Cautionary Tales: Celebrities, the News Media, and Participation in Tax Amnesties

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Abstract

This study investigates whether press coverage on celebrities with tax issues affects the behavior of other tax payers. We compile an original data set for Germany, including regional information on the amount of tax payers using amnesty regulations to voluntarily disclose taxes they have evaded. The data set also includes counts of news reports published by 6 national and 54 local newspapers that address celebrity tax evaders who were publicly tried between January 2010 and June 2016. We find a strong correlation between the amount of self-denunciations and the news coverage. To identify the causal effect, we use exogenous variation in the reporting, resulting from disasters and terrorist attacks that coincide with the celebrity trials. Instrumental variable estimates suggest that an increase in news coverage by the amount of an average trial raises participation in the tax amnesty program by approximately 22.5%. This finding helps to better understand the effectiveness of tax amnesties, and it illustrates the economic implications of publicly trying famous personalities.

Keywords: news coverage; public trial; self-denunciation; tax evasion

JEL classification: D83; H26; K34; L82

1. Introduction

In March 2013, prosecutors and tax investigators searched the residence of Uli Hoeneß, the president of Germany's most famous soccer club Bayern Munich. Due to the risk of flight, he was immediately arrested, but he was bailed out shortly afterwards. The public learned about the investigation a month later, but the extent of the crime remained concealed. When charges were brought against Hoeneß in July 2013, the prosecution accused him of tax evasion in the amount of 3.2 million euros. A public trial began on March 10, 2014. Only four days later, when the verdict was announced, the full extent of evaded taxes – 28.5 million euros – became known. Hoeneß was sentenced to three and a half years of imprisonment, which he accepted without pursuing an appeal. The media covered the trial extensively, likely due to several factors: his fame as a previous star player, his influence as manager and president of Bayern Munich, and his polarizing character. At the same time, the authorities registered a strong increase in people participating in the tax amnesty program, which the media called the "Hoeneß effect."

Is it possible that media coverage of celebrity tax evaders affects the behavior of other tax payers? There are various mechanisms that could explain such effects. First, media coverage could improve people's knowledge of the tax code and potential penalties for tax evasion. Chetty, Friedman, and Saez (2013) investigate refundable tax credits rather than self-denunciations, but their findings emphasize the importance of factual knowledge about tax policies for the behavior of tax payers. Second, news reports on celebrity tax evaders could influence the perceived risk of detection. Field experiments suggest that threat-to-audit letters increase the rate of compliance of potential evaders by altering their risk perceptions (e.g., Kleven et al., 2011; Fellner, Sausgruber, and Traxler, 2013; Pomeranz, 2015). Third, the reputation of celebrities likely suffers when they are publicly tried, and related media coverage could increase the salience of shaming penalties of non-compliance. Perez-Truglia and Troiano (2018) show that enhancing the salience of these penalties raises the probability that tax delinquents repay their debts. Finally, reports about celebrity tax evaders could change perceptions about others' behavior and therefore one's sense of duty. Previous research suggests that moral appeals can affect these perceptions and increase tax compliance (e.g., Dwenger et al., 2016; Hallsworth et al., 2017). Information on others' behavior does not necessarily raise tax compliance though. High-profile tax evasion cases that are discussed in public could also

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undermine tax compliance norms if the media coverage signals that many (prominent) members of society are cheating (Wenzel, 2004; Traxler, 2010).

We cannot distinguish between these and other potential channels of media effects in this study. However, we are able to test whether newspaper reports about celebrities with tax issues affect the behavior of other tax payers in a causal way. In particular, we consider the voluntary disclosure of evaded taxes under tax amnesty regulations. We gather information from individual tax authorities about the amount of such self-denunciations in German federal states between January 2010 and June 2016.[1] These figures are the basis of our main data set, which refers to 16 states and up to 26 quarters per state. In contrast to survey data, actually registered self-denunciations are an ideal measure in this context because they are not vulnerable to non-response or untruthful answers.

We conduct keyword-based searches in full-text newspaper archives to construct a measure of news coverage. Considering articles that contain the German word for tax evasion ("Steuerhinterziehung") in their (sub)heading, we retrieve reports published by 6 national and 54 local newspapers. Text mining helps to ascertain that the search procedure yields meaningful results: The extracted articles address topics such as investigation, prosecution, and sanctioning of tax evasion; the implementation and consequences of anti-tax evasion measures; negotiations with other countries and tax havens; or the macroeconomic damages of tax fraud. We weight quarterly state-specific counts of the articles by the regional circulation of the newspapers and match the resulting values with the corresponding amount of self-denunciations.

We also create a media-independent measure of the supply of news material. Using the existence of a Wikipedia entry as a criterion of prominence, we determine all cases in which famous personalities were publicly tried by a German court for tax evasion in the period of investigation. Wikipedia's page revision history allows us to verify that our list of personalities does not include any pure celebrity criminals. Each personality achieved celebrity status prior to their tax problems and due to some talent other than tax evasion. We ascertain not to omit any news material by considering only cases in which the trial was open to the public. Based on these criteria, we register 32 trial openings and 33 closings, pertaining to 29 celebrities. The data indicate that the corresponding news coverage peaks at the time of the beginning and the end of the trial. When a public

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[1] We discuss the implications of differences in measurement of self-denunciations across federal states in Section 3.

hearing starts, there is usually a surge of new details on the misbehavior of the accused. Because a trial often closes with a verdict, there is also an increased likelihood of media coverage at that point.

Estimating the causal effect of press coverage about celebrity tax evaders is complicated by endogeneity issues. An exogenous increase in the amount of self-denunciations could cause the media to emphasize tax issues of famous personalities. In addition, third variables might affect the participation in the tax amnesty and the news coverage simultaneously. For instance, a random change in public opinion about tax evasion could influence the demand for related news coverage. Due to interpersonal communication and networks, this change might also affect the likelihood that people declare taxes they evaded. Similar effects are conceivable if the authorities decide to increase their efforts to fight tax evasion. The demand for media coverage and the amount of self-denunciations might increase if tax consultants inform their clients that the state hires additional tax investigators, for example. In addition, our news variable could suffer from measurement error as the newspaper sample cannot capture all possible channels of information used by tax payers. To identify the causal effect and account for potential measurement error, we exploit exogenous variation in the amount of the press coverage resulting from competing news events at the time of the beginning and end of the celebrity trials. Specifically, we use the number of fatalities due to disasters and terrorist attacks because the occurrence of these events is usually not predictable. Data from Google search queries from the time prior to our period of investigation serve to weight the occurrence of the events by regional differences in reader demand for corresponding reports. In other words, we construct two instrumental variables (IVs) that are the product of time-varying shocks to the national news agenda and cross-sectional variation in attention to these shocks. For example, an earthquake in another country is more likely to be covered in German regions that are themselves prone to seismic activity, which implies a greater crowding out of reports about celebrity trials than in other German areas.

The data indicate a strong correlation between the amount of self-denunciations and news coverage about celebrities with tax issues. Our estimates also suggest that disasters and terrorist attacks significantly reduce the amount of the news coverage if their occurrence coincides with the opening or closing of a celebrity trial. Placebo regressions show that there is no crowding out in case disasters and attacks do not coincide with the beginning and ending of the trials. We use both instruments to estimate the causal effect of the news coverage by two-stage least squares (2SLS). According to

our baseline specification, an increase in news coverage by the amount of an average trial raises the participation in the tax amnesty program by approximately 22.5%. This finding is robust to the inclusion of state, quarter, and year fixed effects; conditioning on the overall amount of tax investigations, major changes in tax regulations, bank data leaks, and tax CD purchases; different model specifications and definitions of variables; excluding the extreme case of Uli Hoeneß; and using alternative criteria of celebrity status.

Our findings contribute to studies that investigate the role of media for tax payers. Bo, Slemrod, and Thoresen (2015) show that the switch from traditional to Internet-based public disclosure of tax filings in Norway caused people to report higher income levels. While the authors investigate effects of online dissemination of information, we study effects of information transmitted by newspapers. Using an experimental setting, Kasper, Kogler, and Kirchler (2015) find that newspaper reports on tax issues affect the intentions of participants to comply with the law. According to Battiston et al. (2016), the effect of tax audits on subsequent VAT payments is larger when the audit receives more attention from the media. In contrast to these studies, we investigate the role of news coverage about celebrities with tax issues. We find that this news coverage increases the likelihood that people voluntarily disclose taxes they evaded. As a result, tax authorities could have a special incentive to prosecute celebrity tax evaders. However, many countries – including Germany – pursue equality before the law. Hence it is important that regulations and institutional mechanisms prevent authorities from penalizing celebrities more harshly than ordinary tax evaders.

In addition, we contribute to the literature dealing with tax amnesty programs. This strand of research addresses the determinants of such programs (e.g., Le Borgne, 2006; Luitel and Tosun, 2014; Bayer, Oberhofer, and Winner, 2015), as well as the implications for tax evasion and revenues (e.g., Das-Gupta and Mookherjee, 1996; Luitel and Sobel, 2007; Langenmayr, 2015). In a closely related study, Bethmann and Kvasnicka (2016) show that participation in the German tax amnesty program correlates with state purchases of confidential bank data (so called tax CDs). The authors emphasize the role of the press in this relationship, but they restrict their investigation to the federal state of North Rhine-Westphalia. Another difference relates to our research design. Estimating panel data models with instrumental variables and time and state fixed effects allows for a causal interpretation of our results.

The next section describes the institutional context. Afterwards, we provide details on the data and the identification strategy. We present and discuss the estimation results before concluding in the last section.

2. Institutional context

German regulations allow tax payers to voluntarily declare taxes they evaded without being held criminally liable. The possibility of self-denunciation applies if incorrect statements are corrected, incomplete entries are complemented, or omitted information is provided. The incentives for self-denunciation derive from the avoidable punishment. An amount of evaded taxes exceeding 50,000 euros customarily leads to a monetary penalty and a suspended prison sentence. Exceeding the threshold of 1 million euros results in at least two years of prison.[2] In addition, tax evaders can avoid being (publicly) tried if their self-denunciation is complete and valid.

Minor cases of tax evasion are handled without a trial to increase judicial efficiency. The court merely renders a decision based on the records. If the accused is found guilty, the judge issues a penalty order ("Strafbefehl"). More severe cases are subject to a public or non-public court hearing. For a trial to be public the amount of evaded taxes needs to exceed 1 million euros, which is when constant jurisdiction considers the interests of the general public to outweigh those of the individual.[3]

It usually takes months or even years for a trial to begin. When investigation authorities suspect tax evasion, they first need to collect sufficient evidence before handing over the case to the prosecution. The prosecutor evaluates the case while having to respect the defendant's rights, which often delays the process. Once the prosecution decides to press charges, it again takes months until the trial takes place. The court has to find an open slot in its schedule while the defense exercises its right to take time to prepare its case. Some trials only take a couple of days, whereas others may last several months. A trial usually ends with a verdict, although sometimes the proceedings are discontinued or stopped. Verdicts can be appealed, which might result in further trials.[4]

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[2] See § 370 of the German tax code (§ 370 AO) and Federal Court decision BGH 1 StR 416/08 (December 2, 2008).
[3] See Federal Court decisions BGH 1 StR 416/08 (December 2, 2008) and BGH 1 StR 525/11 (February 7, 2012).
[4] See Federal Statistical Office, prosecution statistics:
www.destatis.de/GPStatistik/receive/DESerie_serie_00000106.

3. Data and identification

3.1 Self-denunciations

We obtain data on self-denunciations from the federal states' ministries of finance. The numbers are publicly available on the official websites of the ministries in two cases (Hesse, North Rhine-Westphalia). We directly contact the ministries to obtain the data for the remaining states. Most of the numbers are only available as of 2010, which is when our period of investigation begins. The most recent figures covered the first two quarters of 2016 at the time of the collection of the data. Measurement slightly varies across federal states. Most states register all self-denunciations related to holding undeclared foreign capital accounts, whereas some states only count cases related to accounts in Switzerland, or Switzerland, Liechtenstein, and Luxemburg. Lower Saxony provides data on self-denunciations related to all kinds of tax evasion. Thus the comparability of the numbers across states is limited, especially when using descriptive statistics. Since the differences in measurement are time invariant, we can use state fixed effects to account for them in our regressions.

Most states count the number of self-denunciations on a quarterly basis. Some data are available on a monthly basis, in which case we calculate the quarterly equivalent. The reason is the likely lag in the chain of events of celebrity news coverage, people's decision to disclose, and the actual receipt of the self-denunciation at the financial authority. When people decide to disclose their illegal behavior, it might take (a tax consultant) several weeks to prepare the documents necessary for the process to be effective. There are also a few cases in which the ministries' period of counting does not exactly match a quarter. Here we calculate quarterly figures by dividing the numbers proportionally. Some states only provide yearly or half-yearly data for parts of the period of investigation, especially for the earlier years. We exclude these low-frequency observations because they do not provide information detailed enough to credibly estimate media effects. Based on this restriction, our panel consists of 207 observations pertaining to 16 federal states, with up to 26 quarters per state. Unbalanced panel data may lead to biased estimates if the reasons for the missing observations correlate with the error term. The main explanation for differences in the availability of the data relates to the states' political intent and administrative barriers. Some states were willing and able to collect detailed data on self-denunciations early on (e.g., Berlin, Hesse, and North

Rhine-Westphalia), whereas others started counting on a quarterly basis only at a later point (e.g., Bremen, Schleswig-Holstein, and Thuringia). Thus the missing observations are not random, but they can be accounted for by state fixed effects.

