

eJournal of Tax Research

Volume 13, Number 1

March 2015

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Tax professionals' perception of tax system complexity: Some preliminary empirical evidence from Portugal

Ana Clara Borrego¹; Ern Chen Loo²; Cidália Maria Mota Lopes³; Carlos Manuel S. Ferreira⁴

Abstract

This paper analyses tax professionals' (*TOCs*) perception of tax complexity within the Portuguese fiscal system.

This study is relevant to the international tax literature research for two reasons. Firstly, its intention is to determine the dimensions of the endogenous causes of tax complexity, creating indices of these causes using the Principal Component Analysis (PCA) method. Secondly, it aims to identify the factors that could influence the level of tax complexity perceived by *TOCs*.

In 2013, a survey was conducted in Portugal to evaluate *TOCs*' perception of tax complexity. This paper presents the results collected from 994 questionnaires responded to by *TOCs*. The survey findings concluded that *TOCs* perceived three dimensions of causes of tax complexity: «Legal Complexity»; «Complexity of Preparation of Information and Record Keeping»; and «Complexity of Tax Forms». The exogenous factors include tax knowledge, with a negative effect, and size of companies, with a positive effect on *TOCs*' perception of tax complexity. Understanding these relationships can be a key issue for tax policy makers, in order to reduce their negative effects on the perception of tax complexity. Therefore, this paper contributes to the international tax literature by presenting empirical evidence concerning the dimensions of tax complexity.

Keywords: Legal Complexity; Compliance Complexity; Tax Complexity Indices; Tax Professionals

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1. INTRODUCTION

In recent decades, tax systems have become more complex, particularly for many countries⁵ that have implemented the self-assessment tax system. Under this system, taxpayers are given greater responsibility for handling their own tax affairs and complying with their tax liabilities. Some taxpayers may not be able to cope with these responsibilities. As a result, many of them seek the help of tax professionals,⁶ who play key roles in many tax systems. In the case of the Portuguese tax system, the role of tax professionals is extremely important in the context of business tax, which are calculated and collected through authorised tax professionals, the *TOCs* [*Técnicos Oficiais de Contas*].

In Portugal, *TOCs* deal with tax complexity on a daily basis. It is they who are most acquainted with and knowledgeable about the problems arising from tax complexity. 89.1 per cent of *TOCs* perceived the Portuguese tax system as having a high level of complexity.⁷ Thus, it is important to know in greater detail the perceptions of tax professionals regarding tax complexity and the factors that could influence their perception of this. The findings of this study could be used by policy makers in order to minimize tax complexity and its negative effects on revenue collection.

To gain more insights regarding the views of *TOCs* concerning the Portuguese tax system, a survey was conducted to assess their perception for the 2012 tax year. This paper presents some of the findings from the statistical analysis of the data collected from the 994 questionnaires responded to.

It is also crucial to know how *TOCs* divide the direct (endogenous) causes of tax complexity into dimensions, and how they classify these causes by order of complexity. There are many limitations to the simplification of the endogenous factors of tax complexity. Arguably, some levels of tax complexity are necessary, due to the need to reconcile the various goals⁸ of a good system and to maintain equity, and as a consequence of the complex international economic environment (McKerchar, Meyer & Karlinsky, 2008). In this context, it is also important to be acquainted with and have an in depth understanding of the exogenous factors that could influence *TOCs*' perception of tax complexity.

The aim of this study is twofold. Firstly, it aims to determine the dimensions of the causes of tax complexity perceived by *TOCs* and to understand the endogenous causes which each of these dimensions comprises. Secondly, it aims to ascertain the exogenous factors that could influence *TOCs*' perception of tax complexity.

⁵ For example: Portugal, Australia, Bangladesh, Canada, Japan, Malaysia, New Zealand, Pakistan, Kenya, UK and US.

⁶ Also known as tax agents and tax preparers, in Anglo-Saxon literature.

⁷ Data from our survey.

⁸ The goals, or principles, currently accepted, of a good tax system, have their basis in the four pillars of the tax system listed by Adam Smith in his book of 1776 «An Inquiry Into the Nature and Causes of the Wealth of Nations». The four pillars advocated by Adam Smith were equity, certainty and simplicity, timeliness and neutrality, and efficiency. In most studies, the main goals of tax systems consist of three goals: equity, efficiency and neutrality, and simplicity. [Accessed on December 26th, 2011. Available at: <http://ebooks.adelaide.edu.au/s/smith/adam/s64w/complete.html#chapter31>].

This paper is presented in six parts. Following the introduction in Part 1, a brief review of the relevant literature is presented in Part 2. Part 3 outlines the research hypotheses. Part 4 explains the research methodology and variables used. This is followed by the presentation of statistical findings in Part 5. The conclusion, limitations of the study and further research suggestions are discussed in Part 6.

2. LITERATURE REVIEW

The endogenous causes of tax complexity referred to in several studies are usually similar. However, the way in which these causes are grouped into different dimensions varies greatly from one study to another. Tax complexity in general terms is commonly divided into three dimensions: «Technical Complexity», «Structural Complexity», and «Compliance Complexity» (McCaffery, 1990; McKerchar 2002, 2007; McKerchar *et al.*, 2008⁹). Other authors divide it into different dimensions (Slemrod, 1989; Cooper, 1993; Tran-Nam, 1999; Lopes, 2003; MF, 2007; Chau & Leung, 2009). In particular, causes of tax complexity perceived by tax professionals were separated into six dimensions: «Ambiguity», «Computations», «Change», «Detail», «Record Keeping» and «Forms» (Long & Swingen, 1987; McKerchar, 2005).

Table 1: Dimensions and causes of tax complexity perceived by tax professionals

Dimensions of tax complexity	Causes of tax complexity	Long and Swingen (1987) - US	Green (1994) UK	McKerchar (2005) Australia
Legal tax Complexity	Ambiguity of income tax rulings			X
	Ambiguity of income tax cases			X
	Ambiguity and uncertainties of tax law	X	X	X
	Frequent change of tax laws	X	X	X
	Numerous rules	X	X	X
	Too many exceptions to rules			X
Declarative tax complexity	Detailed record keeping	X		
	Record keeping very onerous			X
	Confusing tax forms	X	X	X
	Confusing tax form instructions			X
	Too Many computations	X		X
	Tax computation too difficult			X

Source: Adapted from Long and Swingen (1987), Green (1994) and McKerchar (2005).

In this study, tax complexity is grouped into two main dimensions—legal complexity and declarative complexity.¹⁰ Table 1 presents the division of these two dimensions of tax complexity and the endogenous causes reviewed (Long & Swingen, 1987; Green,

⁹ Ralph Review.

¹⁰ Declarative complexity is also known as administrative complexity or compliance complexity.

