

Compliance Costs of Individual Income Taxation: Some Empirical Evidence from Portugal

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The purpose of this paper is to evaluate the compliance costs of Personal Income Tax in Portugal as well as its main determinants. In 2007, a survey of 350 individual taxpayers was carried out in Portugal to evaluate compliance costs for the fiscal year of 2006. This paper presents the results of that survey, as well as the main determinants of compliance costs in Portugal. The results show that compliance costs of personal income taxation are related to the number of dependents, the level of taxpayers' education, the economic activity (wage earners or self employed) and income levels.

INTRODUCTION

The purpose of this paper is to present empirical evidence on the importance of compliance costs related to the individual income tax for Portuguese taxpayers.

Based on a random sample of 308 surveyed taxpayers, we analyze, firstly, the amount of compliance costs borne by two types of individuals: taxpayers that deal with their tax obligations without professional assistance, and taxpayers that use professional help. The compliance costs include their valuation of the time spent dealing with tax obligations and also of other monetary expenses, such as those on software, mail and technical books.

Secondly, we analyze the main determinants of compliance costs of Portuguese individual taxpayers. Therefore, we test several hypotheses concerning the influence of taxpayers' characteristics on the compliance costs they face. In particular, we test whether personal characteristics (measured by variables such as age, school level, marital status, number of dependents), economic factors (type of activity, income level, income sources), technical factors (level of knowledge of tax laws) and psychological factors (willingness to comply, perception of the tax system's fairness) have any influence on compliance costs. From the set of results of the empirical analysis some conclusions can be drawn. Thus, a higher number of dependents and higher school levels are associated with higher compliance costs; wage earners face lower costs than self employed individuals; higher income levels induce higher compliance costs; taxpayers do incur in psychological costs caused by anxiety and stress and, as far as these are concerned, elderly and less educated taxpayers have higher psychological costs.

The major objective of the research here was to evaluate compliance costs for personal income tax in Portugal and discover whether the conclusions from prior research could be replicated for Portugal. The paper is organized as follows: section 2 presents a brief review of literature; section 3 introduces the methodology used to evaluate compliance costs in Portugal; section 4 calculates Portuguese compliance costs; section 5 analyses the results of the research and section 6 concludes.

LITERATURE REVIEW

In the tax literature, issues such as the vertical and horizontal equity levels of fiscal systems or the degree of economic efficiency attained by different tax choices have been, for a long time, well documented. Another dimension of the tax system – the compliance costs it imposes on taxpayers – was, for a long time, a secondary topic. It was believed that equity and efficiency levels were the overwhelmingly relevant features in tax policy. However, the costs of compliance associated with the tax system have, in recent decades, increasingly attracted the attention of researchers and policy makers (Shaw et al., 2010).

The growing complexity of the tax system is the most commonly mentioned factor affecting tax compliance and compliance costs (Slemrod (2007). Slemrod and Bakija (2004) argue that a monetary estimate of the time spent in complying with personal income taxes, in 2003, by American taxpayers is \$ 50 billion. Adding \$ 10 billion spent on personal assistance and other expenses, raises the total amount to \$ 60 billion. Clearly, these are very significant costs imposed by the tax system on the individuals that have to comply with its rules.

According to Sandford (1973; 1989; 1994; 1995; 2000), compliance costs are divided into three groups of costs: time costs; other monetary costs; and the psychological costs. For individual taxpayers, time costs include the time taken to complete tax returns and collected and prepare the necessary tax data. The monetary costs include payments to a tax adviser or tax professional and other costs such as transport to visit the tax adviser or the tax office. Finally, the psychological are those costs, such as anxiety, stress and emotional costs, which taxpayers or advisors experience when dealing with the tax legislation. Tran-Bran *et al* (2000) distinguished between social compliance costs (SCC), or the costs to the economy, and taxpayer compliance costs (TCC) - the aggregate compliance costs to individual taxpayers. Social compliance costs are sometimes referred to as gross compliance costs, and represent the level of compliance costs in the economy before certain offsets are taken into account, such as cash flow benefits and tax deductibility of various costs. In this paper our attention is more narrowly focused only on the costs directly borne by the taxpayers and only on measurable components of costs such as time and pecuniary expenditures. Furthermore, we do not distinguish between discretionary costs, which are incurred by taxpayers in an attempt to reduce their tax liability and non discretionary costs, which must be spent in order to satisfy the legal filing requirements. What portion of cost is non discretionary is in practice difficult to determine and, in any event, both kinds of costs are real resources costs of collecting taxes. (Walpole *et al*, 1999)

Given its economic relevance, the measurement of compliance costs has been a topic for tax research in several countries in the last decades of the past century, as noted by Evans (2003). Most studies are based on large scale surveys, using samples of taxpayers and mail surveys. In some cases, interviews were also used to obtain or confirm data.

