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Tax Compliance, Technology, Trust, and Inequality in a Post-Pandemic World

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Keywords: Tax compliance, technology, digitalization, trust, inequality, technology
JEL codes: H26, H22, D63

TAX COMPLIANCE, TECHNOLOGY, TRUST, AND INEQUALITY IN A POST-PANDEMIC WORLD

James Alm*

Abstract
Ensuring compliance with the tax laws is an enduring challenge for all governments, and government strategies are constantly evolving as circumstances change. Recently, countries around the world have experienced some major shocks, shocks that are already affecting tax compliance and the policies that governments utilize to maintain compliance. In this paper I examine the effects of two especially important shocks – technological shocks and SARS-CoV-2 pandemic shocks – on tax compliance in the years ahead. I argue first that many of these changes in technology will improve the ability of governments to improve tax compliance, mainly by increasing the flow of information to governments, while at the same time opening up new avenues by which some individuals and some firms can evade (and avoid) taxes. I then argue that the pandemic and the associated policies enacted by governments will affect compliance in uncertain ways, in large part because of the conflicting effects of the pandemic and government policies on trust in government. At this point it is unclear which of these trends will dominate, so that the effects of technology and the pandemic on the overall level of tax compliance in a post-pandemic world are uncertain. Even so, I believe that the distributional effects of these shocks are more predictable. Indeed, I argue that these two shocks – especially the technological shocks – seem virtually certain to increase economic inequality, regardless of their actual impacts on the level of tax compliance. The challenge facing governments is devising policies to counter these trends.

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1. Introduction

A "good" tax system is one that achieves the goals of equity, efficiency, and adequacy. Tax evasion – when individuals and firms do not pay their legally due tax liabilities in a timely manner – compromises all of these goals. Governments therefore devote many resources in an attempt to combat tax evasion and to improve tax compliance, even while individuals and firms devote many resources to minimizing their tax liabilities. However, both the methods by which governments enforce the tax laws and the methods by which individuals and firms evade their taxes change over time, as the environment in which governments, individuals, and firms operate changes.

Indeed, several recent major shocks have changed the tax compliance environment in significant, even momentous, ways, and these shocks are already affecting tax compliance and the policies that governments utilize to maintain compliance. In this paper I examine the effects of two especially important shocks – technological shocks and SARS-CoV-2 pandemic shocks – on tax compliance in the years ahead. Focusing first on technology, I argue that many of these changes in technology will improve the ability of governments to improve tax compliance, mainly by increasing the flow of information to governments, while at the same time opening up new avenues by which some individuals and some firms can evade (and avoid) taxes. Focusing next on the pandemic, I then argue that the pandemic and the associated policies enacted by governments will affect compliance in uncertain ways, in large part because of the conflicting effects of the pandemic and government policies on trust in government. At this point it is unclear which of these trends will dominate, so that the effects of technology and the pandemic on the overall level of tax compliance in a post-pandemic world are uncertain. Even so, I believe that the distributional effects of these shocks are more predictable. Indeed, I argue that these two

shocks – and especially the technology shocks – seem virtually certain to increase economic inequality, regardless of their actual impact on the level of tax compliance. The challenge facing governments is devising policies to counter these trends.

In the next section I discuss technological changes and the likely effects of these changes on tax compliance. I then discuss the pandemic shock, government policies to deal with the shock, and the resulting effects on tax compliance due largely to the ways in which trust in government has been affected, now and in the future. I conclude with an analysis of the impact of these twin shocks on income inequality and with suggestions for policies to address these effects.

It should be noted at the start that measuring tax compliance – and its mirror image tax evasion – is enormously challenging, for obvious reasons. After all, individuals have strong incentives to conceal their tax evasion, as well as other activities that reduce their tax payments like money laundering and tax avoidance, given financial and other penalties that may be imposed. Even so, research has been increasingly creative in finding data to examine these activities using naturally occurring field data, controlled field experiments, and laboratory experiments. Due to space restrictions, I do not discuss the measurement issues in this paper.[1]

2. Technological innovations and tax compliance

2.1. Emerging new technologies[2]

[1] See Alm (2012, 2019), Slemrod (2019), and especially Slemrod and Weber (2012) for recent surveys of the many different approaches to, and difficulties in, measurement. For earlier and still useful discussions of the tax compliance literature, see Cowell (1990) and Andreoni, Erard, and Feinstein (1998).

[2] For a more detailed discussion of many of these technological developments, focusing especially on their legal aspects, see Alm et al. (2020).

The basic issue in tax administration has always been *getting information* on taxpayers and their activities, and for much of history tax administrations did not have full, complete, and timely information. Even during much of the 20th century information has been limited, due to several factors. Many transactions were in cash, so that there was no "paper trail" that could be used to verify the accuracy of any reports. Many types of transactions were not reported via third-party information, so again there was no paper trail of transactions. Many types of income were also not subject to source withholding, which also decreased the flow of information to the tax authorities. Many types of tax shelters were shrouded in secrecy. Many individuals (and firms) hid income and assets in offshore accounts (e.g., tax havens). Many multinationals were able to shift profits to low-tax jurisdictions via transfer prices that were largely hidden and, even when reported, that could not be independently verified.

Overall, these factors generated several main strategies for tax evasion during much of the 20th century. Individuals (and firms) would fail to report all cash receipts and cash expenses on their tax returns; indeed, many individuals would simply fail to file a tax return. Individuals would use sophisticated tax shelters that were in principle legal forms of tax avoidance but that in practice shaded heavily into illegal forms of tax evasion. Individuals would move income and wealth into hidden offshore accounts, thereby evading any taxes on the hidden income and wealth, and firms would shift profits to lower tax jurisdictions via various strategies, including the manipulation of transfer prices.[3] The end result was predictable: tax evasion (along with money laundering and tax avoidance) existed, persisted, and flourished in most all countries

[3] More accurately, the ability of firms to shift profits to low tax jurisdictions (including tax havens) is a form of legal tax avoidance via "aggressive tax planning" (ATP), one that complies with the letter but abuses the spirit of the law.

around the world, largely because tax administrations did not have the information necessary to prevent these practices.[4]

However, technological changes have dramatically and fundamentally affected the flow of information to tax administrations. These changes are of course more concentrated in developed countries, but they are also emerging even in developing countries, given especially the efforts of international organizations like the International Monetary Fund and the World Bank, individual country organizations (e.g., U.S. Agency for International Development, Swedish International Development Cooperation Agency, Italian Development Cooperation Programme), and non-profit institutions like the Bill and Melinda Gates Foundation and the Aspen Institute.

Most all of the technological changes start with "digitization", or the transformation of information storage into digital formats (e.g., a series of binary numbers) for use by computers. Computers have opened the doors to a range of methods, all of which affect the flow of information to tax administrations, via:

- Information retrieval and storage
- Information transmission
- Information analysis

Indeed, with the integration of digitization into most all aspects of everyday life, often termed "digitalization", there have been numerous additional technological innovations, creating what Gordon (2016) has referred to as the "Third Industrial Revolution".[5]

[4] "Money laundering" is the process of disguising the unlawful source of criminally derived proceeds to make them appear legal, proceeds derived from such sources as illegal arms sales, smuggling, activities of organized crime (e.g., drug trafficking and prostitution), embezzlement, insider trading, bribery, extortion and blackmail, computer fraud schemes, corruption (e.g., "petty" and "grand"), and the like. See Unger and van der Linde (2015) for a discussion of money laundering strategies and of government policies to combat their use.

