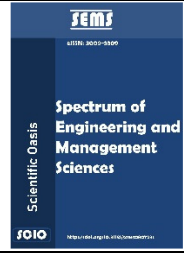




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Current Problems and Solutions of Certified Public Accountants in Türkiye

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ABSTRACT

This study aims to determine the main problems of Certified Public Accountants (CPAs) and the sub-problems under them and to develop solution proposals for these problems. In this context, evaluations will be obtained regarding the problems of CPAs and the solutions to these problems via the q-rung orthopair fuzzy Delphi technique. The study differentiates itself from the literature and reveals its originality with the revealing of current problems of CPAs, the development of solution proposals for these problems, and the employed methodological approach. Based on literature and expert opinions, 53 problems and 14 solution suggestions were identified. It was found that the 28 problems were critical, and the nine solution suggestions could provide a meaningful solution. In addition, the findings showed that the most critical problems were the stress of the profession, heavy workload, and frequently changing legislation. The most critical solution proposals were to transfer the legal obligations that coincide with the financial holiday period to the next month by the Ministry of Finance, to prepare the legislation related to accounting in coordination with chambers and members of the accounting profession, and to simplify tax declarations.

1. Introduction

Governments, individuals, and businesses need written and recorded systems to carry out their income, expenses, and tax processes in a healthy manner. Historically, accounting transactions and professionals have played the most important role in this regard. Accounting records are written documents in which calculations are seen and recorded. Although the basic idea has been the same since the first accounting system was developed, major changes have occurred [1]. The accounting profession in Turkey reached legal regulation with Law No. 3568 published in 1989 [2]. The accrual-based accounting system is being adopted in Türkiye. Within this framework, evaluations have been made on various issues, including authority and responsibility in the taxpayer-accountant relationship. Restrictions have been imposed on the authority and responsibility of accountants. In

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the accounting-tax law relationship, one party is the creditor, that is, the state/government, and the other party is the debtor, the taxpayer. Financial advisors are a professional group that is stuck between the state and the taxpayer and, in this case, carries important responsibilities for both parties [3].

Accounting plays a very important role in determining the financial status of businesses, managing resources in an up-to-date manner, and making the right decisions [4]. Accounting starts with the decision to establish a business. After that, expenses related to the business begin, and accounting transactions continue until the decision is made to close the business [5].

The professional group that performs accounting transactions in Turkey includes certified public accountants (CPAs), sworn-in certified public accountants (SCPAs), and assistant accounting staff. Naturally, CPAs and SCPAs within this group must go through certain processes to gain the title and carry responsibility for the job. To become an SCPA, it is mandatory to work as a CPA for at least ten years. However, SCPAs do not keep books/ledgers and audit the compliance of real or legal people with legislation and accounting standards. CPAs are individuals who are responsible for carrying out accounting and tax transactions on behalf of their taxpayers. Therefore, CPAs are professionals who act as bridges between the state and business owners [6]. These professional groups, which act as a bridge between businesses and governments, are affected by social and legal changes. Undoubtedly, the last decade (2016-2025) includes many serious events, especially the COVID-19 pandemic. In this context, the current problems of CPAs and their solutions are discussed in this study.

The Delphi technique, defined under the q-rung orthopair fuzzy (q-ROF) environment, will be used to determine the problems of CPAs and the solution recommendations (or strategies) for these problems. The q-ROFSs provide a wide range of processing space for uncertain information. This new extension of the Delphi technique, in addition to the advantages of the classical Delphi technique, also enables the processing of uncertain information. In this context, it is thought that the study will provide valuable contributions to the problems of an important professional group.

2. Research Background

Accounting transactions are accomplished through records, and the rapidly increasing pace of technological advancement is causing transformations in the CPA and accounting professions. These modifications improve the efficiency of accounting transactions [7]. Accountants, on the other hand, must adapt to changes during transformations. In addition to technological developments, conjunctural events such as economic crises, disasters, and diseases put pressure on the accounting profession to change. The last twenty years have seen significant events such as the global economic crisis, the COVID-19 pandemic, and the major earthquakes. Examining the problems that occurred during such a period, as well as the problems mentioned in the literature, will improve the work efficiency of accounting professionals and their positive contributions to the country's economy, as well as provide many positive inferences within the framework of the Sustainable Development Goals (SDGs) and Türkiye's 12th Development Plan.

Studies show that accounting professionals' concerns are explored from a variety of perspectives. In this context, the problem groups can be classified as follows: effects of the profession on private life, entry into the profession, perspective toward the profession, colleagues and the profession's reputation, taxpayers, audits and relations with public institutions/members, work environment and workload, legislation, wages, professional chambers, and current problems [8,9]. The negative consequences of work on private life are among the problems that occur when considering how a CPA's career influences his or her private life [10,11]. Accounting work is known to produce a variety of health issues, including herniated discs, neck hernias, posture difficulties, vision problems, and

burnout syndrome. The lack of satisfaction in the accounting profession is another significant problem [2,9].

Every profession has its own traditions and legal framework. These regulatory frameworks and norms serve as guidelines for accounting professionals looking to enter and stay in the field. Nonetheless, a number of factors, particularly those related to technology and conjuncture, are driving change and transformation in the field. The lack of a professional structure for the profession [2], the low wage policy of a colleague opening a new office causing unfair competition, the narrowing of the labor market by a colleague opening a new office, and the inadequacy of the system of entering the profession and the perspective towards the profession are all issues that accounting professionals have expressed [9,12].

In addition to the attitude toward entering the field and working, the respect that society and professionals have for one another is crucial to the job's reputation. It was explicitly stated that the profession's reputation among colleagues is not sufficiently accepted [1,6]. There are more members of the profession than are required, according to several studies [8,12]. On the other hand, finding qualified and experienced new assistant staff is a challenge [13,14]. Failure to comply with international accounting standards is also viewed as problematic [9,10]. An ethical dilemma arises when a colleague makes a job offer to a client who has a continuous employment agreement with a different colleague [13]. There are issues like a lack of solidarity [13], unfair competition among colleagues [11,14], and some colleagues keeping the books extremely cheaply [1,6,8].

