

# Argomenti di discussione

(Discussion topics)

## TAX COMPLIANCE AND THE ROLE OF TAX CONSULTANTS: EVIDENCE FROM AN ITALIAN EXPERIENCE

*Alfonso Carfora, Elena D'Agosto, Stefano Pisani*

N. 01/2021

*Argomenti di discussione* è una pubblicazione che intende divulgare contributi ed analisi su argomenti di economia, statistica, econometria e scienza delle finanze, che abbiano rilevanza per la missione dell’Agenzia delle Entrate, al fine di alimentare il dibattito scientifico sui temi di interesse strategico dell’Agenzia e favorire lo scambio di opinioni. La pubblicazione ospita contributi in lingua italiana o inglese proposti da autori sia interni sia esterni all’Agenzia. Le opinioni espresse negli articoli sono lasciate alla discrezionalità degli autori e non impegnano la responsabilità dell’Agenzia delle Entrate.

*Discussion topics is a publication with the purpose of disseminating contributions and analyses in economics, statistics, econometrics and public finance, which are relevant to the mission of the Italian Revenue Agency (Agenzia delle Entrate) in order to bolster the scientific debate on topics of strategic interest for the Agency and to facilitate the exchange of opinions. This publication accepts contributions in Italian or in English proposed by authors who are internal or external to the Agency. The views expressed in the articles are those of the authors and do not involve the responsibility of the Revenue Agency.*

#### LICENZA/LICENCE



Quest'opera è distribuita con [Licenza Creative Commons Attribuzione - Non commerciale - Non opere derivate 3.0](https://creativecommons.org/licenses/by-nc-nd/3.0/).  
*This work is licensed under a [Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Unported License](https://creativecommons.org/licenses/by-nc-nd/3.0/).*

ISSN: 2420-773X

Ugo GUARNERA (Agenzia delle Entrate - Responsabile Scientifico/Editor in Chief)

#### COMITATO SCIENTIFICO/BOARD OF EDITORS

Bruno CHIARINI (Università degli Studi di Napoli “Parthenope”)  
Valeria DE BONIS (Università degli Studi di Roma “La Sapienza”)  
Antonio DI MAJO (Università degli Studi “Roma Tre”)  
Roberto MONDUCCI (Istituto Nazionale di Statistica)  
Alessandro SANTORO (Università degli Studi “Milano-Bicocca”)

#### REDAZIONE/MANAGING EDITORS

Marta Gallucci (Agenzia delle Entrate)  
Carmelino Mazzotta (Agenzia delle Entrate)

Tel. +39-06-5054-5037/3874 Fax +39-06-5056-2612

E-mail: [ae.argomentididiscussione@agenziaentrate.it](mailto:ae.argomentididiscussione@agenziaentrate.it)

Web: <http://www.agenziaentrate.gov.it/wps/content/Nsilib/Nsi/Agenzia/Agenzia+comunica/Prodotti+editorial/i/Rivista/Argomenti+di+discussione/>

# TAX COMPLIANCE AND THE ROLE OF TAX CONSULTANTS: EVIDENCE FROM AN ITALIAN EXPERIENCE

Alfonso Carfora\*, Elena D'Agosto†, Stefano Pisani†

August 2020

## Abstract

This paper examines the effects of tax audits on taxpayers' compliance in terms of deterrence and spillover effects from the perspective of their tax consultants. In particular, the analysis is aimed at verifying if and to what extent tax consultants who assist their audited clients in fulfilling tax obligations, disseminate certain information acquired from the audit's experiences to clients not involved in the audit process. The analysis is based on data contained in two (non-public) databases held by the Italian Revenue Agency ("Agenzia delle entrate" or "Ade"): 1) the Tax Returns Register; and 2) the Audits and Assessment Register. Information drawn from both archives focus on the population of self-employment and sole proprietorships in a province of the Northern Italy over the period 2010-2013. The effect of Ade audit policies has been estimated by applying a panel fixed effect approach as estimation strategy. However, in order to identify both the deterrence and spillover effects, the strategy has been conducted in two steps, taking into account related counterfactuals properly.

The study finds evidence that, given their role, tax audits on taxpayers assisted by tax consultants have a positive impact on tax compliance. In the years following audits, audited taxpayers increase the declared amount of Value of net production, turnover and Business gross income.

As far as spillover effect are concerned our preliminary findings support the main idea that tax consultants extend the experience gained in assisting audited clients to non-audited ones.

**JEL classification:** H21, H26

**Keywords:** VAT gap, Policy gap, Compliance Gap, Disaggregation of VAT gap between rates

---

\* Italian Revenue Agency; corresponding author: [alfonso.carfora01@agenziaentrate.it](mailto:alfonso.carfora01@agenziaentrate.it)

† This paper was written and elaborated while Elena D'Agosto and Stefano Pisani were working at the Italian Revenue Agency. It expresses the opinions of the authors and does not necessarily represent the official view of the Italian Revenue Agency (Agenzia delle Entrate).

