

## Original Research Reports

# Tax Climate in the National Press: A New Tool in Tax Behaviour Research

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### Abstract

Given the inherently hidden nature of tax evasion, research on tax compliance can be challenging. By drawing on the 'slippery slope' framework, which suggests that the tax climate in a society can vary on a continuum between antagonistic and synergistic, we test a new tool in tax compliance research by comparing two areas that differ in terms of tax compliance but share the same language: Italy and the Canton of Ticino (Switzerland). After retrieving 3554 tax-related articles published between 2010 and 2016 from national newspapers with the highest circulation in the two considered countries, we performed a lexicographical analysis using the software T-LAB. The results show that the Italian and Swiss national presses depict their respective tax systems and tax authorities in very different ways. An antagonistic tax climate (coercive power of authorities and distrust in the tax system) appears to prevail in Italy, while a synergistic tax climate (legitimate power of authorities and trust in the tax system) prevails in the Canton of Ticino. The tool appears to be effective not only in detecting the tax climate of a country but also in monitoring changes over time, thus allowing policymakers to fine-tune their fiscal policies accordingly. The results also offer insights into the effects of the vicious cycle between the tax climate of a country and the way the press depicts it in terms of tax behaviour.

**Keywords:** tax compliance, tax climate, Italy, Switzerland, press news, computer-assisted content analysis

Journal of Social and Political Psychology, 2018, Vol. 6(2), 401–419, doi:10.5964/jspp.v6i2.937

Received: 2018-02-12. Accepted: 2018-07-03. Published (VoR): 2018-08-17.

Handling Editor: Debra Gray, University of Winchester, Winchester, United Kingdom

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One of the biggest challenges to governments and policymakers is to find arrangements that overcome the free-riding problem (i.e., tax evasion) and promote tax compliance, as the economic development of a country can be severely hampered by lower public revenues (Picur & Riahi-Belkaoui, 2006). To achieve this, researchers in the tax compliance field need to understand what the antecedents of tax evasion are, how to foster tax compliance, and how to assess the tax climate of a country, in order to allow governments and policymakers to develop and fine-tune their fiscal policies accordingly. However, given the inherently hidden nature of tax evasion and the absence of direct observability of this phenomenon, data collection for studying tax compliance poses difficulties (Torgler, 2016). Thus, social scientists in the field must be inventive and creative in their search and use various approaches, as aptly suggested by Slemrod and Weber (2012) in their 'renewed call for creativity'.

To answer this call, the present paper aims to present a new tool in tax compliance research—a lexicographical analysis of secondary data (i.e., tax-related articles in national presses)—specifically aimed at detecting and assessing the tax climate of a country. The study draws on the ‘slippery slope’ framework (Kirchler, Hoelzl, & Wahl, 2008), which suggests that the tax climate in a society can vary on a continuum between antagonistic and synergistic. To test the effectiveness of this tool, this study compares tax-related news articles in two regions that differ in terms of tax compliance but share the same language: Italy and the Italian-speaking<sup>1</sup> Canton of Ticino (Switzerland). Before presenting the study procedure, the theoretical underpinnings of the present study will be presented.

## The Theoretical Framework

Within the field of tax compliance research, the importance of the relationship between authorities and taxpayers should not be underestimated. The perceived quality of governance can have an impact on tax compliance and tax evasion (Cummings, Martinez-Vazquez, McKee, & Torgler, 2009). A theoretical approach of growing interest is the ‘slippery slope’ framework (Kirchler et al., 2008), which aims to integrate the economic assumptions of tax compliance (i.e., audits and fines) with the psychological and sociological determinants (i.e., interaction between authorities and taxpayers). Based on the dynamics between power of and trust in authorities, people might perceive different tax climates and behave accordingly. In an antagonistic tax climate, tax authorities are mistrusted and their power is perceived as coercive. This leads to a ‘cops and robbers’ attitude and a vicious circle of mutual reinforcement of coercive power and mistrust. In this scenario, enforced tax compliance will prevail, and citizens will abide by the law out of fear of detection and fines. In addition to costly audits, a key disadvantage of an antagonistic climate is that taxpayers are likely to develop motives of opposition and reactance, resulting in instability in tax behavior and tax collection (Braithwaite, 2009; Kirchler, 2007). In a more synergistic fiscal climate, on the other hand, taxpayers and tax authorities collaborate on the basis of well-defined rules and standards. Tax authorities are trusted by taxpayers, who perceive them as supportive and competent (reason-based trust), and their power is perceived as legitimate, leading to a ‘service and client’ attitude. In such a framework, voluntary tax compliance will prevail, as the tax system is felt to be just and taxpayers believe that they are treated fairly (Alm, Kirchler, & Muehlbacher, 2012). Voluntary tax compliance appears desirable, as it neither pushes citizens into the role of opponents of authority nor requires costly measures of control. Moreover, it negatively influences tax evasion (Kastlunger, Lozza, Kirchler, & Schabmann, 2013), as the more taxpayers feel a moral obligation to pay taxes, the less likely they will be to evade taxes. When taxpayers perceive the tax authorities to be working for the good of the community and reciprocate by contributing their share, tax compliance becomes a personal and societally shared norm that is binding (committed cooperation; Gangl, Hofmann, & Kirchler, 2015). In a confidence climate, where implicit trust prevails, taxpayers feel committed to the tax system as a whole and actively engage to make the system work.

To summarize, power and trust, rather than being incompatible and opposites of each other, are related in a specific dynamic in which they mutually destroy or mutually foster each other and in turn influence tax compliance (Gangl et al., 2015). Coercive power favors an antagonistic climate and enforced compliance, whereas legitimate power and reason-based trust are the antecedents of a service climate and voluntary cooperation. Implicit trust forms the basis of a confidence climate and committed cooperation. Such dynamics can be used to transform a hostile interaction into an interaction in which voluntary and committed cooperation prevails. In order to foster voluntary and committed cooperation to guarantee the provision of the common good, however, it is of paramount

importance that authorities and policy-makers are able to assess the fiscal climate of a country, monitor changes over time, and fine-tune their fiscal policies accordingly.