[5] See Gupta et al. (2017) for a detailed discussion of digitalization and its effects on government finances.

Specifically, briefly, and not exhaustively, these technological innovations driven largely by digitalization include the increasing use of or growth in:

- Electronic "cash"
- Electronic commerce
- Blockchain technology
- Global supply chains
- Peer-to-peer (P2P) networks
- "Monopolization" via technology
- "Apps" and the disclosure of personal information
- Biometrics
- "Big data"
- "Deep learning" (including artificial intelligence (AI) and ChatGPT).

Each of these developments emerges in large part from digitization.[6]

In short, digitalization offers the potential – for government but also for private organizations – to generate better information (e.g., more information, more timely information, and more precise information), better analysis of this information (e.g., more powerful and more predictive statistical methods), and better designed systems and policies all based on this information and its analysis. Digitalization also offers the potential for abuse of this information.

Technological changes via digitalization therefore open up new frontiers for government to detect tax evasion, while also presenting to private agents new opportunities for evasion. How will these technological changes affect both the ability of government to collect taxes and of private agents to cheat on their taxes?

2.2. Toward more tax compliance

From the standpoint of government and its tax administration, it seems clear that these technological changes have the potential to vastly improve the ability of government to collect taxes, mainly by increasing the ability of government to track and then to analyze transactions

[6] Again, see Alm et al. (2020) for a detailed discussion of these technological developments.

that leave some kind of electronic trail. For example, the decreasing use of cash and the increasing use of digital currencies allow the government to track increasing numbers of transactions because digital currencies create an electronic paper trail that government can use to trace and verify many dimensions of taxpayers' reporting decisions. Further, these innovations increase the ability of government to retrieve information (e.g., the Panama Papers); to transmit this information across jurisdictional borders via linked cross-agency governmental databases, linked international data bases and transparency agreements; and to analyze this information (often with AI algorithms). Finally, these innovations allow government to expand greatly the use of tax administration improvements like electronic filing, third-party information returns, and presumptive taxes; to track transactions via P2P networks and even perhaps blockchains and supply chains; and to monitor workers in large enterprises subject to third-party information and source withholding systems. All of these innovations allow government to reduce the ability of individuals and firms to evade or to avoid their tax obligations.

Increasingly, then, certain forms of tax evasion (along with tax avoidance and money laundering) will become much more difficult for individuals and firms. In particular, compliance will almost certainly increase for individuals with income mainly from wages, interest, dividends, and even (realized) capital gains because all of these forms of income will be subject to electronic verification, monitoring, and scrutiny. Put differently, individuals who engage in transactions that leave an electronic trail and who are subject to source withholding and/or third-party information reporting will find it virtually impossible to evade or avoid their taxes or to engage in money laundering. These taxpayers represent the vast bulk of taxpayers in all countries around the world.

2.3. Toward less tax compliance

Of course, these same technological innovations for information retrieval, transmission, and analysis are not confined to the government, but are also available to individuals and firms. This means that the ability of private agents to hide their income and assets from government tax administrations is enhanced by the ways in which technology makes for easier profit-shifting via transfer pricing, the locating of intangible assets in low-tax jurisdictions, intra-group debt-shifting, treaty shopping, corporate inversions, and tax deferral. Technology also makes it easier for individuals and firms to utilize global supply chains both for locating income in tax havens and for engaging in tax evasion via money laundering. Blockchains also are seen as making money laundering easier, although it is increasingly believed that the supposed anonymity of blockchains may be overstated. Finally, the growing use of P2P transactions, many of which involve "independent contractors" and the "informal sector", may in fact make it easier for participants to hide these transactions from the tax authorities, given the relatively small financial size of these taxpayers together with the absence of an electronic trail for many of the P2P transactions.

Again, all of these activities are abetted by the same technologies for information retrieval, transmission, and analysis that are available to government agencies. As a result, it seems likely that certain forms of tax evasion, tax avoidance, and money laundering will actually become easier and more prevalent. Almost certainly, these activities will become easier for multinationals, high-income individuals, and independent contractors.

2.4. Summary and implications

Which of these trends – those toward more compliance versus those toward less compliance evasion – will dominate? It is of course impossible to predict these trends. Even so, I believe that a strong case can be made that the dominant technological trend will be toward the

ability of government to access better information, to conduct better analysis of this information, and to design better systems and policies, all of which will improve its ability to enforce the tax laws. However, this prediction depends upon two crucial conditions being met.

First, government agencies *within each country* must be given the resources to access, analyze, and utilize this information, in order to stay ahead of those individuals wishing to cheat on their taxes. Second, government agencies *across countries* must establish the necessary policy coordination and information exchanges to utilize these new technologies, again in order to stay ahead of those individuals who intend to evade. So my conclusion is that tax compliance will tend to increase in the future – as long as government tax agency funding is adequate and as long as international policy coordination is achieved. It is certainly possible that both conditions will be met.

Even so, one cannot be too sanguine here, if recent history is any guide. For example, consider funding of the U.S. Internal Revenue Service (IRS). According to IRS data, since 2010, IRS funding has fallen in real terms by over 20 percent, audit rates have fallen well below 1 percent, audit staff has shrunk by 25 percent, revenues from audits have fallen from USD 23 billion to USD 14 billion, and the IRS "Global High Wealth Industry Group" has been effectively eliminated. Clearly, all of these actions reduce the ability of the IRS to utilize new technologies. Organisation for Economic Co-operation and Development (OECD) data suggest that the U.S. experience is not an isolated one.

Similarly, there have been several international initiatives to combat profit shifting, aggressive tax practices, and money laundering, including the U.S. Foreign Account Tax Compliance Act (FATCA) (https://www.irs.gov/businesses/corporations/foreign-account-tax-compliance-act-fatca), the Financial Action Tax Force on Money Laundering (FAFT)

(https://www.fatf-gafi.org/), the OECD "Common Reporting Standards" (CRS) framework (https://www.oecd.org/tax/automatic-exchange/common-reporting-standard/) along with its "Ten Global Principles" (https://www.unglobalcompact.org/what-is-gc/mission/principles), and the G20 and OECD Base Erosion and Profit Shifting (BEPS) framework based in large part on the FATCA model (http://www.oecd.org/tax/beps/). All of these initiatives advance various recommendations designed to improve international policy coordination, to increase transparency and reporting, and to establish clear sanctions. However, to date achieving concrete action has been elusive and uneven, largely because countries seem unwilling to cede autonomy on tax affairs to any international organization. For example, 12 EU countries recently blocked a law that would have forced multinationals to reveal their profits and their taxes in each of the 28 EU member states.

