Efficiency in the tax-auditing administration in Greece

Aggeliki Saranti*

Ministry of Finance,
21 Anaxagora St., Gerakas 153-44, Athens, Greece
Email: saradiangela@yahoo.gr
*Corresponding author

Theodore Pelagidis

Department of Maritime Studies,
School of Maritime and Industrial Studies,
University of Piraeus,
21 Lambraki Ave., GR-Piraeus, Greece
Email: pelagidi@unipi.gr
Email: tpelagidis@brookings.edu

Michael Mitsopoulos

SEV Hellenic Federation of Enterprises,
Research and Analysis Unit
Hellenic Federation of Enterprises,
1, Paschalias St., Psychico 154-52, Attica, Greece
Email: michaelis@internet.gr

Abstract: For the past few years, major breakthroughs have been achieved in the fight against tax evasion and tax fraud. SDOE has carried out audits on freelancers, companies and individuals, using data from the bank accounts of the audited persons or legal entities. The results of these audits are significant, both numerically and qualitatively. This paper analyses data and results from a field survey, measuring the contribution of human resources and their management towards the achievement of these results. The progress observed so far is also documented, and proposals to further improve the efficacy of tax audits are made along with a proposal to reform the tax system.

Keywords: tax efficiency; Greek economy; tax audit results; Greece.


Biographical notes: Aggeliki Saranti (MBA) is an employee of the Directorate of Audits of the Ministry of Finance. She is a member of the team that implements the application for the automated audits of bank accounts. Part of the paper is a revised version of her MBA thesis ‘Efficiency in the tax-auditing administration in correlation with effective management, simplification of the legislation and processes and competent employees. A case study of the Greek SDOE (economic crime unit)’. 
1 Introduction

The case study of The Greek Economic Crime Unit (SDOE) offers an opportunity to analyse in depth information about a special unit of the tax-auditing administration in Greece. With SDOE being the only tax auditing unit vested with a very high level of authority, as the supervisor of SDOE is a financial prosecutor, decisions can be made fast, overruling political obstacles. A more comprehensive quantitative assessment of the performance of this unit is made possible through the availability of a questionnaire that was distributed in order to gather information (primary data) from the employees of the research-auditing departments of the unit. The answers from the questionnaire complement hard data that is provided by the central office of SDOE, as well as by the software program ELENXIS of SDOE, a software program that contains all data relating to the cases audited, the results of these audits, as well as the expected revenue that can potentially be collected.

Using this data, hypothesis testing is performed upon the level of education and the experience of the auditors, along with the results they achieved, that is the number of audits they completed during the previous year. Following hypothesis testing of these four parameters, we will argue that efficiency in the tax-auditing administration can be increased, along the lines suggested in OECD (2011), both as a result of what has been achieved so far and by pointing out steps to further ameliorate the current situation.

The final focus of this paper regards the vertical integration of the processes, so that each tax audit begins, is processed, completed and its outcome collected from the same tax auditing unit. This structure appears to offer the best results with respect to efficiency and effectiveness. As for the positive way of reform, the paper argues in Section 5 for a redistributive new tax reform system, so that the enhanced efficiency of the auditing mechanism is paired with reduced incentives to commit tax fraud and tax incentives across the economy. Conclusions are presented in the final Section 6.

2 Tax efficiency

A tax administration is defined as being effective when guaranteeing high compliance by taxpayers, and efficient in the sense that administrative costs are low compared to
Efficiency in the tax-auditining administration in Greece

Revenue collected. A strong tax administration is mandatory in order to ensure high levels of compliance, transparency, efficient collection of taxes and the overall increased (International Transparency Hellas, 2014) efficiency of the tax administration. Such a good tax administration also needs to have high levels of technical competency. The administration should be able to recognise and assess the results of the employed tax policies, and be able to simplify the current tax system if needed, within the economic and political spectrum, be alert for any law changes and evolving avoidance practices, and sustain a link between the rule of law and tax administration (WHO.INT., 2011).

Performance indicators are utilised among OECD country members, in order to demonstrate and compare the performance and efficiency of tax administrations. International comparisons of the efficiency of tax administrations, however, must be made with care. For example, the differences in tax rates and the legislated tax burden must be taken under consideration, as should the range and the nature of taxes collected vary and the macroeconomic circumstances shaping tax revenues. Finally, the differences in the fundamental cost structures resulting from established arrangements (e.g., multiple bodies involved in revenue administration, as in Italy or till recently Greece) has to be added to all these issues which influence the efficiency ratios presented (OECD, 2011).

3 The case study of Greek economic crime unit (SDOE)

3.1 Form, affiliation and organisation of SDOE

SDOE was established and operates in accordance with Presidential Decree 85/2005 as amended by Presidential Decree 111/2014. SDOE is a special secretariat of the Ministry of Economics, reporting directly to the Minister of Economics and is headed by revocable special secretary (Article 30 par. 1 Law 3296/2004). The supervisor of this special unit is a financial prosecutor whose jurisdiction extends throughout the Greek territory.

3.2 Mission, functions and basic structure

The mission of SDOE is particularly revealing and combating financial crime and high tax evasion and smuggling under the Ministry of Economics (Law 3691/2008 Money Laundering), audits in trading of goods and services, and the audit of the possession and trafficking of prohibited or special status commodities and substances, checking the correct implementation of the provisions related to national and EU subsidies and grants, as well as those relating to the protection of public property, to prevent the relevant offenses and illegal acts, the voluntary compliance of the obligors, prosecuting the offenders and the general protection of the financial interests of the Greek government, the national economy and the European Union (EU). SDOE has the powers set out in paragraphs 2, 4, 5 and 6 of Article 30 of Law 3296/2004 and in particular: its mission is described in detail in article 2 of Presidential decree 85/2005.