For the US, Slemrod and Sorum (1984) and Blumenthal and Slemrod (1992) analyzed the compliance costs faced by individual taxpayers. These studies revealed that 21.7 hours and 27.4 hours are the mean time spent by surveyed taxpayers. Authors presenting evidence of compliance costs for other countries concluded that the time spent dealing with record keeping and preparing tax returns is the most significant component of compliance costs, followed by expenses with “personal assistance” and “occasional expenses”.

In Australia, Pope (1993) found out that the mean time spent by individual taxpayers was 7.8 hours, and that the ranking of different compliance costs was similar to the one reported by the above mentioned American studies.

Sandford *et al* (1989), based on a large scale survey, intended to estimate the compliance costs of individual taxpayers in the UK. A close cooperation with the tax administration was also a feature of this study. The results show that the mean time spent was 3,6 hours. In this study, the personal assistance expenses were higher, in terms of its share of total compliance costs, than in the US or Australia, as noted by Sandford (1994).

Given the discrepancies in the amount of time spent in each country by the average taxpayer, Sanford (ed.) (1995) notes that the international comparison of the compliance costs of individual taxation, *per se*, is not very useful, since countries differ in the design of taxes and compliance mechanisms, surveys are conducted in different time periods, the concept of compliance costs is not always coincident and the quality of data is not uniform, because of sampling and survey specific characteristics. The international comparisons should be done carefully and are mostly relevant to analyze trends or identify factors that can explain differences between countries (Sandford (1995) and Sandford (2000)).

In the Netherlands, Allers (1994) found out that individual taxpayers spent 4.5 hours complying with the personal income tax.

In Spain, Diaz and Delgado (1995) discarded the mail survey (based on an expected low rate of participation) and used interviews to obtain data. They report 6, 8 hours as the mean time spent by the Spanish individual taxpayer to comply with the tax system.

In transition countries some empirical evidence has been found out as well, which highlighted the importance of individual compliance costs in tax policy. For example, Klun (2004), in Slovenia, estimated that taxpayers spent 1, 73 hours, on average, family members spent 0, 45 hours and friends spent 0, 18 hours helping with tax returns. Thus, in total, 2, 36 hours were spent on average.

The difficulties in estimating the compliance costs of individual taxpayers are not limited to the complexities (sampling, type of survey, or response rate) in the process of obtaining data. The conversion of the time spent by taxpayers in monetary units is also a major issue in this research field.

When taxpayers hire professional help to comply with their tax duties, no major questions arise. The amount charged by tax professionals is the expense paid by the taxpayer to the professional assistant. However, when the taxpayer spends his/her time to comply with tax obligations; the valuation of it is not an easy matter. If time spent on tax compliance is traded off with leisure activities, the valuation can be complex, and is usually done by several methods: the taxpayer own estimate; the net rate of remuneration based on taxpayer level of income and tax status; the gross rate of remuneration; the maximum that a taxpayer would pay to avoid tax compliance activities.

Following the above studies, Evans (2003) noted that they also measured the influence on compliance costs of variables such as income, number of income sources and taxpayers' attitude to the fiscal system. These studies drew similar conclusions: compliance costs are relatively high, especially for major taxes, they are also higher than administrative costs; they amount to as much as 10 per cent of the tax revenue; compliance costs are regressive and therefore create some undesirable distributive effects; high compliance costs diminish voluntary compliance; and compliance costs can cause excess tax burden.

Regarding the psychological costs, there is no generally agreed definition in the tax literature, and to our knowledge no one has yet succeeded in measuring them.

Diaz e Delgado (1995) interviewed Spanish taxpayers when investigating compliance costs of Spanish personal income tax and included four attitude indicators: how they perceived the time dedicated to this task; what part of the fiscal obligation was most disliked; their state of mind when the process was completed; and the conversational time occupied by the topic of filing tax returns.