On average, German authorities registered 490.8 self-denunciations per quarter and state (cp. Table 1), which corresponds to 70.5 self-denunciations per 1,000,000 inhabitants.[5] Figures A1 to A3 in the Online Appendix describe this variable graphically. A substantial part of the variation in self-denunciations comes from changes over time, but also from differences across federal states. We only use the variation in self-denunciations that is not captured by state and time dummies to identify the media effects.

3.2 Celebrity tax evasion trials

We use public trials for tax evasion committed by celebrities to obtain a basis of similar cases of supply of news material. The goal is to create a list of cases that are comparable in terms of the severity of the offense and the level of the celebrity's fame.

Comparability of the severity of the offense can be achieved by focusing on trials that are public ("öffentliche Hauptverhandlung"). In the context of tax evasion, a public trial takes place if the amount of evaded taxes exceeds 1 million euros. This threshold has the additional advantage that it is not difficult to identify the relevant cases. It is reasonable to assume that these trials will not remain unnoticed when celebrities are involved. Since we do not consider penalty orders – which might actually remain unnoticed – but non-secret trials, it is guaranteed that the public learns about the cases.[6] We first conduct a comprehensive search in Google, Nexis, and Genios to identify the trials. The search is based on combinations of German keywords – including synonyms and truncations – for the terms tax evasion ("Steuerhinterziehung"), trial ("Verhandlung"), and verdict

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[5] In the regressions, state fixed effects capture differences due to varying population numbers, so that we can use the absolute amount of self-denunciations as the dependent variable. However, when describing the variable graphically, we show the share of self-denunciations per 1,000,000 inhabitants (based on population data from the Federal Statistical Office).

[6] There are many cases in which trials that are not public – legally speaking – become public because of media reports. We do not include these cases because the probability that they are made public could be affected by the occurrence of competing news events, which would compromise our identification strategy.

("Urteil"). This procedure results in a list of 119 potential celebrities for which we can verify that they were brought to public trial in Germany at least once in our period of investigation.

It is also necessary to apply some criterion of fame, to avoid discretionary decisions about which individuals on our list of potential celebrities should be considered actual celebrities. We use a definition of celebrity status that is independent of tax issues: the existence of an individual entry in the German edition of Wikipedia. The free encyclopedia makes new entries pass a relevance check of the topic, based on lists of context-related indicators. When the relevance of a personality is ambiguous, the decision about whether or not the celebrity deserves her own Wikipedia page is made by the community. Thus we consider the Wikipedia consensus as kind of a crowd-sourced evaluation of celebrity status. From our pool of potential celebrities, 29 persons have a German Wikipedia page, from which we observe 32 trial openings and 33 trial closings. These numbers translate slightly disproportionately into an average of 1.50 openings and 1.37 closings per quarter, due to the unbalanced design of the panel data.

Table A1 in the Online Appendix lists all personalities standing public trial and meeting the Wikipedia celebrity criterion. The list includes model Nadja Auermann, former national soccer goalkeeper Oliver Kahn, former Volkswagen chairman Bernd Pischetsrieder, and Bayern Munich protagonist Uli Hoeneß. Using Wikipedia's page revision history allows us to rule out that any of these celebrities obtained their Wikipedia entry because of tax issues. Each personality achieved celebrity status due to some other talent or position and prior to their tax problems.

3.3 News coverage

We use newspaper stories on tax evasion by celebrities to evaluate the effects on self-denunciations. The focus is on newspapers for several reasons. First, this type of media allows to consistently determine the amount of relevant news over time. With online news outlets, for example, it would not be possible to achieve this kind of consistency, as new media continues to develop. This development implies a general variation in the news amount associated with the increasing popularity of online media, making comparisons over time difficult. Second, digital full-text archives allow for an analysis of newspaper content, including keyword-based searches. This kind of data is not available for online news, newscasts, and radio news in Germany. Third, many other media

barely produce content themselves, whereas most newspapers rely on editorial and journalistic input. Due to this input, the press continues to have an agenda-setting role.

Neglecting newscasts, radio news, and online outlets is not optimal but does not pose a severe problem either. In the worst case, the variables that capture reporting about celebrity trials suffer from measurement error, which likely leads to bias in OLS coefficients. IV estimates account for measurement error if the instruments are valid. We keep this caveat in mind when we interpret the results. We also present reduced-form estimates, which allow us to investigate the causal effect of celebrity trials without explicitly measuring any news coverage.

Our major source to extract the reports is Genios, a German provider of business information, market data, and press archives. The company's newspaper archive offers consistent full-text access to 54 local and the three national daily outlets Handelsblatt, Die Tageszeitung, and Die Welt. We complement the sample with the national daily newspapers Frankfurter Allgemeine Zeitung (publisher's archive), Frankfurter Rundschau (Nexis database), and Süddeutsche Zeitung (publisher's archive). The sample then includes all German national dailies, except for the tabloid Bild, since data are unavailable here. The sample also comprises most of the largest local newspapers; it contains outlets from 8 out of the 10 largest (local) publishing companies; and the combined circulation of the local newspapers accounts for about 40% of the market (according to the second quarter of 2014; KEK, 2015). Table A2 lists the newspapers and their area of circulation.

We extract all articles that contain the word "Steuerhinterziehung" (tax evasion) in their heading or subheading. In the period under consideration, the search retrieves 2,112 articles, of which 338 contain the last name of a person from our list of Wikipedia celebrities in the sub(heading). We also check related search terms, such as "Steuervermeidung" (tax avoidance) and "Steuerbetrug" (tax fraud). These and other terms do not yield additional hits though. To simplify matters for readers, the press almost always uses "Steuerhinterziehung" as a catch-all term, even if it does not describe the issue at hand in the legally most precise way. Applying the principle of the "inverted pyramid" when structuring their articles, journalists include "Steuerhinterziehung" as a buzz word in the (sub)heading, so that readers can quickly recognize the topic of the report. Restricting our search query to the (sub)heading thus reduces the number of false positives – i.e., reports mainly addressing a topic other than tax evasion. A prominent example of such false positives are soccer-

related articles, which cite Uli Hoeneß' comments on the last game while briefly mentioning his legal problems due to tax evasion.

Inspecting the retrieved articles indicates that most of the news coverage deals with the following: events associated with individual tax crime, such as investigations, prosecution, or court rulings; discussions, implementations, and consequences of reforms aiming to fight tax evasion; data leaks that might expose tax defrauders; authorities buying or being offered tax CDs; other countries' behavior if it has implications for tax evasion in Germany; and economic damages of tax fraud.

We conduct simple text mining to further show that searching for the keyword "Steuerhinter-ziehung" in the (sub)heading produces meaningful results. Table A3 lists the 100 most frequently used terms in the extracted articles. Not surprisingly, the German word for tax evasion appears in the first rank, as well as word deviations (Steuersünder, Steuerhinterzieher) in following positions. In addition, the ranking includes the countries Schweiz (Switzerland) and Luxemburg (Luxembourg), two of the most common destinations for Germans to hide money. Terms that immediately relate to the context, such as Bank (bank), Selbstanzeige (self-denunciation), Finanzamt (tax authority), and Steuerfahnder (tax investigator), also suggest that the search procedure yields meaningful results. Finally, there is a large amount of words illustrating public efforts of fighting tax evasion, including Staatsanwaltschaft (prosecution), Gericht (court), Ermittlungen (investigations), Prozess (trial), Urteil (verdict), Anklage (indictment), Richter (judge), Strafe (sentence), Gefängnis (prison), Anwalt (lawyer), Bewährung (probation), and Razzia (raid).

We match the amount of news coverage and the amount of self-denunciations by state and quarter.[7] Because the six national newspapers can be read everywhere in Germany, we assume that their coverage might affect self-denunciations in all states, depending on the outlets' regional circulation. We further assume that the potential effects of reports of the local newspapers are largest in those regions in which the outlets circulate. That is, the amount of news in state s and quarter q is the sum of articles a over newspapers n, given the set of national outlets A and the relevant subset of regional outlets R_s. We weight the articles by the newspapers' within-sample circulation shares

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[7] It could be argued that the relative amount of news coverage (i.e., the share of relevant reports per newspaper issue) might be more appropriate to construct the news measure than absolute numbers. Unfortunately, our data do not include information on the volume of individual newspaper issues. We do not believe that this is a problem though because there is only little variation in the volume of Germany newspapers over time (Garz and Sörensen, 2017), and variation across newspapers can be captured by state fixed effects.

c to account for their varying importance. Using the superscripts nat and reg to distinguish between national and regional outlets, the circulation-weighted amount of news coverage $a_{s,q}^*$ is then computed as:

$$a_{s,q}^* = \sum_{n \in A} a_{n,q}^{nat} c_{n,q}^{nat} + \sum_{n \in R_s} a_{n,q}^{reg} c_{n,q}^{reg} \tag{1}$$

The circulation data are obtained from the German audit bureau of circulation (Informationsgesellschaft zur Feststellung der Verbreitung von Werbeträgern, IVW). These data are provided on a quarterly basis but we only use the numbers of each year's first quarter. Doing so prevents the news variable from being affected by the seasonal patterns that usually characterize newspaper circulation. Data on the regional circulation of the national newspapers come from the Allensbach Media Market Analysis (Allensbacher Markt- und Werbeträgeranalyse, AWA) and directly from the publisher in the case of Die Tageszeitung. To ease the interpretation of the results, the circulation-weighted news amount $a_{s,q}^*$ is normalized to have the same sample mean as its unweighted counterpart:

$$a_{s,q}^{norm} = \frac{a_{s,q}^* \bar{a}}{\bar{a}^*} \tag{2}$$

where $\bar{a}^*$ and $\bar{a}$ denote the sample means of the circulation-weighted and unweighted news amount, respectively.

Figure 1 shows the daily distribution of the resulting variable in relation to the trial openings and closings. The graph indicates that more than a fifth of the articles in the 30 days around the date of the opening or closing are published on that date. More than half of the reports are published the day after. Both days account for 72.2% of the articles. The concentration of reports in this two-day window is crucial for our identification strategy, because it allows us to exploit variation in the amount of the reporting due to a crowding out by news about coinciding disasters and terrorist attacks.

Figures A4 to A6 in the Online Appendix show the regional and time-wise distribution of the news coverage. The differences across states already hint towards a positive correlation between the amount of reports and the amount of self-denunciations. There is also substantial variation over time. The two largest peaks, in the second quarter of 2013 and the first quarter of 2014, co-incide with the investigations against Uli Hoeneß becoming public knowledge and his trial, re-spectively. In the last quarter of 2011, which denotes the third-largest peak of the news coverage, verdicts were announced against model Nadja Auermann and former Volkswagen chair Bernd Pischetsrieder.

3.4 Control variables

The panel data allow the empirical models to include quarter, year, and state fixed effects. Quarter fixed effects control for seasonal differences in the amount of self-denunciations and news cover-age, whereas the year dummies capture unobserved long-term variation. The state fixed effects account for time-invariant differences across the federal states. A state-specific, linear time trend captures further unobserved developments.

The reporting about celebrity tax evaders depends on the amount of celebrity trials. This amount also affects the quarterly number of opportunities when disasters and terrorist attacks could crowd out celebrity news. We thus control for the number of trial openings, trial closings, and ongoing trials in each quarter. These three variables only vary over time (i.e., for a given quarter their value is equal across the states) because of the national significance of celebrity trials.

In addition, we construct variables that capture major changes and events affecting the risks and benefits of tax evasion from the evaders' perspective (the "tax evasion environment", see also Ta-ble A4). We contact the states' prosecution departments ("Landesstaatsanwaltschaften") to obtain data on criminal investigations for tax evasion. The quarterly state-specific amount of completed investigations serves as a proxy for the efforts of the authorities to fight tax evasion.[8] We also construct a dummy variable to account for the effects of tax authorities buying illegally obtained data that help to convict tax evaders. Due to their controversial nature, these tax CDs have been

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[8] We have to interpolate parts of the data to obtain quarterly values in four cases because the authorities only have annual records (Bremen, Hamburg, Hesse, and Saxony-Anhalt).

heavily discussed in the public, which makes it easy to identify the relevant purchases. We add two cases in which the authorities publicly considered buying a CD, because this might also affect the amount of self-denunciations and tax evasion news coverage. The dummy identifies the states and quarters in which the CDs were bought or considered to be bought. In addition, we control for two major changes in the legal environment resulting from landmark court decisions: (1) the May 2010 resolution of the Federal Court ("Bundesgerichtshof") to abolish the possibility of partial self-denunciations and (2) the November 2010 ruling of the Federal Constitutional Court ("Bundesverfassungsgericht"), which allowed the usage of illegally obtained tax data for criminal prosecution. Both variables vary only over time. They take the value 1 in the quarter of the ruling and afterwards. Finally, we use a binary variable to capture the four tax data leaks in the period under consideration (Swiss Leaks I and II, Luxembourg Leaks, Offshore Leaks). This dummy also varies only over time, taking the value 1 in the quarters the leaks occurred.

We also tested dummy variables to capture effects associated with two major changes of the national law. The first change limited the effectiveness of self-denunciations as of April 2011, and the second one restricted the scope of self-denunciations after 2014. However, we decided to not include these dummies as they lead to problems with multicollinearity. For the same reason, we refrain from using explicit controls for the developments associated with the Common Reporting Standard (a multilateral agreement on the exchange of data) and the Swiss-German treaty on the taxation of capital gains (which Germany failed to ratify). There are multiple events related to these agreements for which dummy variables could be constructed, such as the balloting, signing, or taking effect. However, these events often coincide with the timing of other changes already controlled for or that are absorbed by the time fixed effects.