These specific powers have now been removed from SDOE and according to ministerial decision D6A 116 6403 Ou.2013/31 of October 2013, they have been transferred to the General Secretariat of Public Revenue (GGDE). In addition, from January 2017 AADE (independent authority for public revenue former GGDE) is a completely independent authority that is no longer subject to any form of supervision or control by the government but exercises full powers and superpowers around the tax
assessment and tax collection mechanism in the country. This reform was implemented in order to allow the tax collecting mechanism to focus on tax collection, and to insulate it from political and other unwanted influence.

3.3 Access in information and other data, abolition of bank secrecy

SDOE has the power to access and receive any information or data relating to the performance of its work and mission. It is not subject to the restrictions of confidentiality provisions, even if it is compelled to comply with the confidentiality provisions of Article 26 of civil service code (Law 2683/1999 FEK 19 A). More specifically since 2010 according to the Law 3888/2010 (article 15 par. 3), income from property increase – the abolition of bank secrecy has been enacted and after a specific order of the unit’s director, all information on the movements of the bank accounts of a person or legal entity under audit are sent to the unit by all banks in Greece.

3.4 Operational program against tax evasion

It is significant to mention that the audits carried out by SDOE are a product of operational planning and the expected revenue from these audits constitute a part of the official state budget. Consequently, the gravity and seriousness of the unit’s work have a direct impact on the budget and to the same extent in the country’s GDP. Specifically, for 2011–2013 the official operational program against tax evasion – which is the result of joint processing of four ministries, the Ministry of Finance, the Ministry of Regional Development, the Ministry of Justice and the Ministry of Citizen Protection – made the following provisions:

- Collecting total revenue of 11.8 billion euro in the period from 2011 to 2013 from tax evasion combat, in view of the very high level of tax evasion in the country.

3.5 Results accomplished by SDOE 2011–2013

The following tables demonstrate the results accomplished by SDOE in three years, 2011, 2012 and 2013, both quantitatively and as a percentage of total offenses found.

### Table 1

<table>
<thead>
<tr>
<th>General categories of audit (areas of activity)</th>
<th>Number of audits</th>
<th>Offenders</th>
<th>Violations</th>
<th>Percentage of offenders (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of audits performed by SDOE year 2011 based on the area of activity</td>
<td>40,702</td>
<td>23,688</td>
<td>3,150,932</td>
<td>58%</td>
</tr>
<tr>
<td>Total number of audits performed by SDOE year 2011 based on the product, the good, the regime, etc.</td>
<td>2,389</td>
<td>631</td>
<td>3,633</td>
<td>26%</td>
</tr>
<tr>
<td>Other audit types</td>
<td>227</td>
<td>120</td>
<td>3,600</td>
<td>53%</td>
</tr>
<tr>
<td>Total number of targeted audits</td>
<td>43,318</td>
<td>24,439</td>
<td>3,158,165</td>
<td>56%</td>
</tr>
<tr>
<td>Number of previous years audits completed</td>
<td>1,652</td>
<td>1,111</td>
<td>254,910</td>
<td>67%</td>
</tr>
<tr>
<td>Audits performed by teams of audit on trade</td>
<td>28,238</td>
<td>3,579</td>
<td>591,464</td>
<td>13%</td>
</tr>
<tr>
<td>Total number of audits</td>
<td>73,208</td>
<td>29,129</td>
<td>4,004,539</td>
<td>40%</td>
</tr>
</tbody>
</table>
In year 2011 out of 73,208 audits 4,004,539 violations were reported committed by 29,129 offenders, which correspond to a percentage of 40%. A significant number of offenders and violations are reported, which demonstrates the necessity for action by SDOE.

Table 2  Total number of audits performed by SDOE year 2012

<table>
<thead>
<tr>
<th>General categories of audit (areas of activity)</th>
<th>Number of audits</th>
<th>Offenders</th>
<th>Violations</th>
<th>Percentage of offenders (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of audits performed by SDOE year 2012 based on the area of activity</td>
<td>31,571</td>
<td>17,736</td>
<td>904,383</td>
<td>56.18%</td>
</tr>
<tr>
<td>Total number of audits performed by SDOE year 2012 based on the product, the good, the regime, etc.</td>
<td>2,141</td>
<td>547</td>
<td>2,576</td>
<td>25.55%</td>
</tr>
<tr>
<td>Other audit types</td>
<td>537</td>
<td>190</td>
<td>1,786</td>
<td>35.38%</td>
</tr>
<tr>
<td>Total number of targeted audits</td>
<td>34,249</td>
<td>18,473</td>
<td>908,745</td>
<td>53.94%</td>
</tr>
<tr>
<td>Number of previous years audits completed</td>
<td>2,960</td>
<td>2,214</td>
<td>491,773</td>
<td>74%</td>
</tr>
<tr>
<td>Audits performed by teams of audit on trade</td>
<td>16,588</td>
<td>2,247</td>
<td>12,376</td>
<td>14%</td>
</tr>
<tr>
<td>Total number of audits</td>
<td>68,498</td>
<td>36,946</td>
<td>1,412,894</td>
<td>53.94%</td>
</tr>
</tbody>
</table>

In year 2012 out of 68,498 audits 1,412,894 violations were reported committed by 36,946 offenders, which correspond to a percentage of 53.94%. Despite the decline in total number of violations from the previous year, the number of offenders is even higher resulting in an increased percentage of offenders.