More recently, Woellner *et al* (2001; 2007) state that psychological costs are manifested in the behaviour of the person required to apply the tax law. They can be observed by behaviour such as fidgeting, tapping, hair chewing and so on. Woellner *et al* (2001) chose to videotape the reactions of selected groups of taxpayers in Australia. University students were used in a pilot group in which four of them had studied "taxation" and four others had never studied tax. Woellner *et al* (2001) distributed to the focus group of analyze practical case studies at three levels of difficulty. The authors decided to pursue the original intention of obtaining assistance from a psychologist as how best to analyze the videotapes

for signs of psychological costs. As a result, some but not all participants exhibited psychological costs, either verbally or in their body language such as biting lips and wringing hands.

In this paper, we also propose to develop a new methodology to enable to measure psychological costs of taxation.

To sum up, what emerges from the literature review, as noted by Evans (2003), is a growing sensitiveness of taxpayers and policy makers to the costs imposed by complying with tax systems. Simplification efforts have been conducted in several countries aiming at reducing this burden for individuals and businesses. Therefore, quantifying compliance costs has an important role in the process.

METHODOLOGY

The purpose of this paper is to present an evaluation of compliance costs incurred by individuals subject to the personal income tax in Portugal. We evaluated compliance costs for the year 2006 using a survey applied in 2007. The reasons for evaluating compliance costs for personal income tax only were as follows.

Firstly, the Personal income tax represents one of the major sources of tax revenue in Portugal, alongside VAT and social security contributions. Actually, according to the Portuguese Tax Data Base, the main source of revenue is the VAT, with 40% of Gross Domestic Product (GDP), followed by the Social Contributions, with 27% of GDP, and the Personal Income Tax, with 17, 6% of GDP.

Secondly, most of the active population is potential personal income taxpayers.

Lastly, but not the least, the major international research on compliance costs has also covered personal income tax. (Wicks, 1965; Wicks, 1966; Sandford, 1973; Slemrod and Sorum, 1984; Vaillancourt, 1989; Sandford *et al*, 1989; Blumenthal and Slemrod 1992; Pope, 1993; Allers, 1994; Malmer, 1995; Chattopadhyay and Das-Gupta, 2002; and Klun, 2004).

The survey included questions about the time spent preparing information and filling in tax forms, consultancy costs and other expenses. It was similar to prior research instruments (Sandford, 1989; Blumenthal and Slemrod, 1992; Klun, 2004), despite the fact that international comparisons of compliance costs could not be made because of several obstacles, such as different methodologies, different response rates, evaluation of time, assessment of tax and tax rates (Sandford, 1995).

Before the survey was conducted, the questions were piloted on some taxpayers in the District of Coimbra with a view to improving the questionnaire. The main purpose of piloting was to make the survey more understandable and easier to answer.

Determining the sample of personal income taxpayers caused some problems, since the tax register is not publicly available, and the current study was not formally supported by the tax administration. In fact, tax administrations withheld their support in almost all the countries in which the earliest research projects into compliance costs were carried out. Without support of the Portuguese tax administration, it was very difficult to carry out the research, but in our opinion, taxpayers were in favor of the research in the pilot study. Therefore, and given the circumstances, data was collected in the Coimbra district, and 350 taxpayers were interviewed face to face, in order to improve the response rate. The interviews were conducted between March and April 2006, when most taxpayers are obligated to fill in their tax forms.

We believe that think taxpayers from the district of Coimbra, in Portugal, are no different from taxpayers from other regions of Portugal, since the tax system and their obligations of tax compliance do not differ according to Portuguese regions. However, in some developed tax systems the fiscal system differs from region to region, such as in the USA or in Brazil, and then the tax compliance obligations may differ according to the region or state where the taxpayer is registered (Bertolucci, 2003).

Once the sample of our research is justified, forty-two questionnaires were excluded because the taxpayers refused to be interviewed. Thus, the evaluation of compliance costs was made on the basis of 308 responses.

The respondents presented the following characteristics: 162 were male; 221 were married; 119 did not have any dependents; 88 taxpayers did not have any help filling in the tax form and 78 had professional consultancy; 173 were employed; 87 were self employed and 48 did not have a job

(unemployed, retired or housewives); 184 had only one source of income (category); 93 had two and 31 had more than two. Only 46 per cent of tax-fillers declared themselves to be competent in completing the income tax declaration, while the majority (54 per cent) required some kind of outside help to be able to complete it.

