Tax Policy Measures to Combat the SARS-CoV-2 Pandemic and Considerations to Improve Tax Compliance: A Behavioral Perspective

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Governments have taken remarkable measures during the SARS-CoV-2 pandemic in their efforts to safeguard citizens' health and the economy. As a consequence, public debts have reached unprecedented levels, which will require at some point higher taxes. Ensuring that citizens pay these taxes requires consideration of the many factors that will likely affect their tax compliance decisions. In this paper, we reflect from a behavioral-economic perspective the impact of tax policy measures on the perception, evaluation, and behavior of citizens and derive considerations to devise appropriate tax policies to ensure compliance in the future. We start with speculations about citizens' views of governmental restrictions and economic stimulus measures in response to the crisis, we apply these speculations to the acceptance and perceived effectiveness of policy measures on citizens' tax compliance behaviors, and we finish with their likely effect on determinants of tax compliance. Building on the derived insights, we deduce a set of considerations to improve tax compliance – and to generate the necessary tax revenues to deal with the aftereffects of SARS-CoV-2 when the pandemic is under control: communication, transparency and justification of measures, access to support, service provision, audits and penalties in case of free-riding, targeted audits, building social norms of cooperation, consideration of framing effects, development of plans and strategies for the future, and anticipation of hindsight biases.

Keywords: Covid-19 crisis, tax compliance, behavioral economics, behavioral taxation

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1. Introduction

At the beginning of 2020, a mysterious lung disease unhinged the world. When the outbreak of the coronavirus SARS-CoV-2 was hitting China, most countries observed the development with ignorance. When the first cases and then the exponential spread of infection rates were registered in northern Italy, disavowal turned into fear and uncertainty, strong feelings of vulnerability, and loss of control. The development of the crisis evolved, following the phases of common disasters described by Zunin and Myers (2000): intense emotional reactions and a high level of activity with a low level of productivity preceded phases of solidarity and community bonding, which turned into disillusionment, anger, and reactance. The continuing stress experienced by citizens has led to physical exhaustion, and the increasing gap between need and assistance in specific branches of economic activity has led to feelings of abandonment.

The pandemic has caught citizens, businesses, and governments unprepared, forcing everyone to make decisions under uncertainty and nescience. Governments imposed lockdowns, restricted physical contacts, ordered wearing face masks in public, closed schools, mandated work from home, and disrupted businesses. The democratic form of government faces a difficult test because it must protect individuals' fundamental rights while also preserving the well-being of the society as a whole. The restriction of fundamental rights in the corona crisis is, as described by German Chancellor Angela Merkel, an "imposition for democracy." Snowden (2019) argues that such regulations cast a long shadow over political history, marking a vast extension of state power into spheres of human life, providing a justification for the extension of power and control over the economy and the movement of people, authorizing surveillance and forcible detention, and affecting civil liberties. He refers to the plague as an example, stressing that "[w]ith the unanswerable argument of a public health emergency, this extension of power was welcomed by the church and by powerful political and medical voices. The campaign against plague marked a moment in the emergence of absolutism, and more generally, it promoted an accretion of the power and legitimation of the modern state". An extreme current example is seen in Hungary, where the Parliament gave Prime Minister Viktor Orbán the right to rule indefinitely by decree, a move that critics claim used Covid-19 as a way to strengthen his power and political advantages.[1]

The measures taken in many countries so far have been unprecedented. Strong behavioral regulations through legal means, imposition of lockdowns, and disruption of businesses have induced significant economic costs, the

1 See https://www.nytimes.com/2020/04/05/world/europe/victor-orban-coronavirus.html and further examples in Chan, Ferguso, Savage, Stadelmann, and Torgler (2020).

magnitude of which swiftly overtook the fallout of the Great Recession. Millions of people have lost their jobs or are on short-term work arrangements, millions more have experienced economic hardship, and many businesses not only claim serious losses but risk insolvency. In the face of the pandemic and lockdown, national governments around the world have provided economic stimulus packages worth trillions of euros, throwing out the fiscal rule book to support businesses and workers.

Ángel Gurría, secretary-general of the Organization for Economic Cooperation and Development (OECD), emphasizes the necessity of these actions, as governments must do everything they can to support people's health and the economy.[2] However, once the public health crisis has finally passed, economic hardship will continue, the economic downturn will endure, and governments will need to cope with enormous national debts.

Predictions about the recovery of both the aggregate economy and different sectors are all based on extreme uncertainty. An optimistic scenario of the future builds on an assumption of rapid development and availability of a vaccine; pessimistic scenarios forecast further infection waves in the future. No option can be excluded. Nonetheless, governments need to map all possible evolutions, accept the inevitability of surprises, and equip themselves with an arsenal of appropriate strategies that can be applied flexibly as an effective response to yet unpredictable future developments. Governments also need to safeguard future revenue collection if they are to deal with the debts accumulated during the first phase of the crisis, when immediate responses were necessary to protect population health and the survival of enterprises at virtually any cost.

Public debt has reached unprecedented levels, and continues to grow despite the reopening of businesses. If governments do not anticipate cutting expenditure in the future, higher taxes will be necessary to deal with the debts. The current crisis will therefore have implications for future social solidarity and cohesion, and for acceptance of plans to redistribute wealth and opportunity. Measures taken by governments to safeguard the economy and to assure tax revenue in the future may affect the tax compliance of citizens and businesses, fueling either cooperation or avoidance and evasion.

In this paper, we primarily address the following two research questions. First, what is the impact of tax policy measures taken to combat the economic consequences of the SARS-CoV-2 pandemic on the perception, evaluation, and behavior of citizens? Second, what needs to be done in the future to ensure a high willingness to cooperate with the state and commitment to pay taxes in society? For this purpose, we take a behavioral economics perspective,

2 See https://www.law360.com/tax-authority/international/articles/1287278/tax-hikes-could-stifle-economicrebound-oecd-chief-warns?

speculating about citizens' views of governmental restrictions and economic stimulus measures in response to the crisis, the acceptance and effectiveness of policy measures, and the impact on determinants of tax behavior and consequently on tax compliance. Building on the derived insights, we close with a set of considerations to strengthen trust in authorities and their perceived power that may help contain aggressive tax avoidance and evasion when the pandemic is under control. Such considerations are one way of discussing thoughtful tax policies crucial to addressing the problems and challenges nations now face due to the COVID-19 pandemic (Craig and Hines Jr, 2020).

The remainder of this paper is structured as follows: In section 2, we provide an overview of the most important tax policy responses from 120 countries in the face of the COVID-19 pandemic. In section 3, we speculate about citizens' perceptions and evaluation of these measures and identify behavioral determinants of such measures' effectiveness. In section 4, we discuss how the corona crisis and policy measures might influence the determinants of tax behavior – mainly, trust in authority and power of authority – and tax compliance. Section 5 deduces several strategies to maintain citizens' willingness to cooperate. Section 6 concludes.

2. Tax Policy Measures in Response to the Crisis

We begin our analysis with an overview of different countries' tax policy measures in response to the COVID-19 pandemic. The tax system tends to mitigate output fluctuations. However, the level of automatic stabilization is often considered too low (Devereux, Güçeri, Simmler, and Tam, 2020). Thus, most countries use discretionary tax policy measures to support firm liquidity and worker employment during the crisis and to promote consumption and investment to overcome the crisis. Table 1 summarizes the tax policy measures taken in 120 countries by end of June 2020, based on data collected by the OECD.