An earlier version of this paper was presented at the 5th International Conference on "The Shadow Economy, Tax Evasion and Informal Labor", Warsaw, Poland, July 27-30, 2017. The authors wish to thank the participants of the Conference and an anonymous referee for their useful comments and suggestions.

## Index

1. Introduction .....	6
2. Taxpayers data and tax aspects.....	7
3. Outcomes for compliance behaviors .....	8
4. The empirical model.....	8
5. Concluding remarks.....	15
References .....	16

## 1. Introduction

The economic research focused on taxpayer compliance since the pioneering study by Allingham and Sadmo (1972) when they considered the role of enforcement to discourage fraudulent tax behaviour. Over the years, scholars examined the effects of enforcement on tax collection discerning two main effects. First, a direct benefit related to additional taxes, interests and penalties is derived by the auditing activity. Second, an indirect effect, mainly defined in the economic literature as “general deterrent effect”, is related to the increase in reporting, and in tax collections, whether taxpayers have been audited or not. Within the indirect impacts, some scholars identify the subsequent year effect of those audited as corrective impact (Gemmell and Ratto, 2012) and define the effects spread upon all the other taxpayers as “spillover deterrent effect”.

While the direct outcome of investigations may be measured immediately, the indirect outcome, however, is more difficult to estimate, such as contrasting results in literature have shown. Some studies have looked at the effects that the experience of an audit has produced on taxpayer behaviour by using individual data. In this setting, Erard (1992) examined the effect of audits on subsequent year reporting behaviour, providing not conclusive results. Niu (2011) investigates the voluntary compliance shift of firms, after audits. By applying a difference-in-differences approach, his findings show that audited firms report higher sales growth rate in the year of audit than non-audited firms do. Gemmell and Ratto (2012) analyse the future compliance behaviour of audited taxpayers and their results are inconclusive. Ratto et al. (2013) try to formalize the direct and indirect effects of an audit from a theoretical point of view. Interestingly, the authors derive the expression of direct and indirect effect of audit on tax compliance by introducing the behavioural response in terms of elasticity of evasion. They show that their compliance indicator depends on behavioural elasticity, on the intensity with which a group is controlled and on the operational effectiveness of investigations.

In the USA the Internal Revenue Agency (IRS, 2019) estimated that audits have important long-term revenue implications. For tax year a face to-face audit increases the reported taxes for an amount varying from 40 percent to 62 percent in the first tax year. and for an amount of about 27 percent in the subsequent tax years. This result overcomes that obtained by DeBacker et al. (2018), which is focused on operational audits.

In Italy, few studies have analysed the effects of enforcement policies. The main contributions are due to Santoro (2008), Fiorio and Santoro (2011). Both the studies refer to the effectiveness of Statistics-Based Tax Assessment (sector Studies, SdS), an audit tool for a specific segment of taxpayers, adopted by the Italian Tax Revenue Agency, to increase compliance. A further study by Fiorio et al. (2013) shows the positive effect on revenue of the threat of an audit. Recently Battaglini et al. (2019) investigated on the correlation effects between the tax evasion of customers of the same tax professional and on the mechanisms driving the channels through which these social spillover effects are generated.

Other approaches explore the effects of tax audits by using “laboratory” experiments. Main contribution in this strand of literature is due to Mittone. Indeed, Mittone et al. (2017) reveal that the network in which taxpayers are inserted is more significant for their compliance if they are aware of their probability to be audited (i.e. if they are Bayesian taxpayers). This evidence does not occur for taxpayers that are not able to quantify their probability to be audited (i.e. not Bayesian taxpayers).

From a different perspective, Mazzolini et al. (2017), using a large administrative tax-returns panel dataset on real-world operational tax audits, analyse their effect on subsequent tax behaviour finding a positive and lasting effect of audits on subsequent reported income. D’Agosto et al.

(2017a, 2017b) explore the compliance behaviours of small businesses by means of unique datasets from the Italian Revenue Agency. The analysis focuses on the tax compliance effects of various enforcement policies: field audit (i.e., deep audit), desk audit (i.e. soft audit), and a combination of field and desk audit activities. Authors measure the impact on individual tax compliance in terms of changes in tax declaration of the audited taxpayers with respect to the non-audited ones. Findings show that each policy has a positive and significant effect on compliance, although with different magnitude.