The questionnaire sought qualitative and quantitative information on demographic, legal, economic and tax characteristics of respondents. Firstly, it asks about some personal information, in particular, the respondent's gender, age, level of education, income, and employment status. The purpose of the survey is devoted to collecting information about the household's cost of filling in tax returns. Then, the last question of this section asks how the taxpayer fills in the tax form (properly, with unpaid help - family and friends - or with paid help - professional assistance).

Then, for taxpayers without professional assistance, in section 2, we ask how many hours were spent during the year. We divide the hours into various categories with different values in order to calculate compliance costs. In addition, any money spent on tax affairs or otherwise spent in filling in the tax form is solicited, such as on postage and on the Internet. Section 3 is dedicated to the evaluation of the compliance costs of taxpayers with professional assistance. We ask how much taxpayers were paying for the tax professional to help them with the tax form. Finally, some questions on the individual's attitude before the filling in of the form were included, such as a question designed to elicit the level of stress or anxiety (Likert scale) incurred by taxpayers while managing their tax affairs. In this case our goal is to find one way of measuring the psychological costs incurred by taxpayers when dealing with their tax affairs.

EVALUATION OF PERSONAL COMPLIANCE COSTS IN THE PORTUGUESE TAX SYSTEM

Compliance costs were evaluated separately for two groups of personal income taxpayers: taxpayers without professional assistance (mostly wage earners) and the taxpayers with professional consultancy (mostly self-employers).

In our study, only 46 per cent of tax-fillers (140) declared themselves to be self-sufficient regarding the completion of the income tax form, while the majority (54 per cent) required some kind of outside help (unpaid help or paid help) to be able to complete it. From the taxpayers requiring professional help 29 per cent (90) obtained it for free, whether through personal services provided by their relatives or through friends or colleagues. Only 25 per cent (78) of tax-fillers do indeed pay for the advice and assistance they receive from tax advisers or consultants.

For the first group of taxpayers, without professional assistance, the estimated compliance costs include the cost of time spent filling in a tax form properly and other expenses such as forms, postage, software, copying and so on. Evaluating time spent on filling in tax forms depends on how "time spent" is determined. As we stated above, it could be calculated in relation to spare time, work time or overtime at work. Thus, net wage, gross wage and other values can be used in calculating the cost of that time.

Almost all researchers have used the values stated by taxpayers in their questionnaires, but with slight changes: Sandford *et al* (1989) used stated values and checked their reliability with the average income earned by respondents; Diaz and Delgado (1995) used stated values corrected by income source; Pope (1995) used stated values but the extreme high or low values were removed; Allers (1994) made two calculations, one with stated values and the other using GDP to value an hour; net wage was used by Slemrod and Sorum (1984), Blumenthal and Slemrod (1992), Malmer (1995), Tran-Bam *et al* (2000); and gross wage was used by Vaillancourt (1989) as well as Klun (2004).

Time spent by taxpayers, taxpayers' friends and families was calculated in our research based on the values which the taxpayers stated in their questionnaires during the interviews. We checked the reliability and the internal consistency of the respondents' answers with the question of the income group.

Thus, for the taxpayers without professional assistance, respondents spent, on average, 3,79 hours (minimum of 1, 5 and a maximum of 8, 25 hours) filling in the tax return, as we can see in the table 1.

TABLE 1
DISTRIBUTION OF HOURS SPENT AND THE INCOME GROUPS
(Hours)

| Taxpayers without professional assistance | Annual income groups | | | | | | Average hours |
|--|----------------------|-------------|-------------|------------------|------------------|-------------|------------------|
| | < 4351 | ≥4351<6581 | ≥6581<16317 | ≥16317 <37528 | ≥37528 <54388 | ≥54388 | |
| Record- Keeping | 2,71 | 2,41 | 2,24 | 2,30 | 2,24 | 2,40 | 2,33 |
| Cost of tax form | 0,31 | 0,41 | 0,28 | 0,26 | 0,18 | 0,13 | 0,28 |
| Tax research | 0,28 | 0,17 | 0,12 | 0,26 | 0,22 | 0,33 | 0,21 |
| Filling in and sending tax form | 1,04 | 1,04 | 0,97 | 0,93 | 1,09 | 0,75 | 0,97 |
| Average hours | 4,34 | 4,02 | 3,61 | 3,74 | 3,72 | 3,60 | 3,79 |

Table 1 details the relationship between the hours spent by taxpayers and income. The allocation of time spent in the different categories is relatively constant among income groups. However, the largest amount of time is spent by the lowest income group. This is not the result of one respondent claiming an implausibly high value of time spent, but rather several high answers.