Table 3  Total number of audits performed by SDOE year 2013

<table>
<thead>
<tr>
<th>General categories of audit (areas of activity)</th>
<th>Number of audits</th>
<th>Offenders</th>
<th>Violations</th>
<th>Percentage of offenders (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of audits performed by SDOE year 2013 based on the area of activity</td>
<td>23,694</td>
<td>12,246</td>
<td>433,385</td>
<td>52.25%</td>
</tr>
<tr>
<td>Total number of audits performed by SDOE year 2013 based on the product, the good, the regime, etc.</td>
<td>1,671</td>
<td>370</td>
<td>1,992</td>
<td>22%</td>
</tr>
<tr>
<td>Other audit types</td>
<td>2,631</td>
<td>819</td>
<td>4,802</td>
<td>31.13%</td>
</tr>
<tr>
<td>Total number of targeted audits</td>
<td>27,996</td>
<td>13,435</td>
<td>440,179</td>
<td>48%</td>
</tr>
<tr>
<td>Audits performed by teams of audit on trade</td>
<td>9,636</td>
<td>1,459</td>
<td>83,107</td>
<td>15%</td>
</tr>
<tr>
<td>Total number of audits</td>
<td>37,632</td>
<td>14,894</td>
<td>523,286</td>
<td>39.57%</td>
</tr>
</tbody>
</table>

In year 2013 out of 37,632 audits 523,286 violations were reported committed by 14,894 offenders, which correspond to a percentage of 39.57%. A significant decline in the percentage of offenders is reported, which could be interpreted as resulting from the persistence of audits performed in the previous years that result in a higher level of compliance.

The major offences observed have to do with:

- not issuing or issuing inaccurate receipts or other tax documents of value
- issuing or receipt of false and forged items of value
• non-submission or inaccurate submission of declarations of indirect and direct taxes, VAT, income tax, wage tax.

Recent studies regarding income tax have shown that individuals inaccurately declare less income by 10%, which results in 26% less tax revenue. The largest tax evasion is reported by freelancers who declare less income by 33% (Economic Chamber of Greece, 2011).

3.6 The special audit of the opening of bank accounts

This type of audit is based on a thorough analysis of an individual’s, or legal entity’s, bank accounts over a period of time. The first step is to send a written request to the Greek Union of Banks to abolish bank secrecy for the taxpayer under audit. Then all credit institutions in the country send their written responses concerning all bank accounts held by the auditee in their bank. It should be pointed out that as of end 2016 the speed and quality of data exchange has improved significantly, with the tax authorities gaining instant access to all domestic bank account transactions since 2002. The total amount of primary deposits of each year is then compared with each year’s declared income. Significant upward deviations could signify a possible concealment of income. The results of this type of audit are remarkable (Secondary Data on the Special Audit of the Opening of Bank Accounts for the years 2011–2013). These significant results are reported in Table 4.

In 2011, only 27 audits were completed due to the ‘unknown territory’ SDOE was stepping in. There was initially a significant delay in receiving the data from the Credit Institutions, as experience and coordination with respect to the handling of such cases was at relatively low levels. The responses did not always have the same format, which made data analysis difficult, nor were the datasets complete. As a result it took longer periods of time to process the data collected and draw safe conclusions. In addition, the lack of experience in this type of audit along with the untrained staff constituted a huge barrier. Nevertheless, the results in terms of findings were significant. These 27 completed audits in 2011 revealed a concealment of taxable income of 26,420,540.64€. In terms of tax revenue this is interpreted in 8,046,058.87€ and up to the day the above statistical data were drawn, 3,461,448.62€ had been collected. The next year the total number of audits completed was 68 and they revealed a concealment of taxable income of 68,440,752.91€. In terms of tax revenue this is interpreted in 30,042,984.54€ and up to the day the above statistical data were collected, 4,347,191.75€ had been collected. The fact is that the collectability of this type of tax revenue is very high due to its nature. It is cash or cash equivalents in bank accounts that can be seized immediately. After the audit is completed, an informational report is sent officially from SDOE to the competent tax office. A new command to audit must be issued, so that the tax office performs the audit once again. After this audit is completed, then the tax due is re-calculated and the processes for the tax to be claimed take place. In order to further enhance collectability measures must be taken and reforms must take place so that actions will be made faster and more effectively. In three years (2011–2013) the 172 completed audits resulted in an amount of 160,510,677.74€ of income concealment and 29,840,074.05€ of taxes due. It should be noted that the process of strengthening the audit process, and the ability of the authorities to claim taxes owed and to seize property is constantly evolving and being strengthened.
Table 4  
Results of the special audit of the opening of bank accounts 2011–2013