3.5 Competing news events

3.5.1 Sources and measurement

The main idea when constructing the instruments is to use variation over time caused by the occurrence of terrorist attacks and disasters in combination with cross-sectional differences in readers' interest in news coverage about these events. We focus on disasters and terrorist attacks because these events usually cannot be predicted. The unpredictable occurrence makes it very unlikely that

our identification strategy is compromised by efforts of the authorities to manipulate the timing of public trials in the interest of public attention.

Information on competing news events are obtained from the EM-DAT International Disaster Database[9] and the Global Terrorism Database of the National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland. The former database includes all natural and man-made disasters worldwide if one of the following conditions applied: at least ten people were reported to be killed, at least 100 people reported to be affected, a state of emergency was declared, or international assistance was requested. The latter database includes all terrorist attacks worldwide that were intentional, entailed violence or the immediate threat of violence, and were committed by non-state actors. It is plausible to assume that a disaster or attack is more likely to be covered when the number of fatalities are higher. Other news factors, such as the location of the event and the surprise factor, might be important as well, but the number of deaths arguably is the most prominent proxy for the news pressure caused by a disaster or attack. For that reason, the first component to construct our instruments is the number of fatalities of those disasters and attacks that coincide with the celebrity trials.[10] Considering the publication pattern shown in Figure 1, we use the sum of fatalities on the day and the day after the trial opening or closing. If a disaster lasted longer than one day, which often happens in the case of floods or cold waves, we divide the amount of fatalities by the number of days the disaster is recorded. Based on this procedure, we construct a variable that counts the quarterly number of fatalities of coinciding disasters and terrorist attacks.[11] This measure only varies over time because the competing events are shocks to the national news agenda. Due to their large newsworthiness, the events are usually covered all over Germany, even the ones that take place in individual German states. For instance, the crowd disaster at the 2010 Love Parade festival occurred in Duisburg. The accident was not only covered by the press in North Rhine-Westphalia but by newspapers all over Germany. The same applies to

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[9] EM-DAT: The Emergency Events Database – Université catholique de Louvain (UCL) – CRED, D. Guha-Sapir – www.emdat.be, Brussels, Belgium.

[10] Jetter (2017a) shows that suicide attacks receive more news coverage than non-suicide attacks, everything else equal. Suicide attacks accounted for approximately 5.5% of all terrorist attacks during our period of investigation. Considering that the number of dates for which we evaluate the occurrence of competing news events is limited (32 trial openings and 33 closings), we do not restrict the instrument to suicide attacks but consider all attacks.

[11] We do not use the actual amount of reports about competing events because this number might be affected by reporting about celebrity trials. That is, a large number of articles about celebrities could reduce the coverage of disasters and terrorist attacks, which would be a violation of the exclusion restriction. There is no risk of violation when counting the number of fatalities of competing disasters and attacks.

the celebrity trials, which is why the place of the court hearing cannot be used to create regional variation in the instrument either.

Instead, we weight the number of fatalities by regional variation in the general attention to terrorist attacks and different types of disasters. The idea is that the salience of current news events varies across federal states; for instance, because of different historical experiences: People in Baden-Wuerttemberg and Saarland are more receptive to news about earthquakes, as these people live in the German earthquake area; readers from the south of Germany likely pay more attention to reports about flood disasters, due to their experience with flooding; and news about landslides is more salient in Saxony-Anhalt, after several people died when a strip mine caused parts of the village of Nachterstedt to be buried after a slump in 2009. News media are known to cater to the interests of their audiences (e.g., Mullainathan and Shleifer, 2005; Gentzkow and Shapiro, 2006, 2010; Chan and Suen, 2008), which leads to cross-sectional variation in the amount of coverage about terrorist attacks and disasters.

We use data on Google searches from 2005 to 2009 to quantify state-specific differences in attention to the events. Focusing on the time before our period of investigation ensures that these interests are not affected by current disasters and attacks. Using Google Trends, we obtain the amount of search queries on German keywords that correspond to the classification of disasters used in EM-DAT – earthquake ("Erdbeben"), epidemic ("Epidemie"), extreme temperature ("Hitzewelle", "Kältewelle"), flood ("Überschwemmung"), landslide ("Erdrutsch"), storm ("Sturm"), technological disaster ("Unglück"), and wildfire ("Waldbrand") – as well as the keyword for terrorism ("Terrorismus"). Google provides the normalized relative search volume for each keyword. The federal state with the largest search volume receives a value of 100%, which is then compared to the search volume of another state (e.g., 70%). These percentages, in turn, are based on the absolute number of keyword searches relative to a state's overall amount of search queries. See Figure A7 in the Online Appendix for details.

By weighting the time-varying news shocks resulting from disasters and terrorist attacks by the Google search data, we assume that the crowding out of reports on celebrity tax evaders is largest in those states where the readers have the greatest interest in the different competing events. Formally, for each state s and quarter q, the instrument is defined as:

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$$fatalities^*_{s,q} = \sum_{j=1}^{J} fatalities_{q,j}\,\bar{g}_{s,j} \qquad (3)$$

where $\bar{g}$ is the 2005 to 2009 state-specific average of the relative Google search volume pertaining to event type j, and $fatalities$ counts the quarterly number of deaths due to those disasters and attacks that take place on the day or the day after a trial opening or closing. Thus $fatalities^*$ is the product of the cross-sectional interest in different types of competing events and the time-varying occurrence of disasters and attacks. Instruments referring to the congestion of the news agenda have been widely applied before – for example, in the context of disaster news (Eisensee and Strömberg, 2007), scandal coverage (Nyhan, 2014), campaign coverage (Garcia-Jimeno and Yildirim, 2017), reports about unemployment (Garz, 2017), news about criminal politicians (Garz and Sörensen, 2017), and coverage of terrorist attacks (Jetter, 2017b, 2017c). Weighting national news shocks by predetermined regional variation in the demand for different kinds of news is similar to instruments that combine time-varying trends and initial cross-sectional differences. For instance, such instruments have been used to predict labor demand (Bartik, 1991), effects of schooling (Duflo, 2001), or news coverage on climate change (Beattie, 2017). We split the weighted number of $fatalities^*$ into two instruments: one pertaining to disasters and the other one relating to terrorist attacks. This approach has the advantage of being able to test for overidentifying restrictions.

3.5.2 Instrument validity

For an instrument to be valid, it needs to be a strong predictor of the endogenous regressor, and it must not violate the exclusion restriction. The first criterion, the relevance of the instrument, can be tested empirically. We present corresponding test statistics in the next section. The exclusion restriction cannot be tested but we discuss the conditions that need to be fulfilled for the restriction to hold. To begin with, there must be no reverse causality. Meeting this condition is unproblematic here because neither the amount of self-denunciations nor the volume of the reporting could possibly affect the occurrence of the competing events, especially that of natural disasters. Even in the case of technological disasters and terrorist attacks, such effects are extremely implausible. The

same applies to cross-sectional differences in the demand for news about these events, since we use past values here. In addition, the occurrence of disasters and attacks must not correlate with any unobserved variable that could also affect the amount of self-denunciations or the volume of the news coverage. After controlling for state and time fixed effects, there is no reason why the instrument should not meet this condition.

Finally, disasters or attacks must not have a direct effect on the amount of self-denunciations. For instance, it could be argued that tax evaders want to redeem themselves when terrible events take place, since they feel sorry for the victims. Such a mechanism seems unlikely though. It is much more likely that people donate rather than risking incriminating themselves by voluntarily disclosing their tax evasion. Table 2 presents placebo tests in support of this argument. It shows regressions of the quarterly amount of self-denunciations and celebrity news coverage, respectively, on the weighted number of fatalities of *competing* and *non-competing* news events. Here, non-competing events are those disasters and terrorist attacks that do not coincide with the dates of the beginnings and endings of the celebrity trials, including five days before and after these dates. The estimates suggest that the non-competing events neither have a significant effect on self-denunciations nor celebrity news coverage. In contrast, those disasters and terrorist attacks that coincide with trial openings and closings have a highly significant impact. The differences between the coefficients of competing and non-competing events are significant at the 10% level at least.[12] Table B1 in the Online Appendix confirms that the null effect of non-competing events is robust to other model specifications. Thus it is plausible to assume that disasters and attacks do not affect self-denunciations other than through the crowding out of tax evasion news. Note that the results in Table 2, Column (2) support the relevance of the instruments, whereas Column (1) indicates the existence of a strong reduced-form relationship between our outcome variable and the instruments. The latter provides evidence of a causal effect of attention to celebrity trials on self-denunciations, regardless of a specific news measure.

Another concern is that terrorists may act when they expect to have more attention, as in the case of national holidays or anniversaries. Our identification strategy could be compromised if tax payers feel particularly patriotic on these days and are more inclined to disclose tax evasion. However,

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[12] We use Wald tests to compare the coefficients across Columns (1) and (3), Columns (2) and (4), and within Columns (5) and (6). The tests are based on robust estimates of the relevant parameters and variance-covariance matrices.

manually checking the dates of the celebrity trials allows us to exclude this possibility. The trial openings and closings in our sample do not coincide with major anniversaries or national holidays. More importantly, none of the openings and closings – including two days before and after – coincide with any terrorist attack in Germany in the period of investigation.

It could also be argued that the competing events are not perfectly unpredictable, as in the case of severe weather conditions or health epidemics. According to previous research, decision makers might want to manipulate the timing of their actions to exploit the public distraction that comes with large news events (e.g., deHaan, Shevlin, and Thornock, 2015; Garz and Maass, 2017; Durante and Zhuravskaya, 2018). We do not expect that this kind of manipulation is feasible in the context of public trials for tax evasion by celebrities, because of procedural regulations, administrative hurdles, and the influence of many actors with different interests. Table B2 in the Online Appendix confirms this expectation. Using daily observations between January 2010 and June 2016, we regress the number of trial openings and closings on the amount of disaster and terror fatalities. The estimates suggest that the occurrence of the trials is not influenced by the number of fatalities on that day or by the number of fatalities on the surrounding days.

Finally, it is possible that a competing event does not replace an article about a celebrity trial but merely postpones its publication. For example, a disaster might crowd out an article at the day of the trial opening, but the news outlet could decide to publish a report a week or two later. Our news variable counts all articles published on a celebrity in a given month to address this issue. We relegate specifications with the news variable only counting articles published at the time of the trial opening and closing to the Online Appendix.

4. Results

The main variable pairs in question exhibit the expected bivariate relationships: Figure A8 in the Online Appendix illustrates that the amount of self-denunciations and reports about celebrity tax evaders correlate positively. The relationship between the news coverage and the weighted sum of fatalities is negative (Figure A9), as is the one between self-denunciations and fatalities (Figure A10).

Formally, we estimate the causal effect of the news coverage a^{norm} on the amount of self-denunciations d in state s and quarter q using 2SLS:

$$a_{s,q}^{norm} = \beta_1 + \beta_2 fatalities_{s,q}^{*,disaster} + \beta_3 fatalities_{s,q}^{*,terror} + \beta_4 X_{s,q} + \varepsilon_{s,q} \qquad (4)$$

$$d_{s,q} = \gamma_1 + \gamma_2 \hat{a}_{s,q}^{norm} + \gamma_3 X_{s,q} + \epsilon_{s,q} \qquad (5)$$

Equation (4) denotes the first stage. It is used to estimate the impact of the weighted number of $fatalities^*$ on the news coverage. Equation (5), from which the instruments are excluded, contains the predicted values $\hat{a}^{norm}$ of the news coverage so that γ_2 captures the causal effect on the amount of self-denunciations. The variable vector X includes controls for tax CD purchases, major court rulings, tax data leaks, the overall amount of tax investigations, the number of openings and closings of celebrity trials, the number of ongoing celebrity trials, a state-specific linear time trend, as well as state, quarter, and year fixed effects. We report standard errors clustered by state and apply the wild cluster bootstrap approach – with 999 replications – proposed by Cameron, Gelbach, and Miller (2008) and Davidson and MacKinnon (2010) to account for the small number of clusters.

We do not include any lags or leads of the variables because tax payers, authorities, and especially the media often anticipate developments, which causes the time series to be "contaminated" with expectations and forward-looking behavior. In contrast to the instruments, lagged values therefore fail to address simultaneity issues here because they are not (even sequentially) exogenous (e.g., Reed, 2015; Bellamare, Masaki, and Pepinsky, 2017). As a consequence, estimators for dynamic panel data (e.g., Arellano-Bond) would not be consistent. However, we discuss specifications with a lagged dependent variable and Newey-West standard errors in the Online Appendix.