As we can observe from the table 1, taxpayers devoted, on average, more time to record - keeping (2, 33 hours), followed by the process of filling in and sending the tax return to the Inland Revenue (0,97 hours). Tax law research and record-keeping are more important for both the highest and lowest income groups.

Relating the time spent with the process of compliance to the individual income, we found an average value of 74,8 Euro (minimum of 7,5 Euro and a maximum of 450 Euro) spent by 230 individuals without professional assistance.

The study of expenses such as postage, telephone, photocopying, among others, represents one of the most difficult and neglected areas of tax compliance costs research. In our study, an attempt was made to collect data on tax related incidental costs for personal taxpayers. However, it was felt that it was too difficult, for personal taxpayers, to disentangle costs relating to tax compliance. Consequently, we have calculated a minimum incidental average cost, which included the minimum expenses on postage, Internet, telephone and books, among others. After that, we have imputed this incidental minimum average cost (6, 49 Euro) to all personal taxpayers. This issue requires further consideration in future empirical studies.

Looking at table 2, the obvious conclusion is that the time spent by taxpayers without professional assistance in tax affairs was the main component of personal compliance costs in Portugal. Disaggregating the data by income, the highest time related cost averages were recorded by the highest income classes, although there was a somewhat U-shaped pattern, with more time being spent by taxpayers at the lowest income classes than in the middle.

Those taxpayers who received paid assistance (78 individuals) were asked about the kind of professional source of assistance and its costs. We realized that there were two types of professional assistance: occasional and regular assistance. In the first group, we included the taxpayers that found the process of filling in the tax form hardly complex, and so they needed occasional professional help to fill

in their tax form. In the second group, we considered the taxpayers that needed regular professional help because of legal accounting and tax obligations.

TABLE 2
AVERAGE PERSONAL COMPLIANCE COSTS AND THE INCOME GROUPS
(€ Euro)

| Taxpayers | | Annual income groups | | | | | |
|---------------------------------|--|----------------------|--------------|--------------|---------------|---------------|---------------|
| | | <4351 | ≥4351 | ≥6581 | ≥16317 | ≥37528 | ≥54388 |
| without professional assistance | | | <6581 | <16317 | <37528 | <54388 | |
| Time | | 51,29 | 34,70 | 54,52 | 99,58 | 171,51 | 166,75 |
| Other expenses | | 6,49 | 6,49 | 6,49 | 6,49 | 6,49 | 6,49 |
| Total compliance costs | | 57,79 | 41,20 | 61,02 | 106,08 | 178,01 | 173,25 |

From table 3, we can conclude that the self-employed taxpayers (regular professional assistance) incur, on average, notably higher compliance costs than wage taxpayers do (without professional help). This result meets others results, such as those presented by Sandford *et al* (1989; 2000), Slemrod and Sorum (1984); Blumenthal and Slemrod (1992); and Klun (2004).

TABLE 3
AVERAGE PERSONAL COMPLIANCE COSTS AND THE INCOME GROUPS
(€ Euro)

| Taxpayers | | | Annual income groups | | | | | |
|------------------------------|--------------|---------------------------------|----------------------|------------|-------------|---------------|---------------|--------|
| | | | < 4351 | ≥4351<6581 | ≥6581<16317 | ≥16317 <37528 | ≥37528 <54388 | ≥54388 |
| with professional assistance | and | without professional assistance | | | 6317 | <37528 | <54388 | |
| Without professional help | | | 57,79 | 41,20 | 61,02 | 106,08 | 178,01 | 173,25 |
| Occasional help | professional | help | 29,00 | 30,78 | 51,42 | 50,35 | 123,17 | 182,25 |
| Regular professional help | | | | 456,50 | 750,50 | 562,83 | 548,32 | 825,67 |

RESULTS

In this section, our aim is to analyze the main determinants of the Personal income tax compliance in Portugal. We test the influence of taxpayers' characteristics in the compliance costs they incur. That is, if personal characteristics (such as age, level of education, marital status, number of dependents), economic factors (employment status, income level, and income sources), technical factors (level of knowledge of tax laws) or psychological factors (stress and anxiety) have any influence on compliance costs.