To the best of our knowledge, few empirical contributions are devoted to analyse spillover effects of audits. This further effect may contribute to either amplify or shrink the overall deterrence effect of enforcement policies and in turn of the whole operational activity of the revenue administration. This paper aims at investigating more in depth the deterrence effects of both audited and not audited taxpayers in a context where the tax consultant role is relevant. The effect is increased when non-audited taxpayers take advantage of information from audited ones. A vehicle for dissemination of the knowledge is the tax consultant their clients have in common. Benefiting from a internal datasets derived by the operational activity of the Italian Revenue Agency, the analysis explores the implications of tax audits, by posing and answering to the following questions:

1. do targeted taxpayers change their tax behaviour, after being audited?
2. what are the consequences that may arise from the disclosure of information on tax audits among the networks of taxpayers connected to each other by the same intermediary?
3. are there any evidence of spillover effects?

In order to explore their tax compliance behaviour, the analysis proceeds with an empirical strategy based on a twofold approach: first by making use of panel fixed effect method to analyse the effects of investigations; second by applying the fixed effect approach, tightening certain conditions on the control group.

The paper is organized as follows: section 2 summarizes information on the dataset and some tax aspects applied in the analysis; section 3 describes the empirical model and the preliminary results of our research. Section 5 concludes with some final remarks.

## **2. Taxpayers data and tax aspects**

This analysis takes advantages of two internal databases by the Italian Revenue Agency, containing information on Italian small businesses. The first source of data contains records from the Tax Returns Register. The available sample includes all businesses taxpayers in a province of Northern Italy, professionals (self-employers) and sole proprietorships who filed their tax returns in the period 2010-2013.

The Tax Return database contains information on a set of taxpayers' characteristics, both demographic and economic notably those about all sources of its incomes. Moreover, it contains information on the tax consultants providing their tax services to taxpayers.

The second dataset collects information from the tax audit and assessment database. For taxpayers included in the sample are identified whether they were tax audited or not and the period when the tax audit occurred.

Taxpayers, or tax consultants on their behalf, file tax returns yearly, generally between July and November of each year (t+1) declaring all incomes earned in the previous calendar year (t).

The audit period observed is defined following this scheme: an audit has taken place in year  $t$  only if taxpayers receive the first notice of the inspection between the 1st of July of year  $t$  and the 30th of June of year  $t+1$ . The audit period is  $t$ .

According to the purpose of the analysis, it is assumed that audited taxpayers can change their behaviour immediately after having been informed that an inspection is taking place on their fiscal standing. Therefore, the tax audit made in the period from July 1 of the year  $t$  to 30 June of the year  $t+1$  may influence the tax return for the year  $t$ . In line with this scheme, the tax audits conducted between July 1 of 2010 and June 30 of 2011 affected the 2010 tax returns and so on.

The dataset has an unbalanced panel structure and includes about, 57.000 taxpayers per year from 2010 and 2013 corresponding to 157.000 observations in all.

### **3. Outcomes for compliance behaviours**

Small businesses behaviours are complex and vary across sectors and, dimension. From a tax perspective, evaluate firms' outcomes would require focusing attention on a plurality of measures that provide useful insights of the compliance to tax requirements. The three measures applied, turnover, net production and gross business income, are related to each other and each one is informative of different moments of the business income formation.

- Turnover is the first measure examined. Since it accounts the total amount of sales of a business, it can be considered a proxy of their production (gross output).
- The further measure is the value of net production (VNP) whose value is obtained reducing the gross output by the functional costs. The VNP is the starting reference for calculating the Italian regional business tax. This measure is a broad taxable base, including cost of labour and profits, whose components generate taxable bases for VAT and income taxes.
- The last measure is the gross business income. It defines the income earned by firms running their business activity. In broad term it is obtained reducing the net production of labour costs and of fiscal adjustments.

Tax regime is also an important aspect affecting tax compliance outcomes. Individual firms declare their earnings from self-employment work and from corporate income with respect to accounting and tax regime they adopt. Taxpayers may opt for an ordinary regime or a simplified one in case of corporate income. Self-employed taxpayers have its specific regime. Regimes affect the taxpayer's behaviours towards tax authorities since, for instance, it determines the procedure to follow for being compliant to tax obligation and the rules to calculate fiscal year outcomes either for financial statements purpose and for tax return purpose.

### **4. The empirical model**

The first part of this section describes some econometric issues regarding the measuring of spillover effect. Afterward, estimation results are presented and discussed.

#### **Identification issues**

This analysis aims at investigating the deterrence effect of tax audit and this effect may involve audited and not audited taxpayers (Gemmel and Ratto 2012), Measuring this impact depends on how auditing rules are applied. Mostly, Ade selects taxpayers to

be audited on non-random base and follows various criteria either related to the income that taxpayers self-report and related to characteristics not completely observable. Both these elements cause selection bias problems.