In accounting transactions, the third important actor, along with the government and the accounting professional, is the taxpayer. Taxpayers come from all segments of society, with different income levels and cultural backgrounds. In this context, it is not possible to create a single specific taxpayer profile. On the other hand, the following situations arise: requesting that taxpayers pay less taxes from members of the profession [8,10,13], requesting that work be done against the law [1,15], showing high business profits request [9,10], failure to conduct healthy communication [9,10], having to deal with different tasks other than bookkeeping [8], irregular payment of wages or non-payment at all [13,16], requesting that information in records/financial statements be changed on demand [17], not preferring colleagues who work in accordance with the legislation and rules [13] and not being able to develop a relationship based on mutual respect and trust [11,17].

One of the important actors in accounting transactions is the government/state. CPAs are in close working relationships with many public institutions and their subordinate organizations, such as the Ministry of Finance, the Revenue Administration, the Social Security Institution, and the Ministry of Labor and Social Security. In this context, the problems experienced with audits and public institutions/members include excessive audits [8,18], taxpayers being seen as potential criminals and exhibiting threatening attitudes during tax audits [8,10,18], negative attitudes of public officials towards accounting professionals [17,18], prejudiced behavior of public auditors [10,18], the Ministry of Finance not making enough efforts to register the economy [8,11,17], tax office employees not exhibiting a facilitating attitude in completing transactions [13], and excessive bureaucracy in state institutions [9].

Job and life satisfaction are two important factors that are intertwined and support each other. Work environment and workload directly affect the lives of professional accountants. Problems related to the work environment and workload include the stressful nature of the profession [1,13], heavy workload [1,8,17], inadequate financial holiday practices [1,16], boring office environment and work order [13,17], and not being able to spare time for private life due to workload [9,10].

Accounting transactions must be carried out in accordance with legal regulations. However, accounting professionals face various problems related to legislation. Frequent changes in legislation [11,14], inability to adequately follow changes in legislation [6,9], lack of unity of practice in the

implementation of legislation [13], difficulty in understanding legislation [6,10], increase in the number of declarations with digitalization [19], and frequent amnesty for tax penalties [16] are among the problems that can be mentioned in this context.

CPAs or accounting professionals receive a certain fee for the transactions they perform. At this point, the problems of not paying wages on time [17], inadequate wages [13], and low earnings compared to responsibilities and competencies affect the lives of accounting professionals [9].

According to the Regulation on the Chambers of Certified Public Accountants, the objectives of the Chamber of Certified Public Accountants (CCPA) are to ensure the development of the profession by conducting studies in the professional field, to protect the honor of the profession, and the rights of its members, to develop the application norms of the profession, to contribute to professional education, to establish solidarity among members, and to prevent unfair competition. According to the Regulation of the Union of Chambers of Certified Public Accountants and Sworn-In Certified Public Accountants of Türkiye, the objective of the Union of Chambers of Certified Public Accountants and Sworn-In Certified Public Accountants of Turkey (TÜRMOB) is to carry out the works foreseen by TÜRMOB in the legal legislation, together with those specified for CPA. In this context, it is natural for members of the accounting profession to have expectations from TÜRMOB and CCPAs in line with the specified objectives. Members of the accounting profession complain that professional chambers and associations do not sufficiently defend the rights of members of the profession [6,13]. It was stated that TÜRMOB and CCPAs do not help solve problems between colleagues [8,14,17], do not provide professional consultancy services [11,18], and do not have enough resources, such as journals, bulletins, etc. Also, it was stated that they do not impose enough penalties for professional rule violations [8,17].

In addition to the problems mentioned in the literature, it is thought that the COVID-19 pandemic, global and local economic uncertainties, and technological developments have created new problems for accounting professionals. At this point, the market environment created by the pandemic has created striking changes in the income and expenses of businesses. This situation has affected the financial statements of businesses and caused them to manage their cash flows with non-traditional methods. The government support provided, especially tax deductions, to reduce the economic impact of the pandemic has also disrupted traditional registration procedures. Remote working and adaptation to it, another important effect of the pandemic, can also be seen as a source of problems [19].

Following the COVID-19 pandemic, it is thought that the significant increase in inflation in Türkiye compared to the recent past and the implementation of inflation accounting as of 2024 has created new problems for CPAs and other professionals. In particular, the valuation of assets and liabilities becomes difficult in periods of high inflation. Inflation negatively affects the accuracy and reliability of financial reports. This situation may prevent the effective presentation of tax and other legal obligations. Furthermore, the current period is witnessing great technological advancements, notably in the areas of digital transformation and artificial intelligence. In addition to the effective performance of accounting transactions by making use of technological opportunities, the security and confidentiality of data can also be seen as an important problem. Finally, providing sufficient equipment to keep up with technological changes and establishing appropriate training can also be a challenge [4,20]. In this context, it is thought that accounting professionals face various current problems. It is believed that this study will provide important inferences in determining current problems as well as the problem groups included in the literature.

There are various solution recommendations in the literature for the problems encountered by professionals in accounting. One of these is that the chambers, TÜRMOB, or the Ministry of Treasury and Finance should define the base and ceiling limits for fees and mediate payments by taking more

responsibility [21,22]. In this way, it is thought that the problems in the context of fees that arise in the relationship between taxpayers and accounting professionals will be solved.

It is suggested that a quota be set for the number of books to be looked at within the scope of preventing unfair competition among colleagues, increasing quality, and adhering to ethical principles [21]. It has been stated that the quota can be determined in the context of the number of offices by province, the number of taxpayers, business turnover, and the business volumes of taxpayers. It is expected that the solution proposals regarding wages and quotas will contribute to the reduction of workloads of accounting professionals, increase in service quality, and provision of more time for private life [22].

Another important issue is the existence of some transactions that need to be done during the financial holiday period. The transfer of legal obligations that fall within the financial holiday period to the next month by the Ministry of Finance can be adopted as a solution [1,8,13]. It has been stated that the transfer of legal obligations that fall within the financial holiday period to the next month will positively contribute to the productivity of professionals [21].