Thus, in order to analyze the relationship between compliance cost and any demographic, economic and technical variables, we use a variance analysis or *t* test, depending on the case. In all situations the dependent variable is "Compliance Cost" (CC) and the independent variables are the characteristics of tax-fillers (such as marital status, age, dependents, education level, income, categories of income, perception of time spent in tax matters, and so on).

In this study the compliance costs were calculated according to the kind of help, professional or non professional help, of taxpayers. It was necessary to determine the influence of these variables on the compliance costs.

TABLE 4
EFFECT OF DEMOGRAPHIC, ECONOMIC AND TECHNICAL VARIABLES ON
COMPLIANCE COST OF TAXPAYERS WITHOUT PROFESSIONAL ASSISTANCE
(€ Euro)

| Variables | Average compliance cost | <i>t</i> / <i>F</i> | df | <i>p</i> -value* | |
|----------------------|-------------------------|---------------------|--------|------------------|--------|
| Marital status | Married | 77,24 | 1,165 | 228 | n.s.** |
| | Not married | 90,05 | | | |
| Dependents | 0 dependent | 74,54 | 16,801 | 3;226 | 0,000* |
| | 1 dependent | 53,54 | | | |
| | 2 dependent | 76,14 | | | |
| | 3 or more dependents | 175,07 | | | |
| Age | 18-24 | 53,38 | 1,203 | 4;225 | n.s.** |
| | 25-35 | 86,13 | | | |
| | 36-55 | 85,48 | | | |
| | 56-65 | 83,80 | | | |
| | >66 | 50,38 | | | |
| Education | Primary | 52,82 | 11,392 | 2;227 | 0,000* |
| | Secondary school | 90,90 | | | |
| | University degree | 106,46 | | | |
| Activity | Wage earner | 76,54 | 4,308 | 228 | 0,002* |
| | Self employer | 123,49 | | | |
| Income | < 4 351 | 57,78 | 17,210 | 5;224 | 0,000* |
| | 4 351 – 6 581 | 41,19 | | | |
| | 6 581 – 16 317 | 61,02 | | | |
| | 16 317 – 37 528 | 106,07 | | | |
| | 37 528 – 54 388 | 178,00 | | | |
| | > 54 388 | 173,25 | | | |
| Tax knowledge | Good | 89,15 | 0,531 | 228 | n.s.** |
| | Not Good | 80,55 | | | |
| Categories of income | 1 category | 71,73 | 3,725 | 2;227 | 0,003* |
| | 2 categories | 94,29 | | | |
| | 3 or more categories | 174,00 | | | |
| Difficulties | Without difficulties | 117,08 | 6,919 | 228 | 0,000* |
| | With difficulties | 49,63 | | | |

* Asterisk indicates that the influence of independent variables on compliance cost is significant at 95 per cent of confidence level.

** The test is not significant

Table 4 presents the effects of these independent variables on compliance costs of taxpayers without professional help. The hypotheses were tested with 95 per cent of confidence level. The results presented were obtained using SPSS 14.00 software.

Table 4 indicates that from the set of personal variables only the numbers of dependents and the education level have a significant influence on compliance costs, holding the other variables equal, with $F(3;226) = 16,801$ and $p\text{-value} < 0,000$, and $F(2;227) = 11,392$ and $p\text{-value} < 0,000$, respectively.

The more educated taxpayer tends to incur higher compliance costs. On average, the cost of compliance increases with educational attainment, both due to the increasing number of hours and the higher average valuation of an hour for more educated households.

Regarding to the number of dependents, the average compliance cost for the highest group is significantly higher than for any of the other groups.

On what to economic variables are concerned, the activity as well as the income has an isolated impact on the total average of compliance cost, with $t(1,228) = 4,308$ and $p\text{-value} = 0,002$, $F(5, 224) = 17,210$ and $p\text{-value} < 0,000$, respectively.

One important conclusion is that the relation between compliance costs and income is progressive. That means that, under the Portuguese tax system, the overall pattern is for personal compliance costs to rise together with income.