To assess what tax climate prevails in a country (antagonistic vs. synergistic), [Kirchler and Wahl \(2010\)](#) designed a tax compliance inventory (TAX-I), which allows for a fast assessment of different intentions underlying tax behaviour. However, surveys on representative population samples are not always a feasible solution for several reasons: they are expensive, they require a considerable amount of resources, and it is difficult to reach a representative sample of the population. Therefore, other measures have been adopted as additional proxies to determine the level of trust in and power of authorities across countries. For example, trust in authorities can be detected by “Trust in national government,” as measured by the Gallup World Poll and included in the Human Development Report ([United Nations Development Programme, 2013](#)), while the “Rule of law” governance indicator determined by the World Bank can be considered a proxy for power of authorities ([Batrancea, Nichita, Batrancea, & Kirchler, 2016](#); [Kaufmann, Kraay, & Mastruzzi, 2011](#)). Such indicators, however, merely provide a quantitative measure of power of authorities (high vs. low), while they do not qualify the nature of that perceived power (i.e., coercive vs. legitimate).

In addition to the above-mentioned tools, a variety of methods and data sources have been used in the field of tax compliance research. All of these tools have strengths and weaknesses, as tax behaviour is not easily observable and requires a mix of empirical, field and laboratory studies to understand key phenomena ([Buettner & Grimm, 2016](#)). Survey data have often been used to measure social norms or tax morale; laboratory experiments have been used to isolate variables of interest; and field experiments are becoming more popular since tax administrators in some countries have begun to collaborate actively with academic researchers. Finally, simulations are especially valuable for exploring poorly understood situations or systems (for recent methodological reviews, see [Hofmann, Kogler, & Kirchler, 2016](#); [Torgler, 2016](#)).

## Lexicographical Analysis of National Presses: A New Tool in Tax Compliance Research

Based on these premises, the present paper aims at illustrating a further tool to be used in tax compliance research, specifically to assess the tax climate of a country (synergistic vs. antagonistic) based on secondary data that take into account not only the quantity (high vs. low), but also the quality of the variables involved. Working on secondary data—that is, press news articles—has many advantages, as they are easily accessible and they can go backward in time, thus allowing researchers to explore and detect possible changes over time. However, can the national press be taken as a mirror of society when dealing with tax compliance? So far, tax research literature has mainly shown that the press and media can shape the tax climate and tax morale of a country. For example, it has recently been shown that the way Austrian news depicts the transparency of the tax system, the service orientation of tax authorities, the reputation of the government, and authorities’ abilities to detect and punish tax crimes can all affect intentions to comply, as proposed by the slippery slope framework ([Kasper, Kogler, & Kirchler, 2015](#)). In Pakistan, a quasi-experimental study examining the effect of different media campaigns used by a tax agency to enhance tax morale showed that both TV and newspaper ads can improve individual perceptions of tax compliance, with the effect of newspaper ads being stronger ([Cyan, Koumpias, & Martinez-Vazquez, 2016](#)).

In the present research, we used a lexicographical analysis of tax news to see how press news can not only influence but also portray the tax climate of a country. Although text analysis of secondary data has been used to investigate representations on social phenomena and political ideologies (e.g. [Laver, Benoit, & Garry, 2003](#); [Pilecki](#)

& Hammack, 2015; Sakki, 2016), to the best of our knowledge this work represents the first time it has been adopted as a tool to investigate representations on fiscal policies and detect the tax climate of a country.

We compared two different fiscal contexts that share the same language (as required by the vast majority of lexicographical analyses) but are known to be very different in terms of tax climate: Italy and the Canton of Ticino. These two regions represent an interesting testing ground to assess the reliability of a potential new tool of tax research because, despite their geographical proximity, their differences in terms of tax compliance are well documented in the existing literature. According to recent estimates (Schneider, 2015), Italy's shadow economy is higher (20.6% of GDP) than the average of 31 other European countries (18.0%). By contrast, Switzerland's shadow economy is much lower (6.9% of GDP). By using proxies for trust in and power of authorities, Batrancea et al. (2016) have identified Italy as a country with low trust and high power (T-P+) and Switzerland as a country with high power and high trust (T+P+). Italy and Switzerland also appear to differ in terms of tax morale, with Swiss citizens having a higher level of tax morale than Italians (Alm & Torgler, 2006; Muehlbacher et al., 2008). There is also experimental evidence suggesting that Italians are culturally inclined to commit tax evasion and do not perceive it as a serious crime (Castiglioni, Lozza, Cullis, Jones, & Lewis, 2014; Cullis, Jones, Lewis, Castiglioni, & Lozza, 2015; Lewis, Carrera, Cullis, & Jones, 2009).

## Procedure

### Objectives

The main aim of the present paper is to verify whether a lexicographical analysis of national press items can be an effective tool in tax compliance research to detect the tax climate of a country by comparing two areas that share the same language – Italy and the Canton of Ticino (CH). By retrieving articles from past years, we also want to verify whether it is possible to trace any changes or evolution over time.

### Data Collection

Desk research in newspapers' online archives was performed to retrieve articles dealing with tax and fiscal issues. The sample for the analysis consists of tax-related national press coverage published between January 2010 and December 2016. Newspapers with the highest circulation in the considered countries have been selected; these are *Il Corriere della Sera* for Italy (circulation: 410242) and *Il Corriere del Ticino*<sup>ii</sup> for Canton of Ticino (circulation: 36274). The selection was limited to the above-mentioned newspapers for two practical reasons. First, *Il Corriere del Ticino* is the only Swiss newspaper in the Italian language with a digital archive, which allowed us to search for and retrieve the needed articles. Second, the software that was used to perform text-analysis (T-LAB) has some constraints in terms of data capacity. Thus, including articles from other newspapers within the considered timespan (2010-2016) would have made some analyses infeasible.<sup>iii</sup>

Articles from the above-mentioned newspapers were selected when they included in either their headings, sub-headings, or body the words *fisco*,<sup>iv</sup> *fiscale* ("fiscal", "tax-related"), or *tassa/e* ("tax/es"). As Table 1 and Table 2 show, 3554 articles were initially retrieved. The articles were subsequently coded by: i) country (Italy vs. Switzerland), ii) year (2010 to 2016), and iii) news focus (national vs. international or both). The latter variable results from a preliminary content analysis that was performed in order to understand whether the article was presenting internal (national), international/foreign (international), or national and international (both) tax-related news.