Table 3 summarizes the estimation results. Column (1) indicates that the correlation between self-denunciations and the news coverage remains highly significant after conditioning on the control variables. Column (2) shows the first-stage estimates when we include both instruments simultaneously, confirming that there is a crowding out of celebrity news by competing events. A one standard deviation increase in disaster fatalities (= 208.18) leads to a decrease in coverage by 2.71 reports or 66.9%. The magnitude of the effect of terrorist attacks is similar. Here, a one standard deviation increase in fatalities (= 261.94) reduces the coverage by 55.6%. We report the effective

F-statistic by Montiel and Pflueger (2013) to evaluate the relevance of the instruments. In contrast to conventional F-tests, the statistic and the corresponding critical values are robust to clustering. We can clearly reject the null hypothesis of 10% potential bias due to weak instruments at the 5% significance level. Hansen's test on overidentifying restrictions provides additional support for our empirical strategy, as we cannot reject the null hypotheses that the instruments are uncorrelated with the error term. The causal effect of the news coverage on the amount of self-denunciations is shown in Column (3). The IV coefficient is about three times as large as its OLS counterpart, which is a common finding when using this kind of instrument (e.g., Eisensee and Strömberg, 2007; Garz and Sörensen, 2017).[13] While the OLS coefficient relates to the average effect across all cases, the IV estimate refers to trials that are marginally newsworthy. The larger IV coefficient thus implies that the impact of the news coverage is stronger for trials when the decision to report is sensitive to the occurrence and severity of competing news events. In addition, our news variable does not account for newscasts, radio, and online news sites, which likely results in measurement error and downward bias in the OLS coefficient. The value of 39.09 of the IV coefficient implies that a one standard deviation increase in news coverage (= 7.54 articles) raises the amount of self-denunciations by 294.74, which equals 60.1% of the mean and 44.5% of the standard deviation of self-denunciations. Due to the large variation in news coverage and self-denunciations, it might be more informative to interpret the magnitude of the effect in terms of the underlying trials. On average, a trial opening and closing jointly receive 2.82 articles. An increase in news coverage by the amount of an average trial thus raises the participation in the tax amnesty program in a given quarter by 22.5%.

It is useful to include the two instruments individually in order to rule out that the effects are exclusively driven either by disasters or attacks. Columns (4) to (7) in Table 3 show the resulting estimates. The first-stage coefficients are very similar to those of the model with both instruments. However, the size of the effect on self-denunciations slightly decreases when only using the sum of disaster fatalities as an instrument, whereas the effect is a bit larger in the case of terrorist attacks. In the former case, an increase in news coverage by the amount of an average trial raises the amount

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[13] A Wald test based on robust estimates of the relevant parameters and variance-covariance matrices indicates that the difference between the OLS and IV coefficient is significant at the 5% level.

of self-denunciations by 19.2%, and in the latter case by 29.0%.

The large magnitude of the effects can likely be explained by the high salience of the transmitted information. News coverage of celebrity tax evaders is often characterized by personalization, emotion, and sometimes scandal. Photos of a celebrity being brought into court in handcuffs or pictures of a prison cell are powerful images that catch the attention of the public. Due to spillover effects (e.g., Rincke and Traxler, 2011; Drago, Mengel, and Traxler, 2017), even people who do not read the newspaper have a good chance to learn about the trials. Differences in context make it difficult to compare the magnitude of the effects to those estimated in other studies on tax compliance. Briefly discussing previous findings helps to put the estimates into perspective though. Most closely related are the estimates by Bethmann and Kvasnicka (2016), which suggest a monthly increase in the amount of self-denunciations in North Rhine-Westphalia by more than 200% due to state purchases of tax CDs. Fellner, Sausgruber, and Traxler (2013) show that the rate of compliance is approximately ten times higher when sending letters to potential evaders of TV license fees in Austria. Other studies find more moderate effects. For example, Kleven et al. (2011) estimate a treatment effect of threat-to-audit letters of 12% in the probability that Danish tax payers revise their self-reported income upwards. Battiston et al. (2016) find that VAT payments were 31% higher after an Italian field audit with comprehensive media coverage, compared to a similar audit that was barely covered. Perez-Truglia and Toiano (2018) investigate letters that increase the salience of shaming penalties and estimate a treatment effect of 21% in the probability that certain tax delinquents repay their debts.

Online Appendix B contains details on various robustness checks. Our findings do not change substantially when we use different versions of our instruments, news variable, and outcome variable; apply other definitions of celebrity status; include a lagged dependent variable; compute Newey-West standard errors that are robust to autocorrelation and heteroscedasticity; and use methods that are robust to weak instruments.

5. Conclusion

This study investigates whether news coverage about celebrities with tax problems affects the likelihood that people voluntarily disclose taxes they evaded. Using the existence of an individual

Wikipedia entry as a criterion for prominence, we compile a list of celebrities who were publicly tried in Germany for tax evasion between January 2010 and June 2016. We search 6 national and 54 regional newspapers for related coverage and find that the volume of this coverage correlates strongly with the amount of self-denunciations in the federal states. There is also a crowding out of the news coverage if the trial opening or closing coincides with severe disasters or terrorist attacks. This phenomenon can be exploited to identify the causal effect of celebrity news coverage. We use data on Google search queries – from the time prior to our period of investigation – to weight the competing events by regional differences in the attention to attacks and different types of disasters. In other words, we construct instruments that are the product of time-varying shocks to the national news agenda and cross-sectional differences in the demand for news coverage about different events. IV estimates indicate that an increase in news coverage by the extent of an average trial raises the quarterly amount of self-denunciations by approximately 22.5%. Thus celebrity trials can be cautionary tales for many unlawful tax payers. The magnitude of the effect is large but the usual disclaimer about local average treatment effects applies. In addition, it remains open whether the effect would be similar in other countries and at different times, since it refers to a period in Germany in which the risks and benefits of tax evasion changed substantially. It is worth mentioning that the effect has at least medium-term implications because the chances of relapse are particularly small. The tax authorities not only collect the missing fees at the time of the self-denunciation – including interest and penalties – but also assess future taxes.

The research design of this study is not without limitations. The data we obtained from the ministries of finance refer to self-denunciations related to foreign capital accounts, often located in Switzerland or Liechtenstein. Thus our findings only apply to the evasion of capital gains tax, a tax category that merely represents a fraction of overall revenues. In addition, the data cannot reveal any insights into the potential heterogeneity of the media effects. If there was information on the demographics of individuals voluntarily disclosing tax evasion, it would be possible to investigate whether some people are more receptive to news coverage than others. Also, the data do not contain information that would allow us to address the role of tax consultants. For example, it would be interesting to evaluate whether these advisers act as additional intermediaries – i.e., if self-denunciations are often based on recommendations of consultants, compared to cases of clients approaching their advisers first.

The findings have important implications despite these limitations. The results show that participation in tax amnesties is strongly affected by the media. Policy makers who are interested in maximizing revenues from tax amnesty programs not only need to pay attention to tax havens, data leaks, or court decisions, but may also want to account for news coverage on celebrities with tax issues. The findings indicate that the way authorities, courts, and the press deal with prominent tax evaders can be crucial for the behavior of other tax payers. It is important that famous personalities are not granted a bonus when they are tried. Otherwise, tax evasion might be encouraged, due to the signaling effect. Similarly, prosecutors and judges have to resist the temptation to penalize celebrities more severely than ordinary tax evaders, as democratic societies are built on the equal treatment of their members. This argument applies to the media as well. It would be desirable if profit-maximizing outlets acted responsibly and did not engage in sensationalist or prejudging coverage due to the potential effects on public opinion and legal verdicts.

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Tables and Figures

Table 1: Summary statistics of the main variables

Variable	Measurement	Mean	SD	Min.	Max.
Self-denunciations	amount	490.807	661.854	0.000	3440.000
Articles about celebrity tax evaders	amount	4.051	7.536	0.000	56.171
Disaster fatalities	amount	201.585	208.181	0.000	1166.239
Terror fatalities	amount	235.863	261.941	0.000	2055.240
Trial openings	amount	1.502	1.051	0.000	4.000
Trial closings	amount	1.367	1.250	0.000	5.000
Ongoing trials	amount	3.913	1.749	1.000	7.000
Tax investigations	amount	543.714	495.536	30.000	2174.000
Tax CD purchase	impulse dummy	0.043	0.204	0.000	1.000
Tax data leak	impulse dummy	0.169	0.376	0.000	1.000
Federal Court ruling 2010q2	shift dummy	0.976	0.154	0.000	1.000
Federal Constitutional Court ruling 2010q4	shift dummy	0.932	0.252	0.000	1.000

Notes: The data refer to a panel of 16 federal states, with up to 26 quarters per state.

Table 2: Effects of competing and non-competing news events

	(1) Self-den.	(2) Coverage	(3) Self-den.	(4) Coverage	(5) Self-den.	(6) Coverage
Competing events						
-disaster fatalities	-0.439	-0.013			-0.476	-0.013
	(0.084)***	(0.002)***			(0.117)**	(0.002)***
-terror fatalities	-0.430	-0.009			-0.399	-0.009
	(0.197)***	(0.002)**			(0.182)**	(0.002)**
Non-competing events						
-disaster fatalities			-0.003	-0.000	-0.000	0.000
			(0.004)	(0.000)	(0.004)	(0.000)
-terror fatalities			0.029	-0.001	0.030	-0.001
			(0.041)	(0.001)	(0.044)	(0.001)
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.716	0.418	0.659	0.396	0.374	0.599

Notes: N = 207 (16 states, with up to 26 quarters per state). OLS estimates. All models include controls for tax CD purchases, major court rulings, tax data leaks, the overall amount of tax investigations, the number of trial openings and closings, the number of ongoing trials, a state-specific linear time trend, and a constant (output omitted). Standard errors clustered by state in parentheses. The p-values are based on the wild cluster bootstrap method proposed by Cameron, Gelbach, and Miller (2008) and Davidson and MacKinnon (2010).
* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Table 3: Effect of celebrity news coverage on self-denunciations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		Both instruments		Only disaster fatalities as instrument		Only terror fatalities as instrument	
	Self-den. (OLS)	Coverage (OLS) 1st stage	Self-den. (IV) 2nd stage	Coverage (OLS) 1st stage	Self-den. (IV) 2nd stage	Coverage (OLS) 1st stage	Self-den. (IV) 2nd stage
News coverage	13.135 (5.630)***		39.090 (10.285)***		33.529 (6.728)***		50.513 (25.828)***
Disaster fatalities		-0.013 (0.002)***		-0.013 (0.002)***			
Terror fatalities		-0.009 (0.002)**				-0.008 (0.002)**	
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Montiel-Pflueger effective F-statistic			25.875		41.832		16.206
-5% crit. value, 10%/20% max. bias			7.590/5.607		23.109/15.062		23.109/15.062
Hansen's J, p-value			0.405				
R^2	0.716	0.418	0.659	0.396	0.681	0.374	0.599

Notes: N = 207 (16 states, with up to 26 quarters per state). All models include controls for tax CD purchases, major court rulings, tax data leaks, the overall amount of tax investigations, the number of trial openings and closings, the number of ongoing trials, a state-specific linear time trend, and a constant (output omitted). Standard errors clustered by state in parentheses. The p-values are based on the wild cluster bootstrap method proposed by Cameron, Gelbach, and Miller (2008) and Davidson and MacKinnon (2010).
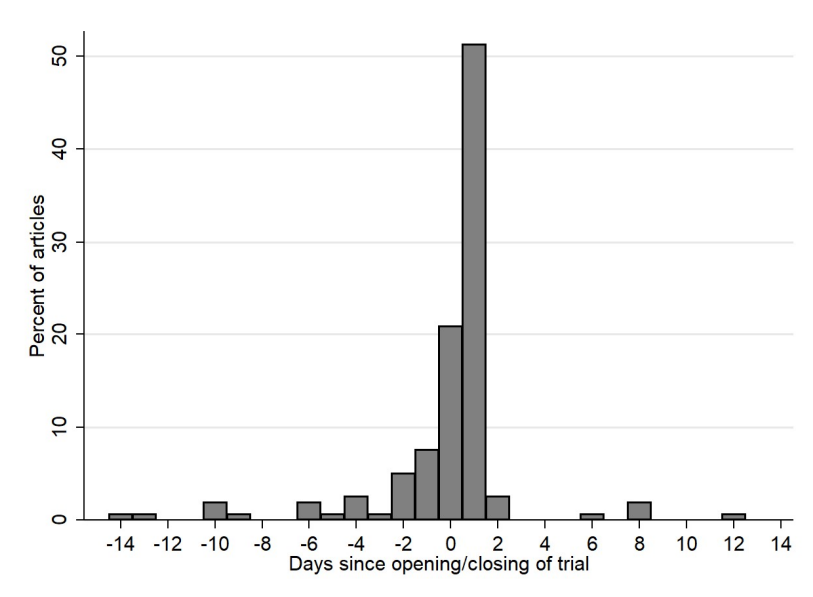* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Figure 1: Publication pattern of articles about celebrity tax evaders

Notes: The figure is based on article-level data. It shows the daily distribution of reports about tax evasion that contain the name of a Wikipedia celebrity in the (sub)heading, for a period of 14 days before and 14 days after the opening or closing of the trials.

Online Appendix A: Additional tables and figures

Table A1: Celebrities in public trials for tax evasion, January 2010 – June 2016

Name	Known for	Number of trials	Raw number of articles	Weighted number of articles
Acar, Mehmet	politician	1	0	0.00
Auermann, Nadja	model	2	30	45.28
Ehlert, Hans-Harald	CEO	2	3	11.24
Falk, Alexander	entrepeneur	1	0	0.00
Finzelberg, Lothar	financial advisor	2	0	0.00
Fitschen, Jürgen	CEO	1	2	5.76
Ganswindt, Thomas	CEO	1	1	0.00
Gribkowsky, Gerhard	CEO	1	9	20.64
Haderthauer, Hubert	forensic physician	1	4	13.45
Herman, Eva	TV presenter	1	0	0.00
Hildebrandt, Bernd-Uwe	sports official	1	1	1.00
Hilpert, Axel	entrepeneur	3	0	0.00
Hoeneß, Uli	sports official	1	208	553.45
Inhofer, Karl	public servant	1	1	1.00
Kahn, Oliver	athlete	1	5	0.57
Lindner, Patrick	artist	1	0	0.00
Middelhoff, Thomas	CEO	1	11	18.70
Pischetsrieder, Bernd	CEO	1	10	47.22
Schelter, Kurt	politician	1	8	4.83
Schmid, Georg	politician	1	2	17.00
Schreiber, Karlheinz	lobbyist	3	30	64.20
Sommer, Theo	journalist	1	5	29.61
Speck, Karsten	artist	1	7	4.59
Strauss, Max Josef	entrepeneur	1	0	0.00
Tönnies, Clemens	sports official	1	1	1.00
Uckermann, Jörg	politician	1	0	0.00
Weiß, Roland	politician	1	0	0.00
Wildmoser, Karl-Heinz	sports official	1	0	0.00
Wolter, Judith	politician	1	0	0.00

Note: The table shows celebrity-level data. The weighted number of articles differs from the raw number because (a) it accounts for the newspapers' circulation, (b) it ignores state-quarters with missing information about the amount of self-denunciations, and (c) the same article might appear in multiple states.