Countries are using a battery of different measures to prevent companies from becoming insolvent and generating massive unemployment due to the crisis. In 99 countries, tax filing extensions and tax payment deferrals are in place, and tax waivers are operating in 27 countries. These measures usually apply to companies that were particularly hard hit by the lockdown (e.g., retail, leisure, and hospitality properties). Moreover, 23 countries offer extended tax refunds, i.e., taxpayers receive their tax refunds faster, or they can claim back the preliminary tax paid in 2019 and either pay it later or set it off against future losses. Many countries are also directly subsidizing business costs by, for example, providing nonrepayable grants to firms. To further increase business cash flow, some countries also have improved their loss offset provisions (e.g., by extending the tax loss carryback rules) and reduced business tax rates.

To support employment, many countries have paid wage subsidies and introduced or increased short-term work schedules to safeguard jobs. In addition, some countries have enhanced and/or extended eligibility for sick pay, enhanced tax refunds, and implemented special tax deductions, tax exemptions, tax waivers, and social security contribution waivers.

In addition to avoiding insolvencies and supporting employment during the crisis, many countries have taken measures to overcome the crisis itself. To support investments, some countries have introduced accelerated and bonus depreciations, increased tax incentives for research and development, reduced corporate income tax rates, reduced firms' cost of financing by decreasing withholding taxes on interest or dividend payments, or provided tax credits and tax rebates.

To promote consumption, some countries have used (or are still using) direct cash transfers for households (including vouchers). For example, Denmark provided a one-time check of DKK 1,000 (EUR 135) to people on public transfers, including pensioners and students; U.S. residents with a work-eligible social security number and not dependent on another taxpayer are eligible for a $1,200 ($2,400 joint return) rebate and an additional $500 per child under age 17; and German citizens receive a bonus of EUR 300 per child.[3] In addition, to enhance household cash flow and thus support consumption, many countries provide enhanced or extended eligibility for unemployment benefits. For example, the U.S. federal government provided $600 a week in supplemental unemployment benefits from the end of March to the beginning of August, 2020. This payment was in addition to what unemployed persons received under the state-based unemployment system. Moreover, 18 countries have reduced their VAT rates to encourage consumption, either by reducing the rate for specific services and goods (e.g., for certain cultural and tourist services in Norway, electronic publications in the United Kingdom, or restaurant and catering services in Austria, Belgium, and Bulgaria), or by reducing the rate for all goods and services (e.g., in Cyprus, Jamaica, Germany, Kenya). In addition, some countries are using tax waivers and tax credits to encourage specific consumption. In Italy, for example, people receive tax credits of up to 110% for restructuring of domestic buildings, and households with income lower than EUR 40,000 receive tourist vouchers that take the form of a tax credit between EUR 150 and 500. Both tax credits can be transferred to hotels and construction companies as well as financial intermediaries. Other countries have withdrawn their tourism tax to stimulate that sector (e.g., Cayman Islands, Malaysia).

3 For a discussion of the advantages and disadvantages of providing stimulation payments through the tax system, see Hafiz, Oei, Ring, and Shnitser (2020). The authors emphasize that the tax system already has the information and the infrastructure necessary to deliver payments quickly.

Table 1

Tax Policy Measures in Response to COVID-19 Crisis

Measures	Countries
Objective: Enhance firms' liquidity	
Enhanced loss offset provisions	Belgium, Czech Republic, Germany, Iceland, Netherlands, New Zealand, Norway, People's Republic of China, Poland, San Marino, Singapore, Slovak Republic, United States, Uzbekistan
Enhanced tax refunds (CIT, SSC, VAT)	Australia, Belgium, Chile, Colombia, Germany, Georgia, Greece, Guatemala, Guinea, Hungary, Indonesia, Kenya, Latvia, Malta, Pakistan, People's Republic of China, Peru, Saudi Arabia, South Africa, Sweden, Thailand, United Arab Emirates, United States
Nonrepayable grants/ Subsidy of nonwage business costs	Cook Islands, Denmark, France, Germany, Israel, Italy, Norway, San Marino, Serbia
Tax filing extensions, tax payment deferrals	Albania, Algeria, Andorra, Angola, Argentina, Australia, Austria, Azerbaijan, Belgium, Bermuda, Bhutan, Bosnia and Herzegovina, Brazil, Bulgaria, Cambodia, Canada, Chile, Colombia, Costa Rica, Croatia, Cyprus, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, Finland, France, Georgia, Germany, Greece, Guatemala, Guernsey, Guinea, Guyana, Honduras, Hungary, Iceland, India, Indonesia, Isle of Man, Israel, Italy, Japan, Jersey, Jordan, Kazakhstan, Kosovo, Laos, Latvia, Lesotho, Lithuania, Luxembourg, Malaysia, Malta, Moldova, Monaco, Montenegro, Morocco, Mozambique, Myanmar, Myanmar, Netherlands, New Zealand, Norway, Oman, Pakistan, Paraguay, People's Republic of China, Peru, Poland, Portugal, Puerto Rico, Qatar, Republic of North Macedonia, Russia, San Marino, Saudi Arabia, Serbia, Seychelles, Slovak Republic, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Thailand, Tunisia, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Uzbekistan, Vietnam
Tax rate reductions	VAT: People's Republic of China CIT: Hungary, Indonesia, Korea, Romania, Uzbekistan, Vietnam
Tax waivers	Albania, Azerbaijan, Belgium, Brazil, Cambodia, Colombia, Costa Rica, Czech Republic, France, Georgia, Guinea, Hungary, Indonesia, Italy, Kazakhstan, Laos, Latvia, Norway, People's Republic of China, Romania, Singapore, South Africa, Tajikistan, United Arab Emirates, United Kingdom, United States, Uzbekistan

Objective: Support employment	
Enhanced and/or extended eligibility of sick pay	Malta, United Kingdom, United States
Enhanced tax refunds	United States
Special tax deductions	Fiji, Honduras
Tax exemptions	Austria, Belgium, Poland
Tax and SSC waivers	Argentina, Hungary, Kenya, Poland, Spain
Wage subsidies	Albania, Australia, Austria, Cambodia, Canada, Cook Islands, Denmark, Estonia, Fiji, France, Georgia, Germany, Guernsey, Iceland, Jersey, Lithuania, Malta, Moldova, New Zealand, Peru, Portugal, Republic of North Macedonia, Serbia, Singapore, Slovak Republic, Slovenia, South Africa, Sweden, Thailand, United Kingdom
Objective: Support investment	
Accelerated/bonus depreciation	Australia, Chile, Fiji, Germany, New Zealand, Malaysia, Singapore, United States
CIT rate reduction	Chile, Kenya, Malaysia, Vietnam
Increase in R&D tax incentives	Denmark, Germany, Iceland, Italy
Reduction of withholding taxes on interest/dividend payments	Cambodia, Egypt
Tax credits, tax rebates	Italy, Malaysia
Objective: Support consumption	
Cash transfers for households (incl. vouchers)	Canada, Denmark, Germany, Malta, Peru, Slovenia, United States
Enhanced or extended eligibility for unemployment benefits	Albania, Brazil, Canada, Chile, Cook Islands, Egypt, Georgia. Greece, Iceland, Israel, Lithuania, Malta, Moldova, Netherlands, Norway, Portugal, Serbia, Slovenia, Spain, Sweden, Switzerland, United States
Tax credits	Italy
Tax waivers	Cayman Islands, Malaysia
VAT rate reduction	Austria, Azerbaijan, Belgium, Bulgaria, Czech Republic, Colombia, Cyprus, Germany, Greece, Isle of Man, Jamaica, Kazakhstan, Kenya, Moldova, Norway, Spain, Turkey, United Kingdom

Note: The table is based on information provided by the OECD, http://www.oecd.org/coronavirus/policy-responses/tax-administration-responses-to-covid-19-measures-taken-to-support-taxpayers-adc84188/ (update 29/06/2020). Many countries are providing loans to businesses at (typically) reduced interest rates, providing loan guarantees, etc. These measures have not been included in the table. CIT means corporate income tax, SSC social security contributions, and VAT value added tax.