Table 1

Corpus (Number of Articles) of Retrieved Articles for Lexicographical Analysis by Year

Articles	2010	2011	2012	2013	2014	2015	2016	Total	%
IT	235	278	295	320	265	359	445	2197	61.8
CH	176	137	238	188	209	196	213	1357	38.2
Total	411	415	533	508	474	555	658	3554	100
%	11.6	11.7	15.0	14.3	13.3	15.6	18.5	100	

Table 2

Corpus of Retrieved Articles for Lexicographical Analysis by Focus of Tax-Related News: Internal (National), International/Foreign (International), Both National and International (Both)

Articles	National		Foreign		Both		Total	
	N	%	N	%	N	%	N	%
IT	1867	85.0	243	11.1	87	4.0	2197	100
CH	599	44.1	465	34.3	293	21.6	1357	100
Total	2466		708		380		3554	

Before moving to the lexicographical analysis, the first interesting result concerns the different distribution of the focus of news between Italy and Switzerland. As shown in Table 2, the Italian press seems to deal more with national issues ( $\chi^2 = 26.42$ ,  $p < .001$ ), thus appearing more self-referential. By contrast, the Swiss national press shows greater attention to international matters ( $\chi^2 = 15.97$ ,  $p < .001$ ) and to the relationship between national and foreign fiscal matters ( $\chi^2 = 14.75$ ,  $p < .001$ ). The Swiss internationality of tax-related news is in line with the pivotal role that Swiss banks play at the international level. However, since the main aim of this study was to detect the tax climate of a country by identifying the recurring themes when dealing with its own national tax system, only articles focusing on national matters (i.e., 2466 overall) were included in the analysis presented in the following sections.

## Software and Analytical Strategy

Given the large amount of textual material collected between 2010 and 2016, a CAQDAS lexical analysis was performed using the software T-LAB 9.1 (Lancia, 2015). T-LAB software is an all-in-one set of linguistic, statistical, and graphical tools for text analysis. T-LAB bases its analysis on occurrences and co-occurrences of lexical units (LU) within the textual corpus or context units (CU). CUs are parts of the elementary context (i.e., sentences, paragraphs, or short documents) that are present in a textual corpus. LUs, instead, are words that are automatically reduced by the software into their respective headwords (i.e. lemmas). A lemma defines a set of words with the same lexical root and belonging to the same grammatical category (verb, adjective, etc.). As a rule, lemmatization entails that verb forms are converted to the base form, nouns to the singular form, and so on (e.g., working = work; taxes = tax; etc.). The software produces matrices that represent relationships between these different units of analysis (CU and LU). In the matrices, frequency numbers indicate occurrences or co-occurrences of the phenomena in question. Categorical variables can be imported as well to compare different corpus subsets. In this study, two variables were imported: i) country, distinguishing between articles retrieved from Italian and Swiss

newspapers; and ii) year, dividing the entire corpus into seven macrocodes that correspond to the year the article was published (2010 to 2016).

A *specificity analysis* and a *correspondence analysis* were performed. A specificity analysis checks which words/lemmas are typical in a text or a corpus subset, as defined by a categorical variable. In this case, we were interested in discovering which words were preponderantly used by the national newspapers in each of the two countries (i.e., which words were overused by the Italian and Swiss national presses when dealing with national tax-related news). The chi-square test defines the significance of the outcome of the analysis. Output consists of a table reporting significant lexical units together with their corresponding chi-square values, the occurrences of lexical units at the considered variable level (e.g., country), and the occurrences of the same lexical units in the whole corpus of data.

A correspondence analysis (keywords  $\times$  elementary contexts), on the other hand, allows for the drawing of graphs in which the relationships between both the corpus subsets and the lexical units that compose them are represented, as well as the subsequent projection of the illustrative variables (country, year). In other words, correspondence analysis allows us to represent in graph form similarities and differences in terms of specific contents (words/lemmas) and their associations between the two countries and the years of publication. All words/lemmas in the results section, including tables and figures, were translated from Italian.

## Results

### Specificity Analysis: Italy vs. Canton of Ticino

First, a data-driven specificity analysis was performed on all words/lemmas in the textual corpus. The results (see [Tables 3 and 4](#)) show that – besides some words that are specifically related to the Swiss context (e.g., UBS, Lugano, canton,<sup>v</sup> etc.), the Swiss press overuses words such as ‘information’, ‘client’, ‘agreement’, ‘negotiate’, ‘assistance’, and ‘help’, suggesting the presence of a ‘service-and-client’ tax climate; in such a climate, tax authorities perceive taxpayers as clients who expect and deserve professional, fair, and supportive services, and taxpayers reciprocate this attitude by collaborating. By contrast, the Italian press – besides some words that are specifically related to the Italian context (e.g., IRPEF, IMU, Equitalia, etc.<sup>vi</sup>) – overuses words such as ‘inspection’, ‘supertax’, ‘audits’, ‘income assessing’, and ‘evasion’, thus suggesting a ‘cops-and-robbers’ tax climate; in such a climate, tax authorities perceive taxpayers as robbers who try to evade and escape and therefore need to be checked.