It is stated that the high number of undergraduate programs that must be graduated to become accounting professionals reduces the quality in terms of education and employment. In this context, it is recommended that CPA vocational training be directly included in university undergraduate programs and supported with compulsory internships [1,21]. Such an approach will allow the determination of the increasing number of professional members every year within the scope of needs and the early training of personnel directly for work. It can be stated that including applications and new technological developments in the training in question will contribute to keeping up with the digital transformation and the age [12]. In addition, such an approach is expected to provide an effective solution to eliminate the lack of qualified personnel [1].

Following and understanding the legislation related to accounting is one of the important problems for CPAs. It is emphasized that coordination should be ensured between chambers and members of the profession and the public institution in the preparation process of the legislation aimed at solving this problem [8,11,21].

One of the problem groups faced by accounting professionals includes the problems they experience with public institutions and their members. To eliminate the negative attitude towards accounting professionals in public institutions, it is recommended that a part of the 3-year internship periods of the professionals be spent in public institutions such as the Revenue Administration and the Tax Office [21].

It is mentioned that there has been an increase in the number of declarations with digitalization and the need for simplification. It is claimed that this rise in quantity and content leads to tax avoidance and complexity. At this point, simplifying the content and number of declarations will increase efficiency [22,23].

In today's world, where digital transformation is ongoing, complete technological adaptation is critical to the efficacy of the accounting profession. The inability to use or access the appropriate hardware and software is a serious issue. In this context, accounting professionals must embrace digital transformation and keep up with current advances to be contemporary [19-20].

The comprehensibility and comparability of accounting transactions on a global scale provide significant convenience for businesses to open to foreign investors or enter new international markets. However, for accounting transactions and the professional group to achieve national and international harmony, it is essential to create a common accounting language that is compatible with international accounting standards [8,11,19].

Communication and interaction between accounting professionals, taxpayers, and staff members of public institutions are common. Professionals dealing with transaction compliance will also need

to regularly communicate with one another about recent events such as economic crises, pandemics, and technological developments. In this context, ongoing professional development in subjects including ethics, laws, and current affairs can be provided by chambers and/or TÜRMOB. The aforementioned problems could be resolved with the aid of education provided by TÜRMOB and chambers [8,11,15].

The expectation of sanctions is strongly emphasized in solving some problems related to colleagues. In this context, it is stated that chambers will provide a solution for the deterrent disciplinary punishment up to the cancellation of the license of the relevant professional in cases such as violation of the minimum wage tariff, ethical rules, or legislation [17].

The legislator has foreseen various sanctions due to non-payment of accrued taxes. However, regulations are being made that grant amnesty to the said penalties for various reasons. This situation causes discussions and problems between accounting professionals and taxpayers. It is thought that a legal obstacle to the introduction of tax amnesties and therefore the failure to introduce tax amnesties will provide a solution to the problem [16]. It is also stated that tax amnesties direct taxpayers not to pay taxes, create an expectation of amnesty, and indirectly punish honest taxpayers [16,24].

It is seen that the studies in the literature examine the problems of accounting professionals and their solution proposals from different perspectives and spatially. Undoubtedly, it does not seem possible to solve all problems with a single solution tool. At some point, a solution approach to be adopted may also lead to the emergence of different problems. In this context, the study plans to reveal the current problems of CPAs, develop possible solutions for them, and determine the priorities of the problems and solutions. In addition, the study differentiates itself from the studies in the literature with the methodology to be used and the features that will directly reveal the differences in the current problems of CPAs and their solution proposals.

It is thought that the study will contribute to the goals of “stable growth, strong economy” and “qualified people, strong families, healthy societies”, which are two of the five main axes of Türkiye’s Twelfth Development Plan, as well as “end poverty”, “decent work and economic growth”, “qualified education,” “peace, justice, and strong institutions,” and “reduced inequalities” from the SDGs. Solving the problems of CPAs, who play a key role in the accounting sector, will contribute to the effective management of businesses, especially their financial resources, and will have a positive impact on economic development. Training CPAs, evaluating their professional development criteria, and presenting suggestions will support the formation of a qualified workforce. Strengthening CPA human resources and increasing their welfare will also contribute to achieving the goals of a strong family and qualified people. The key role of CPAs and other accounting professionals in taxation is at a level that will directly affect the state's fiscal and revenue policies.

Presenting the problems and policy suggestions for their solutions will contribute to the strengthening of the accounting sector. Thus, the goals of combating poverty, creating a decent work environment, and eliminating inequalities within the sector will be contributed to by increasing the qualified workforce and employment.

The study will contribute to the formation of strong institutions by presenting suggestions for the development of suggestions for the legal frameworks, ethical rules, and fair business practices of the accounting profession. In this context, it can be stated that the study supports the main objectives and related sub-objectives and targets specified in Türkiye's Twelfth Development Plan and SDGs.

3. Methodology

The study will address current issues and solution proposals for CPAs. In this context, the study is designed as a multi-criteria decision-making (MCDM) problem. Problems that arise in complex and

fuzzy environments are unlikely to contain precise information. In particular, identifying expressions with a precise number value in studies based on linguistic/verbal evaluations results in a degree of loss of information. In this case, tools that can process fuzzy or uncertain information are needed.

In processing the uncertainties contained in the encountered problems, multi-criteria decision analysis (MCDA) methods defined under fuzzy sets provide reach to effective solutions. Fuzzy logic aims to address uncertain problems with insufficient information, reasoning, inference, and calculation, which are beyond the scope of traditional methods [25]. On the other hand, since Zadeh [26] introduced the fuzzy set theory, various fuzzy sets have been developed within the framework of scientific developments. Classical fuzzy sets have been insufficient in effectively modeling most problems because only the membership degree is considered. Atanassov [27] has overcome this problem to a certain extent with an intuistic fuzzy set (IFS), where membership and non-membership degrees can be determined independently. However, the uncertainty processing area, which is limited by the sum of membership and non-membership degrees being equal to or less than 1, has also prevented the solution of most problems. To overcome this problem, Yager [28] proposed the Pythagorean Fuzzy Set (PFS), which requires the sum of the squares of the membership degree and the non-membership degree to be less than or equal to 1. Upon observing a similar problem in PFS, Yager [29] proposed the q-rung orthopair fuzzy set (q-ROFS), which requires the sum of the q-power of the membership degree and the q-power of the non-membership degree to be less than or equal to 1. Thus, it is possible to process uncertainties by utilizing a wider area [30,31]. Within the scope of the study, evaluations of CPA experts based on linguistic expressions will be taken. These linguistic expressions contain uncertainties. In line with the stated reasons, it is planned to utilize q-ROFS in the study.