3. Perception and Effectiveness of Tax Policy Measures

With the rise of behavioral economics in the past few decades, tax researchers have intensified their study of psychological effects on economic decisions. This line of research identifies various decision biases and drivers of behavior that may affect policy measures to safeguard health and the economy, by affecting (both positively and negatively) the effectiveness of tax policy instruments. In sum, the perception of economic stimuli and tax incentives and their effectiveness depends on characteristics of decision-makers, the properties of the tax incentive, and the specificity of the general decision environment (Blaufus, Chirvi, Huber, Ralf Maiterth, and Sureth-Sloane, 2020).

Before reviewing research with respect to the policy objectives of promoting consumption and investment in the light of the SARS-CoV-2 pandemic, we summarize key behavioral determinants that governments would do well to consider when choosing between different tax policy measures. As we will repeatedly refer to these determinants in the following subsections, we first provide a general description. In particular, we emphasize the relevance of salience, complexity, framing, and timing of tax policy measures.

(a) *Salience*: People are more likely to change their behavior in response to salient tax incentives, i.e., incentives that are highly visible. The effect of tax salience on behavioral responses has been demonstrated in several studies (Blumkin, Ruffle, and Ganun, 2012; Cabral and Hoxby, 2012; Chetty, Looney, and Kroft, 2009; Finkelstein, 2009; Goldin, 2012; Sausgruber and Tyran, 2005; Taubinsky and Rees-Jones, 2018; Weber and Schram, 2017). Thus, tax incentives must be salient and perceived as relevant by the addressed recipients.

(b) *Complexity*: Prior research shows that tax incentives are less effective if they are overly complex (Blaufus and Ortlieb, 2009; Boylan and Frischmann, 2006; Rupert, Single, and Wright, 2003; Rupert and Wright, 1998) or if the decision environment is highly complex (Abeler and Jäger, 2015). Complexity hides benefits at least for taxpayers with low financial knowledge and literacy (e.g., Chetty, Friedman, Leth-Petersen, Nielsen, and Olsen, 2014). Thus, if governments aim to shape the behavior of people who have poor tax knowledge, tax incentives must be salient and designed to be as simple as possible.

(c) *Framing*: Changing the framing of tax incentives affects behavioral responses. Empirical insights suggest that the label "tax" itself may have negative connotations for tax-averse individuals and that changing the label of a tax affects its perceived and evaluated burden (e.g., Blaufus and Möhlmann, 2014; Hundsdoerfer, Sielaff, Blaufus, Kiesewetter, and Weimann, 2013; Kessler and Norton, 2016). Moreover, according to prospect theory (Kahneman and Tversky, 1979), it matters whether tax reductions are framed as gains or forgone losses (e.g., Epley, Mak, and Idson, 2006; Lozza, Carrera, and Bosio, 2010).

(d) *Timing*: The timing of tax incentives influences tax perceptions (Chambers and Spencer, 2008; Falsetta, Rupert, and Wright, 2013) when subjects use mental accounts (Thaler, 1990) or hold prospect-theoretical utility functions. For example, small and recurrent (larger lump-sum) tax refunds will be assigned to the mental account "current income" ("asset account") and thus consumed (saved).

3.1. Effectiveness of Tax Policy Measures to Stimulate Consumption

Regarding policy objectives to stimulate consumption, Epley et al. (2006) provide experimental evidence that participants are willing to spend more if a tax reduction is framed as a bonus (gain) than as a tax rebate (forgone loss). Similarly, a survey by Lozza et al. (2010) found that tax reductions framed as an increase in monthly income (gain) lead to more spending than if they are framed as a reduction in the monthly tax burden (loss reduction). This is in line with the principle of loss aversion, i.e., subjects attach a higher value to the loss reduction setting, and thus will save more and spend less in this setting. Hence, if governments aim to stimulate consumption, behavioral insights suggest that framing tax reductions as a gain might be more successful than framing them as a loss reduction. Accordingly, the tax rebate to U.S. taxpayers is framed as an "Economic Impact Payment" and not as a rebate; and Germany's taxpayers received a "corona child bonus" instead of a rebate. By contrast, Singapore's tax administration uses the traditional "rebate frame." Concerning the effectiveness of the temporary VAT reductions that are used in many countries, framing also matters. Due to the temporary nature of the VAT reductions, people first perceive a price reduction (gain), and subsequently, when the VAT reduction period expires and the reference point has shifted to the reduced tax rate, a price increase (a loss). If people are loss-averse, the price increase will affect their utility more than the price decrease. If, however, the tax were not reduced, but instead a bonus of equal size were offered, and the bonus were later withdrawn, then, from an economic-psychological perspective, consumers would experience a forgone gain, whereas the tax rate increase would be perceived as a loss.

Moreover, spending behavior may be affected by the way a tax cut is delivered. Chambers and Spencer (2008) showed that the proportion spent of tax refunds administered as one lump sum is less than that of tax refunds of the same amount refunded monthly through reduced income tax withholding. From this perspective, it is useful that the German child bonus is not paid out as a one-time payment but in two installments. By contrast, the U.S. economic impact payments were paid out at once, suggesting that many individuals will use the payment for savings or repaying debts instead of consuming the money.[4] One explanation for this refers to mental accounting. Inflows in the "current

4 First analyses of the effect of the U.S. economic impact payments on consumption are provided by Baker, Farrokhnia, Meyer, Pagel, and Yannelis (2020) as well as Coibion, Gorodnichenko, and Weber (2020).

income" account would be used primarily for consumption, whereas inflows in the "asset" mental account would primarily be used for savings (Thaler, 1990). Since the monthly withholding tax reductions are more likely to be allocated to the current income account, their use for consumption purposes should be higher thereafter than for the lump-sum payment, which would be more likely to be allocated to the asset account. However, a one-time payment could be more salient, and thus might affect short-run responses more strongly than small changes to the withholding tax. Sahm, Shapiro, and Slemrod (2012) provide evidence to support this speculation: their U.S. survey data indicate that the reduction in monthly withholding tax in 2009 increased spending only by 13%, compared to a 25% increase from the one-time payment in 2008. Sahm et al. (2012) found two additional behavioral determinants that can influence the effectiveness of a tax stimulus. First, since salience of a stimulus is relevant, whether the payment is received as a check or as an electronic funds transfer might be important; that is, while one could be passive about an electronic funds transfer, one has to take active notice of a check. The German child bonus, for example, was delivered through direct deposit. By contrast, the U.S. economic impact payments were delivered through direct deposit, paper checks, or debit cards. Second, the level of publicity around the tax incentive matters. Publicity can be achieved through government marketing campaigns, but also through accompanying promotional activities by companies. For example, Kan, Peng, and Wang (2017) found that vendors' discounts for a voucher program significantly increased the effectiveness of this policy tool.