Indeed, there are plausible reasons for the failure of these efforts to improve reporting, based largely on political considerations. For example, the U.S. IRS has a long history of allegations of abuse, in which individuals in power have been accused of using the IRS and its investigative tools to target opposition individuals or groups. In the face of these allegations, it is common among elected officials of both parties to call for the reform of the IRS, even its abolition, and any politician advocating for increased (or even stable) levels of IRS funding faces significant political opposition. In fact, the USD 80 billion increase in IRS funding from the passage of the Inflation Reduction Act of 2022 was reduced by USD 20 billion in the just completed deficit reduction negotiations in May 2023. Similarly, there are major political challenges in any efforts to coordinate joint international efforts to share information, to establish common reporting standards, to distribute enforcement-generated revenues, and the like, given the conflicting interests of the many political actors who are involved, both within and across

countries. More broadly, recent research on tax policies in countries has demonstrated that the choice of many structural dimensions of tax systems, including enforcement features, is quite sensitive to political considerations.[7] It is hardly surprising that calls for increased tax administration funding and/or increased international coordination often go unheeded, given the inherently political dimensions of these calls for action.

3. The pandemic, trust, and tax compliance

3.1. Government policies in the pandemic

Since the beginning of the SARS-CoV-2 pandemic in early 2020, governments around the world have enacted a range of extensive – and expensive – measures in an attempt to protect their citizens' health, both physical and economic. Among other policies, governments have imposed lockdowns, required masks, limited personal interactions (indoors and outdoors), closed schools and businesses, and developed vaccines on an expedited basis, all designed to reduce the spread of the COVID-19 virus and to vaccinate their citizens against the virus, thereby improving the *physical* health of individuals.

Governments have also instituted many economic policies aimed mainly at providing various forms of *economic* relief to their citizens and businesses. According to the OECD, these include such policies as: increased business cost subsidies / nonrepayable grants and loans / tax credits; tax filing extensions / tax payment deferrals / tax waivers; extended tax refunds; claim back of preliminary tax payments; enhanced business loss offset provisions; wage subsidies; short-term work schedules; accelerated and bonus depreciation provisions; tax incentives for research and development; corporate income tax rate reductions; value added tax (VAT) tax rate

[7] See especially Kenny and Winer (2006) and Robinson and Slemrod (2012).

reductions; reduced taxes on specific sectors (e.g., tourism, construction, finance); reduced business financing costs; direct cash transfers to households; enhanced or extended unemployment benefits for individuals; enhanced individual eligibility for sick-pay, tax refunds, special tax deductions, tax exemptions, and waivers for social security contributions; enhanced individual tax refunds; special tax deductions, tax exemptions, tax credits, and tax waivers for individuals; and tax waivers and tax credits for specific consumption items. As classified by the OECD, these policies fall into four main areas that depend on their main objective: policies to support firms' liquidity (e.g., tax deferrals and waivers), policies to support employment (e.g., wage subsidies), policies to support business investment (e.g., enhanced tax incentives, reduced business tax rates, expanded depreciation allowances), and policies to support household consumption (e.g., direct cash transfers to households, unemployment benefits).[8]

The amounts that governments have spent on economic relief programs have been staggering. Consider the United States as only one example. Since the start of the pandemic in early 2020, the federal government of the U.S. has enacted nearly $6 trillion in relief programs, including: the Coronavirus Preparedness and Response Supplemental Appropriations Act (March 2020, $8 billion); the Families First Coronavirus Response Act (March 2020, $192 billion); the Coronavirus Aid, Relief, and Economic Security (CARES) Act (March 2020, $2.2 trillion); the Paycheck Protection Program and Health Care Enhancement Act (April 2020, $483 billion); the Consolidated Appropriations Act (December 2020, $868 billion); the American Rescue Plan Act (March 2021, $1.9 trillion); and the Infrastructure Investment and Jobs Act (November 2021, $1.2 trillion). The U.S. experience is not an isolated one.

[8] See OECD, http://www.oecd.org/coronavirus/policy-responses/tax-administration-responses-to-covid-19-measures-taken-to-support-taxpayers-adc84188/ (update 29/06/2020). For a detailed discussion of these policies, especially tax-related policies, see Alm et al. (2020).

These policies have often proved controversial. The lockdowns, masks, social distancing, and closures have been seen by many as infringements on their personal freedoms. The economic policies have been questioned on their cost and on their effectiveness.

The success of these many policies has varied considerably across countries, in both the physical and economic health dimensions. This varied success has in turn had dramatic effects on peoples' perceptions of their government, especially on their trust in government and so on their willingness to obey the many government mandates generated by the pandemic. One important and related aspect of government mandates is tax compliance. Individuals are required by law to pay their legally due taxes, and yet many individuals do not obey these requirements.

3.2. The effects – and the perceptions – of government pandemic policies

What will be the effects of the pandemic and the associated government policies on post-pandemic tax evasion, especially via the effects of government policies on citizen trust in the government? It is this general question that I examine in this section. I do this by looking at three related but more specific questions. First, how will these many policies be perceived by citizens in the countries in which they have been enacted? Second, how will these perceptions affect citizens' trust in their government? Third, how will changes in trust – positive or negative – affect tax compliance? Put differently, why does trust matter for tax compliance?[9]

[9] Note that there are various definitions of "trust". The definition that is the starting point here is for "social trust", often referred to as "generalized trust" or "moralistic trust". This is trust in others – strangers, or people within your society with whom you have little personal familiarity. It is a belief in the honesty, integrity, and reliability of others. It is a belief that others share your fundamental values, that they will abide by recognized and shared social norms, that they should be treated by you as you would wish to be treated by them. It is a "faith in people", a belief in the "Golden Rule", a belief that people can be trusted to "do the right thing". Aside from social trust, one can also think about trust in specific institutions, such as government, the courts, the media, and the like. The basic notion of trust for these institutions mirrors the notion of social trust: it is the belief that these institutions can ultimately be trusted to "do the right thing". Especially important for my purposes here is trust in government, or "political trust". See the OECD (2017) for a useful summary of these definitions and the methods for the measurement of trust; the OECD website also provides links to its many studies of trust, along with its estimates of trust, available at https://www.oecd.org/gov/trust-in-government.htm.

It is straightforward if not especially informative to answer the first two questions. If policies are seen as effective (ineffective) by most citizens, then citizens' trust in government will clearly increase (decrease). Because country experiences differ widely, perceptions of success or failure also vary widely across countries, with corresponding wide differences in the effects of trust in government.

As only one example, continue with the case of the United States; the experiences of other countries vary quite widely. As noted earlier, the magnitude of the various economic measures was enormous, with nearly $6 trillion in various relief programs enacted since early 2020. The health measures were equally momentous, even intrusive – lockdowns, mask mandates, restrictions on personal interactions and travel, school and business closings, and vaccine development via Operation Warp Speed – all designed to help protect and immunize U.S. citizens against the virus. There were some initial successes on the economic and health fronts, especially given the magnitudes of government economic relief measures.