3.1 Q-rung Orthopair Fuzzy Sets

Let X be a nonempty set. A q-ROFS A of X is presented in Eq. (1), where $a_A(x)$ shows the degree of membership and $b(x)$ denotes the degree of non-membership:

$$A = \{ \langle x, (a_A(x), b_A(x)) \rangle | x \in X \}, \quad (1)$$

here $a_A(x) \in [0,1]$, $b_A(x) \in [0,1]$, $0 \leq (a_A(x)^q + b_A(x)^q) \leq 1$, ($q \geq 1$) conditions are valid. Also, the degree of uncertainty is indicated by $\pi_A(x) = (a_A(x)^q + b_A(x)^q - a_A(x)^q b_A(x)^q)^{1/q}$. For the sake of convenience in notation, let the two q-ROF numbers (q-ROFNs) be denoted by g_1 and g_2 . In this context, we can express the following operations, the score function ($\mathcal{S}(g_1)$), and the accuracy function ($\mathcal{A}(g_1)$) [30,32].

$$g_1 \oplus g_2 = \left(\sqrt[q]{(a_1)^q + (a_2)^q - (a_1)^q (a_2)^q}, b_1 b_2 \right), \quad (2)$$

$$g_1 \otimes g_2 = \left(a_1 a_2, \sqrt[q]{(b_1)^q + (b_2)^q - (b_1)^q (b_2)^q} \right), \quad (3)$$

$$\xi g_1 = \left(\sqrt[q]{1 - (1 - (a_1)^q)^\xi}, (b_1)^\xi \right), \xi \geq 0, \quad (4)$$

$$g_1^\xi = \left((a_1)^\xi, \sqrt[q]{1 - (1 - (b_1)^q)^\xi} \right), \xi \geq 0, \quad (5)$$

$$(g_1)^c = (b_1, a_1), \quad (6)$$

$$S(g_1) = \frac{1}{2}((a_1)^q - (b_1)^q + 1), S(g_1) \in [0, 1], \quad (7)$$

$$\mathcal{A}(g_1) = (a_1)^q + (b_1)^q, \mathcal{A}(g_1) \in [0, 1]. \quad (8)$$

A q-ROFNs collection is denoted as $g_i = \langle a_i, b_i \rangle$, where $i = 1, \dots, m$. The q-ROF weighted arithmetic average operator (q-ROFWAAO) and the q-ROF weighted geometric average operator (q-ROFWGAO) are expressed as follows [33]:

$$q - ROFWAAO(g_i) = \left\langle \left(1 - \prod_{i=1}^m (1 - a_i^q)^{w_i} \right), \prod_{i=1}^m b_i^{w_i} \right\rangle, \quad (9)$$

$$q - ROFWGAO(g_i) = \left\langle \prod_{i=1}^m a_i^{w_i}, \left(1 - \prod_{i=1}^m (1 - b_i^q)^{w_i} \right) \right\rangle. \quad (10)$$

where $W = (w_1, \dots, w_m)^T$ is the weight vector, with $0 \leq w_i \leq 1$ and $\sum_{i=1}^m w_i = 1$. After this explanatory preliminary information, the procedures related to the study will be presented in stages and steps under the following subsection.

3.2 Q-rung Orthopair Fuzzy Delphi

In this study, the q-ROF-Delphi technique will be used. The following process will be followed in the application of the q-ROF-Delphi technique.

- q-ROF-Delphi Round 1:

Step 1. Major issues will be determined by examining the studies in the literature. These problem areas will be accepted as the main criteria. In addition, each problem in the literature will be added under the relevant main problem group. Similarly, the suggestions offered for the solution of the problems of CPAs in the literature will be recorded as a list. Also, the experts consulted their judgments are determined, where $U = \{U_1, \dots, U_z\}$.

Step 2. The weight coefficients of experts are determined. For this, an equal weight coefficient is assigned to each expert in this study.

Step 3. In this step, a preliminary interview will be held with the experts, and the problem will be explained. The main problems (main criteria), sub-problems (sub-criteria/criteria), and solution suggestions (options/strategies) determined as a result of the literature review will be conveyed to the CPAs. In addition, the CPAs will be informed about the q-ROF-Delphi technique application process and what is expected of them.

- Q-ROF-Delphi Round 2.

Step 4. Opinions are received on the three lists presented to the expert CPAs. In this context, opinions on the same or similar elements (main criteria, criteria, or strategies) that need to be added outside the lists are noted. Expert CPAs will be asked to list the elements they want to add to the three lists. The new elements to be reported by the expert CPAs will be added to the main criteria, sub-criteria, and strategies lists. Thus, $K = \{K_1, \dots, K_r\}$ will represent the main problem areas (main criteria), $C = \{C_1, \dots, C_n\}$ problems (criteria), and $S = \{S_1, \dots, S_m\}$ solution suggestions.

Step 5. The lists are updated in line with the opinions stated in the second round and presented to the expert CPAs. However, the evaluations and analysis will be conducted based on the assessment of the sub-criteria rather than the main criteria. Evaluations are received from the expert CPAs for the elements in two sections (sub-problems and solution suggestions) in the context of the impact or contribution they will provide to the solution of the problem through the linguistic expressions in

Table 1. Accordingly, $\zeta_{jh} = \langle a_{jh}, b_{jh} \rangle$ depicts the significance of j -th criterion, and $\xi_{ih} = \langle a_{ih}, b_{ih} \rangle$ is the significance of i -th strategy determined by h -th expert, where $g = 1, \dots, r; h = 1, \dots, z; i = 1, \dots, m$, and $j = 1, \dots, n$.