With respect to the temporary VAT reductions for all goods and services to encourage consumption (e.g., in Cyprus, Jamaica, Germany, and Kenya; see also Table 1), there are further properties that might limit the effectiveness of such measures.[5] First, research shows that consumption taxes not included in the price but instead added at the register are ignored or underweighted due to lower salience (Chetty et al., 2009; Goldin and Homonoff, 2013; Taubinsky and Rees-Jones, 2018). Thus, the effectiveness of a VAT reduction is higher if tax-inclusive prices are displayed. However, we observe anecdotally that many local shops only passed on the reduction at the till, and left their shelf prices unchanged. In order to increase the salience of the tax reduction, appropriate marketing campaigns are therefore required. Second, rational inattention phenomena (e.g., Caplin, Csaba, Leahy, and Nov, 2020) as well as psychological theories of thresholds in price perception (e.g., Lambert, 1978) suggest that small differences sometimes may not change consumption behavior at all,

5 Regarding a temporary VAT cut by 2.5 percentage points in the U.K. during the financial crisis in 2008–2009, Crossley, Low, and Sleeman (2014) find that the cut raised the volume of retail sales by around 1%.

due to a lack of notable differences. For example, it seems unlikely that consumers would buy a new car because the price has dropped from EUR 29,750 to EUR 29,000 due to a reduced VAT rate from 19% to 16%, as was the case in Germany. Third, it is unclear if and to what extent firms will decrease their prices due to the VAT reduction (e.g., Benzarti and Carloni, 2019; Kosonen, 2015). Moreover, some papers indicate an asymmetric incidence of VAT changes. For example, Benzarti, Carloni, Harju, and Kosonen (2017) found that prices respond twice as strongly to VAT increases as to VAT decreases (see also Politi and Mattos, 2011), reflecting evidence from prospect theory that predicts losses loom much larger than gains.

3.2. Effectiveness of Tax Policy Measures to Stimulate Investments

Regarding the policy objective of supporting investments, prior behavioral tax research shows that the form of the tax subsidy matters for the effectiveness of tax policy measures. Managers of large corporations may focus on financial accounting numbers rather than present-value effects of tax incentives because accounting measures are more salient. Graham, Hanlon, Shevlin, and Shroff (2017) report that many corporate managers use the effective tax rate (ETR) instead of the marginal tax rate (MTR) for investment decisions. In this case, accelerated or bonus depreciations (used in countries such as Australia, Germany, New Zealand, and the United States) are not effective in increasing investment activity, because they do not affect the ETR.[6] By contrast, tax credits or grants (used, for example, in Italy) affect accounting numbers such as the ETR, and are therefore more effective for firms that use accounting-based ratios for decision-making. In addition, results from Edgerton (2010) indicate that the effectiveness of accelerated depreciations is positively associated with firms' cash flows, suggesting that this kind of tax incentive has the smallest influence on investment during downturns when cash flows are lower.[7] Furthermore, prior research suggests that tax base changes are generally weighted less than tax rate changes, due to the higher salience and availability of tax rate information (Amberger, Eberhartinger, and Kasper, 2016; Blaufus, Bob, Hundsdoerfer, Kiesewetter, and Weimann, 2013). Thus, the corporate income tax rate reductions that are used in countries such as Chile, Kenya, Malaysia, and Vietnam might be more effective than tax base reductions via accelerated depreciations. Blaufus and Milde (in press) have also found that the form of the tax subsidy matters, with matching contributions more effective than tax

6 This might also explain the observation by Zwick and Mahon (2017) that small firms respond more to depreciation incentives than big firms.

7 Moreover, there is some evidence that bonus depreciations significantly lower the quality of investment (Eichfelder, Jacob, and Schneider, 2020).

refunds. Despite the potential positive effect of government matching contributions, we are not aware of any country that has so far used this policy tool during the crisis.

With respect to the complexity of investment incentives, prior research reveals that the take-up of incentives depends on firms' tax literacy. Cui, Hicks, and Xing (2019) find that 80% of Chinese firms with eligible investment fail to claim the tax benefits from accelerated depreciations and that take-up decisions depend on tax sophistication.[8] Similarly, Zwick (in press) finds that only 37% of U.S. corporations that could benefit from loss carryback make use of this facility, and that the usage depends both on the use of a paid preparer and on the sophistication of the paid preparer. Thus, the complexity of tax rules could significantly limit the effectiveness of investment stimuli. This is important because both instruments, accelerated depreciations and extended loss carryback rules, have been used by a number of countries to stimulate economic recovery (see table 1). It can be assumed that these instruments are only effective for companies that make use of sophisticated tax advice.

Further behavioral research regarding the effect of loss offset rules suggests that subjects overestimate the effect of tax loss offsets, resulting in more risk-taking in investment choices (Fochmann, Kiesewetter, and Sadrieh, 2012a, 2012b). Similarly, Bethmann, Jacob, and Müller (2018) find that enhancing tax loss carryback rules increases investments, with the positive response driven primarily by firms that are prone to engaging in risky overinvestments. In addition, loss carryback rules are only beneficial for firms with positive taxable income in the past years, so that this measure discriminates against younger firms or more innovative firms that have not yet achieved taxable profits. Risk-taking is also affected by the timing of taxation. Falsetta et al. (2013) show that taxpayers invest more (less) in a riskier asset when a tax decrease (increase) is implemented gradually rather than in one go. In a similar vein, Falsetta and Tuttle (2011) find that subjects entitled to claim a tax refund take significantly less investment risk than those who have to pay an additional tax. Finally, behavioral tax research has demonstrated the importance of emotions in investment responses to tax incentives. Fochmann, Hemmerich, and Kiesewetter (2016) show that the more pleasant and less exciting a tax treatment[9] is perceived to be, the greater is the risky investment. Fochmann, Hewig, Kiesewetter, and Schüßler (2017) also provide evidence that investors

8 Low take-up rates are also reported for the United States (Kitchen and Knittel, 2016).

9 A service-oriented tax authority that treats taxpayers with respect and sympathy, provides transparency, processes fast, and reduces uncertainty about vague tax outcomes might lead taxpayers to perceive a pleasant and less exciting tax treatment. Note that Fochmann, Hemmerich, and Kiesewetter (2016) used an abstract setting in which they asked their participants to rate a tax situation with respect to valence ("How pleasant do you perceive the situation?") and arousal ("How excited are you to be in the situation?").

do not change their risk-taking behavior as a direct consequence of changing tax rules, yet they do react in response to the affective perception of these different tax rules.

4. Acceptance of Tax Measures and Compliance

4.1. Trust, Power, and Tax Compliance

The perceived effectiveness of the described tax policy measures to combat the crisis and to enhance economic recovery will affect peoples' trust in the government, and greater trust will shape compliance with the policy measures (Devine, Gaskell, Jennings, and Stoker, 2020; van Bavel et al., 2020). Trust is a key determinant of peoples' tax compliance according to the slippery-slope framework (Kirchler, Hoelzl, and Wahl, 2008).[10] This framework proposes that the interaction climate between taxpayers and the authorities shapes the willingness to cooperate. In a synergistic climate, characterized by high trust in the authorities who act with high legitimization and professionalism, taxpayers are willing to cooperate. On the other hand, in an antagonistic climate, characterized by low trust, poor legitimization, and questionable professionalism, taxpayers refuse to cooperate, unless compliance with the law is enforced. Thus, taxpayers' compliance depends on the power of the authority and trust in the authority. The two dimensions moderate each other and determine the level of compliance. Whereas an authority with a higher level of power (determined by factors such as frequent and effective audits, high detection probability, and severe fines) affects enforced tax compliance, trust in authority (determined by factors such as fair procedures and fair distribution of tax burdens, favorable attitudes towards the government, taxation, and the authorities, and social norms that define compliance as the prevalent behavior) particularly affects voluntary compliance.

Notably, many measures taken by governments to safeguard health and stimulate the economy affect either perceived power or trust (or both), and consequently affect tax compliance. Although both the dimensions of power and trust are altered by the pandemic and various tax measures taken, we argue that – above all – trust in the authority might be affected by these measures, through various channels.