In order to consider these issues, this study apply an identification strategy based on a panel fixed effects approach, a methodology that allows, at least partially, to account for unobservable characteristics (see also D’Agosto et al. 2017). Since the purpose is to capture the deterrence effect of audited taxpayers but also possible effect on those not audited, the adopted strategy follows two steps.

In the first one, as a standard step in evaluation procedure, the comparison occurs looking at the changes in outcome between taxpayers who were targeted and taxpayers who were not.

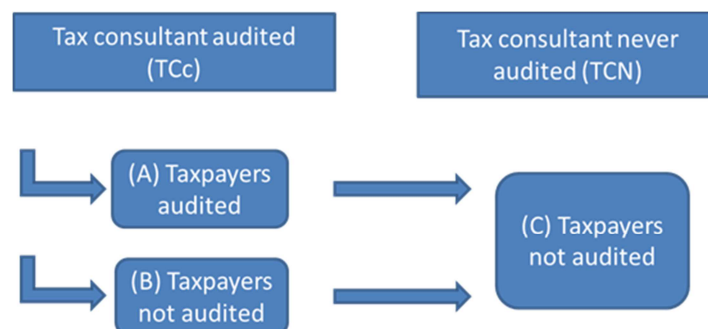
In order to measure the spillover effect, a second step is added to the strategy. This aims to identify the externalities of the auditing activity by testing if the tax consultant holds a significant role. Tax accountants are often believed as important players in spreading fiscal information on their clients because of their support in the accounting preparation of balance sheet and for providing also to their client’s assistance to better manage business activity.

When an audit occurs, firms turn to their tax consultant to receive assistance in helping them to fulfil tax obligation. Accordingly, a question arises: does this service lead to some consequences on those who are not involved in auditing?

To identify the effects upon not-audited taxpayers, the approach consists in comparing changes in outcome between taxpayers who were not audited and belonging to the same tax consultant that is audited to the changes in outcome of taxpayers who were not audited at all, that is taxpayers clients of tax consultants never audited over the examined period. Again, the effects upon audited taxpayers are identified, comparing the changes in outcome between taxpayers who were audited, namely belonging to a tax consultant audited, to the control group that consists of those accountants whose taxpayers never face an investigation over the period under observation.

Summing up, in order to test both the indirect effect and the spillover effect the population has been split into the three clusters showed in Figure 1.

Fig.1. Targeted population of taxpayers’ breakdwon



### The effect of tax audits: the indirect consequences

The first step of the analysis is to respond to questions related to the estimation of the impact of the



operational audits on subsequent tax compliance. This effect is considered indirect because it is consequential to the immediate one which includes the direct benefit related to the additional taxes, interests and penalties collected by the auditing activity. It is a general deterrent effect related to the increase in reporting, and in tax collections, of the audited taxpayers. To this aim, the relative change in reported income after the audit is compared with audited and not audited individuals. According to the scheme showed in figure 1 we compare the cluster A versus B U C by using the following simple equation:

$$y_{ijt} = \alpha + X'_{it}\beta + \lambda tr_{ijt} + \tau_t + u_j + \epsilon_{Uit} \quad [1.1]$$

In this specification, i denotes taxpayer j indicates tax consultant, y represents the natural logarithm of the reported outcome variable, u and  $\tau$  are individual and time t effects, tr is a dummy variable that indicates if the taxpayer received an audit in the time period t, assigned to subjects belonging to cluster A, and X is the set of the exogenous control variables. The coefficient of the dummy variable tr assesses the average impact of audits on subsequent reporting compliance.

Estimates of average audit effects based on equation 1.1, over the period 2010-2013, are reported in Table 1.

Tab.1: Indirect impact of the operational audits: Overall sample. Audit period 2011, 2012,2013.

	Turnover (1)	Value of Net Production (2)	Gross Business Income (3)
Audit	0.558*** (19.15)	1.048*** (17.72)	0.214*** (7.96)
2011	0.0391* (2.35)	-0.0419 (-1.24)	0.0343* (2.28)
2012	-0.0362* (-2.21)	-0.500*** (-15.02)	0.0576*** (3.89)
2013	-0.0302 (-1.82)	-0.609*** (-18.09)	0.0529*** (3.53)
Industry	0.405*** (13.80)	1.317*** (22.12)	7.425*** (281.78)
Trade	0.478*** (16.17)	-0.597*** (-9.96)	7.050*** (264.36)
Private Service	-0.175*** (-6.17)	-1.137*** (-19.78)	6.893*** (270.64)
Public Service	0.168*** (3.77)	-2.734*** (-30.19)	7.668*** (191.63)
_cons	10.13*** (453.66)	6.731*** (148.59)	1.658*** (83.80)
<i>Observation</i>	154.363	154.415	146.198
<i>Number id</i>	48.871	48.871	48.871
<i>Number tax consultants</i>	2.648	2.648	2.648