Table 1

Linguistic phrases for evaluations during the Q-ROF-Delphi technique application process

Linguistic phrases	Notations	q-ROF number counterparts	
		Membership degree	Non-membership degree
Very significant/important	VS	0.99	0.15
Significant/important	SG	0.75	0.35
Moderate	MO	0.55	0.55
Low significance/importance	LS	0.35	0.75
Insignificant/unimportant	UN	0.15	0.99

• Q-ROF-Delphi Round 3.

Step 6. The evaluations received from CPAs are integrated with the aggregation operator specified in Eq. (9). As a result, $\zeta_j = \langle a_j, b_j \rangle$ represents the integrated significance of j -th criterion, and $\xi_i = \langle a_i, b_i \rangle$ depicts the integrated significance of i th strategy.

Step 7. The significance values related to the elements are obtained using the score function. As a result, $\mathcal{S}(\zeta_j)$ and $\mathcal{S}(\xi_i)$ values are obtained.

Step 8. The relative significance level of each element is calculated by dividing it by the highest significance value in the relevant group (main criteria, sub-criteria or strategies). In this context, Eqs. (11)-(12) are employed.

$$\psi_j = \frac{\mathcal{S}(\zeta_j)}{(\mathcal{S}(\zeta_j))_{\max}}, \quad (11)$$

$$\psi_i = \frac{\mathcal{S}(\xi_i)}{(\mathcal{S}(\xi_i))_{\max}}. \quad (12)$$

Then, two threshold values are determined. The first thresholds of these are given in Eqs. (13)-(14), and those below this value are classified as uncritical. $\psi_{j,cut\ 1}$ represents the first threshold value for sub-criteria, and $\psi_{i,cut\ 1}$ depicts the first threshold value for strategies. The second threshold values are the third quartile values determined by ranking ψ_j and ψ_i values according to their sizes. Accordingly, $\psi_{j,cut\ 2}$ represents the second threshold value for sub-criteria, and $\psi_{i,cut\ 2}$ depicts the second threshold value for strategies. Here, n is the number of sub-criteria, and m is the number of strategies. Those falling between the two thresholds are at a moderate level.

$$\psi_{j,cut\ 1} = \frac{\sum_{j=1}^n \psi_j}{n}, \quad (13)$$

$$\psi_{i,cut\ 1} = \frac{\sum_{i=1}^m \psi_i}{m}. \quad (14)$$

• Q-ROF-Delphi Round 4.

Step 9. Main criteria, sub-criteria, and strategies are reported as separate lists, including expert evaluations and analysis results from the previous round. The lists related to each group are

presented to the experts and a consensus is sought. In case of a dissenting opinion, the previous process is repeated. If there is a discrepancy in any evaluation group, the evaluation process of the previous round is repeated for that group. Similarly, the relevant elements are presented to the experts, including the evaluations of the previous round, and a consensus is sought. When consensus is reached, the evaluations are completed, and the analysis is finished for the relevant element group.

Step 10. The evaluations agreed upon by the experts are also used to determine the criticality ranking of the criteria and options. As a result of these evaluations, the elements are ranked from largest to smallest according to the score function calculated in *Step 7*. The most serious problems and solution proposals are those with the highest scores in the relevant lists.

4. Results

As a result of the examination of the studies in the literature, 10 main problems and 49 sub-problems were determined. In addition, as a result of the examination of the solution suggestions for the problems, the solution suggestions were collected under twelve headings.

There are studies in the literature stating that it is not correct to give a definite number of experts in the case of a solution based on expert opinion on group decision problems. However, in studies suggesting a specific number of experts, it is stated that this number can be between four and 20. In addition, if the experts have similar education and experience, the opinions may not differ greatly. In such a case, consulting more experts on the problem will limit the effective use of material, abstract, and time resources [34,35]. On the other hand, it is stated that the number of experts should be at least seven in studies involving the use of the Delphi technique [36]. In determining the CPA experts to be interviewed, the following criteria will be taken into consideration:

- i. At least five years of experience as a CPA,
- ii. being a member of a professional chamber and/or association,
- iii. having knowledge of and/or working on the problems of CPAs,
- iv. having experience working with taxpayers from various sectors.

Considering the specified criteria, seven experts, whose information is presented below, were reached (Table 2).

Table 2
Experts and their characteristic features

Experts	Experience (in years)	University Graduated	Program
Expert 1 (U1)	28	Atatürk University	Business and Administration
Expert 2 (U2)	16	Karadeniz Technical University	Public Finance
Expert 3 (U3)	36	İstanbul University	Economy
Expert 4 (U4)	30	İstanbul University	Economy
Expert 5 (U5)	7	İstanbul University	Economy
Expert 6 (U6)	25	Anadolu University	Business and Administration
Expert 7 (U7)	15	Atatürk University	Business and Administration

During the application process of the q-ROF-Delphi technique, four new sub-criteria and two new solution proposals were added by experts. The main criteria (the main problems) (Table 3), the sub-criteria (the sub-problems) (Table 4), and the strategies (the solution suggestions) (Table 5) determined by using the literature and experts' opinions are presented in the following part.

Table 3

Main problems for CPAs

Code	Main criteria
K1	Problems in private life brought on by the profession
K2	Problems relating to enrollment into the profession and personal attitude toward the profession
K3	Problems with colleagues and the reputation of the profession
K4	Problems with taxpayers
K5	Audits and problems with public institutions/members
K6	Problems related to work environment and workload
K7	Problems regarding legislations
K8	Problems pertaining to fees
K9	Problems related to professional chambers and associations
K10	Current issues (inflation accounting etc.)