Table 3

Specificity Analysis: Overused Words in Canton of Ticino

Word	Subcorpus	Total	%	$\chi^2$
UBS ( <i>Swiss financial services company</i> )	495	521	95.0	1132.0
authority	565	729	77.5	860.8
<b>information</b>	635	898	70.7	787.6
<b>client</b>	645	936	68.9	752.5
Council	590	873	67.6	656.0
confederation	322	362	89.0	648.7
<b>agreement</b>	639	1024	62.4	579.5
amnesty	202	208	97.1	479.7
imposition	314	413	76.0	457.4
Frontaliere ( <i>cross-border worker</i> )	161	187	86.1	303.7
Lugano	147	176	83.5	260.8
court	242	406	59.6	192.3
<b>negotiate</b>	152	224	67.9	169.7
<b>assistance</b>	184	299	61.5	159.6
canton	95	120	79.2	150.7
suspect	97	124	78.2	150.0
<b>help</b>	225	412	54.6	137.4

Note. Overused words are words that are preponderantly used in a subcorpus when compared to the total. All values are statistically significant at  $p < .001$ . Words in bold are the most relevant for data interpretation.

Table 4

Specificity Analysis: Overused Words in Italy

Word	Subcorpus	Total	%	$\chi^2$
IRPEF ( <i>income tax</i> )	729	733	99.5	284.0
Income_Revenue_Authority	985	1046	94.2	267.6
IMU ( <i>real estate tax</i> )	721	741	97.3	244.7
Equitalia ( <i>tax collection agency</i> )	511	515	99.2	195.9
<b>inspection</b>	549	599	91.7	120.7
<b>supertax</b>	269	271	99.3	103.1
TASI ( <i>Indivisible services tax</i> )	260	262	99.2	99.5
deduction	334	350	95.4	99.1
IRAP ( <i>tax on productive activities</i> )	257	263	97.7	89.3
<b>audits</b>	516	582	88.7	85.2
pay	1966	2466	79.7	85.1
balance	630	727	86.7	83.2
<b>income_assessing</b>	218	221	98.6	80.4
prime_minister	201	204	98.5	73.6
old	297	320	92.8	71.9
<b>evasion</b>	1512	1886	80.2	71.9
reduction	642	754	85.2	70.0

Note. Overused words are words that are preponderantly used in a subcorpus if compared to the total. All values are statistically significant at  $p < .001$ . Words in bold are the most relevant for data interpretation.

## Correspondence Analysis (Lemmas Keywords × Elementary Contexts)

To confirm the existence of different tax climates and deepen the results from the specificity analysis, we conducted a theory-driven correspondence analysis (keywords × elementary contexts, Figure 1). In T-LAB, keywords – that is, all the lexical units (words and lemmas) with occurrence values higher than the minimum threshold and highest chi-square values – can be selected using two procedures: automatic and customized. To facilitate the interpretation of the results, we chose the latter and selected 761 keywords<sup>vii</sup> that were more in line with the theoretical underpinnings. In other words, we selected as keywords tax-related words/lemmas (e.g., “information”, “client”, “evade”, “cut”, etc.) and deselected those general words/lemmas that did not provide any specific connotation to the tax climate of a country (e.g., “do”, “have”, “yesterday”) and thus acted as ‘background noise’. The analysis yielded two dimensions: Factor 1 (horizontal axis, explained inertia = .40) and Factor 2 (vertical axis, explained inertia = .30). By analyzing the word/lemmas that characterized each factorial pole (i.e., the opposites on the horizontal and vertical axes), we were able to label each axis after those words that contributed most to its inertia and to identify the underlying main dimensions. As suggested by the specificity analysis, the correspondence analysis confirmed the existence of different tax climates in the considered regions.

The horizontal axis refers to the content/topic of the news and opposes words linked to the way tax authorities and governments can exercise their power (e.g., ‘public prosecutor’, ‘sequester’, ‘investigation’, ‘guard’, ‘arrest’, ‘*Fiamme gialle*’<sup>viii</sup>, ‘court’, ‘judge’, ‘report’, etc.; right side of Figure 1) to words used to describe the characteristics of the tax system of a country in terms of both actions (e.g., ‘increase’, ‘reduce’, ‘cut’, ‘impose’, ‘deduct’, etc.) and tax law (e.g., ‘proposal’, ‘tax’, ‘supertax’, ‘tax return’, ‘revenue’, ‘tax break’, ‘IRPEF’, ‘IMU’, ‘TASI’, etc.; as shown on the left side of Figure 1). In other words, on the right side we mostly find words and lemmas related to how tax authorities take action to enforce the law, whereas on the left side we mostly find words and lemmas related to rules, regulations, and specificities of the tax system of a country. Therefore, we labeled the right pole ‘tax enforcement’ and the left pole ‘tax system’.

The vertical axis appears to convey different tax climates (i.e., the relationship between taxpayers and tax authorities). The pole at the bottom is composed of words/lemmas related to an antagonistic tax climate (e.g., ‘guard’, ‘audits’, ‘evasion’, ‘inspection’, ‘fight’, ‘Equitalia’, etc.), while the pole at the top is composed of words that suggest a synergistic tax climate (e.g., ‘negotiation’, ‘information’, ‘client’, ‘agreement’, ‘solution’, ‘assistance’, etc.). Thus, we labeled the top pole ‘synergistic climate’ and the bottom pole ‘antagonistic climate’. The intersection of horizontal and vertical axes allows us to distinguish four quadrants (top left, top right, bottom left, and bottom right) and identify some relations among words and lemmas.

As Figure 1 shows, the horizontal axis does not polarize Italy and Switzerland. In other words, with regard to the content of the news, both the Italian and the Swiss press deal with both tax system and tax enforcement issues. By contrast, the vertical axis (tax climate) strongly polarizes the two countries, with Italy being closer to the negative climate pole and Switzerland being closer to the positive climate pole. This climate difference affects the way in which the same topic and issues are discussed. For example, when the content of the news focuses on the tax system in a synergistic climate (top left quadrant), some of the most recurrent and distinguishing words/lemmas are ‘equality’, ‘resolution’, ‘parity’, ‘support’, ‘helpful’, ‘transparent’, and ‘trust’. Thus, the focus of the top left quadrant seems to be ‘trust towards the tax system’. Moving to the top right quadrant, where the topic of the news is tax enforcement in a synergistic climate, some of the most recurring words/lemmas are ‘sentence’, ‘inquest’, ‘search’, and ‘fine’, which appear together with ‘justice’, ‘transparency’, ‘collaborate’, ‘information’, and ‘client’. In this case,



the main focus appears to be 'legitimate power'. In contrast, in the bottom left quadrant, the tax system in an antagonistic climate is described using words/lemmas such as 'burden', 'hate', 'exorbitant', 'unbearable', 'oppressive', 'trap', and 'distrust'. Here, the main focus is the 'lack of trust towards the tax system'. Finally, when the content of news is tax enforcement in an antagonistic climate (bottom right quadrant), the most recurring words/lemmas convey an idea of 'coercive power', and taxpayers and authorities seem to play 'hide and seek' (e.g., 'hidden', 'escape', 'hunting', 'flush out', 'gunsight', 'rival').