1994; McKerchar, 2005). It appears that the legal tax complexity dimension has more indicators than the declarative dimension. Nevertheless, the causes of tax complexity are quite consistent in these studies.

While it is important to understand the endogenous causes of the perception of tax complexity, it is also crucial to ascertain the exogenous causes that could impact on *TOCs*' perception of tax complexity. The exogenous factors that could influence their perception of tax complexity are age, gender, tax knowledge and size of customers' businesses.

Studies amongst the international tax literature that relate to tax professionals' age or gender and their perception of tax complexity are rare. However, several studies have revealed that older taxpayers felt a greater need to engage tax professionals due to their higher perception of tax complexity (Slemrod & Sorum, 1984; Klepper, Mazurd & Nagin, 1991; Long & Caudill, 1987, 1993). As for gender, the study found that female taxpayers were more likely to hire paid tax professionals than male taxpayers (McKerchar, 2002).

Tax knowledge¹¹ also appeared to be an important exogenous factor that could influence taxpayers' and professionals' perception of tax complexity (Eriksen & Fallan, 1996; O'Donnell, Koch & Boone, 2005; Loo, 2006; Woellner, Coleman, McKerchar, Walpole & Zetler, 2007). Customer size was also found to have a relationship with the increased complexity of tax issues. However, in the view of tax professionals, the relationship between company size and the level of tax complexity was unclear (Ayres, Jackson & Hite, 1989).

3. RESEARCH HYPOTHESES

Several studies concluded that tax complexity was the main reason why taxpayers hired tax professionals (Slemrod & Sorum, 1984; Klepper, et al, 1991; Long & Caudill, 1987, 1993; McKerchar, 2002). There was greater use of professionals by older taxpayers, who were more susceptible to the uncertainty caused by tax complexity. It would be interesting to ascertain whether this perception of tax complexity among older taxpayers is also observed among older *TOCs* in Portugal.

Hence, it is important to know whether there is any significant relationship between *TOCs*' age and gender and their perception of tax complexity. For this purpose, the following research hypotheses were formulated:

- H1:** *TOCs*' perception of the dimensions of causes of tax complexity is related to their age.
- H2:** *TOCs*' perception of the dimensions of causes of tax complexity is related to their gender.
- H3:** *TOCs*' perception of tax system complexity is related to their age.
- H4:** *TOCs*' perception of tax system complexity is related to their gender.

¹¹ Degree, tax experience and theoretical knowledge, in tax matters.

The literature supported the existence of a relationship between tax knowledge factors and the perception of tax complexity among taxpayers and tax professionals (see for example, Eriksen & Fallan, 1996;¹² O'Donnell et al., 2005¹³). Therefore, there is a possibility that tax knowledge factors could influence Portuguese *TOCs*' perception of tax complexity. Thus, the following research hypotheses are presented:

- H5:** *TOCs*' perception of the dimensions of causes of tax complexity is related to their level of tax experience.
- H6:** *TOCs*' perception of the dimensions of causes of tax complexity is related to their tax knowledge.
- H7:** *TOCs*' perception of tax system complexity is related to their tax experience.
- H8:** *TOCs*' perception of tax system complexity is related to their tax knowledge.

It is also important to discover whether there is a relationship between size of customers'/ employers' businesses and *TOCs*' perception of tax system complexity. In the Portuguese case, the size of *TOCs*' customers' businesses is measured in two ways: by customers' turnover and by the way *TOCs* develop their activities.¹⁴ Hence, the hypotheses to be tested are listed below.

- H9:** There is a relationship between the sizes of companies for which professionals are responsible and their perception of the dimensions of causes of tax complexity.
- H10:** There is a relationship between the way *TOCs* develop their activities and their perception of the dimensions of causes of tax complexity.
- H11:** There is a relationship between the sizes of companies for which professionals are responsible and their perception of tax system complexity.
- H12:** There is a relationship between the way *TOCs* develop their activities and their perception of tax system complexity.

¹² In the taxpayers' context.

¹³ In the tax professionals' context.

¹⁴ *TOCs* who work in accounting and taxation offices are responsible for smaller companies, while *TOCs* who have expertise in taxation are the ones responsible to the accounting and taxation department of a company.

4. RESEARCH METHOD

To address the objectives and to test the hypotheses of this study, a questionnaire was adopted. The hard copy of the questionnaires was distributed via convenient sampling to 2,391 *TOCs* who were present at the *OTOC* [*Ordem dos Técnicos Oficiais de Contas*]'s tax seminars in February 2013.¹⁵ The same questionnaire was also posted online to those *TOCs* who could not attend the *OTOC* seminars. *TOCs* who had responded during the *OTOC* seminars were requested not to respond to the online survey.

A total of 1,567 questionnaires were returned, of which 1,233 were collected from those distributed during the tax seminars and 334 were responded to via online survey. The response rate of the hard copy questionnaire was about 52% of *TOCs* who attended the tax seminars, which represents a favourable response rate.

The survey instrument consisted of three parts. Parts I and II solicited some socio-demographic, professional and technical variables from the *TOCs*. The socio-demographic variables were gender and age. The professional and technical variables were classified into two main variables, tax knowledge and size of customers'/employers' businesses. Tax knowledge variables consisted of qualifications, *TOCs*' experience and the frequency with which they update their tax knowledge. These variables were transformed into an additive index the *TOCs* Tax Knowledge Index. Part III sought *TOCs*' perception of the complexity of the Portuguese tax system in two aspects. In regard to the first aspect, *TOCs* were requested to classify whether the Portuguese tax system was very simple or very complex, in relation to the overall tax system. The second aspect concerned the importance of perceived complexity based on two major dimensions, the Legal Complexity Dimension and the Administrative or Declarative Complexity Dimension. This part required the *TOCs* responses regarding the two dimensions of tax complexity based on five-point Likert scales ranging from very important to not important.

The causes of legal complexity were volume, density of the tax law and the interpretation of legislation. The causes of declarative or administrative tax complexity were divided into three major ones: (i) preparation of information, (ii) tax forms filled in and (iii) record keeping (tax archive).

Table 2 presents the two dependent variables and a set of independent variables that could influence as well as explain the dependent variables. In addition, the expected positive or negative relationships are also presented in Table 2.

¹⁵ The information provided by *OTOC* in February 2013 showed that there were 72,063 registered members of *TOCs*. However, only 38,614 members are actively practising.