Impact on trust in the authority. Citizens' acceptance and evaluation of government in combating negative consequences of the pandemic affect compliance (Devine et al., 2020). Various measures affect trust in the authority and consequently shape compliance behavior. Gärling, Kirchler, Lewis, and

10 A similar approach is provided by Alm (2012), who emphasizes the role of enforcement, services, and trust as "paradigms" for tax administrations.

van Raaij (2010) list seven criteria that underlie trust in financial institutions that are relevant with regard to tax authorities and are therefore important when building and maintaining trust:

1. Authorities need to be competent, and must act professionally and objectively.
2. The integrity of authorities is crucial. Integrity means that all citizens are treated according to ethical principles, i.e., are treated fairly and are not routinely considered to be lawbreakers until the fact is established. In addition, authorities must behave authentically, demonstrating sincere commitment to the welfare of their citizens.
3. The actions of authorities must be transparent: rules and procedures must be clearly and accurately communicated, ensuring that they are correctly understood by the recipients.
4. Authorities must act with benevolence, meaning that the perspective of the citizens is taken into account and their interests are considered.
5. Authorities must demonstrate the values and norms that determine their behavior align with those of their constituents. Such *congruence* is a prerequisite for the identification of citizens with the state.
6. Stability of government institutions is essential. Authorities must be able to do their work in the long term in the service of the citizens.
7. Finally, a positive image of the authorities is important. Reputation, especially positive citizens' attitudes towards the authorities and their activities, is essential for building and maintaining trust.

Citizens' trust and compliance increases in line with perceptions on the appropriateness and fairness of governmental measures. Perceived effectiveness of tax measures, procedural justice, distributive justice, and retributive justice are most important for building and maintaining trust, and consequently ensuring willingness to cooperate.

Impact on power of the authority. Besides trust, the power of authorities is key: professionality and efficient controls and sanctions in the event of illegal activity are crucial for enforcing compliance. In this regard, it is important that power be perceived as legitimate and necessary, that the authorities be ready and able to efficiently and effectively detect rule-breakers, and that fines be appropriate in the event of misuse of public funds. Besides legitimate power, coercive power can strengthen voluntary cooperation. However, coercive power increases voluntary compliance only if citizens perceive that the authorities appropriately target noncompliant citizens with harsh measures and also that the authorities are willing and able to protect cooperative citizens against exploitation by free riders. Effective audits and severe punishments can strengthen the trust in authorities held by those who voluntarily adhere to the rules, if controls are clearly aimed at free riders and not imposed randomly. The perception of poorly targeted controls undermines trust, as they are perceived as a signal of distrust on the part of the authorities with respect to citizens, which results in distrust on the part of citizens in the state.

The consequences of the pandemic for the economy, combined with the financial stimuli and the tax measures to safeguard the economy, will have a devastating impact on all governments' current and future budgets. Governments will face decisions about increasing taxes in the future and/or reducing expenditures. While raising taxes is usually perceived as a highly unpopular strategy that might fuel noncompliance, a reduction in government expenditures will likely result in less public goods and affect the power of authorities to carry out audits and other compliance initiatives. If the probability of audits and other compliance techniques declines and tax staff need to engage in new and unfamiliar activities, aggressive tax avoidance and evasion are likely to increase. Current audit capacity restrictions (as described below; see "Detection probability") will reduce the probability of detecting tax fraud, thus shrinking the power of the authority. Remarkably, weak power might covary with lower enforced compliance and lead to lower trust in the authorities' capacity to protect cooperative citizens from being exploited by free riders, which will eventually lead to lower voluntary compliance.

4.2. Policy Measures and Determinants of Tax Compliance

In the following, we speculate on how the corona crisis and policy measures to combat it might affect different determinants of tax behavior and finally influence tax compliance. We distinguish three dimensions: (1) trust in authority, (2) power of authority, and (3) individual traits and situational characteristics. Table 2 provides an overview and highlights the influence on tax compliance.

Trust in the authority

Perceived effectiveness of tax measures. In section 3, we discussed a variety of behavioral responses to tax measures and their impacts on perceived effectiveness. If individuals accept tax measures and feel confident that they are appropriate in combating the negative consequences of the corona crisis, the government will be perceived as acting professionally, and trust in the government will increase. In contrast, if they perceive tax measures as too costly and doubt that they are effective, trust will decrease. As a result, a lower (higher) trust in authority will reduce (increase) willingness to pay taxes, and, consequently, the level of tax compliance will decrease (increase) (Kirchler et al., 2008). Tax measures and their perceived effectiveness will also affect one's belief about one's own income situation in the future. If current measures heavily increase public debt, higher taxes or lower transfers might lead to future income losses. Moreover, ineffective measures might amplify the risk of a long-lasting economic crisis, with negative consequences such as consumption shocks, higher unemployment, and lost tax revenues. Individuals experiencing the resulting income loss might change their tax compliance level. On the one hand, higher taxes or an income shift might change compliance directly (Allingham and Sandmo, 1972). On the other hand, income losses might change compliance indirectly by changing the willingness to take risk (see below).

Procedural justice. Individuals require fair treatment when they have to provide resources for the society, such as paying taxes. The processes of paying taxes, including declaration of tax returns, audits, collection, and interactions with tax authorities, should be fair, transparent, and simple. Taxpayers desire fair procedures not only because they believe that these would lead to fair distribution (e.g., Thibaut and Walker, 1975), but also because the opportunity to express one's own opinion carries value in itself and contributes to perceived fairness (e.g., Tyler, 1987). There is substantial evidence that tax compliance and tax morale are affected by the way the tax authority treats taxpayers (see, e.g., Feld and Frey, 2002; Torgler, Demir, Macintyre, and Schaffner, 2008). Consequently, procedural justice is seen as an important determinant of tax compliance, and literature provides conclusive evidence that individuals who perceive they have been unfairly treated will exhibit lower tax compliance (Alm, 2012, 2019; Beers, LoPresti, and San Juan, 2012; Hartner, Rechberger, Kirchler, and Schabmann, 2008; Hofmann, Hoelzl, and Kirchler, 2008). During the pandemic, the work of authorities has been limited, along with most other parts of the economy. As a consequence, taxpayers' opportunities to interact (at least personally) with the tax authority have been limited, potentially resulting in a perception that procedures are less transparent due to the adjustments and limitations of work. These factors in combination might produce a decrease in tax compliance due to a lower level of perceived procedural justice. Furthermore, tax measures adopted by the government have likely imposed annoying bureaucratic hurdles on individuals, which also reduce perceived procedural justice.

Distributive justice. Tax measures will affect the exchange of benefits and costs and perceptions of this exchange's fairness. There is little doubt that members of society do not equally benefit from tax measures or equally share the burden of the crisis costs (e.g., Adams-Prassl, Boneva, Golin, and Rauh, 2020). As a result, the principles of horizontal and vertical fairness (equity) are violated, and it has been demonstrated that reduced fairness (due to a lower level of perceived distributive justice) will reduce tax compliance (Hofmann et al., 2008). Importantly, the fairness perception might be driven by whether an individual is directly affected by the costs (e.g., income losses) or by the benefits (e.g., transfers), and also by whether her/his peer group (e.g., the same industry sector) is affected to the same extent. Thus, fairness concerns might be relevant, for example, when industry sectors are treated equally (e.g., by a general transfer program), even though they are affected differently by the corona crisis (e.g., restaurants, theater, and event industries are most affected). These concerns might be even stronger if an individual does not benefit from a measure whereas other individuals from the same industry sector do.

Retributive justice. In many countries, we observe that tax measures are undermined by fraudulent behavior. For example, individuals may set up shell companies to participate in subsidies offered by the government, thereby dishonestly obtaining funds meant to help avoid insolvencies. If fraudulent behavior or free riding is not caught by authorities or is not adequately penalized, the strength of retributive justice (such as audits and punishments) might be reduced significantly. The consequence may be a general drop in tax compliance across society (Hofmann et al., 2008).