However, it is widely perceived that the United States subsequently missed many opportunities to protect its citizens, especially on the health front. Specifically, the U.S. federal government: did not develop rapid testing or contact tracing; did not cover the cost of testing; did not provide or develop high-quality masks; did not send consistent messages on the utility of masks and other mitigation strategies; did not clearly articulate the urgency of the pandemic; did not always suggest scientifically-supported treatments; did not coordinate state and local government strategies; did not collect useful or reliable data; and the like. The outcome of these many failurs was expected and tragic: the U.S. experienced higher "excess deaths" than many (though not all) countries, despite the levels of income, wealth, and technology in the U.S. relative to many other countries. The U.S. experience was similar to several other developed

countries like Belgium, the Netherlands, Italy, Sweden, France, Canada, and Denmark; other developed countries like New Zealand, Australia, and Japan had considerably lower rates of excess deaths.[10]

These many failures of U.S. government pandemic policies almost certainly have contributed to a perception of many citizens of an ineffective government response to the COVID-19 pandemic, followed by a loss of trust in government. In fact, trust in government in the U.S. has declined since the start of the pandemic, continuing its overall downward trend since the 1950s.[11] It is difficult to determine whether the recent downward trend is due entirely to U.S. government pandemic policies or to other external events like the increasingly partisan political environment in the U.S., the impeachments of then-President Donald Trump in 2019 and 2021, the U.S. elections of 2020, or to other events. Regardless of the exact cause, it is clear that there has been a decline in trust in government in the U.S. in recent years. Again, the U.S. experience is not an isolated one. Even so, many other countries have governments whose pandemic response was widely perceived as effective.

3.3. The effects of trust on tax compliance

Now why should we care about trust? One crucial reason is because trust is a major factor in shaping the effectiveness of public policies: people who do not trust government will not obey government policies that require them to behave in specific ways.[12] This reasoning suggests

[10] For example, see the various estimates of excess mortality from the U.S. Centers for Disease Control and Prevention (https://www.cdc.gov/nchs/covid19/mortality-overview.htm), from *The Economist* (https://www.economist.com/graphic-detail/coronavirus-excess-deaths-estimates), from *Our World in Data* (https://ourworldindata.org/excess-mortality-covid), from the World Health Organization (https://www.who.int/data/sets/global-excess-deaths-associated-with-covid-19-modelled-estimates), and from *Lancet* (https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)02796-3/fulltext), among many estimates.

[11] See the estimates of trust in government provided by the Pew Research Center, available at https://www.pewresearch.org/politics/2022/06/06/public-trust-in-government-1958-2022/ .

[12] Note that there is a large (and fairly recent) empirical literature that attempts to show the many economic effects of trust, on such outcomes as: trade, financial development, productivity, institutional performance, personal

another reason: when people do not obey government laws, regulations, and directives, government policies cannot achieve their goals.

But why does trust have these effects? There are two strands of research that help us understand some of the reasons for these effects of trust: the *tax compliance* literature and the more recent *pandemic* literature. Both strands demonstrate the central role of trust on individual behavior. Specifically, both strands demonstrate that trust – and especially trust in government – is a major factor in shaping the effectiveness of public policies. When trust in government is weak, many government policies cannot achieve their goals because people simply do not follow the government's various mandates.[13]

In the *tax compliance* arena, there are several distinct if overlapping frameworks that consider the effects of trust. Here is a brief sampler – there are other examples.

In one framework, Benno Torgler, Jorge Martinez-Vazquez, and I have argued that government policies toward tax compliance need to incorporate different approaches, or *paradigms*.[14] One is the traditional *Enforcement* paradigm, where taxpayers are viewed and treated as potential criminals, and the emphasis is on repression of illegal behavior through frequent audits and stiff penalties. A second and newer approach is the *Service* paradigm, which views the tax administration as a facilitator and as a provider of services to taxpayer-citizens, and the emphasis is on making it easier for people to pay their taxes via simplification, education, and assistance. Of most relevance is an emerging *Trust* paradigm, whose premise is that individuals are more likely to respond either to enforcement or to services if they believe that

happiness, educational attainment, preferences for redistribution, fertility, political participation, voting behavior, crime, savings, and the like; see Guiso, Sapienza, and Zingales (2006) for discussions of much of this literature. One of the most investigated outcomes is economic growth; see Algan and Cahuc (2013) for a survey of this literature.

[13] For a detailed discussion of the role of trust in public policies, see Alm (2022).

[14] See Alm and Martinez-Vazquez (2003) and Alm and Torgler (2011).

other individuals and, especially, the government are honest; that is, "trust" in others and in the authorities can have a positive impact on compliance behavior. The World Bank has recently developed a framework ("Innovations in Tax Compliance") that is largely the same, in which the paradigms are renamed to *Enforcement*, *Facilitation*, and *Trust*.[15]

In a related but more formalized and developed framework, Erich Kirchler and his many collaborators have developed and tested the *slippery slope* framework, in which they argue that it is the interaction climate between taxpayers and authorities that shapes the willingness to cooperate, as based on "trust" and "power".[16] In a synergistic and cooperative climate, characterized by high trust in authorities who act with high legitimization and professionalism, taxpayers are willing to cooperate voluntarily. In an antagonistic climate, characterized by low trust, poor legitimization, and questionable professionalism, taxpayers refuse to cooperate, unless compliance with the law is enforced via power. Thus, taxpayer compliance depends both on the *power* of the authority and on the *trust* in the authority, with both dimensions moderating each other and determining the level of compliance. An authority with a high level of power (determined by frequent and effective audits and heavy penalties) achieves enforced tax compliance; an authority with a low level of power cannot generate a similar level of compliance. Of note, an authority that elicits strong trust from citizens (determined by fair procedures, favorable attitudes towards the government, and social norms that define compliance as the expected and prevalent behavior) achieves voluntary compliance; an authority that does not generate trust from its citizens is unable to achieve voluntary compliance. Once again, the effectiveness of government policies depends intimately on trust in government.

[15] See Prichard et al. (2019).
[16] See Kirchler, Hoelzl, and Wahl (2008).

Still another similar framework has been developed by Lars Feld and Bruno Frey. They argue that there is a *psychological contract* between taxpayers and the government, a contract that implies responsibilities for both parties. They conclude that citizens are willing to honestly declare income as long as the political process is perceived to be fair and legitimate; when the political process is seen as unfair and illegitimate, citizens are more likely to cheat on their taxes. In their framework, honest taxpayers must believe that they will not be exploited by tax cheaters, which requires that major violations for tax evasion must be enforced by the government. However, even honest taxpayers may make mistakes, so that minor offences should be subject to minor fines. Indeed, the imposition of heavy penalties on (largely) honest taxpayers may crowd out their intrinsic motivation to pay their taxes; that is, deterrence can actually backfire.[17]

There is in fact much emerging evidence using different methods – evidence that is not always ironclad but more than suggestive – that supports all of these frameworks and so that also supports the central role of trust.