t statistics in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Columns from 1 to 3 refer to results for reported outcome variables used in the analysis. The positive and highly statistically significant coefficient  $\lambda$  in columns 1, 2, and 3 means that the positive impact of audits on the compliance of the taxpayers is confirmed in terms of Turnover, Net production and gross business income. The other coefficients are in line with the expectations. The analysis accounts for the sector activity, the reference is the agriculture. The taxpayers of industrial and trade sector show higher reported values for turnover and gross business income. The model of net production, where the results are more confused (maybe because its determination follows rules that vary according to the activity sector) expected results are observed. It is useful to underline that the results obtained by model [1-1] are based on the hypothesis that there is no spillover effect induced by tax consultant, as Group B was included in the control cluster.

### **Further deterrence outcomes: the spillover effect**

Audit activity may wield its enforcement consequences also on those not investigated. This effect may arise when non-audited taxpayers take advantage of information of those audited. A vehicle through which the knowledge could be disseminate is the tax consultant his clients have in common. The tax experts, providing tax assistance services to their client, can disseminate information they acquire when audits occur to their clients. Indeed, in case of tax inspection, taxpayers refer to their tax consultants as detailed and specific information about their financial statements would be required. Hence, tax specialists are informed of the audited financial records and about audit process. They elaborate the probability of an audit and of the effectiveness of an audit and update them in case some taxpayers they serve face one. This may have implication on tax services they provide to their other clients, those were not audited and affect also their compliance behavior.

With the aim of identifying effects on those not targeted, here estimates of the relative change in reported income after the audit is compared both to non-audited clients of audited tax consultant and to not audited taxpayers that are clients of a not audited tax consultant. The control group is identified by those taxpayers never audited over the period they are assisted by a tax consultant whose clients have not received any audit (cluster C of the figure 1).

The analysis is carried out over the sub-period 2011-2013. In this in-depth section we discarded the 2010 because in the last three years a consistent tax audits campaigns were conducted on the clients of some specific tax consultants. In case of spillover effects, the conjecture expresses in the study suppose that significant coefficients for variables representing not treated clients would be found. The sign of the coefficient would express the direction. In case of positive one, through the tax consultant a positive spillover is transmitted. The reverse in case of negative one.

As a preliminary analysis we test two effects:

- i) a more specific indirect effect,
- ii) the spillover effect.

To reach these goals we use the following equation:

$$y_{ijt} = \alpha_i + \lambda ntr_{ijt} + \tau_t + \epsilon_{it} \quad [1.2]$$

Where  $y_{ijt}$  is the natural log of the outcome variable (Turnover, Value of net production, Gross Business Income depending on the specification applied);  $ntr_{ijt}$  is a dummy variable which capture the effect i) and ii). Its interpretation varies accordingly to the counterfactual part.

In case i) the counterfactual part consists in the audited taxpayers (cluster A of figure 1). Hence, we estimate a regression panel model in which  $ntr_{ijt}$  takes values 1 if the taxpayer  $i$  has been audited in the year  $t$  and he is a client of a tax consultant  $j$  that is audited in year  $t$ ;

In case ii) the counterfactual part consists in the not audited taxpayers (cluster B of figure 1). Then, we estimate a different regression panel model in which  $ntr_{ijt}$  takes values 1 if the taxpayer  $i$  has not been audited in the year  $t$  and he is client of a tax consultant  $j$  that is audited in year  $t$  (spillover effect). In both the regression  $a_i$  is a time invariant fixed effect,  $\varepsilon_{ijt}$  is the idiosyncratic error

Table 2 shows results of the regression analyses. In the lines A) are reported compliance effects of the case i) for tax auditing activity carried out by the agency in the overall period, 2011-2013, and in each of the three annual campaigns, 2011, 2012 2013. Firstly, findings confirm the significant indirect deterrence results shown in the previous section. In this case the measure is more precise since it does not consider the possible spillover effect of the controls on taxpayers who have not been checked but use the same intermediary as those checked.

In other words, it was used as control group the clients of the intermediaries that have never been audited in any of the years under review. When we detail the analysis, we see that almost every annual audit campaign leads to a deterrent effect on audited taxpayers. Those conducted in 2011 and 2012, seem to show better results than the one conducted in 2013.