Table 2: Explicative variables

Dependent variables	Independent variables	Expected signal
Dimensions of tax complexity	Age	Older
	Gender	Female
	Tax knowledge	-
	Tax updating	-
	Tax experience	-
	The size of customers'/employers' businesses	+
	The way in which <i>TOC</i> activity is developed	+
Perception of tax system complexity	Dimensions of tax complexity	+
	Age	Older
	Gender	Female
	Tax knowledge	-
	Tax updating	-
	Tax experience	-
	The size of <i>TOCs</i> ' customers'/ employers' businesses	+
	The way in which <i>TOC</i> activity is developed	+

4. RESULTS AND DISCUSSION

4.1 Endogenous causes of tax complexity: constructions of the dimensions of causes of tax complexity from *TOCs*' perspective

Drawing on the findings of the questionnaire survey, it was discovered that the five main causes of tax complexity perceived by *TOCs* were: (i) frequent change of tax laws (88.4%); (ii) tax law too widely dispersed (86.1%); (iii) preparation of

accounting information for fiscal purposes (83.2%);¹⁶ (iv) too many exceptions to the rule and transitional arrangements (82.2%); and (v) low perception and ambiguity of tax language (80.1%). It is observed that out of the five causes of tax complexity, four were related to the complexity of tax laws.

These endogenous causes of the perception of tax complexity were not classified according to order of importance. The objective of this study is to group them into different dimensions, to compare the importance of each dimension with the others, and to compare these results with those of international studies.

In order to ascertain how many dimensions of tax complexity *TOCs* effectively perceived in the Portuguese tax system, based on the data collected, using Principal Component Analysis (PCA), three indices of the dimensions of causes of tax complexity were constructed. The three dimensions are the Legal Tax Complexity Index (see Table 3), the Index of Complexity of Preparation of Information and Record Keeping (see Table 4), and the Index of Complexity of Tax Forms (see Table 5).

As presented in Table 3, the component matrix for the Legal Tax Complexity Index showed a $KMO^{17}=0.898$ (between 0.8 and 0.9) and $p=0.000$ (<0.001), and Bartlett's test of sphericity, with $\chi_2(36)=6.036,756$ and $p=0.000$ ($p <0.001$), demonstrated good suitability of the PCA for the population. In addition, Cronbach's Alpha, with a value of 0.925 (>0.9), demonstrated excellent reliability of the index.

Table 3: Construction of the Legal Tax Complexity Index (PCA)*

Variables	N	Min	Max	Mean	S. D.	Factorial weights
Tax code with very extensive articles with references to others articles (or tax codes)	994	1	5	4.21	1.03	0.865
Portuguese tax legislation too dispersed	994	1	5	4.36	0.97	0.858
Many exceptions to the rule and transitional arrangements	994	1	5	4.24	1	0.849
Frequent change of tax laws	994	1	5	4.44	0.92	0.817
Very extensive tax codes	994	1	5	4.01	1.05	0.801
Transposition of EU tax legislation	994	1	5	3.98	0.96	0.758
Tax language too technical	994	1	5	3.89	1	0.745
International legislation	994	1	5	3.88	1	0.731
Low perception and ambiguity of tax language	994	1	5	4.18	0.95	0.681

* $KMO = 0.898$; $p < 0.001$; Cronbach's Alpha: 0.925; Explained variance: 62.71%

¹⁶ Data in line with those obtained by Lopes (2009). The results of this study show that within the SME [Small and Medium-sized Enterprise], time costs appear to be the highest compliance cost in the preparing of information to fill in tax forms.

¹⁷ Kaiser-Meyer-Olkin - measure of sample adequacy.

The Index of Complexity of Preparation of Information and Record Keeping (see Table 4) showed a component matrix of $KMO=0.500$ (between 0.5 and 0.6), and $p=0.000$ (<0.001) indicated that the quality is poor. However, given the particularity of the measure on five-point Likert scales, the PCA is acceptable. Bartlett's test of sphericity, with $\chi^2(1)=219,505$ and $p=0.000$ ($p < 0.001$), demonstrated the suitability of the PCA for the population. In addition, Cronbach's Alpha, with a value of 0.606 (between 0.6 and 0.7), demonstrated an acceptable reliability index.

Table 4: Construction of the Index of Complexity of Preparation of Information and Record Keeping (PCA)*

Variables	N	Min	Max	Mean	S.D.	Factorial weights
Record Keeping	994	1	5	3.60	1.07	0.852
Preparation of accounting information for fiscal purposes	994	1	5	4.14	0.81	0.852

* $KMO = 0.500$; $p < 0.001$; Cronbach's Alpha: 0.606; Explained variance: 72.59%

Table 5 presented the construction of the Index of Complexity of Tax Forms. The component matrix with $KMO=0.606$ (between 0.6 and 0.7) and $p=0.000$ (<0.001) indicated that the quality is reasonable and the PCA is acceptable. In addition, Bartlett's test of sphericity, with $\chi^2(3)=218,498$ and $p=0.000$ ($p < 0.001$), demonstrated the suitability of the PCA for the population. Cronbach's Alpha, with a value of 0.890 (between 0.8 and 0.9), also demonstrated a very good reliability index.

Table 5: Construction of the Index of Complexity of Tax Forms (PCA)*

Variables	N	Min	Max	Mean	S. D.	Factorial weights
The reduced help provided by tax administration staff	994	1	5	3.98	1.05	0.771
Computerization of tax obligation	994	1	5	4.02	0.961	0.731
Confused tax forms and unclear instructions	994	1	5	3.68	1.14	0.663

* $KMO = 0.606$; $p < 0.001$; Cronbach's Alpha: 0.890; Explained variance: 52.34%

All three indices were justified by the extraction of one component, the Kaiser criterion and the explained variable. The results showed that the explained variables (62.70% for the Legal Tax Complexity Index, 72.59% for the Index of Complexity of Preparation of Information and Record Keeping and 52.34% for the Index of Complexity of Tax Forms) are acceptable. Hence, it can be concluded that these three indices with one dimension are adequate.

The above three indices of tax complexity were regrouped into a new index, the General Tax Complexity Index (see Table 6). As presented in Table 6, the component matrix of the three indices showed a KMO=0.51 (between 0.5 and 0.6), and $p=0.000$ (<0.001) indicated that the quality is poor. However, given the particularity of the measure on five-point Likert scales, the PCA is acceptable. Bartlett's test of sphericity with $\chi^2(3)=203,288$ and $p=0.000$ ($p<0.001$) demonstrated the suitability of the PCA for the population. Cronbach's Alpha of the General Tax Complexity Index with a value of 0.528 (between 0.5 and 0.6), demonstrated a less reliable index. However, given the particularity of the measure using five-point Likert scales, and the fact that this is the conjugation of the three previous indices of tax complexity, the reliability of the index was acceptable.

In a similar manner to the three indices discussed earlier, the extraction of one component using the Kaiser criterion showed an explained variable of 51.6 per cent, allowing us to conclude that this index with one dimension is adequate.