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of completed audits</th>
<th>Concealment of taxable income</th>
<th>Expected income from income tax (*1)</th>
<th>Amount of violations KBS/KFAS</th>
<th>Taxes due resulting from administrative resolution</th>
<th>Taxes due from judicial appeal</th>
<th>Taxes due definitively</th>
<th>Revenue collection (taxes and fines) (*2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011 1 April to 31 December</td>
<td>27</td>
<td>26,420,540.64</td>
<td>7,926,162.19</td>
<td>10,668,797.06</td>
<td>4,268,200.42</td>
<td>3,167,660.45</td>
<td>610,198.00</td>
<td>3,461,448.62</td>
</tr>
<tr>
<td>2012 1 January to 31 December</td>
<td>68</td>
<td>68,440,752.91</td>
<td>20,532,225.87</td>
<td>12,914,630.90</td>
<td>5,855,742.04</td>
<td>8,338,806.89</td>
<td>2,933,804.71</td>
<td>4,347,191.75</td>
</tr>
<tr>
<td>2013 1 January to 31 December</td>
<td>77</td>
<td>65,649,384.19</td>
<td>19,694,815.26</td>
<td>12,262,178.35</td>
<td>842,014.38</td>
<td>1,214,711.80</td>
<td>2,608,935.36</td>
<td>1,866,989.28</td>
</tr>
<tr>
<td>Total</td>
<td>172</td>
<td>160,510,677.74</td>
<td>48,153,203.32</td>
<td>10,965,956.84</td>
<td>10,000,000.00</td>
<td>12,721,179.14</td>
<td>6,152,938.07</td>
<td>9,675,629.65</td>
</tr>
</tbody>
</table>

Notes: (*1) In order for the expected revenue from income tax to become chargeable and be collected, it is necessary for actions to take place by the local tax offices:  
1 – a command of audit must be issued; 2 – tax re-calculation after submitting additional declarations; 3 – actions for recovery. 
(*2) For the year 2011 the rate of recovery compared to the overall tax claim is 42% (this percentage is incremental over time with the payment of the uncollected amount).
The period under consideration coincides with the period of the medium-term fiscal strategy framework implementation. It is both interesting and useful to briefly examine the goals set and reforms that were realised ultimately. According to the Hellenic national reform program 2011–2014 as far as developing the efficiency of the tax administration was concerned the following moves were made. A new context was designed and applied in order to simplify and enrich tax audits. This includes, among other things, the following elements:

- The General Secretariat of Information Systems (GSIS, which is now transformed into the independent GGDE) performs cross-checks based on risk criteria, and for that purpose it has been given access to all levels of government data of financial interest, including a complete registry of individuals’ property.

- The cross-check program includes all data received from other countries in the context of tax information exchange agreements.

- The Integrated Information System of Auditing Services (ELENXIS), which has been designed to support an objective, automatic and reliable risk-analysis system for the selection of audit cases at the central level, began to be used on a pilot basis in 2011 and today it has been fully implemented (Partalis, 2012).

- One of the main initiatives of the Greek government to improve transparency and accountability in public spending is the implementation of the ‘clarity’ program. This program determines the obligation to publish on the internet all the decisions made by the public administration services, with the exception of decisions that contain sensitive personal data and/or information on national security. More specifically ‘as of 1 October 2010, all ministries are obliged to upload their decisions on the internet and henceforth the decisions of public entities cannot be implemented if they are not uploaded on the Clarity websites, reinforcing responsibility and accountability’.

- Furthermore, the number of local tax offices (LTO) was reduced to 114 by 241 in 2012. The goal was for the state to benefit by 15 million euros in the period 2013–2014 due to the lower operating costs of supernumerary LTOs.
All the above mentioned reforms have taken place and are now implemented fully. The new tax reform strategy aimed at addressing long-standing problems of the Greek taxation system by significantly reducing tax evasion, increasing transparency and improving the effectiveness of tax administration operations. It introduced a number of innovative changes aimed at addressing tax avoidance and tax evasion in Greece. In addition, a tax settlement law (Law 3888/10) was introduced in order to allow citizens to clear up their past tax disputes on a voluntary basis, while the effectiveness of the auditing and audit mechanisms has significantly improved in 2010 compared to 2009. Moreover, new management information system have been put in place (i.e., new Taxisnet and Elenxis, making it possible for the first time since the inception of Taxis in 1991 for auditors to have complete access and to comprehensively analyse all available information for each taxpayer), while a special administrative structure has been set up by the Ministry of Finance (five task forces), in order to implement an extensive anti-evasion plan. Along those lines, a new tax law was voted in March 2011 (law 3943/2011 FEK A’ 66/31.03.11) that reforms tax administration in order to make it an effective instrument reinforcing tax compliance. Specifically under the above mentioned law, changes took place in issues such as:

- combating tax evasion
- restructuring of tax and audit services
- modifications of the provisions of the tax procedure code.

Moreover, as has already been mentioned, the GGDE has been established with the objective of faster and more efficient revenue collection, while under its supervision are established and are operating the large audit centres KEMEP (corporate audit centre) and KEFOMEP (tax centre of high wealth individuals). The fiscal consolidation strategy targeted a more pronounced reduction in general government expenditure (almost by 2/3 of the total fiscal effort) as well as an increase in general government revenue (1/3 of the total fiscal effort), in order to ensure a gradual convergence of public expenditures and revenues over the medium term.

**Figure 2** Medium-term targets (see online version for colours)

![Graph showing medium-term targets](image)

Note: Goals set by the national reform program 2011–2014.
The actual results accomplished are demonstrated in the Figure 3.

**Figure 3** Accomplished results (see online version for colours)

Note: Results accomplished expenditure and revenue (% GDP).