As far as the activity is concerned, the results point out the strong relationship between higher compliance cost and self-employment. Holding the other factors equal, the self-employed incur more compliance costs on average than the wage earners. In our view, the main reason for this difference could be the different tax status of both taxpayers.

Self-employed taxpayers have a more detailed and complex set of rules to follow (usually also having different sources of income), and wage earners only have to declare their wage income to the Tax Authorities, and regular source with holding usually comes close to the tax liability. The complexity of the tax return for the self-employed is bigger than for the other reference group. Actually, during the process of interviews, wage earners taxpayers frequently stated, "My tax affairs are simple."

Concerning technical factors, the results show that the number of categories of income and the taxpayers' perception of complexity of tax affairs are two key factors in determining the level of compliance costs, with $F(2,227) = 3,725$ and $p\text{-value} = 0,003$, and $F(228) = 6,919$ and $p\text{-value} < 0,000$, respectively.

There is a predominantly progressive relation between the increase of categories of income and the increase of compliance costs. We can justify this by the complexity of the tax return with more categories of income as well as by the number of fiscal rules which differ in the different categories.

The perception of complexity is also responsible for higher compliance costs. This perception is quite widespread among taxpayers over 55 years old, with lower educational levels, among self-employed and pensioners, among receivers of income from movable capital, capital gains and, especially, among taxpayers with high levels of income.

The major difficulties pointed out by taxpayers in filling tax returns were: interpretation of tax rules regarding the complexity of deductibles tax allowances deductibles, tax benefits, number of dependents included in the tax unit, the constant changing of tax rules, and the complexity of tax forms, among others.

For taxpayers with professional assistance, results show there aren't any statistical significant effects of demographic, economic and technical factors on compliance costs. This is understandable in the way that for taxpayers who paid for a professional adviser, the compliance cost doesn't depend on the number of children, the marital state, the level of education, or the age of taxpayers. In this case, the compliance costs depend primarily on the amount paid to the tax adviser, which is normally set by the market and not by the personal, economic and technical characteristics of tax-fillers.

To conclude our study, we turn now to the results of "psychological costs" incurred by taxpayers.

The "psychological costs" are the mental and emotional costs, such as anxiety and stress, which taxpayers experience when dealing with the tax obligations (Sandford, 1973; Diaz and Delgado, 1995; Woellner *et al*, 2001; Woellner *et al*, 2007)

The psychological costs are intangible, and so they are difficult to put a price on. Nevertheless, in our study we have tried to measure, qualitatively, the stress and anxiety incurred by taxpayers when complying with their tax affairs. We believe this aspect of the study is of particular significance, as the issue of psychological costs has been a largely neglected area of tax compliance costs research, as we have already highlighted before.

The evaluation of the psychological costs incurred by Portuguese taxpayers when filling in a tax form was conducted using a qualitative indicator: “emotional costs”. This indicator shows the state of mind before and after the completion of a tax form. In the survey, we started by asking taxpayers: “How do you feel before filling in the tax forms?” (Very calm, calm, neither/nor, stressed, much stressed). After finishing the completion of the tax return we asked: “How do you feel after filling in the tax forms?” (Very calm, calm, neither/nor, stressed, much stressed). These reactions have a real impact on time spent on compliance and even on the willingness to comply.

We then created an indicator to measure psychological costs: 1- taxpayers who incur emotional costs; 0- taxpayers who don’t incur emotional costs. For example, if taxpayers changed their state of mind from stressed to calm, they incurred psychological costs. If taxpayers didn’t change their state of mind but were stressed before filling in the tax form and stressed afterwards, they also incurred psychological costs. However, if taxpayers were calm before and after filling in the tax form, they didn’t incur psychological costs.

Consequently, feelings following the completion of the tax return are unequally divided between those taxpayers for whom this task has been a stressful burden and those who have not perceived it as such, as can be seen from on tables 5 and 6.