Table 6: Construction of the General Tax Complexity Index (PCA)*

Variables	N	Min	Max	Mean ¹⁸	S. D.	Factorial weights
Index of Complexity of Tax Forms	994	-3.84	1.44	0	1	0.797
Index of Complexity of Preparation of Information and Record Keeping	994	-3.72	1.39	0	1	0.685
Legal Tax Complexity Index	994	-4.02	1.09	0	1	0.668

* KMO = 0.581; $p<0.001$; Cronbach's Alpha: 0.528; Explained variance: 51.65%

Consequently, from *TOCs'* perception of the causes of Portuguese tax system complexity, the results showed the statistically significant existence of the three different dimensions. This is because the indices were concurrently validated based on three key factors: Cronbach's Alpha, which evaluated the quality of the indices; the weights of the items' coefficients; and the quality of the composite scores that were expressed by the explained variables.

Compared to other studies (Long & Swingen, 1987; McKerchar, 2005), the Portuguese case is much simpler, as the *TOCs* only perceived three dimensions of causes of tax complexity. The General Tax Complexity Index, in its own unique index and the three dimensions, allows us to check the relative weight of the partial indices. The findings of this study differ from the previous study, which quantified the importance of each dimension of tax complexity (McKerchar, 2005). That study confirms the great significance of dimensions related to legal factors and accords minor importance to the others (for example, in McKerchar, 2005).

In the Portuguese case, the *TOCs* perceived that the relative weights of each partial dimension are very similar. This means tax complexity is not confined to one dimension but is shared equally by all partial dimensions. The findings of this study

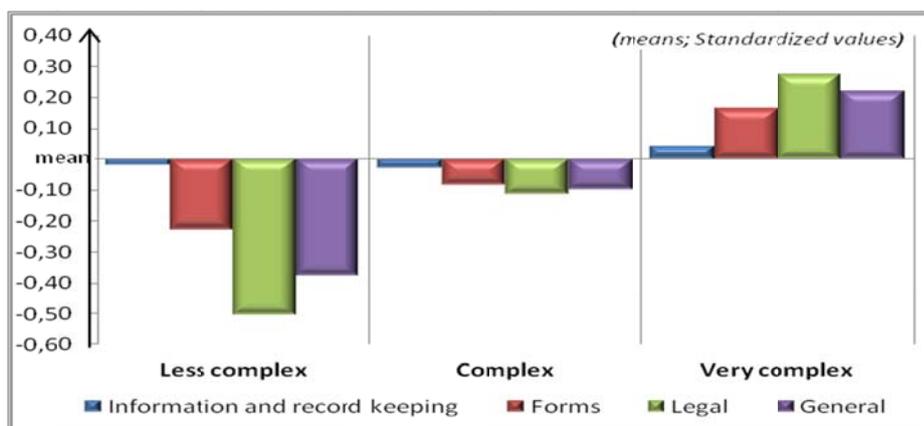
¹⁸ The mean values of zero indicate that it is an index of three indices, i.e. the relative weights of each index.

imply that policy makers need to pay attention to all dimensions of tax complexity with a view to simplifying the Portuguese tax system.

To better understand the *TOCs*' perception of tax complexity, they were categorised into three profiles,¹⁹ *TOCs* who perceived the Portuguese tax system to be «less complex», *TOCs* who perceived the Portuguese tax system to be «complex», and *TOCs* who perceived the Portuguese tax system to be «very complex». Subsequently, cross tabulation analyses were conducted in relation to the perception of tax system complexity with the three categories of *TOCs*.

Figure 1 represents the cross tabulation results between the profiles and the dimensions of causes of tax complexity. It shows that the *TOCs* who perceived the Portuguese tax system to be «less complex» perceived all the tax complexity dimensions to be significantly inferior to the mean values. Those *TOCs* who perceived the Portuguese tax system to be «complex» perceived all the dimensions as being inferior to, but close to, the mean values, while those who perceived the Portuguese tax system to be «very complex» also perceived all the dimensions of tax complexity to be above the mean values²⁰. This could imply that there is a relationship between both profiles and dimensions, and that the dimensions reflect the perception of the *TOCs* regarding each profile.

Figure 1: Dimensions of tax complexity versus *TOCs*' perception of tax system complexity



4.2 Exogenous causes of tax complexity: *TOCs*' profile with regard to perceptions of tax complexity

With regard to the dimensions of causes of tax complexity, in terms of age (see Figure 2), the results showed that older (>65 years old) *TOCs* perceived all the dimensions of causes of tax complexity to be below the mean values, while those who were between 35 and 50 years old perceived all the dimensions of causes of tax complexity as being above the mean values. In terms of gender (see Figure 3), it is interesting to note that

¹⁹ The survey results show that nearly 90% of the *TOCs* classify the Portuguese tax system as complex and very complex.

²⁰ Above the mean values' signifies «Very Important», while 'below the mean values' means «Less Important» or «Of No Importance», in the analysis from Figure 1 to Figure 7.

the results showed that female *TOCs* perceived all the dimensions of causes of tax complexity to be above the mean values.

The results of the analysis showed that only those *TOCs* who had five or fewer than five years of working experience perceived all the dimensions of causes of tax complexity as being above the mean values, while those who had more than 25 years of working experience perceived complexity of tax forms as being above the mean values (see Figure 4).