Table 4

Sub-criteria for CPAs

Code	Sub-criteria
C1	Negative impact of work on private life
C2	Health issues brought on by work
C3	Lack of job satisfaction
C4	Inadequate entry system to the profession
C5	Unfair competition resulted from a colleague's low pay policy when he opened a new workplace
C6	Lack of professional structure of CPA profession
C7	Lack of respect for CPA profession
C8	The number of colleagues
C9	Inability to find experienced assistance personnel
C10	The acknowledgement that using International Accounting Standards is problematic
C11	A customer with an ongoing employment contract receiving a job offer from a colleague
C12	Insufficient solidarity among colleagues
C13	Keeping accounting books very cheaply by some colleagues
C14	Unfair competition between colleagues
C15	Requests for less tax to be paid by taxpayers
C16	Illegal work requested by taxpayers
C17	Request by taxpayers to show high operating profits
C18	Inability to communicate with taxpayers properly
C19	Having to deal with taxpayers' other affairs other than bookkeeping
C20	Irregular payment of wages by taxpayers or non-payment at all
C21	Requesting taxpayers to change information in records/financial statements on an optional basis
C22	Taxpayers do not prefer CPAs who work in accordance with the legislation and rules
C23	Failure to develop a relationship based on mutual respect and trust with taxpayers
C24	Conducting excessive inspections
C25	Taxpayers are seen as potential criminals and are treated in a threatening manner during tax audits.
C26	Negative attitude of public officials towards accounting professionals
C27	Biased behavior of ombudsmen
C28	Lack of sufficient efforts to register the economy by the Ministry of Finance
C29	Lack of exhibiting a facilitating attitude in completing transactions by tax office employees
C30	Excessive bureaucracy in government institutions
C31	Work stress
C32	Heavy workload
C33	Inadequate implementation of financial holidays
C34	Monotonous office environment and work order
C35	Inability to spare time for private life due to workload
C36	Frequent changes in legislation
C37	Inability to adequately follow legislative changes
C38	Lack of unity in implementation of legislation

Table 4 (continued)

Code	Sub-criteria
C39	Difficulty in understanding the legislation
C40	Increase in the content and number of declarations with digital transformation
C41	Frequent amnesty for tax penalties
C42	Failure of professional chambers and associations to adequately defend the rights of CPAs
C43	Lack of sufficient assistance by professional chambers and unions to solve problems between colleagues
C44	Lack of sufficient professional consultancy services by professional chambers and unions
C45	Lack of sufficient publication of journals, bulletins, etc., and notifications and articles through which colleagues can express their thoughts and opinions by professional chambers and unions
C46	Failure of professional chambers and unions to apply adequate sanctions for violations of professional rules
C47	Different ways of managing cash flows due to the Covid 19 pandemic
C48	Disruption of usual registration procedures caused by government support provided, especially tax reductions, to reduce the economic impact of the pandemic
C49	Negative effects of recent relatively high inflation and inflation accounting application
C50	Rapid transformation caused by artificial intelligence and digital transformation processes
C51	Inability to provide the necessary software and hardware in a timely manner to keep up with technological developments

Table 5

Strategies for CPAs

Code	Strategies
S1	Carrying out all accounting transactions digitally (ensuring digital transformation)
S2	Payment mediation by establishing base and ceiling fees (payments are made through chambers) from the Ministry of Treasury and Finance, TÜRMOB, or Chambers
S3	Setting a quota for the number of books to be looked after by each professional
S4	Transfer of legal obligations falling within the fiscal holiday period to the next month by the Ministry of Finance
S5	Providing a place for CPA in university undergraduate programs (CPA 4-year undergraduate program)
S6	Preparation of accounting-related legislation in coordination with chambers and accounting professionals
S7	Establishing a rule that requires a portion of the three-year internship to be completed in government agencies that are directly involved in accounting operations, including tax offices.
S8	Simplification of declarations
S9	Creating and implementing a common accounting language compatible with international accounting standards
S10	Educating professional accountants by the chambers and/or TÜRMOB on a range of topics, including ethics, laws, recent advancements, and technology
S11	Imposing a deterrent disciplinary penalty, up to and including license cancellation, on the relevant professional in cases such as violation of the minimum wage tariff or ethical rules
S12	Making legal arrangements to prevent tax amnesty from being issued
S13	Conducting audits regarding the legal compliance of professionals in cooperation with public institutions and professional chambers
S14	Opening access to data related to accounting transactions in public institutions such as the Ministry of Treasury and Finance for querying, examining, and researching

Experts' evaluations regarding the criteria are given in Table 6.

Table 6
Expert evaluations

Experts	U1	U2	U3	U4	U5	U6	U7	Experts	U1	U2	U3	U4	U5	U6	U7
C1	SG	VS	MO	SG	VS	SG	SG	C28	VS	VS	SG	MO	VS	SG	SG
C2	VS	VS	SG	SG	SG	MO	VS	C29	VS	VS	VS	MO	VS	VS	MO
C3	SG	SG	LS	VS	VS	SG	LS	C30	VS	VS	VS	VS	VS	VS	VS
C4	SG	SG	UN	LS	VS	VS	MO	C31	VS	VS	VS	VS	VS	VS	VS
C5	VS	VS	MO	VS	SG	MO	SG	C32	VS	VS	VS	SG	VS	VS	VS
C6	SG	VS	SG	SG	VS	VS	SG	C33	SG	SG	SG	SG	VS	UN	MO
C7	VS	VS	SG	SG	VS	SG	VS	C34	VS	VS	SG	VS	VS	VS	VS
C8	MO	LS	SG	LS	SG	MO	MO	C35	VS	VS	VS	VS	VS	VS	VS
C9	SG	VS	SG	VS	VS	VS	VS	C36	SG	SG	MO	VS	VS	LS	SG
C10	MO	MO	UN	SG	SG	UN	LS	C37	SG	LS	LS	VS	VS	SG	MO
C11	VS	VS	MO	SG	SG	VS	VS	C38	SG	SG	MO	VS	VS	LS	MO
C12	SG	VS	MO	SG	VS	VS	VS	C39	VS	VS	SG	VS	VS	VS	VS
C13	VS	VS	LS	SG	VS	SG	VS	C40	SG	VS	SG	VS	VS	VS	SG
C14	VS	VS	MO	SG	VS	VS	VS	C41	SG	VS	VS	SG	VS	SG	SG
C15	SG	VS	SG	MO	VS	MO	SG	C42	SG	VS	VS	SG	VS	LS	MO
C16	SG	SG	LS	MO	VS	UN	MO	C43	MO	VS	VS	SG	VS	VS	MO
C17	MO	SG	MO	LS	SG	LS	LS	C44	MO	MO	MO	MO	VS	VS	MO
C18	MO	MO	LS	MO	VS	MO	SG	C45	VS	VS	SG	SG	SG	VS	VS
C19	SG	SG	VS	LS	SG	VS	LS	C46	VS	VS	UN	SG	VS	VS	SG
C20	SG	VS	VS	SG	VS	SG	VS	C47	SG	LS	UN	SG	VS	VS	SG
C21	SG	SG	UN	MO	SG	UN	MO	C48	VS	VS	UN	VS	VS	VS	SG
C22	SG	VS	UN	MO	VS	VS	MO	C49	VS	SG	MO	SG	VS	UN	SG
C23	VS	SG	UN	SG	VS	LS	SG	C50	VS	VS	SG	SG	SG	VS	SG
C24	SG	LS	LS	LS	SG	UN	MO	C51	VS	VS	SG	SG	SG	VS	SG
C25	VS	VS	SG	MO	VS	VS	MO	C52	VS	VS	SG	SG	SG	VS	SG
C26	VS	VS	SG	MO	VS	VS	LS	C53	VS	VS	SG	SG	SG	VS	SG
C27	VS	SG	SG	VS	VS	VS	SG								