Power of the authority

Detection probability. The corona crisis has confronted tax authorities with additional restrictions on audit capacity. For example, administrative employees may be in their home offices and therefore be unable to run audits, or they may have been withdrawn and deployed in other areas (e.g., handling the administrative process for corona transfers). As a consequence, there is a reduced probability that tax evasion will be detected. If taxpayers anticipate the drop of audit/detection probability, it is possible that they will lower their tax compliance level (Allingham and Sandmo, 1972). Additionally, spillover effects of other enforcements might occur. If, for example, failing to wear a mask in a public setting is neither checked nor penalized, individuals might think that the authority will also not audit tax returns; if specific rules during the pandemic (e.g., lockdown rules) are enforced, the perceived audit probability of tax returns might increase. Also, the use of stimulus delivery mechanisms that create an electronic trail (e.g., third-party information reporting) might well increase individuals' perceptions of audit probabilities (Adhikari, Alm, Collins, Sebastiani, and Wilking, 2020; Adhikari, Alm, and Harris, 2020).

Individual traits and situational characteristics

The tax compliance literature has identified several drivers of tax compliance on the individual level, two of which are the general attitude towards taxes (often referred to as tax morale) and the individual risk attitude. The literature provides robust evidence that individuals holding positive attitudes towards taxes – i.e., those with a higher tax morale – exhibit higher tax compliance (Alm, 2019; Kirchler, 2007; Lewis, 1982; Torgler, 2002, 2007). As tax evasion carries the hazard of being penalized with a certain probability, the trade-off between obtaining a certain outcome when being compliant, and achieving potentially higher outcomes with the risk of eventually facing a fine when being noncompliant, depends also on a decision-maker's willingness to take risk (Allingham and Sandmo, 1972; Srinivasan, 1973). In particular, higher risk inclination is associated with lower compliance.

Besides these two drivers, perceived justice as a basis of trust, the capacity to audit effectively as a basis of power, and social norms, along with personal and situational characteristics (e.g., moral balancing, experiencing unexpected events, and emotions), shape tax compliance. Moreover, framing effects (e.g., perception of gains, losses, or forgone gains or losses) also affect tax decisions. In the following, we discuss how the corona crisis might alter tax compliance by affecting these determinants of tax behavior.

Moral balancing. Moral balancing theory (Nisan and Horenczyk, 1990) suggests that individuals take into consideration their self-image over time, aspiring to a moral status at a level that they consider satisfactory.[11] This theory also explains how individuals manage deviations from their individual moral self-image. If morally valuable actions in the past led to a moral status above the threshold, individuals might engage in immoral activities in the present (Merritt, Effron, and Monin, 2010; Zhong and Liljenquist, 2006).[12] Especially in the beginning of the crisis, the majority of individuals behaved in a morally correct manner (e.g., acted in solidarity, accepted individual utility losses when following the hard corona restrictions such as lockdowns, travel restrictions, and prohibition of family visits). This moral behavior might trigger a license to cheat when completing the tax return, resulting in lower tax compliance.

Unexpected events. Unexpected but severe events typically influence an individual's willingness to take risks. Unexpected unemployment has been shown to be an important driver of risk aversion (Hetschko and Preuss, 2019). The resulting poverty may lead to short-sighted and risk-averse behavior (e.g., Haushofer and Fehr, 2014). Similarly, the experience of a negative (and possibly long-lasting) economic development may also lead to a lower willingness to take risks. For example, individuals who have experienced low stock market returns during an economic crisis report a lower willingness to take financial risks and are less willing to participate in the stock market in the future (Malmendier and Nagel, 2011). Finally, natural disasters also seem to make individuals less willing to take risks (Cameron and Shah, 2015; Goebel,

11 Also referred to in psychology as the economics of cost–benefit balancing (Pickhardt and Prinz, 2014).

12 The opposite is moral cleansing, where an individual follows moral behavior after having engaged in an immoral activity (Sachdeva, Iliev, and Medin, 2009).

Krekel, Tiefenbach, and Ziebarth, 2015), and a lower willingness to take risks is associated with higher tax compliance.

Emotions. Strong emotions are likely in the context of a pandemic, such as uncertainty, fear, anger, and reactance. Fear may arise because individuals are afraid of the possible severe consequences for their health and/or their economic situation. In contrast, anger may be caused by measures to fight the pandemic, which restrict one's own freedom and may be perceived as unnecessarily hard (e.g., lockdown and economic disruption). Importantly, fear and anger have different effects on the willingness to take risks and finally on tax compliance. Whereas fear increases risk aversion (and leads to more tax compliance), anger typically leads to more risk-seeking behavior (and less tax compliance) (e.g., Hetschko and Preuss, 2019; Lerner and Keltner, 2000, 2001; Lerner, Li, Valdesolo, and Kassam, 2015).

Others' behaviors. The behavior of an individual mainly depends on descriptive norms, which generally refer to a perception of others' behavior that is based on observation of peers and relevant others with whom the individual identifies. One consequence of this might be conformism, i.e., change in individuals' behavior to match the behavior of others (Bolton, Ockenfels, and Stauf, 2015; Cialdini and Goldstein, 2004; Janis, 1972). As a result, the behavior of others might give an individual a "license to cheat." If taxpayers observe others to be less tax compliant – for example, for the reasons discussed above – they may also be less compliant (Alm, Bloomquist, and McKee, 2017; Blaufus, Bob, Otto, and Wolf, 2017; Fochmann, Kocher, Müller, and Wolf, 2019; Frey and Torgler, 2007).[13]

Loss domain. Prospect theory predicts that individuals are risk seeking in the loss domain and risk avoiding in gain situations (Kahneman and Tversky, 1979; Tversky and Kahneman, 1991). If individuals have suffered (or expect to suffer) losses due to the corona crisis (e.g., loss of income through unemployment, salary reduction, higher taxes), they may accept higher risks and consequently exhibit lower compliance levels. Note that although unexpected events such as unemployment might lead individuals to be less willing to take risks (see above), prospect theory indicates they may be more willing to take risks due to loss of income and override their risk aversion. Losses might not only lead to risk seeking and illegal (evasion) strategies, but also to loss repair by applying legal (avoidance) strategies.

Withholding phenomenon. In contrast to loss repair and risk seeking, an income reduction or loss due to economic contraction might lead taxpayers to expect a tax refund when completing their tax declaration, as they paid

13 Evidence from public-good experiments indicates that around 50 percent of the subjects are conditionally cooperative (Fischbacher, Gächter, and Fehr, 2001), although cooperation norms vary substantially with cultural differences (Gächter and Herrmann, 2009).

Table 2
COVID-19 Crisis, Determinants of Tax Behavior and Tax Compliance

Dimension	Phenomenon	Effect	
Trust in authority	Effectiveness of tax measures	Tax measures perceived as effective increase tax compliance.	↑
	Procedural/ distributive justice	Fair treatment of taxpayers increases tax compliance	↑
	Retributive justice	Well-targeted punishment of fraudulent behavior or free riding leads to perceived retributive justice, which consequently increases compliance	↑
Power of authority	Detection probability	High audit capacity and efficient audits increase tax compliance	↑
Individual traits and situational characteristics	Moral balancing	Moral behavior in the beginning of the crisis might result in lower tax compliance	↓
	Unexpected events	Unexpected severe events, such as natural disasters or unemployment, decrease willingness to take risks and consequently increase tax compliance	↑
	Emotions	Fear will decrease willingness to take risks, which increases tax compliance	↑
		Anger will increase willingness to take risks, which lowers tax compliance	↓
	Others' behavior	Individuals are guided by the behavior of others; if others are perceived as compliant, compliance increases	↑
	Loss domain	Suffering losses might trigger a higher willingness to take risks and consequently to lower tax compliance	↓
	Withholding phenomenon	Expecting a tax refund when completing the tax declaration increases tax compliance	↑

too much in advance (or benefit from a loss carryback). The literature on the income tax withholding phenomenon would then suggest that those taxpayers will display compliance (Chang and Schultz, 1990; Elffers and Hessing, 1997; Engström, Nordblom, Ohlsson, and Persson, 2015; Jackson and Hatfield, 2005; Robben, Webley, Elffers, and Hessing, 1990; Schepanski and Shearer, 1995). This phenomenon can be explained by the value function of prospect theory (Kahneman and Tversky, 1979). If too much money is withheld as prepaid tax (overwithholding), individuals receive a tax refund at the year end. This tax refund is regarded as a gain if the subject's reference point is the current cash position. Prospect theory predicts individuals will be risk averse in the case of a gain frame. Thus, they tend to risk less when confronted with a tax refund and become more tax compliant.