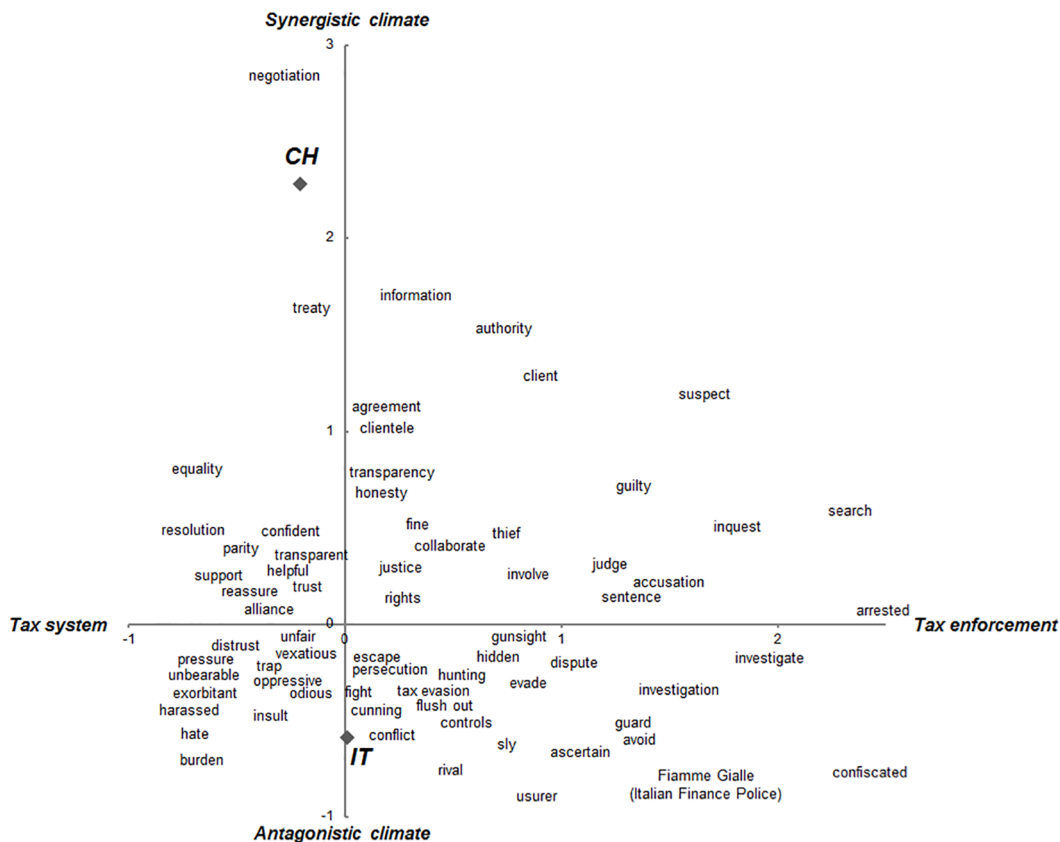


Figure 1. Two-dimensional solution of correspondence analysis (keywords × elementary contexts).

Note. The graph represents the relationships among the lexical units (words) and includes the illustrative variable of country.

In addition, it is interesting to compare the different ways in which a tax evader is described: in a synergistic climate, a tax evader is described as 'guilty' or a 'thief' (criminal, negative connotation). On the other hand, in an antagonistic climate, a tax evader is described as 'sly' or 'cunning' (smart, positive connotation).

To summarize, Switzerland is characterized by a synergistic tax climate, where tax authorities are trusted and their power is perceived as legitimate ('service and client' attitude). In Italy, on the other hand, an antagonistic tax climate prevails, where tax authorities are mistrusted and their power is perceived as coercive ('cops and robbers' attitude). Such findings, which derive from a quantitative analysis of textual material, also find support at a qualitative level. For example, on the one hand, in Swiss tax-related news, we can read that: "Switzerland is a good example of a fiscal policy promoting work"; "Switzerland is a country that provides a good cost-benefit trade-off"; "In exchange for what it takes from taxpayers, the State provides good and efficient services"; and "There is a

good climate of collaboration between tax authorities and business companies". On the other hand, Italian newspapers state that: "Italians are hard hit by tax authorities. Even when they pay their taxes, their duty is never entirely fulfilled"; "The Agency is oppressive and the bureaucracy is suffocating"; "Taxpayers and tax authorities are playing hide and seek"; and "Lodgers are seen as potential criminals to track down, prove guilty and humiliate".

Given the impact of the most recent Global Financial Crisis on economic behaviour (for the effects in the Italian context, see [Lozza, Bonanomi, Castiglioni, & Bosio, 2016](#)), and to detect whether the tool allows for the monitoring of tax climates over time, we also decided to analyze how things changed from 2010 to 2016. Using a two-year moving average technique<sup>ix</sup> (Figure 2), we found that Italy appears not to have moved from the antagonistic pole. However, a noticeable change in the Italian focus of the news (horizontal axis) occurred; from 2010 to 2014, the national press dealt more with the tax system, while in 2015 and 2016 there was a shift towards tax enforcement. It should be noted that, according to the Italian Revenue Agency, from 2010 to 2015 there was an increase of 24.5% in the number of audits (MEF, 2010-2015). If we assume this trend to be stable, we can imagine that Italian taxpayers especially suffered from such an increase in 2015-2016.