**Tab. 2:** Estimated coefficients. Overall sample.

		Turnover <sup>(a)</sup>	Value of net production <sup>(a)</sup>	Business gross income <sup>(a)</sup>
		(1)	(2)	(3)
Audited Tax consultant	<b>A) Audited taxpayers</b>	1.174*** (21.63)	2.437*** (22.88)	1.008*** (10.60)
	<b>B) Not Audited taxpayers</b>	0.429*** (8.48)	1.141*** (11.59)	-1.777*** (-19.49)
Audited Tax consultant	<b>A)2011 Audited taxpayers</b>	0.335*** (5.78)	0.417*** (3.77)	0.411*** (5.11)
	<b>B)2011 Not Audited taxpayers</b>	0.465*** (6.26)	1.113*** (8.78)	-1.903*** (-17.09)
Audited Tax consultant	<b>A) 2012 Audited taxpayers</b>	0.171** (3.00)	0.305** (2.66)	0.286*** (3.65)
	<b>B) 2012 Not Audited taxpayers</b>	0.414*** (6.13)	1.105*** (9.09)	-1.683*** (-16.89)
Audited Tax consultant	<b>A) 2013 Audited taxpayers</b>	0.110 (1.71)	0.352** (2.84)	0.160 (1.85)
	<b>B)2013 Not Audited taxpayers</b>	0.423*** (6.32)	1.270*** (10.48)	-1.691*** (-16.91)

Audited Tax consultant	<b>A) 2011 Audited taxpayers</b>	0.335*** (5.78)	0.417*** (3.77)	0.411*** (5.11)
	<b>B) 2011 Not Audited taxpayers</b>	0.465*** (6.26)	1.113*** (8.78)	-1.903*** (-17.09)
Audited Tax consultant	<b>A) 2012 Audited taxpayers</b>	0.171** (3.00)	0.305** (2.66)	0.286*** (3.65)
	<b>B) 2012 Not Audited taxpayers</b>	0.414*** (6.13)	1.105*** (9.09)	-1.683*** (-16.89)
Audited Tax consultant	<b>A) 2013 Audited taxpayers</b>	0.110 (1.71)	0.352** (2.84)	0.160 (1.85)
	<b>B) 2013 Not Audited taxpayers</b>	0.423*** (6.32)	1.270*** (10.48)	-1.691*** (-16.91)

note: <sup>(a)</sup> Outcome variables expressed in natural logarithm. Control group: taxpayers of not audited tax consultant.  
t statistics in parentheses : \* p-value<0.05; \*\*p-value<0.01; \*\*\*p-value<0.001

In table 2 are summarized results referred to the analyses on spillover effects (case ii). The general overview of the estimated coefficients show that spillover effects seem to take place. Lines B) present effects of the auditing activity in the overall sample and when it occurs in one of the three annual campaigns, 2011, 2012 or 2013. Estimated coefficients for all the outcome variables are significant. Looking at results of each annual audit campaign, it appears that all those conducted in the three years 2011, 2012 and 2013, show significance coefficients of the spillover effects.

#### *Differences in compliance behaviors: the tax matters*

Table 2 shows results for audit effects and for those non audited looking at three different outcomes. As previously mentioned, the three measures are conceptually related and can be considered a reference point for the tax compliance of business taxpayers analyzed. The value of net production provides an indication either of VAT compliance and of Italian regional business tax, named IRAP. The gross business income is a measure revealing the profitability and viability of the business. For tax administration purposes, a key factor is the increase in the tax compliance shown in this variable, since it may express a relevant portion of the whole taxpayer's personal gross income. Nevertheless, a plurality of measures are essentials in examining compliance taxpayer' behaviors and they require to be jointly interpreted.

The first column of Table 2 shows results for the turnover. The spillover effect at work is significant and positive either if all audit periods are considered and if each single period is examined Audit affects positively this measure of the compliance behavior, inducing to declare more turnover even to those non audited.

Table 2, second column, shows results for the value of net production. Estimated coefficients of non-audited taxpayers are always significant and positive. Interestingly the magnitude of the effects is higher of that showed for turnover. This means that the increase in turnover is not accompanied by a proportional increase in costs. In other words, the deterrent effect also leads to an improvement in the cost/turnover ratio declared by the taxpayer.

The third column of Table 2 shows results for the gross business income. Similarly, to the previous variables, the spillover effect also works significantly in the reporting gross business income, however conversely to the other outcome measures. Audits produce on those audited an increase in subsequent reporting behaviors of the business income while non audit taxpayers with the same consultant reduce their compliance compared to those non-audited and included in a tax consultant never audited. The deterrent effect on the latter is probably not reflected on gross business due to the changes that can be made to fiscal adjustments. These are, in fact, corrective items characterized

by wide margins of interpretation and can be modified so as not to increase gross business as much as net production.

**Tab .3:** Estimated coefficients. Self-employed sample.

Turnover <sup>(a)</sup>	Value of net production <sup>(a)</sup>	Business gross income <sup>(a)</sup>
(1)	(2)	(3)

*Differences in compliance behaviors: professional and sole proprietorship*

This section examines the deterrence effect exerted on targeted clients of a tax consultant when taxpayers are classified according to their fiscal regimes. Table 3 and Table 4 show findings for professionals (self-employed) and sole proprietorships, respectively.