5. Strategies to Maintain Citizens' Willingness to Cooperate

How can citizens' willingness to comply with the tax law during and after the crisis be maintained? Studies on power and trust and observations of the behavior of authorities and citizens during the crisis allow some conclusions about how to maintain willingness to cooperate during and after the crisis, conclusions that are directly relevant to improving tax compliance in order to provide necessary postpandemic tax revenues.

In times of crisis, authorities must not stop communicating. Measures taken by the authorities must be transparent and justified, and bureaucratic hurdles must be low. Services need to be provided. The social norm of cooperation should be binding, and control must not be lax with respect to the unjustifiable use of aggressive avoidance and evasion of taxes. When planning and communicating interventions, authorities should also consider possible framing effects. The enormous financial costs and future uncertainties require development of all possible scenarios and respective strategies in order to avoid surprises and to maintain the ability to be responsive. Finally, authorities should be prepared to face distorted recall of past measures and the level of acceptance by the public, so that it would be advisable to keep records about their reasoning and justification.

1. *Communicate, communicate, communicate.* The first rule of crisis management is communication. It is important to provide the population with clear information about all behavioral restrictions and economic stimulus measures taken by the government, and especially rights and obligations and access to support. Furthermore, it is vital to communicate new insights into the development of the crisis that will lead to flexibility and adjustment strategies. Ideally all relevant information can be assessed through one channel. One possibility would be to integrate newsfeeds into corona tracking apps. By doing so, citizens would be informed about both new rules and possible threats just in time. As a side effect the acceptance of such apps might also increase.
2. *Justify clearly and transparently.* Economic stimulus packages financed by tax money need to be justified and their forecasted effects must be clearly communicated. As far as possible, justification should be based on scientific evidence, and the design of tax incentives should draw on findings from behavioral tax research, as discussed in detail in section 3. The efficient use of tax money, any investments in public goods, and the advantages of public goods for society must be understood and accepted

by the public. Attitudes towards the behavioral restrictions and financial stimulus measures must be favorable to keep tax morale high. Misinformation and disinformation must be remedied quickly and consistently.

3. *Keep things simple.* The obstacles to accessing support and adhering to the rules must be kept as low as possible. This applies both to support and to obligations in the extension of deadlines to file tax returns, payment schemes, penalties in case of late filing or payment, and other measures taken to cope with financial hardship. Bureaucratic hurdles in getting financial support and tax releases must be kept low. Simple rules reinforce the impression that authorities are acting benevolently, sensitively, and for the benefit of both the individual and society. This leads to perceived procedural justice, which forms the basis of trust.
4. *Provide services.* Services are important and must be offered in the required quantity and above all in high quality. Thus, the tax administration must act as a facilitator and provider of services to citizens (Alm and Torgler, 2011). Professional service requires that public administration employees be clearly informed about the applicable regulations and their implementation. Staff in public institutions must be available for personal interaction with the public and maintain a high code of ethics. Digital information can support but cannot replace person-to-person communication. In general, no rule can be applied sensibly in all cases: a one-size-fits-all strategy seldom works. Staff must be trained efficiently so that they have legal expertise and can inform citizens according to their motivation and understanding. This requires that citizens be segmented according to their needs and that appropriate services be offered to those critically vulnerable. Thus, employees must be instructed in the flexible application of rules, without violating any fairness principles or being seen to allow fraudulent behavior.
5. *Use controls and penalties.* The crisis has brought many self-employed individuals and companies into economic difficulties and caused considerable financial losses. Financial losses weigh heavily and motivate people to take greater risks to repair their position. The perception of deficits in distributive justice may also fuel horizontal distrust. If a neighbor claims support without legal justification, gets an unfair share compared to others, or avoids or evades taxes, this behavior encourages others to do so. In order to prevent this undesirable behavior from becoming the norm, controls must be announced and carried out in a targeted manner. Government agencies must not risk losing their authority to ensure compliance with the law. Even so, the crisis may provide a good opportunity to discuss alternative methods of penalizing taxpayers. For example, penalties could be suspended for up to two or three years provided that specific criteria are met. This might be seen as a fair procedure among taxpayers

and a fair warning to take corrective action for those who are noncompliant. Such a suspension approach encourages a perception that the tax administration cares about solving the taxpayers' noncompliance problems. It also increases the level of information, provides educational possibilities, and generates procedural information, thereby increasing the capacity for cooperation (Ostrom, 2005). However, the necessary criteria require careful selection. There is evidence that incentive contracts can undermine voluntary cooperation by changing the perception of the purpose of the contract (Gneezy and Rustichini, 2000). Applying agreed criteria will increase the commitment to comply, not only remedying the shortfalls in tax payment from the current year but also strengthening the commitment towards compliance in future years. A general and fair agreement will also promote individuals' tax morale, because it will be perceived by the taxpayers as respectful and may thus promote long-term compliance. It will also reduce the possibility that taxpayers could engage in mental justification, reinterpretations, and other sorts of strategies to suppress their moral standards in case they fail to comply; this is a strategy to maintain a positive self-image (Shu, Gino, and Bazerman, 2011). Alternatively, the tax administration could also apply a one-off strategy of penalty relief, meaning that no penalties are given for shortfall amounts due to false or misleading statements, available only once and under a fixed threshold. Refraining from the imposition of a fine – especially in case of current inability to pay – might be perceived as a generous act that can generate respect among taxpayers and encourage reciprocity. Taxpayers sometimes struggle with the process necessary to make a correct declaration, leading to unintentional errors. The policy may be seen as a sort of gift, and providing relief to taxpayers sends a signal that they should learn more about the process for future returns. A gift is nothing if not an expression of benevolence, and encourages identification with the giver, in this case the tax administration (Boulding, 1981). However, a lack of punishment or conditional sanctions may reduce the motivation to take immediate care of the procedural problems that led to noncompliance, causing future shortfalls.

6. *Target controls.* While perceived legitimate power (audits and punishments in the event of illegal activity) strengthens trust in authority, coercion can be a double-edged sword. If the tax authorities take coercive measures targeting free riders who take advantage of society, then the cooperative majority will be protected from free-rider harm. However, if coercive measures are arbitrarily imposed upon anyone or everyone, then they act as a signal of general suspicion. Random or poorly targeted audits and disproportionate punishments reduce trust in the authorities and consequently voluntary cooperation of the citizens.