Table A2: List of newspapers in the sample

| Newspaper	Circulation
Aachener Nachrichten	North Rhine-Westphalia
Aachener Zeitung	North Rhine-Westphalia
Allgemeine Zeitung Mainz	Rhineland-Palatinate
B.Z.	Berlin
Badische Zeitung	Baden-Wuerttemberg
Bayerische Rundschau	Bavaria
Berliner Kurier	Berlin
Berliner Morgenpost	Berlin
Berliner Zeitung	Berlin
Bonner General-Anzeiger	North Rhine-Westphalia
Coburger Tageblatt	Bavaria
Darmstädter Echo	Hesse
Der Tagesspiegel	Berlin, Brandenburg
Die Tageszeitung	national
Die Welt	national
Express	North Rhine-Westphalia
Frankfurter Allgemeine Zeitung	national
Frankfurter Neue Presse	Hesse
Frankfurter Rundschau	national
Gelnhäuser Tageblatt	Hesse
Gießener Anzeiger	Hesse
Hamburger Abendblatt	Hamburg, Lower Saxony, Schleswig-Holstein
Hamburger Morgenpost	Hamburg
Handelsblatt	national
Heilbronner Stimme	Baden-Wuerttemberg
Kölner Stadt-Anzeiger	North Rhine-Westphalia
Kölnische Rundschau	North Rhine-Westphalia
Lampertheimer Zeitung	Hesse
Lausitzer Rundschau	Brandenburg, Saxony
Lauterbacher Anzeiger	Hesse
Leipziger Volkszeitung	Saxony, Thuringia
Main Spitze	Hesse
Main-Post	Bavaria
Märkische Allgemeine	Brandenburg
Mitteldeutsche Zeitung	Saxony-Anhalt
Münchner Abendzeitung	Bavaria
Neue Westfälische	North Rhine-Westphalia
Neue Württembergische Zeitung	Baden-Wuerttemberg
Nordkurier	Mecklenburg-Western Pomerania
Nürnberger Nachrichten	Bavaria
Oberhessische Zeitung	Hesse
Ostthüringer Zeitung	Thuringia
Passauer Neue Presse	Bavaria
Potsdamer Neueste Nachrichten	Brandenburg
Reutlinger General-Anzeiger	Baden-Wuerttemberg
Rheinische Post	North Rhine-Westphalia
Rhein-Zeitung	Rhineland-Palatinate
Saarbrücker Zeitung	Saarland
Sächsische Zeitung	Saxony
Schweriner Volkszeitung	Mecklenburg-Western Pomerania
Süddeutsche Zeitung	national
Südkurier	Baden-Wuerttemberg
Südwest Presse	Baden-Wuerttemberg
Thüringer Allgemeine	Thuringia
Thüringische Landeszeitung	Thuringia
Trierischer Volksfreund	Rhineland-Palatinate
Usinger Anzeiger	Hesse
Westdeutsche Zeitung	North Rhine-Westphalia
Wiesbadener Kurier	Hesse
Wiesbadener Tagblatt	Hesse

Table A3: Most common words in tax evasion news coverage

#	Word	Translation	Freq.	#	Word	Translation	Freq.
1	Steuerhinterziehung	tax evasion	5882	51	Beihilfe	abetment	464
2	Euro	euro	4323	52	Angeklagte	accused	455
3	Hoeneß	Hoeneß	3062	53	Auermann	Auermann	448
4	deutsche	German	2888	54	Vorwürfe	accusations	446
5	Millionen	millions	2251	55	Gefängnis	prison	444
6	Staatsanwaltschaft	prosecution	1908	56	Steuersünder	tax evader	426
7	Steuern	taxes	1795	57	Ermittler	investigator	422
8	Bank	bank	1438	58	Anwalt	lawyer	419
9	Gericht	court	1293	59	Steuerfahnder	tax investigator	419
10	Schweiz	Switzerland	1206	60	Firma	firm	401
11	Deutschland	Germany	1199	61	Post	mail	401
12	Selbstanzeige	self-denunciation	1199	62	Verdachts	suspicion	369
13	deutschen	German	1192	63	Fahnder	investigator	361
14	Geld	money	1184	64	Konto	account	357
15	schweizer	swiss	1085	65	Januar	January	354
16	München	Munich	1045	66	Selbstanzeigen	self-denunciations	353
17	Uli	Uli	1031	67	Regierung	government	349
18	Ermittlungen	investigations	995	68	Bewährung	probation	347
19	Politik	politics	924	69	Staatsanwalt	prosecutor	342
20	Bayern	Bavaria	864	70	Wolfgang	Wolfgang	338
21	Finanzamt	tax authority	853	71	USA	USA	337
22	Prozess	trial	825	72	Schwarzer	Schwarzer	334
23	Anklage	indictment	803	73	Monate	months	333
24	Urteil	verdict	802	74	CDU	CDU	329
25	Verfahren	process	799	75	Million	million	321
26	Berlin	Berlin	790	76	Sprecher	spokesperson	321
27	Fiskus	revenue board	774	77	Justiz	justice	320
28	Richter	judge	715	78	Luxemburg	Luxembourg	317
29	Banken	banks	701	79	Vorwurf	accusation	313
30	Kunden	customers	665	80	Razzia	raid	310
31	Frankfurt	Frankfurt	664	81	März	March	308
32	verurteilt	sentenced	641	82	Präsident	president	306
33	hinterzogen	evaded	611	83	Thomas	Thomas	306
34	Prozent	percent	603	84	Millionenhöhe	into the millions	304
35	Milliarden	billions	591	85	Konten	accounts	302
36	Staat	state	570	86	Verteidiger	defense lawyer	302
37	Landgericht	regional court	558	87	Koch	Koch	299
38	Zeit	time	556	88	Manager	manager	299
39	Daten	data	555	89	Dienstag	Tuesday	293
40	Haft	imprisonment	552	90	Finanzminister	minister of finance	293
41	ermittelt	investigates	535	91	Informationen	information	289
42	Angeklagten	accused	522	92	Münchner	Munich	289
43	Verdacht	suspicion	518	93	Woche	week	289
44	Behörden	authorities	516	94	Mai	May	288
45	Monaten	months	513	95	Geldstrafe	fine	287
46	Unternehmen	company	498	96	Geschäfte	business dealings	287
47	SPD	SPD	497	97	Amtsgericht	local court	285
48	Steuerhinterzieher	tax defrauder	494	98	Sommer	Sommer	284
49	Mitarbeiter	employee	483	99	später	later	283
50	Strafe	sentence	470	100	Unterlagen	documents	280

Notes: Based on all articles containing the word "Steuerhinterziehung" in the (sub)heading. Word counts obtained after removing stop words, punctuation, and numbers.

Table A4: Major changes and events affecting the tax evasion environment

Event	Region	Time
Tax CD		
purchase	North Rhine-Westphalia	2010q1
consideration	Bavaria	2010q1
purchase	Lower Saxony	2010q2
purchase	North Rhine-Westphalia	2010q2
purchase	North Rhine-Westphalia	2010q4
purchase	North Rhine-Westphalia	2011q4
purchase	North Rhine-Westphalia	2012q3
purchase	Saarland	2012q2
purchase	Rhineland-Palatinate	2012q4
purchase	North Rhine-Westphalia	2013q4
purchase	North Rhine-Westphalia	2014q4
consideration	Berlin	2016q1
Court rulings		
Federal Court	national	as of 2010q2
Federal Constitutional Court	national	as of 2010q4
Leaks		
Swiss Leaks I	national	2010q1
Luxembourg Leaks	national	2012q2
Offshore Leaks	national	2013q2
Swiss Leaks II	national	2015q1

Figure A1: Amount of self-denunciations, by federal state
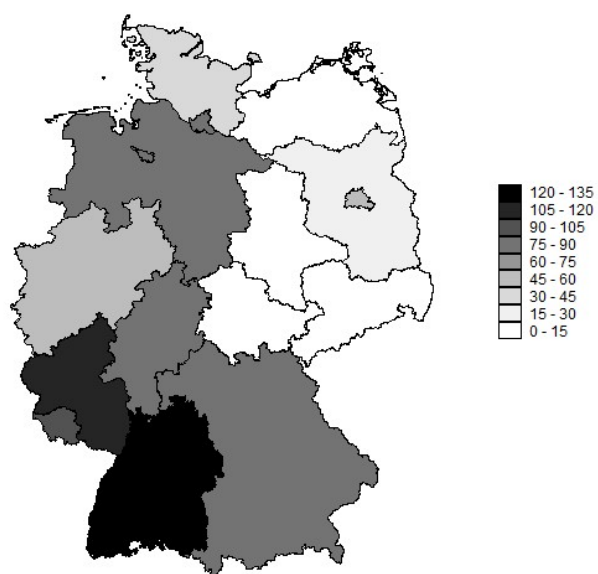
Notes: The figure shows the number of self-denunciations, per 1,000,000 inhabitants, averaged over time.

Figure A2: Amount of self-denunciations, over time
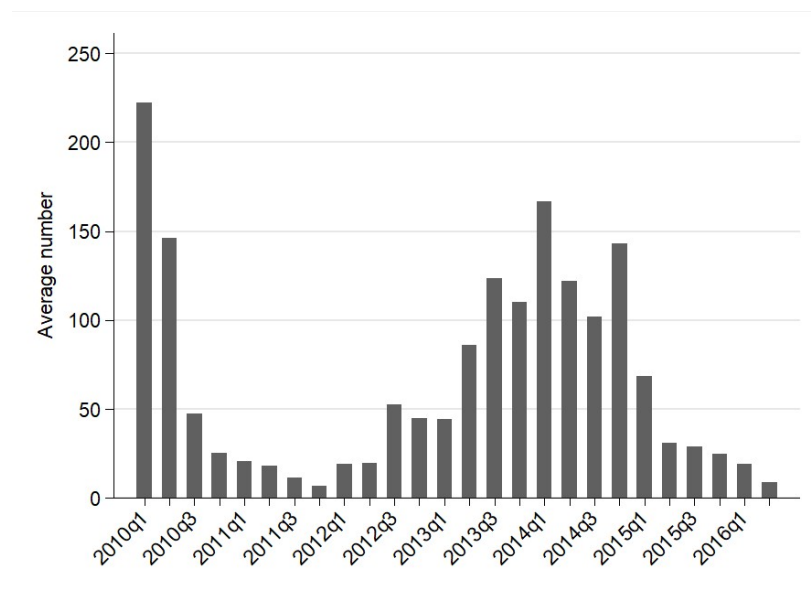
Notes: The figure shows the number of self-denunciations, per 1,000,000 inhabitants, averaged over the federal states.

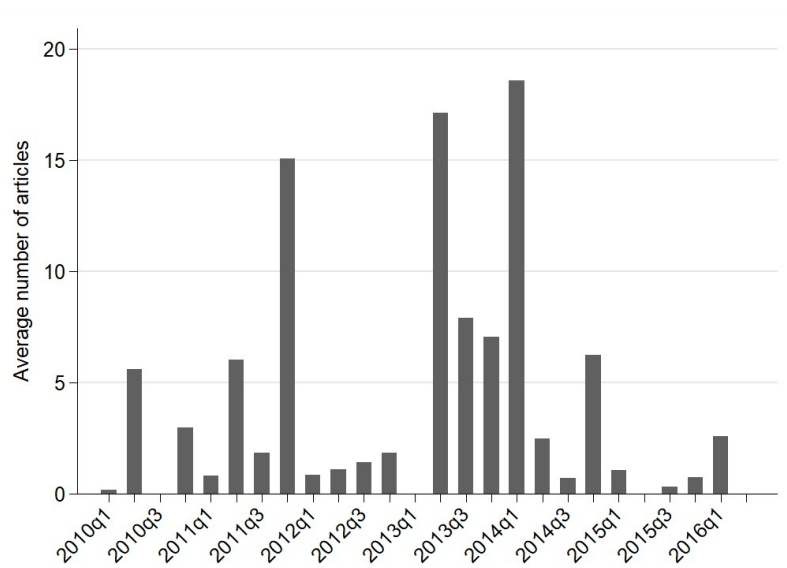Figure A3: Amount of self-denunciations (over time, by federal state)
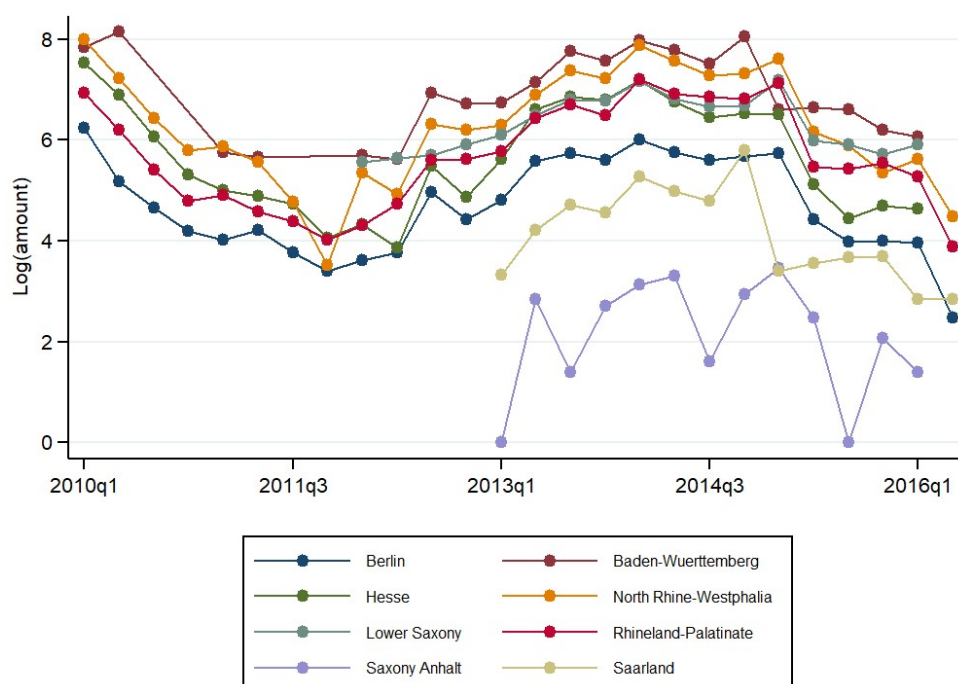
Notes: To increase readability, the graph only includes states with at least 12 observations.