Spillover results for self-employed appear to be less intense with respect to those included in the whole sample. Spillover arises when turnover and the value of net production are considered. However, it does not appear in all period. Spillover effect for professional does not seem to be working at all in case they declare gross business income.

The spillover results for sole proprietorship drive overall results for spillover effect. It exists and works positively when turnover and the value of net production are considered as outcome variables. When the gross business income is measured, the not targeted clients tend to declare less income than their control group.

<b>Tab. 4:</b> Estimated coefficients. Enterprises sample of ordinary and simplified regimes.		0.670***	2.240***	0.691***
Audited Tax	A) Audited taxpayers	(7.28)	(8.36)	(6.70)
consultant	<b>B) Not Audited taxpayers</b>	0.157 <sup>(a)</sup>	Value added production	Business gross income
		(2.14)	(2.61)	(1.02)
Audited Tax consultant	<b>A) 2011 Audited taxpayers</b>	0.339*	0.747	0.661***
		(2.43)	(1.75)	(5.13)
Audited Tax consultant	<b>B) 2011 Not Audited taxpayers</b>	0.117	0.558*	0.0193
		(1.13)	(2.19)	(0.13)
Audited Tax consultant	<b>A) 2012 Audited taxpayers</b>	0.213	-0.0282	0.0114
		(1.33)	(-0.06)	(0.07)
Audited Tax consultant	<b>B) 2012 Not Audited taxpayers</b>	0.134	0.490*	0.0465
		(1.41)	(2.20)	(0.53)
Audited Tax consultant	<b>A) 2013 Audited taxpayers</b>	0.151	1.211*	0.108
		(0.69)	(2.51)	(0.87)
Audited Tax consultant	<b>B) 2013 Not Audited taxpayers</b>	0.198*	0.667**	0.0183
		(1.98)	(3.09)	(0.24)

note: <sup>(a)</sup> Outcome variables expressed in natural logarithm. Control group: taxpayers of not audited tax consultant.  
t statistics in parentheses : \* p-value<0.05; \*\*p-value<0.01; \*\*\*p-value<0.001

		(1)	(2)	(3)
Audited Tax consultant	<b>A) Audited taxpayers</b>	1.292*** (19.18)	2.084*** (17.66)	1.579*** (12.90)
	<b>B) Not Audited taxpayers</b>	0.538*** (8.39)	0.952*** (8.59)	-1.598*** (-13.41)
Audited Tax consultant	<b>A)2011 Audited taxpayers</b>	0.309*** (4.97)	0.198 (1.73)	0.480*** (5.47)
	<b>B)2011 Not Audited taxpayers</b>	0.595*** (6.32)	0.953*** (6.49)	-1.774*** (-12.40)
Audited Tax consultant	<b>A) 2012 Audited taxpayers</b>	0.119 (1.95)	0.059 (0.50)	0.494*** (5.83)
	<b>B) 2012 Not Audited taxpayers</b>	0.534*** (6.05)	0.865*** (6.01)	-1.442*** (-10.89)
Audited Tax consultant	<b>A) 2013 Audited taxpayers</b>	0.554 (0.82)	0.023 (0.18)	0.310** (3.28)
	<b>B)2013 Not Audited taxpayers</b>	0.514*** (5.95)	0.990*** (6.86)	-1.389*** (-10.32)

note: <sup>(a)</sup> Outcome variables expressed in natural logarithm. Control group: taxpayers of not audited tax consultant.  
t statistics in parentheses : \* p-value<0.05; \*\*p-value<0.01; \*\*\*p-value<0.001

## 5. Concluding remarks

The paper examines the effect of tax audits on taxpayer's compliance in light of the role of tax consultants in acquiring and disseminating information on audited clients. The first novelty is the use of two internal dataset, Tax Return Register and the Tax Audits data, drawn by the Italian Revenue Agency database. Selected data contain extensive information on tax returns and tax audits from self-employment and sole proprietorships from an important province of the Northwest Italy over the period 2010-2013. The purpose of the analysis consists in estimating the indirect deterrence effect and the spillover effect. The latter has been investigated under the hypothesis that the tax accountant is the channel for conveying the deterrence effect from audited taxpayers to the not audited ones. A panel fixed effect approach has been applied to identify deterrence and spillover effect. In order to test both the indirect effect and the spillover effect the target population has been broken down into three clusters: audited Taxpayers (A); not audited taxpayers clients of an intermediary who has received at least an audit for one of his assistants (B); not audited taxpayers clients of an intermediary who has not received any audit for all of his assistants (C). The empirical strategy has been conducted in two steps: firstly, the A vs (B U C) comparison has been made, secondly, the comparison refers to A vs C and B vs C. Findings indicate evidence of compliance effects following audits and are consistent with various types of outcome variables. Results are delineated within the province under observation. However, they point out that tax audits carried out on taxpayers have a significant, direct and indirect effect on them. Albeit geographically and temporally delimited, findings support the strand of literature in favour of the hypothesis of positive correlation between tax audits and compliance. Other findings supporting these results are included in D'Agosto et al. (2017) and the Report on the unobserved economy and on tax and social security evasion (MEF, 2017 page 182).