Some evidence comes from my own work on compliance, including especially my work using laboratory experiments conducted with many collaborators.[18] One of our basic findings demonstrates that the social and institutional environment in which individuals live affects compliance, in ways that go well beyond any effects via purely financial incentives. In particular, there is strong evidence that there is a social norm of compliance, in which one's compliance behavior depends upon various factors that reflect the many aspects of one's environment, including trust in others. Further, these social norms are affected by the institutions that individuals face and by individuals' attitudes toward these institutions – such as trust in

[17] See Feld and Frey (2007).
[18] See Alm (2019) for a comprehensive survey of the tax compliance literature, including detailed citations to the relevant literature. For a meta-analysis of laboratory experiments on tax compliance, see Alm and Malézieux (2021).

government. For example, individuals who do not exhibit trust in government tend to comply less, and trust in institutions affects the viability of government policies by affecting how individuals respond to government policies: when trust in government is greater, enforcement is more effective in deterring noncompliance, and service policies are also more effective in getting individuals to pay their taxes.

A related finding from my experimental work is that individual participation in the choice of institutions – the *process* as distinct from the *outcome* – has real effects, again independent of financial considerations driven by tax, audit, and fine rates. Subjects in laboratory experiments pay more when they choose the use of their taxes by voting than when the identical use is imposed upon them, their compliance is greater when the vote indicates a clear group consensus, and their compliance is significantly and dramatically lowered by the imposition without taxpayer choice of any program (especially an unpopular one). Additional experiments demonstrate how different forms of communication between the tax authorities and the taxpayers can increase the social norm of compliance. Once again, trust affects behavior, this time trust in the process.

There is also much experimental evidence for the *slippery slope* framework.[19] Of special relevance here is recent work using data from multiple experimental studies conducted across 44 nations in five continents with nearly 15 thousand subjects (Batrancea et al. 2019). They find that the trust in authorities and the power of authorities each separately increases tax compliance, across societies that differ enormously in economic, sociodemographic, political, and cultural backgrounds. They also show that trust and power foster compliance through different channels: trusted authorities register the highest voluntary compliance, while powerful authorities register

[19] For example, see Wahl, Kastlunger, and Kircher (2010), Muehlbacher, Kirchler, and Schwarzenberger (2011), and Lisi (2012).

the highest enforced compliance. Overall, compliance is higher (lower) when both power and trust are high (low), with power and trust interacting in a complicated dance. Indeed, there is evidence that some power is necessary to maintain trust and to signal to the compliant that the government will protect them from free-riders. However, power can also backfire and crowd-out trust – audits by their very nature signal distrust, and there is evidence from other work that audits can be counterproductive if those who are audited turn out to be honest.

There is finally empirical evidence to support the *psychological contract* theory. For example, Feld and Frey (2002) use data on Swiss cantons, and they find that the more strongly are political participation rights developed, the more important is this psychological contract between taxpayers and the government, and the higher is tax morale – and tax compliance.

There is also supportive evidence consistent with all of these approaches that is just now emerging from field experiments on tax compliance. The World Bank, sometimes in partnership with other international organizations, has undertaken a range of innovative field experiments that test different strategies for improving tax compliance. The most relevant field experiments here are those that attempt to increase trust in government as a compliance strategy. Importantly, most all of these trust experiments occur at the local government level in developing countries, in Asia (e.g., Pakistan), Latin America (e.g., Argentina, Brazil, Colombia, Costa Rica, Guatemala, Mexico, Peru, Uruguay), and Africa (e.g., Ethiopia, Ghana, Kenya, Liberia, Malawi, Rwanda, Sierra Leone, South Africa, Tanzania, Uganda). These field experiments examine strategies like:

- Improving transparency and accountability in local government decisions by providing information to participants about local government behavior
- Providing information to participants about the compliance behavior of their neighbors
- Linking taxes with local services by informing participants about the use of their taxes or allowing participants to determine the use of their taxes
- Sending different types of messages to participants about government policies (e.g., enforcement messages, information messages, social norm messages)
- Providing educational services to participants to make it easier to pay taxes.

The results vary significantly by type of strategy, but they all rely at least in large part on providing more and better information to individuals. A common result is that these strategies often improve individuals' trust in their neighbors and in their local government, at least when this information is viewed by individuals as reliable – or trustworthy – and, through this trust channel, they also improve tax compliance. Once again, changing trust changes behavior in systematic and predictable ways.[20]

Will these results scale and generalize beyond tax compliance? The *pandemic* itself has presented an unprecedented opportunity to examine via natural experiments the effects of social trust on individual behavior, well beyond the tax compliance literature. There are many just emerging studies that demonstrate that many of the effects of government policies during the pandemic have been intimately affected by citizen trust in government. For example, there is strong and consistent evidence that individuals have been far more likely to obey mask mandates, to stay at home, and to get vaccinated, when they live in areas with greater levels of social and political trust (as well as greater levels of social capital), with evidence coming from a varied set of countries, including Austria, Brazil, Denmark, Germany, Italy, the Netherlands, Sweden, Switzerland, United Kingdom, and the U.S. (admittedly with some confounding results). In short, government policies designed to reduce the spread of the coronavirus worked when people trusted government – and they did not work when people did not trust government.[21]

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[20] Information on this work can be found online at https://www.ictd.ac/theme/tax-administration-and-compliance/ and https://www.worldbank.org/en/topic/macroeconomics/brief/innovations-in-tax-compliance.

[21] This research is expanding quite quickly. Much of it is still in working papers. For example, see the VoxEU webpage on COVID-19 research, available at https://voxeu.org/pages/covid-19-page, and see also the CESifo webpage for all of their many studies, available at https://www.cesifo.org/en/cesifo/publications. Some studies are now being published in academic journals; for an especially timely and important of these published papers, see

In many ways, this evidence suggests that government policy is an expression of values. When government articulates policies that are counter to peoples' values, their trust in government necessarily and inevitably declines.

3.4. Summary and implications

There are many reasons for believing that many government policies work best – and may only work at all – in changing behavioral responses when people trust government. The recent COVID-19 studies may be the most vivid illustration of this result.

All of these considerations suggest that the pandemic has had pervasive effects on trust in government, both positive and negative, depending on the country. Countries that protected their citizens against the COVID-19 virus and the resulting income insecurity have seen an increase in trust in government, countries like Australia, Japan, and New Zealand. Countries that did a poor job in physical and economic health protection of their citizens – as with the U.S. and many other countries – have likely seen a decline in trust in government. In both cases, we can expect to see the resulting effects of changes in trust on tax compliance. Whether these effects will be large or persistent remains to be seen, but there is little question that such effects will emerge.[22]

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the recent (and ongoing) special issues of the *Journal of Public Economics*, available at https://www.sciencedirect.com/journal/journal-of-public-economics/special-issue/10JWB645FT5.

[22] Recent work by Schneider (2022) provides estimates of the size of the so-called "shadow economy" for 36 OECD and European countries during the initial years of the pandemic (2020 and 2021), with projections to 2022. Note that these estimates are driven entirely by macroeconomic factors (e.g., recession, shutdowns). Note also that the shadow economy is different than, even if related to, tax evasion. See also recent work by Alm and Barreto (2023), who analyze an endogenous growth model that incorporates the impacts of various shocks: an initial pandemic shock, the response of government to the pandemic via a policies shock, and the resulting trust shock that stems from a shock to tax morale as individuals perceive an effective/ineffective government response. They then use this model simulate the short and long run dynamic effects of the various shocks, using real data from 11 representative economies that typify developed and developing countries as well as countries whose governments implemented policies that either increased or decreased trust in government. Their simulation results both illustrate and quantify the short and long term effects of these shocks on tax compliance, showing the significant impacts on tax compliance via the effects of the pandemic and government responses on trust.

