy*, forthcoming.Research Paper

28. Dwenger, Nadja, Henrik Kleven, Imran Rasul, and Johannes Rincke. 2016. “Extrinsic and Intrinsic Motivations for Tax Compliance: Evidence from a Field Experiment in Germany.” *American Economic Journal: Economic Policy* 8, no. 3: 203–232.Research Paper, | J-PAL Evaluation Summary

29. John, Peter, and Toby Blume. 2018. “How Best to Nudge Taxpayers? The Impact of Message Simplification and Descriptive Social Norms on Payment Rates in a Central London Local Authority.” *Journal of Behavioral Public Administration* 1, no. 1 (February). https://doi.org/10.30636/jbpa.11.10.Research Paper

30. Hallsworth, Michael, John A. List, , Robert D. Metcalfe, and Ivo Vlaev. 2017. “The Behavioralist as Tax Collector: Using Natural Field Experiments to Enhance Tax Compliance.” *Journal of Public Economics 148* (April): 14–31.Research Paper | J-PAL Evaluation Summary

31. Wenzel, Michael. 2006. “A Letter from the Tax Office: Compliance Effects of Informational and Interpersonal Justice.” *Social Justice Research* 19, no. 3 (September): 345–364. https://doi.org/10.1007/s11211-006-0011-y.Research Paper | J-PAL Evaluation Summary

32. Holz, Justin E., John A. List, Alejandro Zentner, Marvin Cardoza, and Joaquin Zentner. “The $100 Million Nudge: Increasing Tax Compliance of Businesses and the Self-Employed Using a Natural Field Experiment.” Working Paper, August 2020.Research Paper

33. Eerola, Essi, Tumas Kosonen, Kaisa Kotakorpi, and Teemu Lyytlkäinen. “Tax Compliance in the Rental Housing Market: Evidence from a Field Experiment.” Working Paper, January 2019.Research Paper | J-PAL Evaluation Summary

34. Ariel, Barak. 2012. “Deterrence and Moral Persuasion Effects on Corporate Tax Compliance: Findings from a Randomized Controlled Trial.” *Criminology* 50, no. 1 (February): 27–69. Research Paper

35. Bergeron, Augustin, Gabriel Tourek, and Jonathan L. Weigel. “The State Capacity Ceiling on Tax Rates: Evidence from Randomized Tax Abatements in the DRC.” Working Paper, April 2021.Research Paper, | J-PAL Evaluation Summary

36. Perez-Truglia, Ricardo, and Ugo Troiano. “Shaming Tax Delinquents.” Working Paper, June 2015.Research Paper

37. Lopez-Luzuriaga, Andrea and Carlos Scartascini. 2019. “Compliance Spillovers across Taxes: The Role of Penalties and Detection.” *Journal of Economic Behavior and Organization* 164 (August): 518–534.Research Paper

38. Drago, Francesco, Fredeirike Mengel, and Christian Traxler. 2020. “Compliance Behavior in Networks: Evidence from a Field Experiment.” *American Economic Journal: Applied Economics* 12, no. 2 (April): 96–133. Research Paper

39. Carrillo, Paul, Dina Pomeranz, and Monica Singhal. 2017. “Dodging the Taxman: Firm Misreporting and Limits to Tax Enforcement.” *American Economic Journal: Applied Economics* 9, no. 2 (April): 144–164.Research Paper

40. Blumenthal, Marsha, and Charles Christian. 2001. “Do Normative Appeals Affect Tax Compliance? Evidence from a Controlled Experiment in Minnesota.” *National Tax Journal* 51, no. 1: 125–138. Research Paper

41. Balán, Pablo, Augustin Bergeron, Gabriel Tourek**,** , and Jonathan L. Weigel. 2022. “Local Elites as State Capacity: How City Chiefs Use Local Information to Increase Tax Compliance in the DR Congo.” *American Economic Review* 112, no. 3 (March): 762–797. Research Paper