The present study goes further showing the indirect spillover effect acts on clients assisted by the same consultants even if they have not been audited. Responses to tax audits are shown for different groups of taxpayers. We find fiscal regime heterogeneity matters in compliance behaviours. Those non audited show interesting results for deterrence effects. We look at three different outcomes and we find that spillover exists and acts positively for some fiscal outcome variables, namely, the value of net production and the turnover. Though, the gross business turnover tax reporting of those non audited is negative. Moreover, spillover findings are not homogenous among the clients of the tax accountant they work in case of sole proprietorship while is not working in case of self employees. The evidence shows that tax audits have a positive impact on compliance; in the years following the audit, audited taxpayers increase the declared amount of Value of net production, turnover and Business gross income. As far as spillover effect are concerned findings supports the main idea that tax consultants extend to non audited taxpayers the experience gained in assisting audited ones. Supplementary analysis carried out by grouping taxpayers by type, led us to discriminate among the entire panel by identifying those on which the effect of response to audit policies is more intense.

The current study is part of a wider project on the analysis of tax compliance behaviours conducted by Ade. Further studies are planned to provide helpful insights to Ade in designing their compliance policies.



## References

- Allingham, M. G. & Sandmo, A. (1972). Income Tax Evasion: a Theoretical Analysis. *Journal of Public Economics*, 1, 323-338.
- Battaglini, M., Guiso, L., Lacava, C. & Patacchini, E. (2019) "Tax Professionals: Tax-Evasion Facilitators or Information Hubs?," Working Paper 25745, National Bureau of Economic Research.
- Blumenthal, M., Christian, W. C. & Slemrod, J. (2011). Do Normative Appeals Affect Tax Compliance? Evidence From a Controlled Experiment in Minnesota. *National Tax Journal*, 54(1), 125-38.
- D'Agosto, E., Manzo, M., Modica, A. & Pisani, S. (2017). Tax Audit and Tax Compliance – evidence from Italy. Paper presented at 7th Annual IRS-TPC Joint Research Conference on Tax Administration, Urban Institute, Washington, DC.
- D'Agosto, E., Manzo, M., Pisani, S. & D'Arcangelo, F.M. (2017). The Effect of Audit Activity on Tax Declaration: Evidence on Small Businesses in Italy. *Public Finance Review*, DOI: 10.1177/1091142117698035.
- Erard, B. (1992). The Influence of Tax Audits on Reporting Behavior. In J. Slemrod (Ed.), *Why People Pay Taxes: Tax Compliance and Enforcement*, 95-114, The University of Michigan Press.
- DeBacker, J., B.T. Heim, A. Tran, and A. Yuskavage (2018). Once Bitten, Twice Shy? The Lasting Impact of Enforcement on Tax Compliance. *The Journal of Law and Economics* 61 (1),1-35.
- Fiorio, C. V., Iacus S. M. & Santoro A. (2013). Taxpaying Response of Small Firms to an Increased Probability of Audit: Some Evidence from Italy. University of Milan Bicocca Department of Economics, Management and Statistics Working Paper 251.
- Gemmell, N. & Ratto, M. (2012). Behavioral Responses to Taxpayers Audits: Evidence from Random Taxpayer Inquiries. *National Tax Journal*, 65(1), 33-58.
- IRS (2019) Audit Impact Study: The Specific Deterrence Implications of Increased Reliance on Correspondence Audits (9National Taxpayer Advocate Annual Report to Congress, B. Erard, Erich Kirchler, and Jerome Olsen)
- Mazzolini, G., Pagani, L. & Santoro, A. (2017). The deterrence effect of real-world operational tax audits. *Dems Working Paper Series*, 359/2017.
- MEF (2017). Report on the unobserved economy and on tax and social security evasion, Rome, Italy. <https://www.mef.gov.it/documenti-pubblicazioni/rapporti-relazioni/index.html>
- Mittone, L., Panebianco, F. & Santoro, A. (2017). The Bomb-Crater Effect of Tax Audits: Beyond the Misperception of Chance. *Journal of Economic Psychology*, 61, 225-243.
- Niu, Y. (2011). Tax Audit Impact on Voluntary Compliance. *Journal of Economic and Social Measurement* 36(4), 237-251.