Figure A4: Amount of news coverage, by federal state
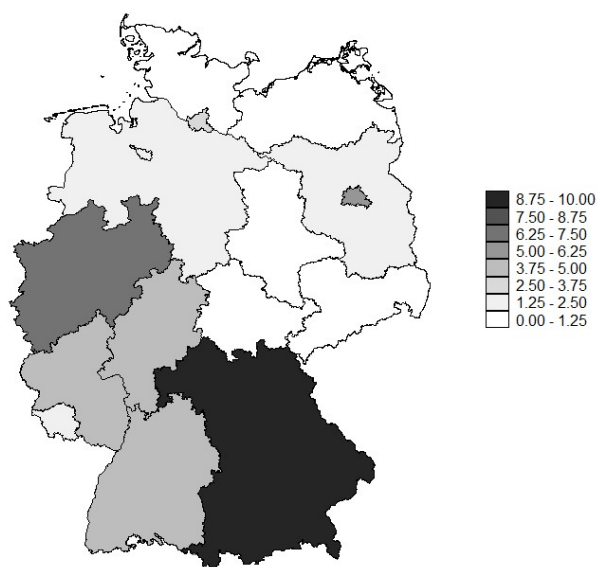
Notes: The figure shows the number of reports about tax evasion that contain the name of a Wikipedia celebrity in the (sub)heading, averaged over time.

Figure A5: Amount of news coverage, over time

Notes: The figure shows the number of reports about tax evasion that contain the name of a Wikipedia celebrity in the (sub)heading, averaged over the federal states.

Figure A6: Amount of news coverage (over time, by federal state)
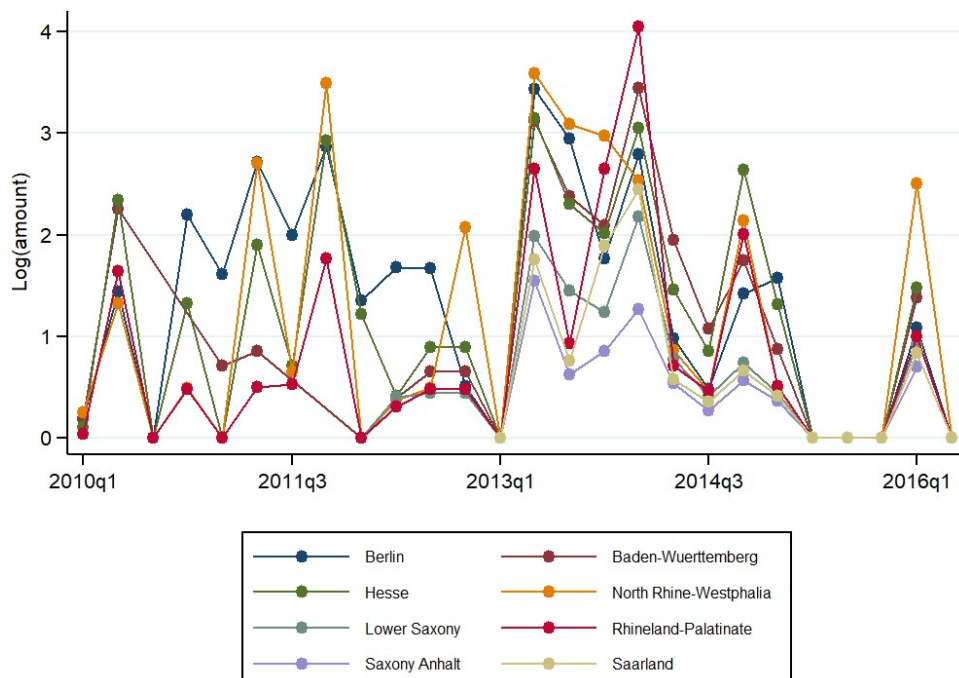
Notes: To increase readability, the graph only includes states with at least 12 observations.

Figure A7: Relative frequency of Google search terms, 2005 – 2009
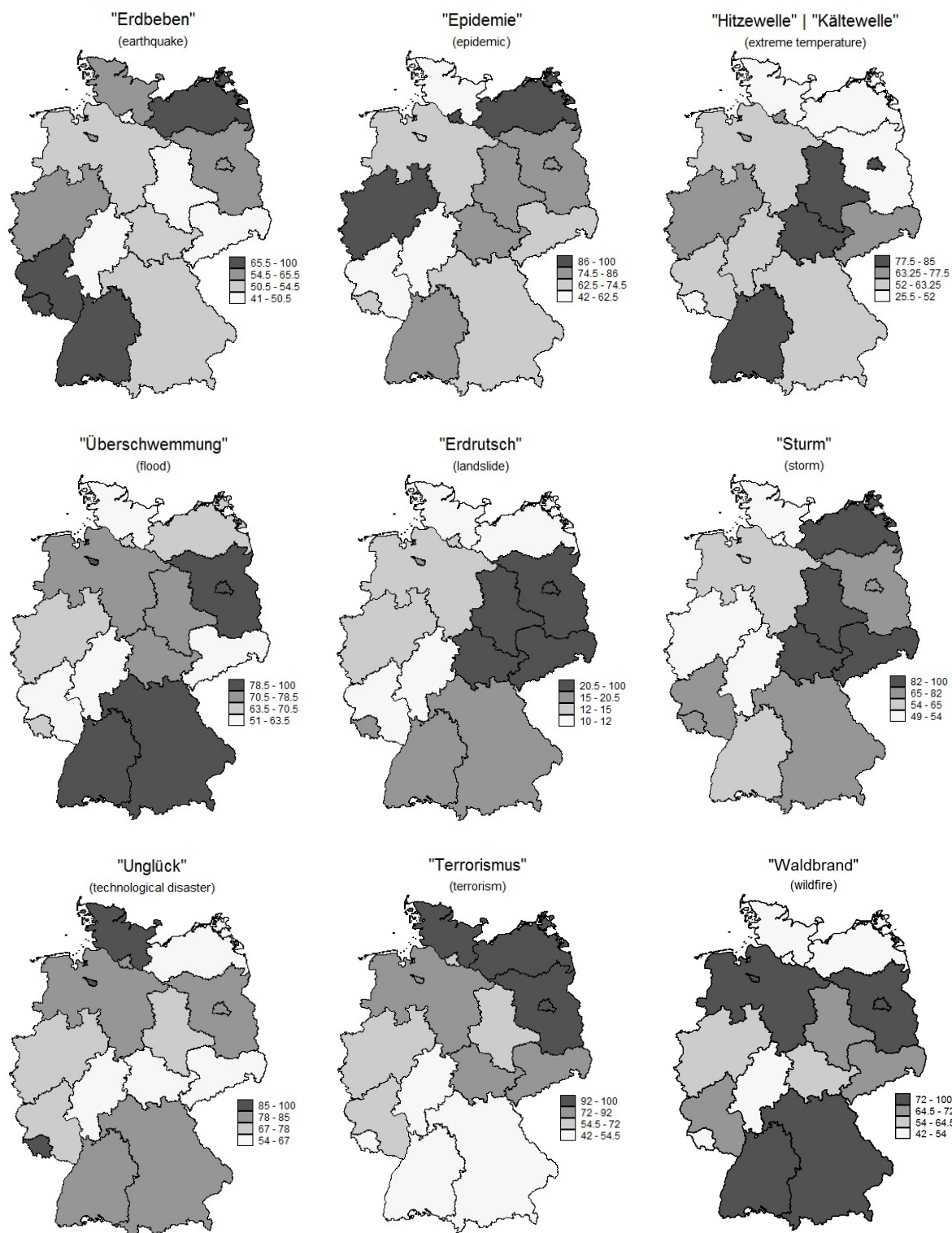
Notes: Google Trends data. Based on the number of keyword searches relative to the entire search volume in a federal state, each panel compares the frequency of a search term across states (in %). A value of 100% implies that a state had the largest search volume; lower values denote the other states' fraction of this value.

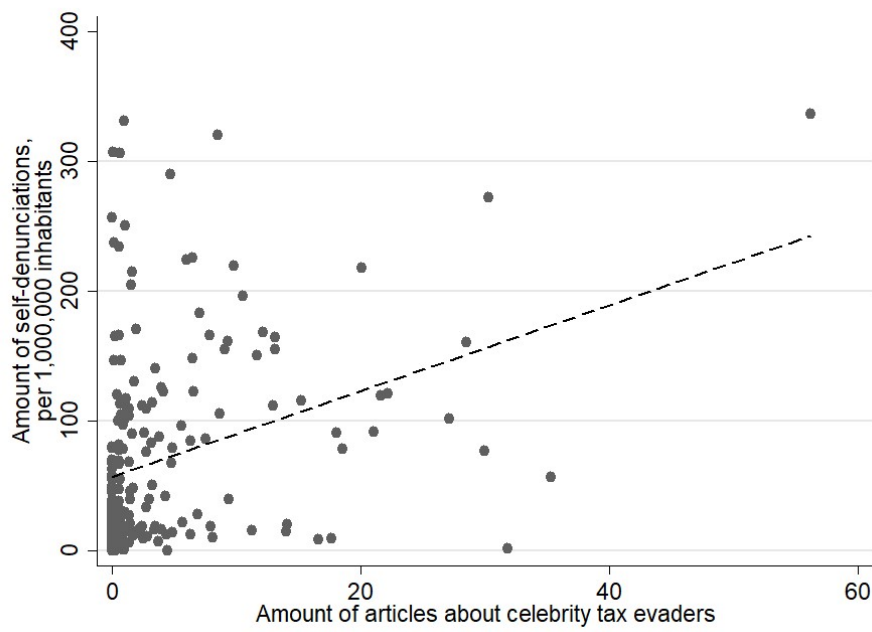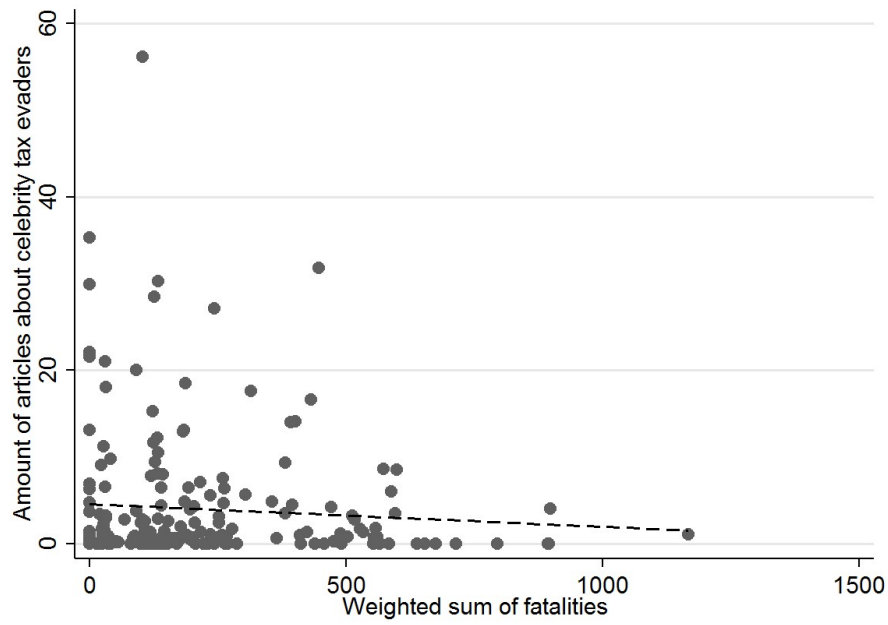Figure A8: Self-denunciations and news coverage