Figure 2: Dimensions of causes of tax complexity versus *TOCs*' age

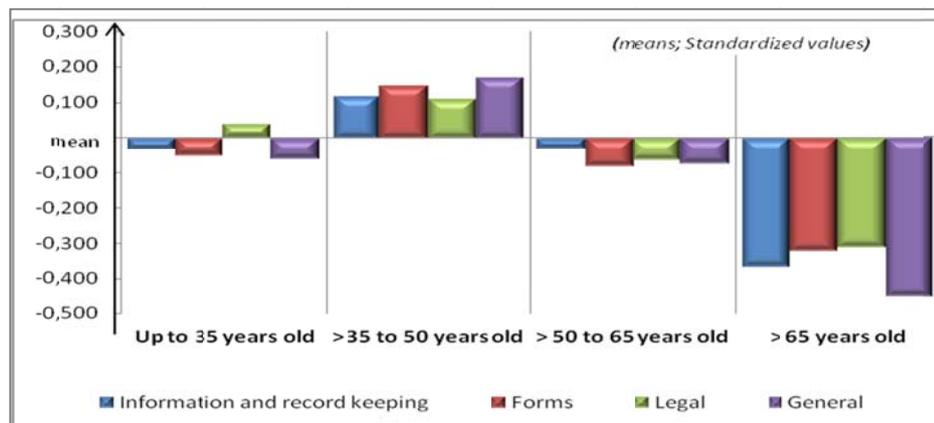


Figure 3: Dimensions of causes of tax complexity versus *TOCs*' gender

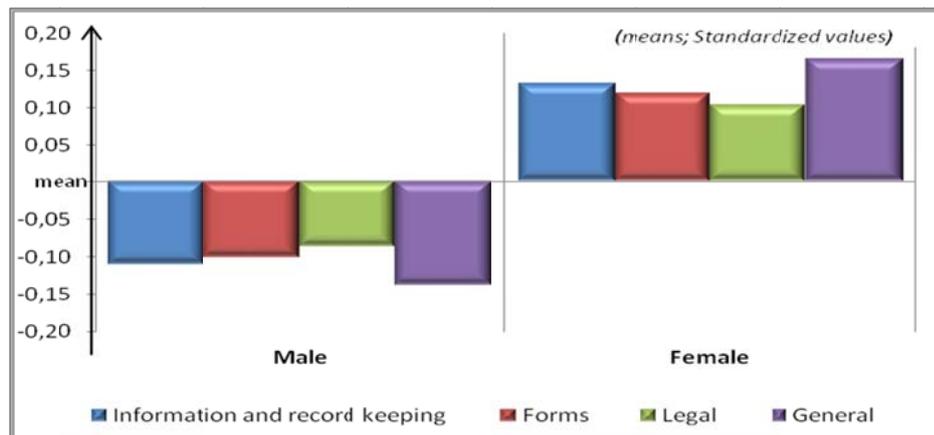


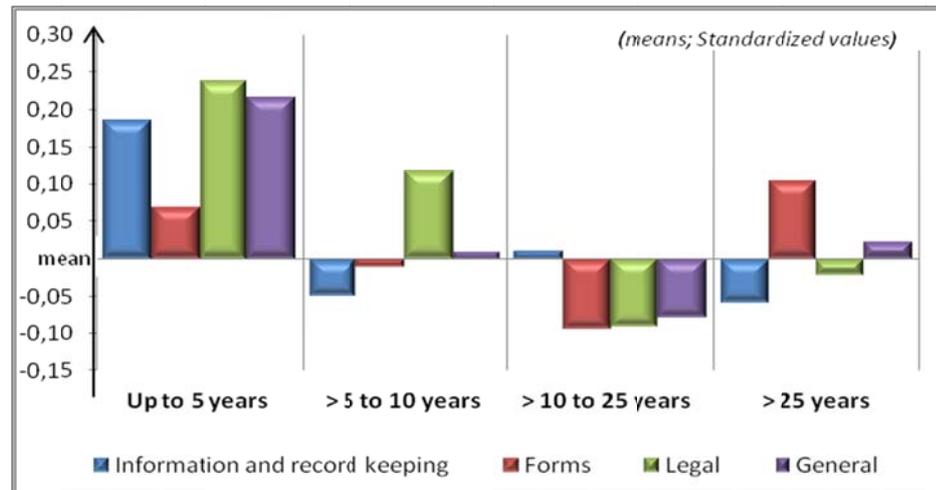
Figure 4: Dimensions of causes of tax complexity versus *TOCs*' experience

Figure 5 shows that the *TOCs* who have higher levels of *TOCs* Tax Knowledge Index²¹ (that is, those who have had a university education, have more experience and frequently update their tax knowledge), perceived all the dimensions of causes of tax complexity to be below the mean values. In contrast, those *TOCs* who possess lower levels of tax knowledge perceived all the dimensions of causes of tax complexity to be above the mean values.

With regard to the turnover of *TOCs*' customers or employers, those *TOCs* whose customers' turnover is between two million and 10 million € perceived all the dimensions of causes of tax complexity to be above the mean values (see Figure 6). In contrast, most of those *TOCs* who were responsible for small businesses perceived the dimensions of causes of tax complexity to be below the mean values (see Figure 6 and Figure 7).²²

²¹ Tax Knowledge is an additive index composed of three variables: (i) degree; (ii) *TOCs*' professional experience; (iii) *TOCs*' fiscal updating.

²² The *TOCs* who work in accounting and taxation offices are responsible for smaller companies and perceive tax complexity as less important than those *TOCs* who work in companies in other sectors, with their own accounting and taxation departments (the biggest companies).

Figure 5: Dimensions of causes of tax complexity *versus* levels of TOCs Tax Knowledge Index

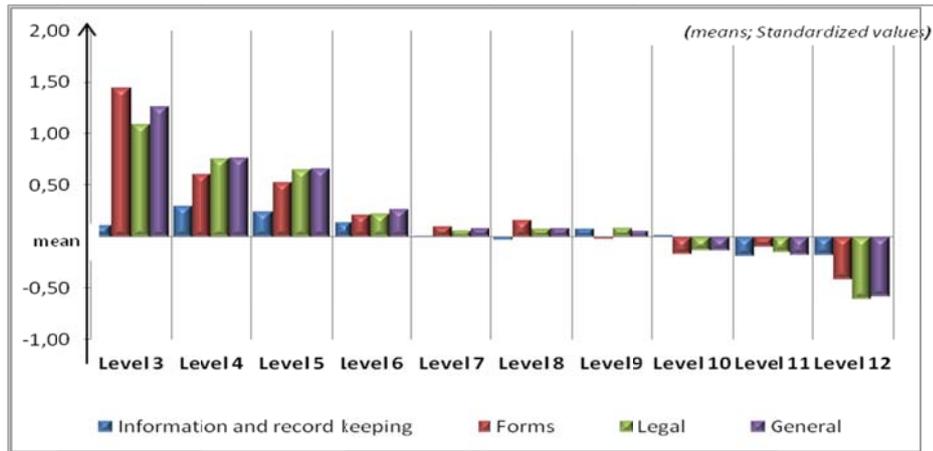


Figure 6: Dimensions of causes of tax complexity *versus* TOCs' customers'/employers' turnover