Switzerland, on the other hand, appears to be more static in terms of the focus of the news (horizontal axis), while tending to move even closer to the synergistic climate pole (the pole at the top of the vertical axis), especially between 2012 and 2014.

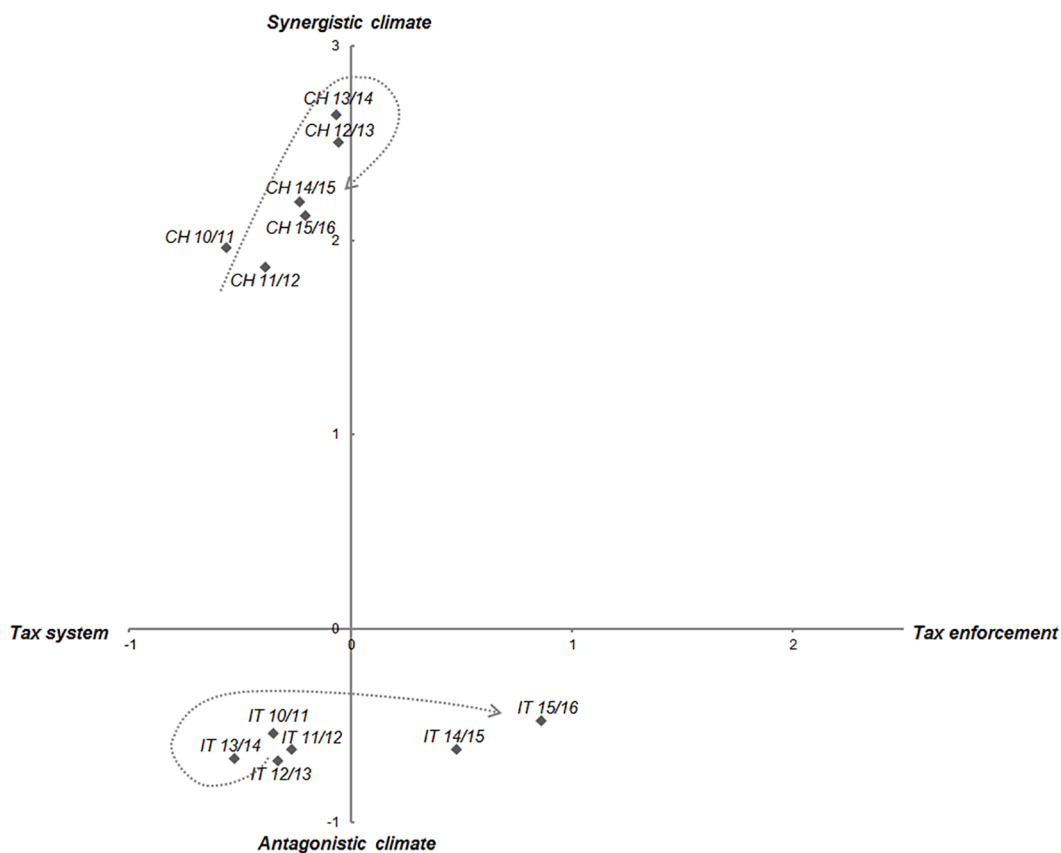


Figure 2. Historic evolution of tax-related news.

Note. The illustrative variable of year has been positioned using a moving average technique on the correspondence analysis graph (see Figure 1).

## Specificity Analysis: 2010-2014 vs. 2015-2016

The correspondence analysis showed evidence of a shift in Italy in terms of content of the news, from the tax system to tax enforcement, while the situation in Canton of Ticino appeared to be more static. To make sure that such results were not merely a factor of the theoretical framework we adopted, we performed a second data-driven specificity analysis by using words/lemmas automatically chosen by the software. To detect time-lag differences, Italian articles from 2010-2014 were compared to Italian articles from 2015-2016.<sup>x</sup> As Tables 5 and 6 show, if we do not consider words/lemmas describing current events (e.g., the Panama Papers leak, Google's tax avoidance), Italian news shifted from dealing with the tax system and fiscal reforms between 2010-2014 (e.g., 'rise', 'tax rate', 'government', 'cut', 'revenue', 'spending', 'reform', etc.), to dealing with the exercise of power between 2015-2016 ('investigate', 'prosecutor', 'judge', 'inquiry', 'crime', 'requisition', etc.).

Table 5

*Specificity Analysis: Overused Words in Italy Between 2010 and 2014*

Word	Subcorpus	Total	%	$\chi^2$
tax	2619	3285	79.7	262.6
Tremonti ( <i>former Italian Minister of Economy and Finances</i> )	357	363	98.4	166.0
Monti ( <i>former Italian Prime Minister</i> )	410	430	95.4	161.5
<b>rise</b>	1038	1280	81.1	123.9
Befera ( <i>former director of Italian Income Revenue Authority</i> )	259	265	97.7	116.6
PDL ( <i>Italian political party</i> )	234	237	98.7	111.0
<b>tax_rate</b>	694	831	83.5	109.1
<b>government</b>	1619	2101	77.1	107.1
fiscal	3079	4197	73.4	91.5
<b>income_assessing</b>	210	218	96.3	87.5
<b>cut</b>	535	642	83.3	82.5
<b>financial_measures</b>	431	507	85.0	78.6
IMU ( <i>real estate tax</i> )	588	721	81.6	74.1
<b>revenue</b>	1269	1663	76.3	73.2
<b>spending</b>	884	1128	78.4	72.4
<b>reform</b>	848	1083	78.3	68.7
<b>expenditure</b>	755	957	78.9	66.9
<b>crisis</b>	489	597	81.9	64.3
billion	1565	2104	74.4	60.1
minister	623	785	79.4	59.1
<b>federalism</b>	175	189	92.6	58.1
<b>income</b>	222	251	88.5	54.6
<b>work</b>	868	1134	76.5	52.2
<b>imposition</b>	1371	1847	74.2	50.7

*Note.* Overused words are words that are preponderantly used in a subcorpus if compared to the total. All values are statistically significant at  $p < .001$ . Words in bold are the most relevant for data interpretation.