TABLE 5
PSYCHOLOGICAL COSTS AND AGE
(% Percent)

| Age | Emotional costs | | Total |
|-------|-------------------------|----------------------|-------|
| | Without emotional costs | With emotional costs | |
| 18-24 | 100,0 | | 100,0 |
| 25-35 | 91,7 | 8,3 | 100,0 |
| 36-55 | 85,3 | 14,7 | 100,0 |
| 56-65 | 53,6 | 46,4 | 100,0 |
| > 65 | 40,0 | 60,0 | 100,0 |
| Total | 80,0 | 20,0 | 100,0 |

From table 5, we can conclude that the higher the age of taxpayers the more stressful they felt in the completion of the tax return, with $X^2(4) = 42.135$ and $p\text{-value} < 0,001$. But not all participants showed psychological costs. The youngest group of taxpayers (18-24 year olds) didn’t feel anxiety or any other emotional cost in the process of compliance. One reason for this situation could be due to the definition of tax unit in the Portuguese tax system. In fact, in Portugal, the definition of dependents includes all children up to 25 years old who have no economic independence.

TABLE 6
PSYCHOLOGICAL COSTS AND EDUCATION
(% Percent)

| Education | Emotional costs | | Total |
|-------------------|-------------------------|----------------------|-------|
| | Without emotional costs | With emotional costs | |
| Primary School | 69,7 | 30,3 | 100,0 |
| Secondary school | 87,7 | 12,3 | 100,0 |
| University degree | 85,5 | 14,5 | 100,0 |
| Total | 80,0 | 20,0 | 100,0 |

In table 6, the percentage of taxpayers with a primary level of education who incurred psychological costs is 30,0 per cent. The other groups, while suffering from anxiety in the process of compliance, present lower percentages: 12, 3 and 14, 5 per cent for secondary school graduate and university graduate taxpayers, respectively. For taxpayers who are less educated the psychological costs were higher, with $X^2(2) = 9.798$ and $p\text{-value} = 0,007$.

We can conclude from tables 5 and 6 that the tax form is obviously a theme which causes concern among Portuguese taxpayers.

CONCLUSIONS

From the set of results of the empirical analysis some highlights similar to prior research compliance costs can be drawn. On one hand, for the taxpayers without professional assistance, a higher number of dependents and higher school levels are associated with higher compliance costs; wage earners face lower costs than self employed individuals; higher income levels induce higher compliance costs. On the other hand, for taxpayers with professional assistance, we didn't find significance influence between the personal, economic and technical attributes of taxpayers and the compliance costs. Actually, for this group of taxpayers the main determinant of compliance costs is the fees paid for the tax adviser, which depends primarily on the value fixed by market and not on the characteristics of individuals.

Regarding the psychological costs, we conclude that the Portuguese taxpayers do incur in psychological costs caused by anxiety and stress and, as far as these are concerned, elderly and less educated taxpayers have higher psychological costs.

We believe that the results here presented further contribute to the research in the field. Firstly, this paper presents new evidence for a country where there is no prior study that quantifies the compliance costs of taxation for individual taxpayers and the main determinants that influence them. It also shows that the main conclusions of our analysis do not differ from other studies in this area, such as Slemrod and Sorum (1984), Sandford *et al* (1989), Blumenthal and Slemrod (1992), Allers (1995), Diaz and Delgado (1995), Chattopadhyay e Das-Gupta (2002), and Klun (2004). Secondly, we inserted a new indicator to measure the psychological costs of taxpayers, the "emotional costs", as indicator which has been neglected in the international tax compliance literature. In fact, the psychological costs incurred by taxpayers have received little attention by researchers, except most recently, in Australia, Woellner *et al* (2001) and Woellner *et al* (2007).

However, it is important to highlight that our study was not supported, and so our sample was selected from the district of Coimbra, a convenience sample to the authors. Even though, in Portugal, the fiscal system does not differ according to the Portuguese districts or regions. This means that the tax compliance obligation and consequently the tax compliance costs do not differ from taxpayers in one region to others in different regions. Moreover, we think any research that assesses the taxpayers' point of view is important evidence to place before policy-makers. Once compliance costs and the role of taxpayers are important in developed countries, this argument becomes even stronger.

In conclusion, the quantification of Portuguese compliance costs and the identification of groups of taxpayers with higher compliance costs have been raising some interest among tax academics, practitioners and specially policy makers in Portugal, with the aim of simplifying the tax system and minimize such costs for individual taxpayers. So, in further research it is important to identify and quantify the compliance costs and their main determinants for all Portuguese taxes. We hope this research will stimulate research tax compliance costs in other Portuguese taxes and that some international comparisons will be possible in the future.

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