Source: Eurostat (2015)

A general observation that can be made regarding the goals set by the national reform program (and, given that the NRP is integrated with the adjustment program for program countries like Greece the evolving goals set by the ‘adjustment program’) and the actual results accomplished is that though Greece has achieved and exceeded the target in terms of revenues, as far as expenditure is concerned the results vary significantly upwards in relation to the target. As a result convergence between objectives and results has not been achieved.

Overall, during the period of 2011–2014 the tax system has gone through major changes. The most significant among them, as aforementioned, are the changes in the code of income tax and in the code of tax procedures, which have both substantially reformed the tax administration. Furthermore, the code of books and records has also been reformed and has been replaced by the code of trade tax imaging (KFAS), in order to simplify and in some cases overall eliminate time consuming procedures. Finally, a major reform has taken place in the field of revenue management. As has already been mention the establishment of GSPR was followed by various reforms in three fronts: the institutional, the front of the audit and the front of the collection of debts in order to address weaknesses in the system, strengthen tax collection and support the fight against fraud and corruption.

Beyond the overall comparison between goals set and results accomplished as far as public revenue and expenditure are concerned, in order to know the precise impact of the implementation of a certain law in the state’s budget, improvements must take place in budgeting and certain powers must be granted to the General Accounting Office and the LTO’s, which can accompany the screening of the law and its impact on the state budget (European Commission, 2014).
4 Quantitative analysis

4.1 Survey objectives

The Survey objectives were to collect data on the parameters of efficiency already described and presented in Section 1.

a efficient management choices
b effective employees that obtain high level of education and training
c simplification of legislation
d vertical integration of processes by performing all tasks necessary to complete an audit at the same unit.

4.2 Research methodology

The research was conducted by the method of simple random sampling (primary data collection through a questionnaire) and the use of a 23-question questionnaire in Greek (which is cited below – translated into English). The tax auditors that participated in this survey belong to the regional directorate of SDOE in Attica. This directorate had at the time of the survey in total 231 employees, out of which 168 are auditors (performing various types of audits: tax audits, customs, drugs, etc.) and more precisely 145 are tax auditors. On the day that the questionnaires were distributed, the auditors from two sections of the unit were absent as they were attending a seminar, as well as a few other auditors either were on a leave of absence or were attending court trials.

Questionnaires were distributed in total to 100 of these auditors (percentage 68.96%) and 93 were completed and returned (percentage 93%).

The participants were informed that the questionnaire was anonymous and confidential and its completion optional and that it would be used for research purposes only, prior to the completion of the questionnaires. Questionnaires were distributed randomly – meaning that the distribution was carried out without any human judgment or any kind of partiality in sample selection – to all auditors that were at their office the day of the distribution. The completion of the questionnaires was carried out during the respondents’ working hours, as they stated.

4.3 Quantitative analysis

Hypothesis testing for the factors of level of education and experience in audit with the performance achieved/cases of openings of bank accounts completed.

4.3.1 Test if the factor of level of education is correlated with the factor of performance/cases completed, by performing two factor ANOVA

There are two null hypotheses: one for the rows and the other for the columns.

The variable of interest is the performance/cases completed as measured by the responses given in a four level scale (none, 1–3, 4–8, 9 <) and the factor studied is the level of education attainment by the auditor (SE, TE, UE, PE). The results show that the total number of cases completed is the highest in the case of auditors with University
Education as a total, as well as in every level of the scale, with an average of 9.75 which is much higher than in the case of auditors with other levels of educational attainment.

**H0** There is no significant difference in yield between the (population) means of the auditors with different levels of educational attainment.

**Table 5** Correlation between the level of education and performance/cases completed

<table>
<thead>
<tr>
<th>Cases completed</th>
<th>SE</th>
<th>TE</th>
<th>UE</th>
<th>PE</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>6</td>
<td>5</td>
<td>15</td>
<td>8</td>
<td>34</td>
</tr>
<tr>
<td>1–3</td>
<td>4</td>
<td>8</td>
<td>17</td>
<td>9</td>
<td>38</td>
</tr>
<tr>
<td>4–8</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>9 &lt;</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Sum</td>
<td>11</td>
<td>20</td>
<td>39</td>
<td>23</td>
<td></td>
</tr>
</tbody>
</table>

Notes: SE: secondary education; TE: technical education; UE: university education; PE: post-graduate education.

**Table 6** ANOVA: two-factor without replication

<table>
<thead>
<tr>
<th>Summary</th>
<th>Count</th>
<th>Sum</th>
<th>Average</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>4</td>
<td>34</td>
<td>8.5</td>
<td>20.33333</td>
</tr>
<tr>
<td>1–3</td>
<td>4</td>
<td>38</td>
<td>9.5</td>
<td>29.66667</td>
</tr>
<tr>
<td>4–8</td>
<td>4</td>
<td>19</td>
<td>4.75</td>
<td>6.25</td>
</tr>
<tr>
<td>9 &lt;</td>
<td>4</td>
<td>2</td>
<td>0.5</td>
<td>0.333333</td>
</tr>
<tr>
<td>SE</td>
<td>4</td>
<td>11</td>
<td>2.75</td>
<td>7.583333</td>
</tr>
<tr>
<td>TE</td>
<td>4</td>
<td>20</td>
<td>5</td>
<td>8.666667</td>
</tr>
<tr>
<td>UE</td>
<td>4</td>
<td>39</td>
<td>9.75</td>
<td>56.91667</td>
</tr>
<tr>
<td>PE</td>
<td>4</td>
<td>23</td>
<td>5.75</td>
<td>16.25</td>
</tr>
</tbody>
</table>