Table 6

Specificity Analysis: Overused Words in Italy Between 2015 and 2016

Word	Subcorpus	Total	%	$\chi^2$
Panama	110	116	94.8	195.2
Renzi ( <i>former Italian Prime Minister</i> )	290	467	62.1	170.5
king	106	120	88.3	161.3
editorial	84	90	93.3	144.1
<b>investigate</b>	154	219	70.3	132.6
society	672	1408	47.7	126.8
prime_minister	141	201	70.2	120.6
voluntary	95	120	79.2	111.8
<b>prosecutor</b>	180	287	62.7	109.3
on-line	129	186	69.4	106.8
<b>investigation</b>	231	400	57.8	104.9
Padoan ( <i>Italian Minister of Economy and Finances</i> )	90	121	74.4	90.3
<b>judge</b>	152	247	61.5	86.6
<b>inquiry</b>	140	222	63.1	86.6
<b>crime</b>	185	322	57.5	82.4
<b>fraud</b>	147	241	61.0	81.3
<b>lawyer</b>	161	272	59.2	80.0
<b>requisition</b>	100	146	68.5	79.8
Orlandi ( <i>director of Italian Income Revenue Authority</i> )	74	97	76.3	79.4
Google	84	118	71.2	74.9
Chinese	61	77	79.2	71.9
<b>charge</b>	178	324	54.9	66.3
disclosure	64	86	74.4	64.3
loan	38	41	92.7	64.2
HSBC	54	69	78.3	61.8
<b>confiscate</b>	109	178	61.2	61.1
<b>court</b>	101	164	61.6	57.7

Note. Overused words are words that are preponderantly used in a subcorpus if compared to the total. All values are statistically significant at  $p < .001$ . Words in bold are the most relevant for data interpretation.

A similar analysis was conducted on the Swiss corpus (see Table 7). The results showed that the only differences between the two time lags were words/lemmas describing current events, (e.g., the Panama Papers leak, which also represents the first occurrence in the Italian corpus), and not words/lemmas related to the tax climate. Moreover, the number of occurrences was definitely smaller in the Swiss context than in the Italian context (i.e., chi-square values of overused Swiss words in the most recent period are on average half of those in the Italian context).

Table 7

*Specificity Analysis: Overused Words in Switzerland Between 2015 and 2016*

Word	Subcorpus	Total	%	$\chi^2$
Panama	77	81	95.1	113.6
voluntary	71	82	86.6	83.6
Clinton	40	43	93.0	56.1
protocol	44	53	83.0	46.4
BSI ( <i>Bank in Canton of Ticino</i> )	42	50	84.0	45.7
disclosure	42	53	79.3	39.0
Maurer ( <i>Head of Swiss Federal Department of Finance</i> )	27	29	93.1	38.0
centre	75	116	64.7	36.0
SUPSI ( <i>Swiss University</i> )	23	24	95.8	34.6
dutch	22	24	91.7	29.8
closure	26	31	83.9	28.2
SRG_SSR ( <i>Swiss Broadcasting corporation</i> )	21	23	91.3	28.2
Netherlands	19	20	95.0	28.0
deduction	56	86	65.1	27.6
business	22	25	88.0	27.0
study	28	35	80.0	26.7
Cameron	25	30	83.3	26.6
work	119	218	54.6	26.6
ruling	20	22	90.9	26.6
vote	48	72	66.7	25.8
household	34	46	73.9	25.7
society	234	481	48.7	24.7
USAM ( <i>Swiss Union of Small Businesses</i> )	17	18	94.4	24.7
role	43	64	67.2	23.8
project	36	51	70.6	23.5
conference	18	20	90.0	23.3
Donald	18	20	90.0	23.3

*Note.* Overused words are words that are preponderantly used in a subcorpus if compared to the total. All values are statistically significant at  $p < .001$ .

## Discussion

The main aim of this paper was to present a new tool in tax compliance research — specifically, a lexicographical analysis of tax-related articles in national presses. By drawing on the ‘slippery slope’ framework (Kirchler et al., 2008), we compared Italy and the Italian-speaking Canton of Ticino (Switzerland), and we were able to show the effectiveness of such an instrument in detecting and monitoring their tax climate from 2010 to 2016. The results show that Italian and Swiss national presses depict tax systems and tax authorities in very different ways: an antagonistic tax climate appears to prevail in Italy, while a synergistic tax climate prevails in the Canton of Ticino. Not only are such findings in line with previous evidence from other methodological approaches (e.g., Alm & Torgler, 2006; Batrancea et al., 2016; Muehlbacher et al., 2008), but they also qualify the nature of both perceived power of authorities (legitimate vs. coercive) and trust in the tax system. In fact, despite the references to tax law enforcement in the press of both countries, the words that are used suggest different connotations of how tax

authorities exercise their power (for example, 'search' in a synergistic climate becomes 'hunt' in an antagonistic climate).

By retrieving articles from 2010 to 2016, we were also able to detect changes over the years. Compared to previous years (2010-2014), in 2015-2016 Italian news has shifted from discussing the tax system to mostly focusing on tax enforcement. However, it did not move away from the antagonistic tax climate, so we can assume that tax authorities are mostly depicted as taxpayers' opponents and that their power is perceived as coercive. Although power and coercion might be effective in increasing compliance in an antagonistic climate, taxpayers who feel harassed and persecuted might still be motivated to reduce their taxes by finding more sophisticated ways to exploit the laws and engage in legal methods of tax avoidance (Kirchler & Wahl, 2010). A government compliance strategy based only on detection and punishment may well be a reasonable starting point but not a good ending point for a country (Alm, Sanchez, & De Juan, 1995). Also, this kind of enforced tax compliance requires costly measures of control – a situation that is not always desirable. On the other hand, voluntary tax compliance seems to consistently prevail over the years in Switzerland, where – according to the press – fiscal authorities are perceived to be just and supportive rather than oppressive, thus suggesting the prevalence of trust which can result in an intrinsic motivation to pay taxes.