Analyses were carried out based on the evaluations presented in Table 6. The results obtained via q-ROF-Delphi Round 2 are presented in Table 7.

Table 7
Results obtained via q-ROF-Delphi

Criteria	ζ_j		$\mathcal{S}(\zeta_j)$	Rank	ψ_j	Class
	a_j	b_j				
C1	0.9042	0.2931	0.8570	34	0.8714	Uninfluential
C2	0.9395	0.2597	0.9059	29	0.9211	Moderate
C3	0.8938	0.3416	0.8371	38	0.8512	Uninfluential
C4	0.8866	0.3791	0.8213	44	0.8351	Uninfluential
C5	0.9360	0.2770	0.8995	31	0.9146	Moderate
C6	0.9428	0.2434	0.9118	23	0.9271	Moderate
C7	0.9633	0.2157	0.9420	11	0.9578	Influential
C8	0.6027	0.5282	0.5358	50	0.5448	Uninfluential
C9	0.9763	0.1911	0.9618	8	0.9780	Influential
C10	0.5790	0.5977	0.4903	52	0.4985	Uninfluential
C11	0.9613	0.2301	0.9381	16	0.9538	Moderate
C12	0.9613	0.2301	0.9381	16	0.9538	Moderate
C13	0.9605	0.2405	0.9361	18	0.9518	Moderate
C14	0.9750	0.2038	0.9592	9	0.9754	Influential
C15	0.8984	0.3126	0.8473	35	0.8616	Uninfluential

Table 7 (continued)

Criteria	ζ_j		$\mathcal{S}(\zeta_j)$	Rank	ψ_j	Class
	a_j	b_j				
C16	0.8001	0.4564	0.7085	47	0.7204	Uninfluential
C17	0.5880	0.5521	0.5175	51	0.5262	Uninfluential
C18	0.7931	0.4477	0.7046	48	0.7164	Uninfluential
C19	0.8938	0.3416	0.8371	38	0.8512	Uninfluential
C20	0.9633	0.2157	0.9420	11	0.9578	Influential
C21	0.630	0.5360	0.5480	49	0.5573	Uninfluential
C22	0.9305	0.3213	0.8862	33	0.9011	Moderate
C23	0.8931	0.3554	0.8338	40	0.8478	Uninfluential
C24	0.5675	0.6004	0.4831	53	0.4913	Uninfluential
C25	0.9591	0.2454	0.9338	20	0.9495	Moderate
C26	0.9583	0.2565	0.9315	22	0.9472	Moderate
C27	0.9633	0.2157	0.9420	11	0.9578	Influential
C28	0.9395	0.2597	0.9059	29	0.9211	Moderate
C29	0.9736	0.2174	0.9564	10	0.9724	Influential
C30	0.990	0.150	0.9835	1	1.0	Influential
C31	0.990	0.150	0.9835	1	1.0	Influential
C32	0.9846	0.1693	0.9749	4	0.9913	Influential
C33	0.8287	0.3838	0.7563	46	0.7690	Uninfluential
C34	0.9846	0.1693	0.9749	4	0.9913	Influential
C35	0.990	0.150	0.9835	1	1.0	Influential
C36	0.8961	0.3268	0.8424	36	0.8566	Uninfluential
C37	0.8874	0.3644	0.8252	43	0.8391	Uninfluential
C38	0.8899	0.3486	0.8311	42	0.8451	Uninfluential
C39	0.9846	0.1693	0.9749	4	0.9913	Influential
C40	0.9633	0.2157	0.9420	11	0.9578	Influential
C41	0.9428	0.2434	0.9118	23	0.9271	Moderate
C42	0.9347	0.2895	0.8961	32	0.9112	Moderate
C43	0.9591	0.2454	0.9338	21	0.9495	Moderate
C44	0.8787	0.3794	0.8119	45	0.8256	Uninfluential
C45	0.9633	0.2157	0.9420	11	0.9578	Influential
C46	0.9602	0.2502	0.9349	19	0.9506	Moderate
C47	0.8931	0.3554	0.8338	40	0.8478	Uninfluential
C48	0.9744	0.2217	0.9571	7	0.9907	Influential
C49	0.8955	0.340	0.8394	37	0.8535	Uninfluential
C50	0.9428	0.2434	0.9118	23	0.9271	Moderate
C51	0.9428	0.2434	0.9118	23	0.9271	Moderate
C52	0.9428	0.2434	0.9118	23	0.9271	Moderate
C53	0.9428	0.2434	0.9118	23	0.9271	Moderate

As a result of the calculations made in the context of the data in Table 7, $(\mathcal{S}(\zeta_j))_{\max} = 0.9835$, $\psi_{j,cut\ 1} = 0.8769$, and $\psi_{j,cut\ 2} = 0.9578$ were determined. In this context, the criteria classification results in Table 7 were obtained. Accordingly, C1, C3, C4, C8, C10, C15, C16, C17, C18, C19, C21, C23, C24, C33, C36, C37, C38, C44, C47, and C49 are classified as uninfluential. On the other hand, C7, C9, C14, C20, C27, C29, C30, C31, C32, C34, C35, C39, C40, C45, and C48 are influential criteria. The remaining criteria are assigned to the moderate class.