**Table 7** ANOVA

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>SS</th>
<th>Df</th>
<th>MS</th>
<th>F</th>
<th>P-value</th>
<th>F crit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rows</td>
<td>200.6875</td>
<td>3</td>
<td>66.89583</td>
<td>8.911193</td>
<td>0.004654</td>
<td>3.862548</td>
</tr>
<tr>
<td>Columns</td>
<td>102.1875</td>
<td>3</td>
<td>34.0625</td>
<td>4.537465</td>
<td>0.0336</td>
<td>3.862548</td>
</tr>
<tr>
<td>Error</td>
<td>67.5625</td>
<td>9</td>
<td>7.506944</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>370.4375</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Since the p-value for the rows = 0.004654 < 0.05 = α (or F = 8.91 > 3.86 = F-crit.) we reject the null hypothesis, and so at the 95% level of confidence we conclude there is a significant difference in the performance of the auditors according to their level of educational achievement.

The null hypothesis for the columns is:

**H0** There is no significant difference in yield between the (population) means of the cases completed.
Since the p-value for the columns = 0.0336 < 0.05 = $\alpha$ (or F = 4.53 > 3.86 = F-crit.) we reject the null hypothesis, and so at 95% level of confidence we conclude there is significant difference in the yields of the cases completed.

We conclude that the level of education impacts the performance outcome significantly.

4.3.2 Test if the factor of experience in audit is correlated with the factor of performance/cases completed, by performing two factor ANOVA

The null hypothesis for the rows is:

H0 There is no significant difference in yield between the (population) means of the auditors with different years of experience in audit.

<table>
<thead>
<tr>
<th>Cases completed</th>
<th>Years of experience in audit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0–2</td>
</tr>
<tr>
<td>None</td>
<td>6</td>
</tr>
<tr>
<td>1–3</td>
<td>9</td>
</tr>
<tr>
<td>4–8</td>
<td>6</td>
</tr>
<tr>
<td>9 &lt;</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 8 Correlation between the experience/years in audit and performance/cases completed

<table>
<thead>
<tr>
<th>Summary</th>
<th>Count</th>
<th>Sum</th>
<th>Average</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>4</td>
<td>34</td>
<td>8.5</td>
<td>20.33333</td>
</tr>
<tr>
<td>1–3</td>
<td>4</td>
<td>38</td>
<td>9.5</td>
<td>17.66667</td>
</tr>
<tr>
<td>4–8</td>
<td>4</td>
<td>19</td>
<td>4.75</td>
<td>6.91667</td>
</tr>
<tr>
<td>9 &lt;</td>
<td>4</td>
<td>2</td>
<td>0.5</td>
<td>0.33333</td>
</tr>
<tr>
<td>0–2</td>
<td>4</td>
<td>21</td>
<td>5.25</td>
<td>14.25</td>
</tr>
<tr>
<td>3–5</td>
<td>4</td>
<td>30</td>
<td>7.5</td>
<td>28.33333</td>
</tr>
<tr>
<td>6–8</td>
<td>4</td>
<td>14</td>
<td>3.5</td>
<td>5.66667</td>
</tr>
<tr>
<td>9 &lt;</td>
<td>4</td>
<td>28</td>
<td>7</td>
<td>50.66667</td>
</tr>
</tbody>
</table>

Table 9 ANOVA: two-factor without replication

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>SS</th>
<th>Df</th>
<th>MS</th>
<th>F</th>
<th>P-value</th>
<th>F crit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rows</td>
<td>200.6875</td>
<td>3</td>
<td>66.89583</td>
<td>6.267404</td>
<td>0.013851</td>
<td>3.862548</td>
</tr>
<tr>
<td>Columns</td>
<td>39.6875</td>
<td>3</td>
<td>13.22917</td>
<td>1.239427</td>
<td>0.351456</td>
<td>3.862548</td>
</tr>
<tr>
<td>Error</td>
<td>96.0625</td>
<td>9</td>
<td>10.67361</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>336.4375</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Since the p-value for the rows = 0.013851 < 0.05 = $\alpha$ (or F = 6.26 > 3.86 = F-crit.) we reject the null hypothesis, and so at the 95% level of confidence we conclude there is significant difference in the yields produced by the auditors with different years of experience in audit.

The null hypothesis for the columns is:
H0 There is no significant difference in yield between the (population) means for the cases completed.

Since the p-value for the columns = 0.35 > 0.05 = α (or F = 1.23 < 3.86 = F-crit.) we cannot reject the null hypothesis, and so at 95% level of confidence we conclude there is no significant difference in the yields of the cases completed.

We conclude that the years of audit experience do not impact the performance outcome positively. This is not an oxymoron. Indeed, it has been observed that the younger and more inexperienced auditors are, the better they adjust to new types of audit securing better results. Moreover, this type of audit demands a high level of proficiency in computers – more specifically skills in Excel and data analysis – and so new auditors with smaller experience tend to outperform their experienced colleagues in this respect.

5 A positive way to reform the tax system in Greece

Greece has an economy that has as salient aspects a disproportionately large number of self-employed (Mitsopoulos and Pelagidis, 2011), a small average size of companies (European Commission SBA factsheet data), a small number of private sector employees when compared to public sector employment (Pelagidis and Mitsopoulos, 2014) and a low level of private sector average wages (Pelagidis and Mitsopoulos, 2015). At the same time, as we have seen, the tax income take as a percentage of GDP is low, which is due to the shortfall in income taxes (Pelagidis and Mitsopoulos, 2014) in spite of the high and very progressive tax wedge, when compared to other similar countries and the OECD average as presented by the OECD taxing wages publication (OECD, 2015).