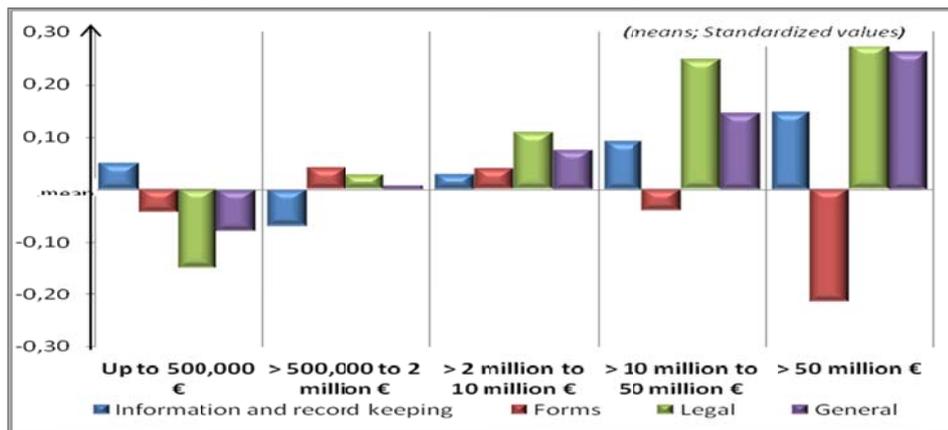
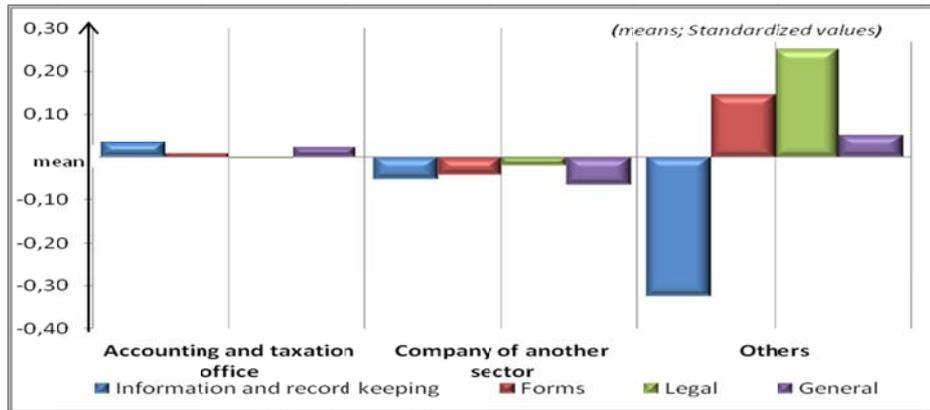


Figure 7: Dimensions of causes of tax complexity versus TOCs' ways of developing their activity



In relation to the exogenous factors affecting TOCs' perceptions of tax system complexity, it is noted that all the age groups perceived the Portuguese tax system to be complex in some way (see Figure 8). Male and female TOCs also perceived the Portuguese tax system to be complex or very complex (see Figure 9).

Figure 8: TOCs' perception of tax system complexity versus TOCs' age

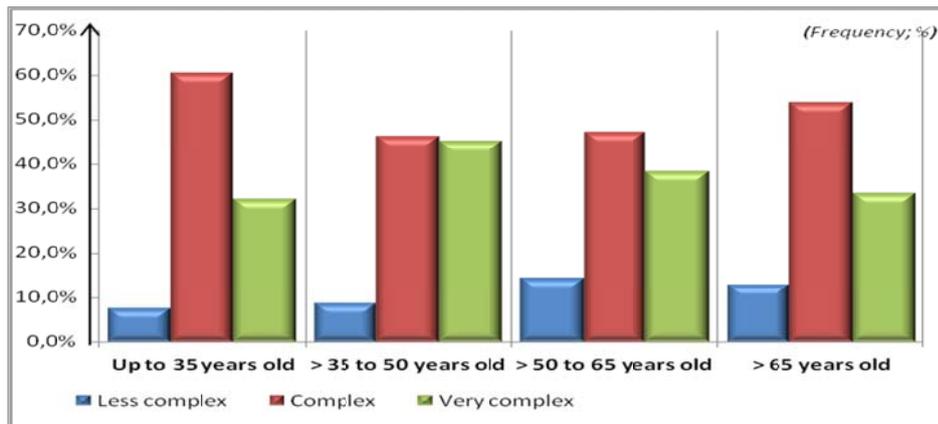
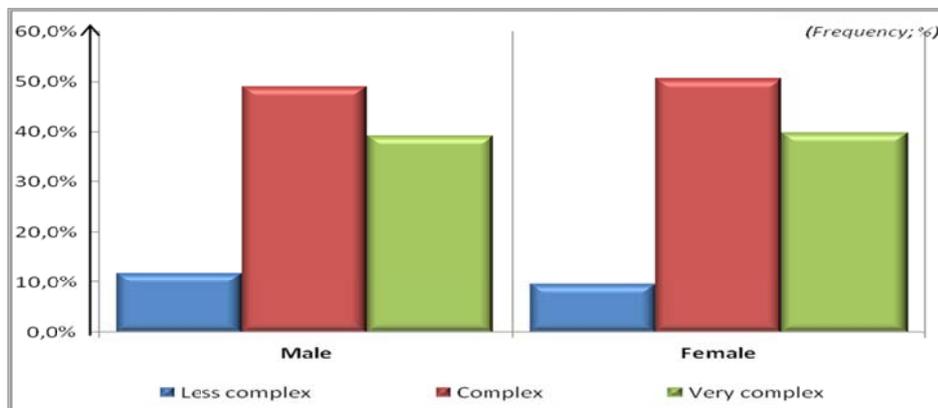


Figure 9: TOCs' perception of tax system complexity versus TOCs' gender



It is interesting to note that the *TOCs* with working experience of fewer than five years and more than 25 years perceived the Portuguese tax system to be complex (see Figure 10). *TOCs* who have higher levels of tax knowledge perceived the Portuguese tax system to be less complex (see Figure 11).

Figure 10: *TOCs*' perception of tax system complexity versus *TOCs*' experience

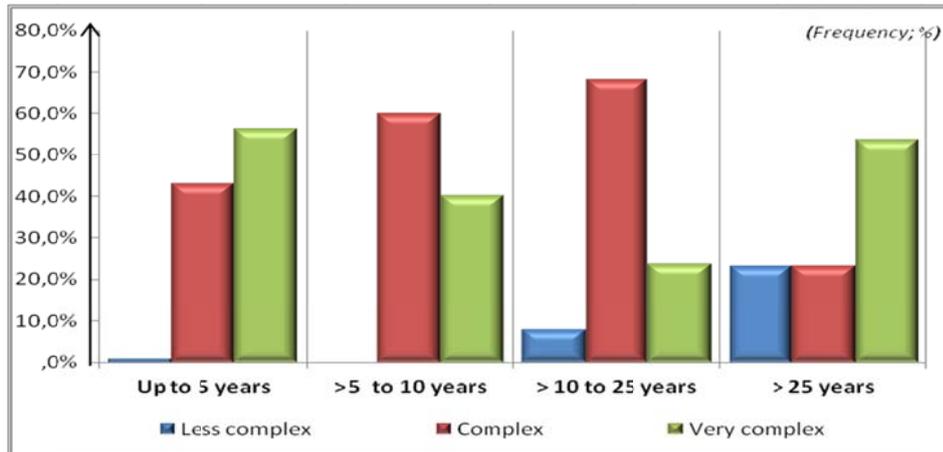
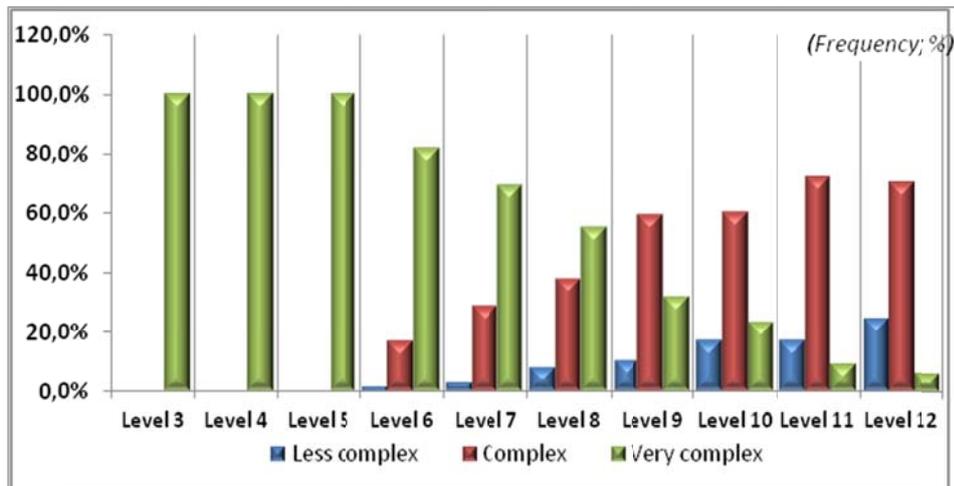