In sum, these results support the idea that a lexicographical analysis of tax-related news can be a further tool in tax compliance research. Despite the fact that such a tool does not allow us to identify the antecedents of tax evasion, it can be extremely useful in allowing for comparisons between different fiscal contexts and detecting not only quantitative differences (e.g., the level of perceived power) but also qualitative ones (e.g., the nature of perceived power). Although a number of methods to study tax behaviour already exist in the scientific literature (e.g., aggregate and micro-econometric modelling, field experiments, quasi-naturalistic experiments, laboratory experiments, agent-based modelling, and surveys), the advantages of this new tool are its high level of feasibility at low cost (as it is based on secondary data) and the possibility it offers to monitor trends over a period of time. Therefore, it could serve as a tool for policymakers to monitor the tax climate of their country and accordingly fine-tune their fiscal policies. The tool could be especially useful in those countries where fiscal federalism is adopted (e.g., Germany, United States) to allow for monitoring the tax climates of different fiscal regions.

Some limitations of this study need to be taken into account. First, in terms of validity, it would be interesting to compare the results with those of other studies based on different tools or methods, such as large-scale survey data in the regions of interest. However, it is the lack of systematic and large-scale studies in the considered regions that suggested the need to find a new and alternative tool (i.e., a lexicographical analysis of press news) to assess and monitor over time the tax climate of a country. Second, from a methodological perspective, a lexicographical analysis does not enable researchers to control a number of external variables that can affect tax-related news (e.g., economic crises, political changes, scandals, etc.). We tried to overcome such limitations by retrieving a large number of articles over several years and by adopting a moving average technique, which allows for smoothing the estimates of trends and gaining stability. Third, since the present study was mainly aimed to test the tool by comparing two regions, we only considered one newspaper per country (*Corriere della Sera* and *Corriere del Ticino*), which were those with the highest circulation. Had we considered other newspapers, different nuances could have emerged from the analysis. Future studies could compare tax-related news from different newspapers by comparing, for example, those that are known to have different political affiliations, as different political ideologies can lead to different approaches to tax compliance and tax evasion. In Italy, for example, left-wing supporters express higher levels of voluntary cooperation and are more sensitive to the power of authorities, whereas right-

wing supporters express higher levels of enforced tax compliance and are more responsive to the trust domain and to its link with the taxes/public expenditure trade-off (Lozza, Kastlunger, Tagliabue, & Kirchler, 2013). It could also be disputed that newspaper coverage is not a representative indicator of the interaction climate between taxpayers and the respective authorities, instead representing how the climate is perceived by the writer, the owner of the newspaper, or the political orientation of the respective newspapers. However, since the newspapers under analysis are those with highest circulation in the regions of interest, it is plausible to believe that they reflect and represent a shared and widespread view.

In this regard, a final consideration needs to be emphasized. With regard to social influence, we need to keep into account both ‘horizontal’ and ‘vertical’ communication. On the one side, horizontal communication with other taxpayers (including through social networks) can affect tax compliance attitudes and behaviour, for example through the exchange of information about audits and penalties and through perceptions of social norms (Alm, McClelland, & Schulze, 1999; Ashby & Webley, 2008; Hashimzade, Myles, Page, & Rablen, 2014). Taxpayers can also actively persuade other taxpayers to comply or not to comply with tax laws (Onu & Oats, 2016).

On the other side, the same may apply to vertical communication between the media and taxpayers. Although in this study we used the national press as a mirror of the tax climate of a country, an important question we need to ask is to what extent the national press can also shape the fiscal climate of a country and alter the perception of fairness about the tax system. Media – including television, the press, and online media – can shape public debate in terms of setting agendas and focusing public interest on particular subjects. This means that media can lead to possible changes in personal behaviours by shaping public belief and attitudes (Happer & Philo, 2013), as well as personal values (Firat, 2014). Media can shape public opinion and people’s views about social phenomena by using certain news frames (McCombs, 2004; Nabi, 2003). If news frames influence public opinion even on political measures (Nelson, 2004; Nelson & Kinder, 1996; Rousseau, Lux, & Miodownik, 2000), then tax-related ‘positive news’ could be used to improve the tax climate of a country (De Rosa & Castiglioni, 2016). In a country where an antagonistic climate prevails, such as Italy, the national press should feel responsible for how tax authorities are depicted, knowing that the image they offer can feed a vicious cycle of distrust that is detrimental to the development of a country’s tax climate.

## Notes

- i) Italian is one of the four official languages spoken in Switzerland and is especially common in the south of Switzerland, in the Canton of Ticino.
- ii) In Switzerland, *Il Corriere del Ticino* is the newspaper with highest circulation among its Italian-language readership.
- iii) In order to perform a correspondence analysis, a maximum of 10,000 elementary contexts (i.e., syntagmatic units such as paragraphs) is allowed. The textual corpus under analysis was composed of 9,998 elementary contexts.
- iv) The Italian word “fisco” has a very broad meaning; it can refer to the Inland/Internal Revenue System (capitalized as Fisco), to tax collectors, or to taxation in general.
- v) It should be noted that such words – although specifically related to the Swiss context – are also present in Italian newspapers.
- vi) Likewise, such words that are specifically related to the Italian context can also be found in Swiss press.
- vii) The full list of keywords can be acquired from the corresponding author.

viii) *Fiamme Gialle* (literally ‘yellow flames’) is an appellation indicating the Italian Financial Guard (Guardia di Finanza), a law enforcement agency responsible for dealing with financial crimes. The name originates from their emblem, as yellow flames are depicted on their uniforms.

ix) Moving averages are frequently used in trend analyses to smooth the estimates of trends and gain stability, thus enhancing the interpretation of the findings (Brown, 2004).

x) Such division was based on evidence from Figure 2, suggesting that Italian articles from 2010 to 2014 had a similar focus (i.e., tax system) in contrast to articles from 2015 to 2016 (i.e., tax enforcement).

## Funding

The authors have no funding to report.

## Competing Interests

The authors have declared that no competing interests exist.

## Acknowledgments

We thank anonymous reviewers who provided us with constructive feedback on a previous version of this manuscript.

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