Figure A9: News coverage and competing events

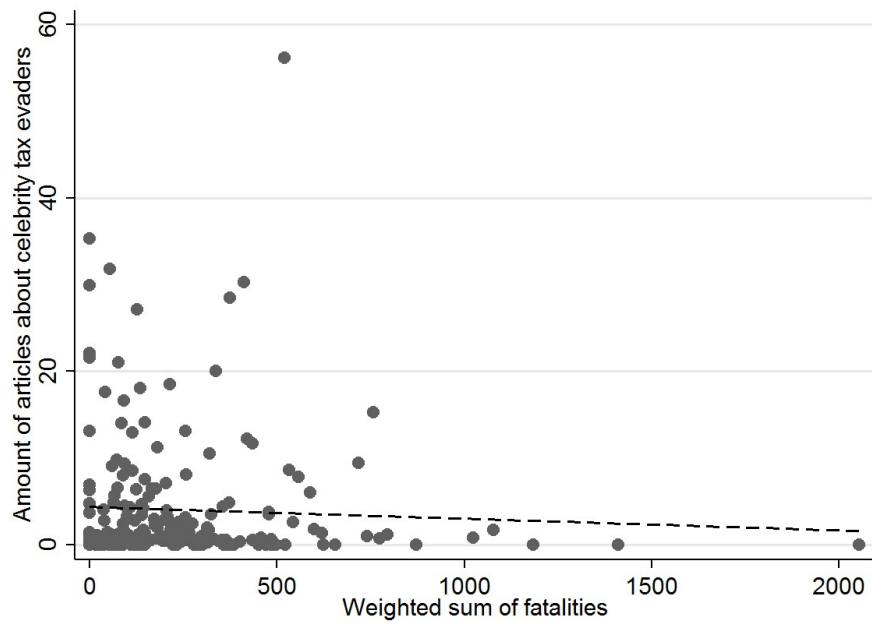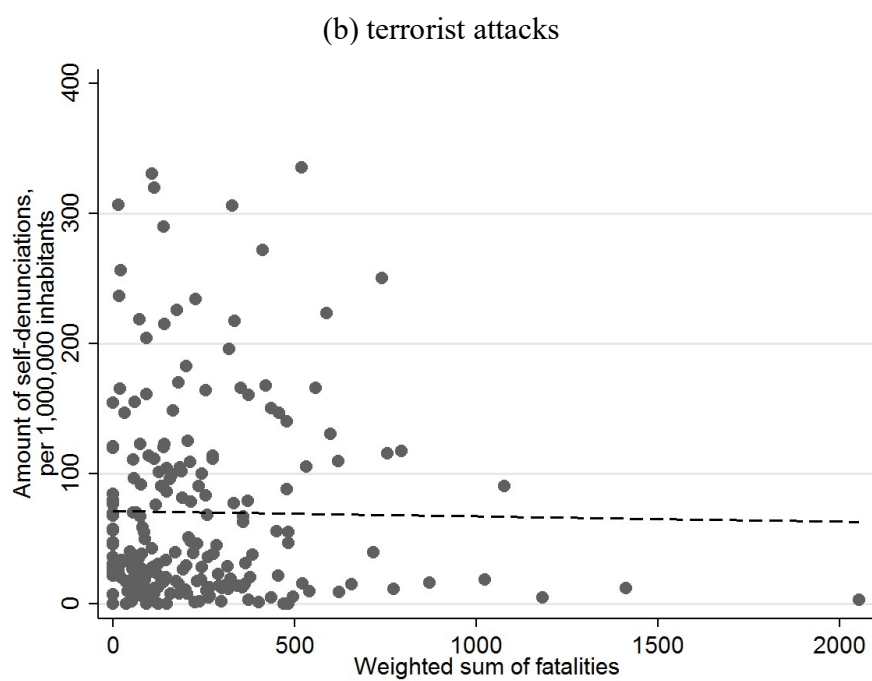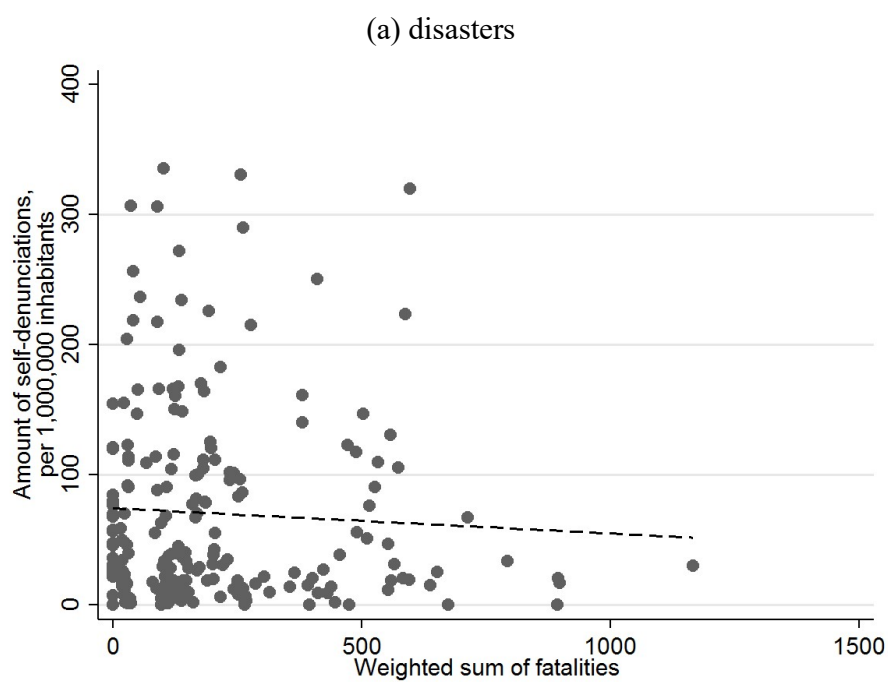(a) disasters

(b) terrorist attacks

Figure A10: Self-denunciations and competing events

(a) disasters

(b) terrorist attacks

Online Appendix B: Robustness checks

To begin with, we evaluate the robustness of the effect of news coverage about celebrity trials on self-denunciations by modifying the construction of the instruments. In the baseline specification, we assume that the crowding out of celebrity news coverage takes place on the day and the day after the trial opening or closing. Figure 5 in the paper shows that most reports on the trials come out on these two days, but some articles are also published on the two days before the date of the opening or closing, as well as on the second day after that date. Thus it is worth evaluating if the results hold when using the weighted sum of fatalities in the five-day window around the beginning and ending of the trial (i.e., two days before, day zero, and two days after). Columns (1) and (2) in Table B3 show the results when using these alternative instruments. Competing disasters do not affect the news coverage anymore, whereas the crowding out due to competing terrorist attacks is still highly significant. The size of the effect of the news coverage on self-denunciations slightly decreases but remains highly significant too. The result of Hansen's test on overidentifying restrictions ($p = 0.095$) suggests that the baseline specification is superior. Another modification of the instruments refers to the location at which the disasters and attacks occur. The baseline instruments relate to events worldwide, but the German press likely emphasizes disasters and attacks taking place in Germany. For this reason, we only use fatalities in Germany to create the instrument. This approach reduces the number of coinciding events substantially, to the point that there are no competing terrorist attacks. Using the weighted sum of disaster fatalities as a single instrument confirms the findings, as Columns (3) and (4) in Table B3 show. The size of the effect of the news coverage decreases, as does the precision of the estimate.

Next, we change the selection of celebrities used for the analysis. Columns (1) and (2) in Table B4 present estimates when excluding the case of Uli Hoeneß. The press coverage on this case accounts for more than half of the articles in the sample. The estimates indicate that the findings are not exclusively driven by Uli Hoeneß. The coefficients of interest remain qualitatively unchanged and significant at the 5% level at least. In Columns (3) and (4), we use a narrower definition of celebrity status than the Wikipedia criterion. Specifically, we consider the existence of an entry in Munzinger's biographical archive. Munzinger's decision to set up an entry is based on objective criteria and some level of discretion by the editors; see www.munzinger.de for details. Using the Munzinger criterion decreases the number of celebrities to 15 (all of whom also have a Wikipedia entry). The resulting estimates are very similar to the baseline specification but Montiel-Pflueger's

F-statistic suggests that the instruments are less powerful here. In Columns (5) and (6), we include any person that was publicly tried and whose full name was revealed in the corresponding in news coverage. German media usually protect the identity of the accused (e.g., by referring to the defendant as "Klaus G." or not mentioning the name at all), unless they consider a case to be of particular interest to the public. Using the full name criterion implies a broader selection than the Wikipedia approach and adds six celebrities. The resulting estimates do not differ substantially from the baseline specification.

We evaluate different versions of the news variable in Table B5. Columns (1) and (2) address the lag between tax payers' decision to come clean and the submission of the self-denunciation. As mentioned in Section 3.1 in the paper, it might take the tax consultant several weeks to complete the necessary paperwork. We are unaware of any statistics about the length of this process. However, from talking to experienced tax consultants it can be assumed that it could take three weeks, on average, to submit the self-denunciation. We shift all articles published in the last three weeks of a quarter to the next quarter to check if this lag has any effects on our findings. The estimates do not change in a substantial way. We evaluate a narrower selection of news articles in Columns (3) and (4). In the baseline specification, the news variable counts all articles in given quarter that contain the term "Steuerhinterziehung" (tax evasion) and the name of a celebrity, regardless of the specific publication date. This approach accounts for the possibility that disasters and terrorist attacks merely postpone the publication of these articles instead of crowding them out entirely. An alternative version of the news variable only includes articles published on the day and the day after the trial opening and closing of the respective celebrity. Here, the negative first-stage effect of disasters on news coverage remains highly significant, whereas that of terror fatalities falls slightly below the 10% level ($p = 0.131$). The causal effect on self-denunciations remains similar to the baseline specification. The relatively low Montiel-Pflueger F-statistic and the rejection of Hansen's J at the 5% level suggest that the baseline news variable captures the data-generating process better than the alternative measure. The superiority of counting all articles in a given quarter could be an indication that (the absence of) a competing event not only has immediate but also medium-term effects. That is, if media outlets immediately report about a trial because its opening or closing does not coincide with a severe disaster or terrorist attack, chances are that the reporting about the case continues later on. This might not be the case if a competing event crowds out the initial coverage of a trial. Columns (5) and (6) present estimates when we use circulation data from all quarters to weight the news

output, instead of only using each year's first quarter. These estimates are nearly identical to the baseline model.

Another set of robustness checks refers to modifications of the outcome variable (Table B6). Columns (1) to (3) show estimates when we use the logarithm of the amount of self-denunciations. We also take the logarithm of the news variable and the amount of trial openings, closings, and ongoing trials to facilitate an alternative interpretation of the magnitude of the effect. According to the OLS coefficient, a 10% increase in news coverage raises self-denunciations by 2% (Column 1). Similar to the baseline specification, the IV coefficient is about three times larger, indicating that a 10% increase in news coverage results in 5.4% more self-denunciations (Column 3). An increase by the amount of an average trial (69.6%) raises the number of self-denunciations by 37.6%. Thus the log-log estimates suggest a slightly larger effect than the specification in levels. We have to reject the null hypothesis of Hansen's J though ($p = 0.032$), which implies that the specification in levels is preferable. We replace our outcome variable with a measure of public attention in Columns (4) to (6). This measure is based on the relative, state-specific quarterly amount of Google searches on the term "Steuerhinterziehung" (tax evasion).[1] The IV coefficient of 0.934 in Column (6) implies that an increase in news coverage by the amount of an average trial (2.82 articles) raises Google searches on the topic by 15.1%.

It could be argued that our models do not account for the temporal dynamics of the panel data. In Columns (1) and (2) in Table B7 we compute Newey-West instead of clustered standard errors and adjust the F-statistic and Hansen's J accordingly. The standard errors and test statistics are robust to arbitrary autocorrelation (up to order 4) and heteroscedasticity in this setting. The coefficients of interest remain highly significant and the test statistics do not suggest any problems due to weak or invalid instruments. We include the first lag of the dependent variable in Columns (3) and (4). We believe that the inclusion of lagged variables does not tackle endogeneity issues when time series are contaminated with anticipatory behavior, or that the absence of lagged values leads to omitted variable bias. However, it is useful to show that the findings do not substantially change in this case. The coefficients have to be interpreted with care though, since estimates of fixed effects models with lagged dependent variables could be biased, especially when the time dimension of the panel

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[1] See trends.google.com. Unfortunately, Google Trends data do not allow us to create more sophisticated or more precise measures. There is not enough information at the state level when using keyword combinations, such as "Steuerhinterziehung, Selbstanzeige" (tax evasion, self-denunciation).

is small.

In a few specifications, the Montiel-Pflueger F-statistic suggests that our instruments are not sufficiently relevant to rule a weak IV bias larger than 10%. Table B8 shows estimates that account for potentially weak instruments. The lower bound of the Anderson-Rubin weak IV-robust 95% confidence interval shown in Column (1) indicates that the IV coefficient is significantly different from zero even if the instruments were weak. A potential bias due to weak instruments can also be evaluated by using the limited-information maximum likelihood (LIML) estimator. In overidentified models, this estimator is less biased than 2SLS (Anderson, Kunitomo, and Sawa, 1982). We present LIML estimates in Column (2), which are nearly identical to the 2SLS baseline estimates.

As mentioned in Section 3.4 in the paper, we interpolate parts of the data on completed investigations for tax evasion. Since this is an important control variable, it is useful to verify the results when excluding the federal states in question. Table B9 summarizes the estimates when we omit Bremen, Hamburg, Hesse, and Saxony-Anhalt. The resulting estimates do not change substantially.

Finally, it useful to distinguish between different types of celebrities. Most people using the tax amnesty program are likely relatively wealthy business owners, who might be particularly sensitive to trials that involve people with a similar professional background (i.e., business celebrities). For this reason, we distinguish between famous personalities with this kind of background (CEOs, entrepreneurs, and sports managers) and other celebrities (artists, athletes, journalists, models, and politicians) in Table B10. The estimates pertaining to business celebrities in Columns (1) to (3) are more robust than those related to other celebrities. In the latter case, the OLS coefficient is not and the IV coefficient only marginally significant (Columns 4 and 6). Montiel-Pflueger's F-statistic and Hansen's J cast some doubts on this specification as well. Thus the effects could be driven by business rather than other celebrities.