All these observations are directly related to, and reflect, the fact that private sector salaried labour is taxed highly and very progressively, both when compared internationally and when compared to other wage and pension income earners and self-employment (Mitsopoulos and Pelagidis, 2011; Mitsopoulos, 2017). As salaried labour, especially at above average wages, is a key input to larger, and better organised, companies (Pelagidis and Mitsopoulos, 2010; e.g., Gibson and Stillman, 2009) the structure of the tax rates effectively introduces a disincentive for companies to grow in size. In addition one should note that, in all countries, smaller companies and self-employed have a larger flexibility to shift part of their activities in the shadow economy, where they can avoid to an increased extent exposure to the high tax wedge through the use of clandestine employment, moonlighting part-time employment or the under-reporting of actual wages. This is, as a matter of fact, the case especially in the food and beverage, retail and hotel sectors (Davis and Henrekson, 2004) that are significant sectors in Greece.

In view of this analysis, the large extent of the shadow economy in Greece is not dependent only on the per se efficiency of the tax authority’s auditing mechanism, but also a result of the incentives the broader framework provides for Greek companies to stay small (Mitsopoulos, 2016). The structure of the tax and benefit system is closely entwined with these incentives, as an examination of the structure of declared incomes, as documented in the data collected by the Ministry of Finance, reveals.

In particular, according to the general government budget execution bulletin in 2014 the general government paid 13 billion euros in salaries and wages. According to tax data for 2015 (the year salary earners declared their 2014 income), the total amount of
declared income from salaries and wages was 32.1 billion euros – leaving thus about 19.1 billion euros for wages and salaries earned, and declared, by the private sector, an estimate that is broadly compatible with the social security contribution revenue of IKA which is the main private social security fund for private sector employees. At the same time, income declared from pensions was 24.7 billion euros. From other data sources, like the progress reports of the adjustment programs of Greece, we know that the average wage earned in the public sector and the average pension of former public sector employees exceed the average private sector wages and pensions. This means, public sector wages contribute to the peak in the distribution of wage incomes around the 10,000 euro per year income bracket, while the higher peak in the distribution of pensions can be attributed to the relatively generous public sector pensions (Figure 4).

**Figure 4** Analysis of MoF 2015 tax filing data (see online version for colours)

![Figure 4 Image](image_url)

**Figure 5** Analysis of MoF 2015 tax filing data and application of legislated tax rates (see online version for colours)

![Figure 5 Image](image_url)

**Figure 6** Analysis of MoF 2015 tax filing data and application of legislated tax rates (see online version for colours)

![Figure 6 Image](image_url)
Having access to the income declared in 2015 by salary and pension income earners, and the legislation according to which the tax rates were applied to this income, we can compute the tax contribution of each income source and the distribution of the tax credit foreseen for salary and pension income (Figures 5 and 6). This analysis shows us that the value of the tax rebate offered to pension and wage income, as foreseen for 2015 by Article 16 of the code of income tax, mainly benefited the main mass of wage and pension income that is concentrated in the range between 5000 and 25,000 euros of annual wage and salary income. That in turn includes to a large extent the wages paid to public sector employees and to pensioners, including relatively generously paid former public sector employees (the relative generosity of public sector pensions is suggested by Helios system data, while for the wages tables from the MoU reviews during 2014 contained related data and IKA data allows to extract private sector earnings from the total wage bill declared to the tax authorities).

As a matter of fact, the estimates (Mitsopoulos, 2017) show that the value of this tax rebate amounts to approximately 3.9 billion euros for all declared wage income and 3.4 billion euros for all declared pension income – in total 7.3 billion euros, with the 6.2 billion being related to pension and wage income of up to 25,000 euros for 2015.

The rebate affects the majority of pension and salary earners – in total about 5.4 million (that is 2.6 million pension earners, about 630,000 general government employees according to the apograft of 2014 and about 2.2 million private sector wage earners).

This analysis shows us that in the end the tax rebate benefits to a large extent the majority of pensioners and public sector earners excluding them from the, politically costly, payment of income tax, a fact that is in line with the reality of a state in which rent-seeking is widespread (Mitsopoulos and Pelagidis, 2009). The notable cost of this tax rebate (over 7 billion euros) is an integral ingredient of the high progressiveness of the income tax structure that excludes the majority of salary and pension earners from any income tax. It is also directly linked with the need to keep pushing up the income tax rates for higher income brackets and other taxes (e.g., the very progressive property tax), that combine to form a large extent burden for a small number of private sector wage earners that have earnings and property that are higher than the level that benefits from the current design of the tax system and that in addition pay the extraordinary levy.

But the major impact of this high value rebate can be found beyond the tax system: private sector employees pay substantial social security contributions that are very high both according to the OECD taxing wages report and when compared to the proportion of
the sum of these contributions as a percentage of GDP. As wage earners in Greece are proportionally few, and wages low when compared to euro-area averages, the fact that social security contributions by wage earners are about average hints at a high per individual burden (Pelagidis and Mitsopoulos, 2014). These high social security contributions imply that the tax wedge is high in Greece when compared to the OECD average for low wage income earners in spite of the zero income tax they pay. This is the last piece of evidence needed to establish how the Greek tax and social security system redistributes income from private sector wage earners towards public sector employees and pensioners. As the social security contributions of the latter are much lower than those of the private sector employees (this has changed by some extent as of spring 2016 with the latest reforms adopted as prior actions for the third MOU), and the tax rebate is not conditional on parameters like the existence of minors or the age of a pensioner, this structure burdens disproportionally private sector employees.