Figure 11: *TOCs*' perception of tax system complexity versus levels of *TOCs* Tax Knowledge Index



Regardless of the turnover of *TOCs*' customers or employers (see Figure 12) and the ways in which *TOCs* developed their activity (see Figure 13), the majority of *TOCs* perceived the Portuguese tax system to be complex or very complex.

Figure 12: TOCs' perception of tax system complexity versus customers'/employers' turnover

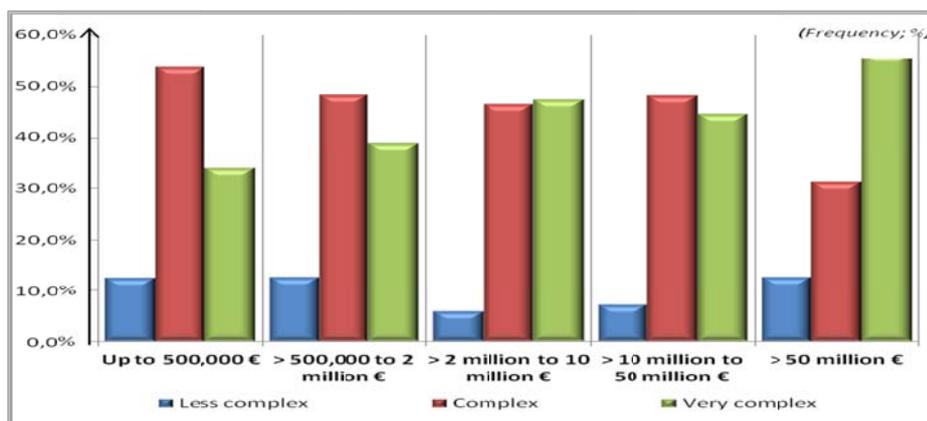
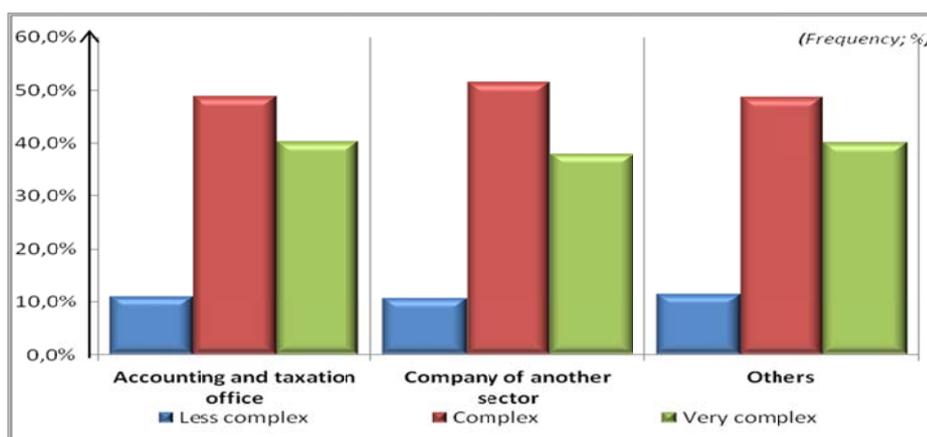


Figure 13: TOCs' perception of tax system complexity versus TOCs' ways of developing their activity



A summary of the above analysis (Figures 2 to 7) of the dimensions of tax complexity is presented in Table 7, while the summary of the analysis of the perception of tax complexity shown in Figures 8 to 13 is presented in Table 8.

Table 7: Profile of tax complexity (dimensions of tax complexity)

Exogenous factors	Dimensions of tax complexity	
	Higher perception	Lower perception
TOCs' gender	Female	Male
TOCs' age	> 35 to 50 years old	> 65 years old
TOCs' professional experience	Up to 5 years	> 10 years to 25 years
TOCs Tax Knowledge Index	Level: 3	Level: 12
The size of TOCs' customers or employers (turnover)	> 50 million €	≤ 500.000 €
The way TOCs develop their activity	Other entities	Company of another sector

Table 8: *TOCs*' profile regarding their perception of tax system complexity

Exogenous factors	Tax system complexity as a whole	
	Higher perception	Lower Perception
<i>TOCs</i> ' gender	No significant differences	No significant differences
<i>TOCs</i> ' age	> 35 to 50 years old	> 65 years old
<i>TOCs</i> ' professional experience	Up to 5 years	> 10 to 25 years
<i>TOCs</i> Tax Knowledge Index	Levels: 3, 4 and 5	Level: 12
The size of <i>TOCs</i> ' customers or employers (turnover)	> 50 million €	≤ 500,000 €
The way <i>TOCs</i> develop their activity	No significant differences	No significant differences

On the one hand, from the summary shown in Tables 7 and 8, the size of *TOCs*' customers' / employers' businesses appeared to be an exogenous factor that increases the perception of tax complexity (both in terms of the dimensions of causes of tax complexity and of tax system complexity as a whole). On the other hand, the increase in *TOCs*' experience and their level of tax knowledge (a broader concept than professional experience, embracing professional experience, degree, training and in-service courses), minimises the exogenous factors impacting on perceived tax complexity.

4.3 Testing the research hypotheses

In order to test the research hypotheses, bivariate analysis was employed. This analysis aims to determine whether differences between gender, age, size of customers' businesses and other exogenous factors exert a relative influence on *TOCs*' perceptions of tax complexity. Since the samples meet the necessary assumptions,²³ the *t test*, *one-way ANOVA* and *Kruskal Wallis test* were conducted. To measure the strength and direction of the relationship between variables, the Pearson correlation²⁴ was adopted.