7. *Reward tax compliance.* When coping with a crisis, an additional strategy might be found in the use of a carrot rather than just a stick. Instead of raising the relative cost of not paying taxes, the reward increases the benefits of paying taxes (Feld, Frey, and Torgler, 2006). The advantage of using rewards to motivate desired behavior lies in its perception as a supportive policy (see, e.g., Nuttin and Greenwald, 1968) that can encourage tax morale. A theoretical study by Falkinger and Walther (1991) shows that a mixed penalty–reward system improves the taxpayer's position and does not lower the tax revenues of the government. Introducing rewards, together with an increase in the penalty, constitutes a welfare improvement. Some experimental results also indicate that rewards improve compliance (Alm, Jackson, and McKee, 1992; Torgler, 2003), and also that there are different ways of rewarding compliant taxpayers (Koessler, Torgler, Feld, and Frey, 2019). One inexpensive option for the tax office is to issue compliance certificates for firms (Feld et al., 2006). Such a certificate demonstrates that the firm is a "good" taxpayer, and this recognition could potentially affect a firm's reputation, image, and share prices. A "good corporate citizen" may receive more favorable conditions on the capital market, and customers' trust in the firm's products may increase. However, the use of a system of rewards depends strongly on the tax administration's assessment of a good taxpayer. As Feld et al. (2006) point out, the tax administration's reputation may suffer if notorious tax evaders manage to go undetected and consequently are rewarded by mistake. A lack of adequate assessment therefore reduces the strength of a system of rewards. A simple reward approach is the introduction of a discount for on-time lodgments. There is substantial evidence that monetary incentives are powerful tools for motivating people (Kamenica, 2012). However, the application of a discount for on-time lodgment and payment is likely to be discounted by the taxpayers as a "claim"; that is, the discount may become a basic expectation rather than a sign of gratitude. This would reduce the positive influence on tax compliance, and may even reduce taxpayers' internal satisfaction derived from compliance ("warm glow effect") (Rode, Gómez-Baggethun, and Krause, 2015). Alternatively, the tax administration might praise positive changes made by the taxpayers. In general, an authority that praises individuals will appear more concerned about taxpayers (Smith and Stalans, 1991).
8. *Establish cooperation as a socially binding norm.* Behavioral economics has consistently demonstrated that many individuals are motivated by social norms and intrinsic motivation and that individuals are capable of learning and updating social norms (Ostrom, 2005). Sharing the message that the majority is willing to cooperate and does not abuse support services (e.g., short-time work, tax relief, and public benefits) is effective

because the cooperation is defined as the social norm, which serves as a guideline for behavior. As the massive debt incurred to fund stimulus measures is likely to burden future generations, one should also consider updating and recalling social norms by communicating the importance of tax compliance on the welfare of future generations. In addition to establishing and communicating social norms for cooperative behavior, measures must be taken to strengthen the identification of citizens and residents with the cooperative society. Here, one possibility would be to explicitly acknowledge cooperative behavior in order to increase its visibility, just as some selected firefighters are typically honored after large fires.

9. *Recognize that framing affects choices.* The ways by which policies are communicated is crucial. For example, prospect theory demonstrates that losses outweigh gains, and this should be taken into account when communicating that measures are being introduced or revoked.

   To illustrate some considerations, suppose that the rate of VAT is lowered for some time to stimulate consumption. How complex is the actual implementation in the retail sector, and – even if the reduction is passed on to consumers – will consumers perceive the scheduled reduction in the tax rate and will they find it fair? To be effective, a change must be above the perception threshold. If the VAT rate is 19% as in Germany, a halving of the tax rate would certainly be experienced as reduction of prices. However, would consumers also see and respond to a reduction from 19% to 16% as implemented in Germany? Perhaps people from poorer classes would experience relief, but those who are wealthy might not notice the price change. It is also important to consider what can happen if the reduction is withdrawn. The reduction from 19% to 16% would probably be perceived by many as a gain and might well affect consumers. The 16% tax rate would become the new reference point. If – as announced – the VAT is raised again to the previous 19%, this appears as a loss, and goods will be experienced as more expensive than they were before the tax rate reduction because losses have a greater impact than gains. Therefore, returning to the previous tax rate would subjectively not be perceived as such. If the tax were, however, not reduced from 19% to 16%, but remained at 19% and a bonus of equal size were offered, objectively the reductions would be equal. If the VAT is set at 19% and the bonus is later withdrawn, then, from an economic-psychological perspective, consumers will experience a forgone gain, whereas the increase from 16% to 19% represents a loss. Behavioral consequences would differ across these different scenarios.

   Besides affecting consumer behavior, the temporary reduction of VAT and reduction of prices for consumers could cause administrative problems in small and medium enterprises but would be easily administrable by large firms. If small and medium enterprises are not able to cope with the administrative task in the short run, while large firms encounter few problems and offer goods at reduced prices, consumers comparing prices might be tempted to buy from the large businesses rather the more expensive small and medium firms. This would cause disadvantages among competing suppliers, and further affect those already feeling the worst of the economic effects.

10. *Plan for the future.* The large shock to the economy, the extensive economic stimulus packages, state guarantees, and reduced tax revenue have caused enormous fiscal deficits. Moreover, the future evolution of the health crisis is uncertain, making further lockdowns possible. It seems obvious that governments around the world will need to deal with uncertainties and fiscal pressures for many years in the future. Governments need to be aware of possible fiscal risks, be flexible, and be ready to adjust their strategies to yet unforeseeable developments. They need to beware of surprises. Thus, it is of paramount importance to plan for all possible future scenarios and intervention strategies and to communicate the scenarios. The public in general and markets in particular must understand the various possible scenarios and the necessity of applying strategies in a highly flexible manner, given the high degree of uncertainty. Rather than blaming the authorities as weak, being prepared for all eventualities must be conceived as a strength.
11. *Beware of hindsight bias.* Once the health crisis has been overcome, economic hardship will continue to hurt society in general and specific sectors in particular, posing severe challenges for fiscal systems. In retrospect, it may be difficult to remember that these actions were taken because of the goal of putting people's health above everything else, thereby requiring massive government expenditures to safeguard jobs and health and leading to enormous economic dislocations. Experiences will fade and memories will be reconstructed on the basis of current experiences and motives. In retrospect, we might perceive the austerity measures as inappropriately high, we might complain about insolvent companies and unemployed workers, and we might well blame governments for the excessive economic sacrifices that have led to higher taxes. In order to ensure acceptance of future financial sacrifices and solidarity in society, it is not only essential to plan and communicate interventions by the government, but also to publish them and to keep records of measures, programs, and justifications taken during the crises, when uncertainty was at its highest levels. A centralized information platform might be useful, in which all actions during the crisis are listed and accompanied by clear

and concise justifications that include also descriptions of the level of uncertainty that policy-makers were facing when decisions had to be taken.

6. Conclusion

Governmental restrictions and economic stimulus measures in response to the pandemic are likely affecting citizens' tax compliance behavior. We reflect on the possible impact of tax policy measures during the pandemic on future tax compliance and consider it advisable to derive insights from a behavioral-economic perspective to ensure future tax compliance. Analyzing economic stimulus measures and taking stock of theoretical elaborations on the interplay between legitimate and coercive power of the administration and citizens' trust in the government, we conclude that the first rule of crisis management is communication and provision of clear information. Economic stimulus packages must be justified and transparent. Access to support must be simple, and services must be provided by the tax administration. In order to prevent undesired behavior, controls and penalties in case of norm violation are required. Controls, however, need to be well targeted to signal protection of compliant citizens from exploitation by free riders. Tax compliance should be rewarded and communicated as the social norm. Framing effects – the effect of perceived loss, forgone gain, and gain – should be taken into account when policies are communicated. Governments act in a situation of high uncertainty, and thus need to be prepared for possible future scenarios to avoid surprises. In order to encourage the acceptance of future economic sacrifices and ensure solidarity in the society, not only must policy measures be planned, justified, and communicated, but records of measures and justifications must be kept to prevent hindsight bias.

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