Thus, the lower bracket of private sector salary earners pay the majority of the contributions to IKA, given that the majority of salary earners are concentrated in these brackets as a reasonable response to the high and progressive tax rates at higher income brackets. Private sector employees with higher wages, that is exactly the labour input better organised and larger companies use, are then burdened in addition with the extremely progressive tax rates. The fact that social security contributions are flat, up to a given high level where they peter out, while income tax is very progressive means that the income from social security contributions from IKA (about 9–10 billion euros) easily exceeds all income tax, from all income sources.

Having all these pieces of evidence we can envision a reform of tax rates and social security contributions that will remove a strong disincentive for Greek companies to grow in size and use more intensively salaried labour and thus evolve towards an organisational structure that is linked with a lower propensity to engage in the shadow economy and evade taxes (Figure 7).

Figure 7 Schneider (2012) data on shadow economy, SBA Factsheet data on distribution of business employment (see online version for colours)

In particular, reducing drastically the level and value of the tax rebate, and redistributing its sizeable impact towards:
a a reduction of private sector social security contributions of about 15% (of a static value 1.5 billion euro, about 8 pp, from a combined total of 48% to 40%), mainly through the elimination of the charges beyond the contribution for pensions and medical coverage

b the introduction of a sizeable tax break that is linked to the existence of underage children and in a way that ensures that a family of two public sector employees with two children is not worse off, and preferably better off, after the reform is completed

c the protection, or even increase, of the tax rebate only for pensioners of high age, can significantly alter the incentives to work in Greece in a socially just way.

That is, because the value of the tax rebate will not be reduced, but it will be reallocated, in a way that favours:

a private sector salaried employment
b working parents
c the elderly.

With the adoption of such a drastic redesign of the structure of the income tax system and the non-core social security contributions, the efforts to support the capacity of the tax authorities to detect tax evasion, and to enforce effectively the related legislation, will be supported by incentives, throughout the economy, to move towards forms of economic activity that are linked with higher tax compliance, both on their part and on the part of their workforce. Such is the case of companies with a more organised structure and better internal governance that use as an input predominantly salaried employment, rather than self-employment or the employment of family members. It is this combined approach that will, in the end, allow the country to eliminate the part of the shadow economy that separates it from the average observed in most other developed countries.

6 Conclusions

The accomplishments of SDOE during the past years are significant and clearly demonstrate the capacity of this unit. This performance is based on a number of factors, and it is argued here that further enhancing them will contribute further towards the goal of an efficient tax administration. The factors analysed in Section 1 were:

a management choices
b employees that receive lifelong education and training
c simplification of the legislation implemented
d vertical integration of processes.

The responses of the auditors on a special questionnaire reveal their perception of the unit, as well as their view on the above mentioned parameters of efficiency. They feel that goals are set by the management of SDOE both numerically and qualitatively and that they receive help from their supervisors at a high level. They feel that there is a positive correlation between training and lifelong training and with work performance. There is positive correlation between auditors’ level of education and work performance,
whereas experience in audit does not appear to ameliorate performance in the new and special type of audit of ‘openings of bank accounts’. Therefore, we can conclude that placing efforts in enhancing the above mentioned existing parameters can bring about a significant improvement of outcomes. Thus, it is necessary to continue this positive trend, and to set clear and well-reviewed goals. Furthermore, one should keep on enriching man power with younger auditors and at the same time emphasise training with special seminars for all auditors, also by offering continuous opportunities for training and acquiring useful skills for the job. Finally, the most important point is to simplify the tax laws and procedures, not only in order to enhance auditors’ performance and achievements, but also in order to promote transparency in audit and to reflect procedures statistically, as well as what they attribute. Only then will there be an objective assessment of the work done, objective goals will be set and there will be a connection between performance and remuneration of employees which is a strong incentive for performance amelioration.

Yet, the continuing improvement of the efficiency of the SDOE will by itself not suffice to bring income tax evasion in Greece to EU averages level. Distortions in the structure of income tax and the social security system that discourage the transformation of the economy towards attributes that are linked with a lower propensity towards a shadow economy need to complement this effort, in order to tackle tax evasion from all directions.

Calculations show that one could redistribute in a socially just way the current value of the unconditional tax rebate on pensions and salaries, that has an implicit value of 7.3 billion euros in a way that will encourage working families, as well as private sector salaried employment especially in companies that generally are larger, better organised and demonstrate a lower propensity to engage in undeclared economic activity. Such changes would most likely encourage the growth of the tax-base.

References
Law 3296/2004 Founding Act of SDOE.
Law 3691/2008 Money Laundering.


Presidential Decree 111/2014, Present Structure of SDOE.


Primary Data Collected Through a Questionnaire (Appendix 1).


Secondary Data on the Audits Performed by SDOE in Years 2011–2013 from the Central Office of SDOE.

Secondary Data on the Special Audit of the Opening of Bank Accounts for the years 2011–2013 from the Central Office of SDOE, Department of ELENXIS.