Table 9 presents the effects of each independent variable, *that is*, the exogenous factors of tax complexity impacting on *TOCs*' perception of dimensions of causes of tax complexity (dependent variable). Table 10 presents the effects of each exogenous factor of tax complexity (independent variable) on the dependent variable, the *TOCs*' perception of tax system complexity as a whole.

²³ The application of parametric tests requires the simultaneous fulfillment of the two following conditions: normality and homoscedasticity [homogeneity of variances (Maroco, 2011)].

²⁴ However, when the samples were not normally distributed or the variables are nominal, the Spearman Correlation was used (Pestana & Gageiro, 2000).

Table 9: Effects of socio-demographic, professional and technical variables on TOCs' perception of the dimensions of causes of tax complexity

Variables	t/F/H ²⁵	df	p-value	Correlation
TOCs' age	23.591	894	0.000**	$r = -0.113$; $p = 0.001 < 0.01$
TOCs' gender	- 4.560	897	0.000**	$r = 0.151$; $p = 0.000 < 0.01$
TOCs Tax Knowledge Index	3.737	891	0.000**	$\rho = -0.172$; $p = 0.000 < 0.01$
TOCs' tax experience	2.452	897	0.062***	----
The size of TOCs' customers or employers (turnover)	5.534	896	0.237***	----
The way in which TOCs develop their activity	3.426	920	0.180***	-----

* $p < 0.05$; ** $p < 0.001$; *** $p > 0.05$

Table 10: Effects of socio-demographic, professional and technical variables on TOCs' perception of tax system complexity as a whole

Variables	t/F/H ²⁶	df	p-value	Correlation
TOCs' age	9.542	986	0.023*	$r = -0.43$; $p = 0.179 > 0.05$
TOCs' gender	0.662	989	0.508***	----
TOCs Tax Knowledge Index	197.366	994	0.000**	$\rho = -0.435$; $p = 0.000 < 0.01$
TOCs' tax experience	47.036	994	0.000**	$r = -0.115$; $p = 0.000 < 0.001$
Size of TOCs' customers or employers (turnover)	14.608	989	0.006*	$\rho = 0.113$; $p = 0.000 < 0.01$
The way TOCs develop their activity	0.114	989	0.892***	----

* $p < 0.05$; ** $p < 0.001$; *** $p > 0.05$

The results of the bivariate analysis, presented in Tables 9 and 10, shows that there is a statistically significant relationship between the TOCs Tax Knowledge Index and TOCs' perception regarding both the dimensions of causes of tax complexity and the perception of tax system complexity as a whole. Hence, H6 and H8 are accepted.

²⁵ *t* test, one-way ANOVA and Kruskal Wallis test, respectively.

²⁶ *t* test, one-way ANOVA and Kruskal Wallis test, respectively.

It appeared that gender has no statistically significant relationship with *TOCs'* perception of tax system complexity. On the contrary, gender showed a statistically significant relationship with the dimensions of causes of tax complexity. Thus, H2 is accepted, while H4 is rejected.

With regard to *TOCs* experience, the results showed a statistically significant relationship with the *TOCs'* perception of tax system complexity, but no statistically significant relationship was found between *TOCs'* experience and the dimensions of causes of tax complexity. Hence, H5 is rejected and H7 is accepted.

Size of companies only showed a statistically significant relationship with *TOCs'* perception of tax system complexity. Hence H11 is accepted while H9 is rejected. Similarly, both H10 and H12 are rejected, as no statistically significant relationships were found between the way *TOCs* develop their activities and both *TOCs'* perception of tax system complexity and their perception of the dimensions of causes of tax complexity.

In terms of the strength of the relationship, only the *TOCs* Tax Knowledge Index showed a moderately negative relationship with *TOCs'* perception of tax system complexity, the other independent variables presenting weaker relationships with the dependent variables. Nevertheless, the findings of this study confirm the statistically significant importance of some exogenous factors impacting on *TOCs'* perception of tax complexity.

5. CONCLUSIONS

Portuguese tax professionals perceived their tax system as having a high level of complexity (89.1%). This result is in line with the international tax literature. The endogenous causes perceived by the *TOCs* were mostly related to legal concerns, *that is*, (i) volatility of tax laws (88.4%); (ii) tax law too dispersed (86.1%); (iii) preparation of accounting information for fiscal purposes (83.2%); (iv) many exceptions to the rule and transitional arrangements (82.2%); and (v) low perception and ambiguity of tax language (80.1%).

Three partial indices and a general index using PCA were constructed. The three indices were (i) Index of Complexity of Preparation of Information and Record Keeping; (ii) Index of Complexity of Tax Forms; (iii) Legal Tax Complexity Index. The General Tax Complexity Index was meant to check the relative weights of the three partial indices. In contrast with other studies, in the Portuguese case the differences are insignificant. Therefore, it can be concluded that all dimensions of endogenous causes of tax complexity are on the same level.

Tax knowledge appeared to be the only exogenous factor that showed a negative relationship with the perception of tax system complexity. This shows that tax knowledge plays a very significant role in designing *TOC* profiles. As the level of the *TOCs* Tax Knowledge Index increases, the perception of tax system complexity decreases. This is consistent with some international literature (for example, see O'Donnell *et al.*, 2005; Woellner *et al.*, 2007).

TOCs' fiscal experience and the size of *TOCs'* customers'/employers' businesses also influences their level of tax knowledge, in relation to the reduction in the perception of

the complexity of the Portuguese tax system. A good management of these exogenous factors may lead to a decrease in *TOCs*' perception of tax complexity. Perhaps, to enhance this contrasting effect, the regulatory body of tax professionals in Portugal could conduct different tax seminars specially to cater for the *TOCs* who work with companies of different sizes and with different tax problems, so that these *TOCs* could update their knowledge even more.

It is acknowledged that this study has limitations. A survey method with its self-reported behaviour may be less reliable than observed behaviour, especially when the information sought is sensitive, particularly in the area of tax research. In addition, only six exogenous factors were taken into account in this study, although there could be others.

However, the findings of this study, drawing from the empirical evidence collected in Portugal, would contribute to the literature, as there was no known prior study in this area conducted in Portugal. The main conclusions of this paper are relevant to the international literature, as they present new evidence as regards the dimensions of causes of tax complexity.

For future research, two pertinent issues are proposed. Firstly, an update over time, *that is*, a longitudinal study, could be conducted in order to justify the indices created in this research as well as to gain further insight into the consequences of tax complexity. Secondly, there could be other exogenous factors at play that require further research in order to determine the factors that may influence *TOCs*' perception of tax complexity.

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