4. Implications for inequality

The combined effects of technology and the pandemic on tax compliance are of course uncertain. Compliance may increase or decrease from technological changes depending on whether government within a country is given the resources to implement the new technologies and also on whether governments across countries are able to achieve effective policy coordination. Compliance may also increase or decrease from the pandemic and the resulting government policy responses depending on whether government responds effectively or ineffectively and so on whether trust in government increases or decreases. The results will necessarily be varied and country-specific.

Overall, then, it is difficult to know whether tax compliance in any country will rise or fall in the post-pandemic years ahead. However, regardless of the exact effect on the magnitude of tax compliance, I believe that it is hard to avoid the conclusion that tax evasion will remain an important problem across all countries. Importantly, I also believe that it is hard to avoid the conclusion that the forms of tax evasion that will remain will worsen inequality, largely due to the lasting effects of technological changes.[23]

Now there are many causes of inequality, most are well beyond technology and the pandemic, and most are largely unrelated to tax compliance. Government tax and transfer policies are certainly one proximate determinant of inequality. However, there are many other – and likely many other more important – determinants, including: unionization of labor markets, market power of firms, government regulatory policies, minimum wages, education programs,

[23] Note that some preliminary evidence for the U.S. from the U.S. Census Bureau (2022) shows that inequality increased in the initial period immediately following the pandemic in early 2020 due largely to the economic contraction. Inequality then decreased due to government economic relief programs, and inequality increased again following the phase-out of the relief programs and the uneven economic recovery. Possible long run effects include the impact of school closures on educational attainment and the impact of changing work patterns from the pandemic (e.g., working from home). The magnitude of these long run effects remain unknown at present.

monetary policies (e.g., interest rate policies), institutions (including histories of discrimination, sexism, and racism), and the like. How will the tax evasion that remains with us likely affect inequality?

Perhaps surprisingly, there has been relatively little work on the distributional effects of tax evasion, at least until recently. Early work by Alm, Bahl, and Murray (1990) for a developing country (Jamaica) indicated that income tax evasion was concentrated in higher income classes, especially through non-filing of tax returns by professionals and small business owners; that is, taxes as a proportion of "true" or "comprehensive" income fell significantly as comprehensive income rose, transforming an income tax that appeared on paper to be a progressive tax into a highly regressive tax. Johns and Slemrod (2010) examined administrative data for a developed country (U.S.), and they also found that the proportion of misreported income relative to "true" income was significantly higher for higher income individuals. In both analyses, tax evasion was found to be absolutely and proportionately greater as income increased. There is now recent and emerging evidence for other countries that suggests a similar result, as discussed in detail later.

Technological changes seem likely to reinforce these patterns. As I argued earlier, digitalization seems likely to make tax evasion increasingly difficult for those individuals who engage in transactions that leave an electronic trail and who are subject to source withholding and third-party information reporting. These individuals will find it virtually impossible to cheat on their taxes, and these individuals represent the vast bulk of all taxpayers, in developing and in developed countries.

In contrast, digitalization seems likely to make tax evasion increasingly easy for multinational companies (via profit-shifting), for high-income individuals (via tax havens and money laundering), and for independent contractors who operate in the P2P economy (via lack

of third-party reporting, especially on expenses). The actual distributional effects of these likely patterns of tax evasion are not entirely clear. The distributional effects of tax havens and money laundering will accrue largely to higher income individuals. However, the distributional effects for multinationals and for independent contractors are subject to some debate. There is in fact much evidence of the extent of tax shifting by multinationals.[24] Given that ownership of multinationals is heavily concentrated in higher income classes, it seems likely that the gains from profit shifting will accrue largely to higher income individuals. Even so, the distributional effects of profit-shifting depend on the incidence of the corporate income tax, about which there is little consensus, especially in a global economy.[25] The gains from tax evasion by independent contractors operating in the P2P economy will increase the income of lower income individuals; however, the magnitudes of these gains is unknown at present, and regardless these gains seem likely to be quite small in the aggregate.

On balance, then, it seems plausible, and even likely, that it will be people mainly at the very top and at the very bottom of the income distribution who will reap the benefits of technology and its effects on tax evasion, with the gains at the top almost certainly far exceeding the gains at the bottom. Indeed, the political power of these higher income individuals also makes it likely that they will disproportionately benefit from any technological changes.

Recent and emerging evidence largely confirms these speculations. Alstadsaeter, Johannesen, and Zucman (2018) use macroeconomic data published by the Bank for International Settlements to allocate the estimates of Zucman (2013, 2015) of global offshore financial wealth (or 8 percent of world household financial wealth) to each country, in order to

[24] See Zucman (2013, 2015), Clausing (2016, 2020), and Tørsløv, Wier, and Zucman (2023).
[25] For a comprehensive review and assessment of the literature on the incidence of the corporate income tax, see Auerbach (2006).

estimate the amount of household wealth owned by each country in offshore tax havens. They find that the global estimate of offshore wealth hides much heterogeneity in individual country offshore wealth. Their estimates indicate that European countries own about 1/6 of world offshore wealth, and individual countries like Russia, Gulf countries, and Latin American countries also own considerable amounts of offshore wealth. Importantly, Alstadsaeter, Johannesen, and Zucman (2018) find that the ownership of offshore wealth is heavily concentrated at the very top of the wealth distribution, and accounting for offshore wealth dramatically increases the wealth share of the top 0.01 percent, especially in Scandinavian countries, the United Kingdom, Spain, and France.

In related work, Alstadsaeter, Johannesen, and Zucman (2019) use data leaked from HSBC Switzerland (the "Swiss leaks"), from the now-defunct Panama firm of Mossack Fonseca (the "Panama Papers"), and from various tax amnesties enacted after the financial crisis of 2008-2009 to examine more directly tax evasion of the very rich. At the time of the Swiss leaks (2007), HSBC Switzerland was a major player in offshore banking, managing assets that represented 5 percent of all foreign wealth in Swiss banks. The leaked data include the complete internal records for 2007 of over 30 thousand HSBC Switzerland clients, many of whom were evading taxes. Alstadsaeter, Johannesen, and Zucman (2019) use these specialized data to link this information to micro-level administrative data for Scandinavian countries (Denmark, Norway, and Sweden), in order to estimate the amount of income that individuals in these countries evaded via offshore banking. They find striking and high levels of tax evasion by the very rich: the 0.01 percent richest households evade nearly 25 percent of their taxes, a level of tax evasion that far exceeds the usual estimates (roughly 5 percent tax of taxes) generated from random tax audits. Although not directly related to distributional issues, the evidence from

Johannesen et al. (2020), is also consistent with the concentration of off-shore wealth in the higher – and the very much higher – income classes.