Table B1: Effects of non-competing news events (including disasters and terrorist attacks separately)

	(1) Self-den.	(2) Coverage	(3) Self-den.	(4) Coverage
Disaster fatalities	-0.003	-0.000		
	(0.004)	0.000)		
Terror fatalities			0.025	-0.001
			(0.038)	(0.001)
State fixed effects	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
R^2	0.702	0.354	0.702	0.357

Notes: N = 207 (16 states, with up to 26 quarters per state). OLS estimates. All models include controls for tax CD purchases, major court rulings, tax data leaks, the overall amount of tax investigations, the number of trial openings and closings, the number of ongoing trials, a state-specific linear time trend, and a constant (output omitted). Standard errors clustered by state in parentheses. The *p*-values are based on the wild cluster bootstrap method proposed by Cameron, Gelbach, and Miller (2008) and Davidson and MacKinnon (2010).
* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Table B2: Timing of public trials and occurrence of disasters and terrorist attacks

	Dependent variable: daily number of trial openings/closings			
	(1)	(2)	(3)	(4)
Disaster fatalities (thousand), t	-0.000118	-0.000119		
	(0.000823)	(0.000824)		
t-1		-0.000128		
		(0.000824)		
t-2		-0.000133		
		(0.000824)		
t+1		-0.000226		
		(0.000824)		
t+2		-0.00000520		
		(0.000824)		
Terror fatalities (thousand), t			-0.0257	-0.00624
			(0.0632)	(0.0647)
t-1				0.0153
				(0.0640)
t-2				-0.0587
				(0.0640)
t+1				-0.0378
				(0.0640)
t+2				-0.0792
				(0.0641)
R^2	0.0134	0.0136	0.0135	0.0147
Observations	2373	2369	2373	2369

Notes: OLS estimates, using daily observations between January 2010 and June 2016. All models include weekday, quarter, and year fixed effects. Standard errors (in parentheses) are robust to arbitrary autocorrelation up to order 14. * $p<0.10$, ** $p<0.05$, *** $p<0.01$

Table B3: Effect of celebrity news coverage on self-denunciations (alternative construction of the instrument)

	(1) Coverage (OLS) 1st stage	(2) Self-den. (IV) 2nd stage	(3) Coverage (OLS) 1st stage	(4) Self-den. (IV) 2nd stage
News coverage		33.342 (10.663)***		22.375 (8.289)**
Disaster fatalities, 5-day window	0.001 (0.001)			
Terror fatalities, 5-day window	-0.012 (0.002)***			
Fatalities, only disasters in Germany			-11.232 (1.763)***	
State fixed effects	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Montiel-Pflueger effective F-statistic		18.991		33.945
-5% crit. value, 10%/20% max. bias		14.494/9.684		23.109/15.062
Hansen's J, p-value		0.095		
R^2	0.435	0.681	0.406	0.709

Notes: N = 207 (16 states, with up to 26 quarters per state). All models include controls for tax CD purchases, major court rulings, tax data leaks, the overall amount of tax investigations, the number of trial openings and closings, the number of ongoing trials, a state-specific linear time trend, and a constant (output omitted). Standard errors clustered by state in parentheses. The p-values are based on the wild cluster bootstrap method proposed by Cameron, Gelbach, and Miller (2008) and Davidson and MacKinnon (2010).
* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Table B4: Effect of celebrity news coverage on self-denunciations (alternative selection of celebrities)

	(1)	(2)	(3)	(4)	(5)	(6)
	Excluding the case of Uli Hoeneß		Munzinger celebrity criterion		Full name celebrity criterion	
	Coverage (OLS) 1st stage	Self-den. (IV) 2nd stage	Coverage (OLS) 1st stage	Self-den. (IV) 2nd stage	Coverage (OLS) 1st stage	Self-den. (IV) 2nd stage
News coverage		102.240 (32.753)**		44.870 (13.937)***		47.157 (13.034)***
Disaster fatalities	-0.005 (0.001)***		-0.057 (0.018)***		-0.012 (0.002)***	
Terror fatalities	-0.003 (0.001)**		-0.023 (0.004)***		-0.009 (0.003)*	
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Montiel-Pflueger effective F-statistic		22.967		9.676		10.879
-5% crit. value, 10%/20% max. bias		14.520/9.764		18.220/11.982		14.134/9.581
Hansen's J, p-value		0.281		0.327		0.860
R^2	0.451	0.573	0.506	0.637	0.446	0.546

Notes: N = 207 (16 states, with up to 26 quarters per state). All models include controls for tax CD purchases, major court rulings, tax data leaks, the overall amount of tax investigations, the number of trial openings and closings, the number of ongoing trials, a state-specific linear time trend, and a constant (output omitted). Standard errors clustered by state in parentheses. The p-values are based on the wild cluster bootstrap method proposed by Cameron, Gelbach, and Miller (2008) and Davidson and MacKinnon (2010).
* p<0.10, ** p<0.05, *** p<0.01

Table B5: Effect of celebrity news coverage on self-denunciations (different construction of news variable)

	(1)	(2)	(3)	(4)	(5)	(6)
	Shifting articles from the last three weeks of a quarter to the next quarter		Counting only articles published the day and day after the trial opening/closing		Using quarterly circulation data	
	Coverage (OLS) 1st stage	Self-den. (IV) 2nd stage	Coverage (OLS) 1st stage	Self-den. (IV) 2nd stage	Coverage (OLS) 1st stage	Self-den. (IV) 2nd stage
News coverage		49.620 (21.889)***		54.761 (16.679)***		38.068 (9.993)***
Disaster fatalities	-0.005 (0.002)**		-0.008 (0.002)***		-0.013 (0.002)***	
Terror fatalities	-0.009 (0.001)***		-0.001 (0.000)		-0.009 (0.002)**	
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Montiel-Pflueger effective F-statistic		22.877		11.114		27.005
-5% crit. value, 10%/20% max. bias		9.251/6.565		22.229/14.521		7.940/5.805
Hansen's J, p-value		0.238		0.026		0.346
R^2	0.472	0.635	0.291	0.653	0.461	0.662

Notes: N = 207 (16 states, with up to 26 quarters per state). All models include controls for tax CD purchases, major court rulings, tax data leaks, the overall amount of tax investigations, the number of trial openings and closings, the number of ongoing trials, a state-specific linear time trend, and a constant (output omitted). Standard errors clustered by state in parentheses. The p-values are based on the wild cluster bootstrap method proposed by Cameron, Gelbach, and Miller (2008) and Davidson and MacKinnon (2010).
* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Table B6: Effect of celebrity news coverage on self-denunciations (modifying the outcome variable)

	(1)	(2)	(3)	(4)	(5)	(6)
		Using logarithms		Google searches on "Steuerhinterziehung" (tax evasion)		
	Log(self-den.) (OLS)	Log(coverage) (OLS) 1st stage	Log(self-den.) (IV) 2nd stage	Searches (OLS)	Coverage (OLS) 1st stage	Searches (IV) 2nd stage
Log(news coverage)	0.200 (0.045)**		0.540 (0.099)***			
News coverage				0.597 (0.088)***		0.934 (0.252)***
Disaster fatalities		-0.001 (0.000)***			-0.013 (0.002)***	
Terror fatalities		-0.002 (0.000)***			-0.009 (0.002)**	
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Montiel-Pflueger effective F-statistic			47.613			25.875
-5% crit. value, 10%/20% max. bias			12.339/8.358			8.274/6.007
Hansen's J, p-value			0.032			0.025
R^2	0.918	0.641	0.901	0.595	0.418	0.564

Notes: N = 207 (16 states, with up to 26 quarters per state). All models include controls for tax CD purchases, major court rulings, tax data leaks, the overall amount of tax investigations, the number of trial openings and closings, the number of ongoing trials, a state-specific linear time trend, and a constant (output omitted). Models 1 to 3 include the log number of trial openings/closings and ongoing trials instead of the raw values. Standard errors clustered by state in parentheses. The p-values are based on the wild cluster bootstrap method proposed by Cameron, Gelbach, and Miller (2008) and Davidson and MacKinnon (2010).
* p<0.10, ** p<0.05, *** p<0.01

Table B7: Effect of celebrity news coverage on self-denunciations (accounting for autocorrelation)

	(1)	(2)	(3)	(4)
	Newey-West standard errors		With lagged dependent variable	
	Coverage (OLS) 1st stage	Self-den. (IV) 2nd stage	Coverage (OLS) 1st stage	Self-den. (IV) 2nd stage
News coverage		39.090***		29.348**
		(10.146)		(9.329)
Disaster fatalities	-0.013***		-0.013**	
	(0.003)		(0.004)	
Terror fatalities	-0.009***		-0.009*	
	(0.003)		(0.003)	
Self-den. (t-1)			-0.001	0.566
			(0.001)	(0.107)
State fixed effects	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Montiel-Pflueger effective F-statistic		11.245		16.808
-5% crit. value, 10%/20% max. bias		8.975/6.448		9.222/6.598
Hansen's J, *p*-value		0.531		0.692
R^2	0.418	0.659	0.390	0.775
Observations	207	207	186	186

Notes: All models include controls for tax CD purchases, major court rulings, tax data leaks, the overall amount of tax investigations, the number of trial openings and closings, the number of ongoing trials, a state-specific linear time trend, and a constant (output omitted). Models 1 and 2: Autocorrelation and heteroscedasticity-robust Newey-West standard errors in parentheses (bandwidth 4). Models 3 and 4: Standard errors clustered by state in parentheses, with *p*-values based on the wild cluster bootstrap method proposed by Cameron, Gelbach, and Miller (2008) and Davidson and MacKinnon (2010).

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Table B8: Effect of celebrity news coverage on self-denunciations (accounting for potentially weak instruments)

	(1) Weak IV-robust inference (Anderson and Rubin, 1949) Self-den. (IV) 2nd stage	(2) Limited-information maximum likelihood (LIML) Self-den. (IV) 2nd stage
News coverage	39.090 (10.285)*** 95% CI: 19.134;50.085	39.480 (10.474)***
State fixed effects	Yes	Yes
Quarter fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Montiel-Pflueger effective F-statistic	25.875	25.864
-5% crit. value, 10%/20% max. bias	7.590/5.607	14.103/9.362
Hansen's J, *p*-value	0.405	0.407
R^2	0.659	0.658

Notes: N = 207 (16 states, with up to 26 quarters per state). All models include controls for tax CD purchases, major court rulings, tax data leaks, the overall amount of tax investigations, the number of trial openings and closings, the number of ongoing trials, a state-specific linear time trend, and a constant (output omitted). Standard errors clustered by state in parentheses. The *p*-values are based on the wild cluster bootstrap method proposed by Cameron, Gelbach, and Miller (2008) and Davidson and MacKinnon (2010).
* p<0.10, ** p<0.05, *** p<0.01

Table B9: Effect of celebrity news coverage on self-denunciations (excluding Bremen, Hamburg, Hesse, and Saxony-Anhalt)

	(1) Coverage (OLS) 1st stage	(2) Self-den. (IV) 2nd stage
News coverage		39.460
		$(10.618)^{**}$
Disaster fatalities	-0.014	
	$(0.002)^{***}$	
Terror fatalities	-0.009	
	$(0.002)^{**}$	
State fixed effects	Yes	Yes
Quarter fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Montiel-Pflueger effective F-statistic		28.094
-5% crit. value, 10%/20% max. bias		7.067/5.300
Hansen's J, p-value		0.480
R^2	0.418	0.641

Notes: All models include controls for tax CD purchases, major court rulings, tax data leaks, the overall amount of tax investigations, the number of trial openings and closings, the number of ongoing trials, a state-specific linear time trend, and a constant (output omitted). Standard errors clustered by state in parentheses. The p-values are based on the wild cluster bootstrap method proposed by Cameron, Gelbach, and Miller (2008) and Davidson and MacKinnon (2010).
* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Table B10: Effect of celebrity news coverage on self-denunciations (distinguishing business and other celebrities)

	(1)	(2)	(3)	(4)	(5)	(6)
	Business celebrities			Other celebrities		
	Self-den. (OLS)	Coverage (OLS) 1st stage	Self-den. (IV) 2nd stage	Self-den. (OLS)	Coverage (OLS) 1st stage	Self-den. (IV) 2nd stage
News coverage	13.069***		17.486***	9.892		47.104*
	(5.048)		(7.091)	(29.417)		(28.659)
Disaster fatalities		0.007			-0.002**	
		(0.005)			(0.001)	
Terror fatalities		-0.026***			0.001	
		(0.005)			(0.001)	
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Montiel-Pflueger effective F-statistic			20.878			6.345
-5% crit. value, 10%/20% max. bias			12.529/8.594			17.252/11.482
Hansen's J, p-value			0.124			0.065
R^2	0.717	0.431	0.715	0.702	0.440	0.698

Notes: N = 207 (16 states, with up to 26 quarters per state). All models include controls for tax CD purchases, major court rulings, tax data leaks, the overall amount of tax investigations, the number of trial openings and closings, the number of ongoing trials, a state-specific linear time trend, and a constant (output omitted). Standard errors clustered by state in parentheses. The p-values are based on the wild cluster bootstrap method proposed by Cameron, Gelbach, and Miller (2008) and Davidson and MacKinnon (2010).
* p<0.10, ** p<0.05, *** p<0.01

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