Just released results by Boning et al. (2023) provide supporting evidence. Using micro-level IRS administrative data for U.S. taxpayers over the years 2010-2014, they find that an additional $1 spent auditing taxpayers above the 90th income percentile yields more than $12 in additional revenues, while audits of below-median income taxpayers yield only $5. Overall, their evidence is consistent with higher-income taxpayers cheating more in absolute and relative terms that lower-income taxpayers.[26]

There are of course critical and unresolved concerns about whether these estimates, generated using restrictive assumptions using specialized data sets for specific countries, will apply more broadly.[27] Even so, this evidence is consistent with the conclusion that the distributional effects of tax havens and money laundering will accrue largely to higher income classes. More broadly, the existing evidence is also largely consistent with the conclusion that technological advances will make it easier for the very rich to evade their taxes, even while also making it easier for participants in the P2P economy to evade their taxes. The challenge for researchers is to find new data and new methods that can quantify these effects well beyond the scope of existing studies.

All of this suggests that technology will make evasion increasingly difficult for most taxpayers, but that technology will also make evasion increasingly viable for high income taxpayers. Regardless of the overall impacts both of technology and of the pandemic on the level of tax compliance, I conclude that inequality is virtually certain to increase in the post-pandemic years ahead.

[26] In related work, see also Saez and Zucman (2019), DeBacker et al. (2020), and Guyton et al. (2021).
[27] For example, see Blouin and Robinson (2020) for a detailed critique of some these estimates.

However, these are speculations only. One challenge will be to find data that quantify these effects. A more fundamental challenge will be to devise policies that prevent, or at least mitigate, the effects of technology on the incomes of the already very wealthy. Such policies are currently much debated. On the tax administrative dimension, these policies likely include such obvious steps as maintaining (and increasing) tax agency funding, improving international policy coordination and information exchange, expanding third-party information reporting to include all major margins of behavior, reforming taxation of the P2P economy, attacking money laundering and tax havens, imposing a national or even an international wealth tax, imposing a tax on unrealized capital gains, establishing a global minimum corporate income tax, and perhaps even changing the practice of international taxation, as is currently under discussion.[28] On the broader fiscal front, increasing government transfers and other social welfare expenditures are obvious policies. On the even wider economic front, policies that encourage unionization, break-up monopolies, raise minimum wages, improve education, and extend reparations to affected minorities have been suggested, despite their uncertain effects on inequality. All of these policies are feasible. None are ensured.

References

Algan, Yann, and Pierre Cahuc (2013). Trust and growth. *Annual Review of Economics* 5: 521-549.

Alm, James (2012). Measuring, explaining, and controlling tax evasion: Lessons from theory, experiments, and field studies. *International Tax and Public Finance* 19 (1): 54-77.

Alm, James (2019). What motivates tax compliance? *Journal of Economic Surveys* 33 (2): 353-388.

Alm, James (2021). Tax evasion, technology, and inequality. *Economics of Governance* 22 (4): 321-343.

[28] For example, see recent work by Saez and Zucman (2019) on a global wealth tax, Clausing, Saez, and Zucman (2020) on a global minimum corporate income tax, and Avi-Yonah and Clausing (2019), Mason (2020), and Devereux et al. (2020) on comprehensive reform of international taxation.

Alm, James (2022). Trust, the pandemic, and public policies. *National Tax Journal* 75 (2): 355-370.

Alm, James, Roy Bahl, and Matthew N. Murray (1991). Tax base erosion in developing countries. *Economic Development and Cultural Change* 39 (4): 849-872.

Alm, James, Joyce Beebe, Michael S. Kirsch, Omri Marian, and Jay A. Soled (2020). New technologies and the evolution of tax compliance. *Virginia Tax Review* 39 (3): 287-356.

Alm, James, Kay Blaufus, Martin Fochmann, Erich Kirchler, Peter N. C. Mohr, Nina E. Olson, and Benno Torgler (2020). Tax policy measures to combat the SARS-CoV-2 pandemic and considerations to improve tax compliance: A behavioral perspective. *FinanzArchiv* 76 (4): 396-428.

Alm, James, and Antoine Malézieux (2021). 40 years of tax evasion games: A meta-analysis. *Experimental Economics* 24 (3): 699-750.

Alm, James, and Jorge Martinez-Vazquez (2003). Institutions, paradigms, and tax evasion in developing and transition countries. In: James Alm and Jorge Martinez-Vazquez (eds.), *Public Finance in Developing and Transition Countries*. Cheltenham, UK and Northampton, MA: Edward Elgar Publishing, 146-178.

Alm, James, and Benno Torgler (2011). Do ethics matter? Tax compliance and morality. *Journal of Business Ethics* 101 (4): 635-651.

Andreoni, James, Brian Erard, and Jonathan S. Feinstein (1998). Tax compliance. *The Journal of Economic Literature* 36 (2): 818-860.

Alstadsæter, Annette, Niels Johannesen, and Gabriel Zucman (2019). Tax evasion and inequality. *The American Economic Review* 109 (6): 2073-2103.

Alstadsæter, Annette, Niels Johannesen, and Gabriel Zucman (2018). Who owns the wealth in tax havens? Macro evidence and implications for global inequality. *Journal of Public Economics* 162: 89-100.

Auerbach, Alan J. (2006). Who bears the corporate tax? A review of what we know. In: James M. Poterba (ed.), *Tax Policy and the Economy, Volume 20*. Cambridge, MA: National Bureau of Economic Research, 1-40.

Avi-Yonah, Reuven S., and Kimberly A. Clausing (2019). Toward a 21st-century international tax regime. *Tax Notes International* 26 August 2019: 839-849.

Batrancea, Larissa, Anca Nichitaa, Jerome Olsen, Christoph Kogler, Erich Kirchler, Erik Hoelzle, Avi Weiss, Benno Torgler, Jonas Fooken, Joanne Fuller, Markus Schaffner, Sheheryar Banuri, Medhat Hassanein, Gloria Alarcón-García, Ceyhan Aldemir, Oana Apostol, Diana Bank Weinberg, Ioan Batrancea, Alexis Belianin, Felipe de Jesús Bello Gómez, Marie Briguglio, Valerij Dermol, Elaine Doyle, Rebone Gcabo, Binglin Gong, Sara Ennya, Anthony Essel-Anderson, Jane Frecknall-Hughes, Ali Hasanain, Yoichi Hizen, Odilo Huber, Georgia Kaplanoglou, Janusz Kudła, Jérémy E. Lemoine, Supanika Leurcharusmee, Thorolfur Matthiasson, Sanjeev Mehta, Sejin Min, George Naufal, Mervi Niskanen, Katarina Nordblom, Engin Bağış Öztürk, Luis Pacheco, József Pántya, Vassilis Rapanos, Christine Roland-Lévy, Ana Maria Roux-Cesar, Aidin Salamzadeh, Lucia Savadori, Vidar Schei, Manoj Sharma, Barbara Summers, Komsan Suriya, Quoc Tran, Clara Villegas-Palacio, Martine Visser, Chun Xia, Sunghwan Yi, and Sarunas Zukauskas (2019). Trust and power as determinants of compliance across 44 countries. *Journal of Economic Psychology* 74, Article 102191.

Blouin, Jennifer, and Leslie A. Robinson (2020). Double counting accounting: How much profit of multinational enterprises is really in tax havens? SSRN Working Paper, available online at http://ssrn.com/abstract=3491451.

Boning, Will C., Nathaniel Hendren, Ben Sprung-Keyser, and Ellen Stuart (2023). A Welfare Analysis of Tax Audits Across the Income Distribution. NBER Working Paper No. w31376. Cambridge, MA: National Bureau of Economic Research.

Clausing, Kimberly A. (2016). The effect of profit shifting on the corporate tax base in the United States and beyond. *National Tax Journal* 70 (3): 675-706.

Clausing, Kimberly A. (2020). Profit shifting before and after the Tax Cuts and Jobs Act. *National tax Journal* 73 (4): 1233-1266.

Clausing, Kimberly A., Emmanuel Saez, and Gabriel Zucman (2020). Ending corporate tax avoidance and tax competition: A plan to collect the tax deficit of multinationals. SSRN Working Paper, available online at https://ssrn.com/abstract=3655850.

Cowell, Frank A. (1990). *Cheating the Government: The Economics of Evasion*. Cambridge, MA: The MIT Press.

DeBacker, Jason, Bradley Heim, Anh Tran, and Alex Yuskavage (2020). Tax noncompliance and measures of income inequality. *Tax Notes* 166 (7): 1103-1118.

Devereux, Michael P. Alan J. Auerbach, Michael Keen, Paul Oosterhuis, Wolfgang Schön, and John Vella (eds.) (2020). *Taxing Profit in a Global Economy*. New York, NY: Oxford University Press.

Feld, Lars P., and Bruno S. Frey (2002). Trust breeds trust: How taxpayers are treated. *Economics of Governance* 3 (2): 87-99.

Feld, Lars P., and Bruno S. Frey (2007). Tax compliance as the result of a psychological tax contract: The role of incentives and responsive regulation. *Law & Policy* 29 (1): 102-120.

Gordon, Robert J. (2016). *The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War*. Princeton, NJ: Princeton University Press.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales (2006). Does culture affect economic outcomes? *The Journal of Economic Perspectives* 20 (1): 23-48.

Gupta, Sanjeev, Michael Keen, Alpa Shahand Genevieve Verdier (eds.) (2017). *Digital Revolutions in Public Finance*. Washington, D.C.: International Monetary Fund.

Guyton, John, Patrick Langetieg, Daniel Reck, Max Risch, and Gabriel Zucman (2021). Tax evasion at the top of the income distribution. NBER Working Paper No. 28542. Cambridge, MA: National Bureau of Economic Research.

Johannesen, Niels (2014). Tax evasion and Swiss bank accounts. *Journal of Public Economics* 111: 46-62.

Johannesen, Niels, and Gabriel Zucman (2014), The end of bank secrecy? An evaluation of the G20 tax haven crackdown. *American Economic Journal: Economic Policy* 6 (1): 65-91.

Johannesen, Niels, Patrick Langetieg, Daniel Reck, Max Risch, and Joel Slemrod (2020). Taxing hidden wealth: The consequences of U.S. enforcement initiatives on evasive foreign accounts. *American Economic Journal: Economic Policy* 12 (3): 312-346.

Johns, Andrew, and Joel Slemrod (2010). The incidence of income tax noncompliance. *National Tax Journal* 63 (3): 397-418.

Kenny, Lawrence W., and Stanley L. Winer (2006) Tax systems in the world: An empirical investigation into the importance of tax bases, administration costs, scale and political regime. *International Tax and Public Finance* 13 (2–3): 181-215.

Kirchler, Erich, Erik Hoelzl, and Ingrid Wahl (2008). Enforced versus voluntary tax compliance: The "slippery slope" framework. *Journal of Economic Psychology* 29 (2): 210-225.

Lisi, Gaetano (2012). Testing the slippery slope framework. *Economics Bulletin* 32 (2): 1369-1377.

Mason, Ruth (2020). The transformation of international tax. *American Journal of International Law* 114 (3): 353-402.

Muehlbacher, Stephan, Erich Kirchler, and Herbert Schwarzenberger (2011). Voluntary versus enforced compliance: Empirical evidence for the "slippery slope" framework. *European Journal of Law and Economics* 32 (1): 89-97.

Organisation for Economic Co-operation and Development (OECD) (2000). *Towards Global Tax Co-operation: Progress in Identifying and Eliminating Harmful Tax Practices*. Paris, France: OECD Publications.

Organisation for Economic Co-operation and Development (OECD) (2013). *Addressing Base Erosion and Profit Shifting*. Paris, France: OECD Publications.

Organisation for Economic Co-operation and Development (OECD) (2017). *OECD Guidelines on Measuring Trust*. Paris, France: OECD Publications.

Prichard, Wilson, Anna Custers, Roel Dom, Stephen Davenport, and Michael Roscitt (2019). Innovations in tax compliance: Conceptual framework. World Bank WPS 9032. Washington, D.C.: World Bank Group.

Robinson, Leslie, and Joel Slemrod (2012). Understanding multidimensional tax systems. *International Tax and Public Finance* 19 (2): 237-267.

Saez, Emmanuel, and Gabriel Zucman (2019). *The Triumph of Injustice: How the Rich Dodge Taxes and How to Make Them Pay*. New York, NY: W.W. Norton & Company.

Schneider, Friedrich (2022). New COVID-related results for estimating the shadow economy in the global economy in 2021 and 2022. *International Economics and Economic Policy* 19 (2): 299-313.

Slemrod, Joel (2019). Tax compliance and enforcement. *The Journal of Economic Literature* 57 (4): 904-954.

Slemrod, Joel, and Caroline Weber (2012). Evidence of the invisible: Toward a credibility revolution in the empirical analysis of tax evasion and the informal economy. *International Tax and Public Finance* 19 (1): 25-53.

Tørsløv, Thomas, Ludvig Wier, and Gabriel Zucman (2023). The missing profits of nations. *The Review of Economic Studies* 90 (3): 1499-1534.

Unger, Brigitte, and Daan van der Linde (eds.) (2015). *Research Handbook on Money Laundering*. Cheltenham, UK and Northampton, MA: Edward Elgar Publishing.

U.S. Census Bureau (2022). *Income in the United States: 2021, Current Population Reports, Report No. P60-276*. Washington, D.C.: U.S. Census Bureau.

Wahl, Ingrid, Barbara Kastlunger, and Erich Kirchler (2010). Trust in authorities and power to enforce tax compliance: An empirical analysis of the "slippery slope" framework**.** *Law and Policy* 32 (4): 383-406.

Zucman, Gabriel (2013). The missing wealth of nations: Are Europe and the U.S. net debtors or net creditors? *The Quarterly Journal of Economics* 128 (3): 1321-1364.

Zucman, Gabriel (2015). *The Hidden Wealth of Nations*. Chicago, IL: University of Chicago Press.