The experts' linguistic evaluations regarding the strategies were obtained through the linguistic expressions in Table 1. These evaluations are presented in Table 8.

Table 8
Expert evaluations of the strategies

Experts	U1	U2	U3	U4	U5	U6	U7
S1	VS	SG	MO	VS	SG	VS	SG
S2	VS	SG	SG	SG	VS	VS	VS
S3	VS	SG	UN	LS	VS	UN	VS
S4	VS	VS	VS	SG	VS	VS	VS
S5	SG	VS	SG	MO	VS	VS	VS
S6	VS	VS	SG	VS	VS	VS	VS
S7	MO	MO	SG	LS	VS	MO	VS
S8	SG	VS	VS	VS	VS	VS	VS
S9	SG	VS	SG	SG	VS	VS	VS
S10	SG	VS	SG	VS	VS	VS	VS
S11	VS	VS	SG	SG	VS	VS	VS
S12	SG	VS	MO	VS	VS	VS	SG
S13	VS	SG	SG	SG	SG	VS	SG
S14	VS	SG	SG	SG	SG	VS	SG

After integrating the experts' evaluations of the strategies, analyses were carried out for classification. The results are given in Table 9.

Table 9
Results obtained via q-ROF-Delphi on the strategies

Strategies	$\tilde{\xi}_i$		$\mathcal{S}(\xi_i)$	Rank	ψ_i	Class
	a_i	b_i				
S1	0.9395	0.2597	0.9059	10	0.9292	Uninfluential
S2	0.9633	0.2157	0.9420	6	0.9663	Moderate
S3	0.9270	0.3653	0.8739	11	0.8964	Uninfluential
S4	0.9846	0.1693	0.9749	1	1.0	Influential
S5	0.9613	0.2301	0.9381	8	0.9622	Moderate
S6	0.9846	0.1693	0.9749	1	1.0	Influential
S7	0.8831	0.3718	0.8187	14	0.8398	Uninfluential
S8	0.9846	0.1693	0.9749	1	1.0	Influential
S9	0.9633	0.2157	0.9420	6	0.9663	Moderate
S10	0.9763	0.1911	0.9618	4	0.9866	Influential
S11	0.9763	0.1911	0.9618	4	0.9866	Influential
S12	0.9613	0.2301	0.9381	8	0.9622	Moderate
S13	0.9095	0.2747	0.8659	12	0.8882	Uninfluential
S14	0.9095	0.2747	0.8659	12	0.8882	Uninfluential

As seen in Table 9, S1, S3, S7, S13, and S14 are uninfluential solutions for CPAs' problems. On the other hand, S4, S6, S8, S10, and S11 are influential solution suggestions according to the findings. The results obtained in this round and the evaluations of other experts were presented to each expert. In addition, a new form was provided for them where they could change their opinions from the previous round. The experts did not change their opinions from the previous round and a consensus was formed. Thus, the results in Table 7 and Table 9 have become definite.

According to the findings, the most important problems of CPAs are "C30-excessive bureaucracy in government institutions", "C31-work stress", and "C35-inability to spare time for private life due to workload". On the other hand, the solution suggestions that are beneficial to be implemented first are "S4-transfer of legal obligations falling within the fiscal holiday period to the next month by the Ministry of Finance", "S6-preparation of accounting-related legislation in coordination with chambers and accounting professionals", and "S8-simplification of declarations". The experts were

additionally interviewed on the significance level of the main criteria, and the results are shown in Table 10.

Table 10

Evaluations and results regarding the main criteria

	E1	E2	E3	E4	E5	E6	E7	Significance score	Rank
K1	SG	VS	SG	VS	VS	VS	MO	0.9381	8
K2	SG	VS	SG	VS	VS	UN	LS	0.8903	10
K3	VS	VS	VS	VS	VS	VS	SG	0.9749	3
K4	VS	SG	VS	VS	VS	VS	MO	0.9592	7
K5	VS	SG	VS	VS	VS	VS	SG	0.9618	5
K6	VS	VS	VS	VS	VS	VS	SG	0.9749	3
K7	VS	VS	SG	VS	VS	VS	SG	0.9618	5
K8	VS	VS	VS	VS	VS	VS	VS	0.9835	1
K9	VS	VS	SG	SG	VS	MO	LS	0.8961	9
K10	VS	VS	VS	VS	VS	VS	VS	0.9835	1

As seen from Table 10, the most important main criteria are “K8-problems pertaining to fees”, and “K10-current issues (inflation accounting etc.)”. Also, “K3-problems about colleagues and the reputation of the profession” is another important main criterion.

5. Conclusions

CPAs have an intermediary role in conducting financial transactions between governments, businesses, and individuals in accordance with legal regulations and customs. Although the accounting profession has a history dating back to the invention of writing, it has serious problems that need to be solved. Some of these problems are chronic problems. On the other hand, technological advances, social changes, etc., current transformation triggers also create new problem areas. In this context, the study aimed to determine the current problems of CPAs and strategies for their solution. In addition, it was aimed at grouping the problems and solution suggestions into three classes according to their criticality level. The lowest of these classes includes those that are not critical.

Ten major problem areas, 51 subproblems, and 14 solution suggestions were identified during the data-gathering process based on the opinions of seven qualified CPA experts. Twenty sub-problems were deemed uncritical and 15 sub-problems were determined crucial based on the results of applying the q-ROF-Delphi technique. In a similar way, it was noticed that five of the suggested solutions were critical and five were uncritical.

The most serious problems include the presence of excessive bureaucracy in government institutions, excessive work stress, and insufficient time for private life. It is a fact that bureaucratic procedures and employee workload are expected to decrease when digital transformation continues to develop. However, experts state that this situation does not create the expected improvement.

The solutions that the experts put forward in their solution suggestions also overlap with those highlighted in the problem areas. In fact, the solution suggestions that are stated to be implemented in the first stage are granting additional time for legal obligations falling within the fiscal holiday period, preparing accounting legislation in line with the opinions of CPAs and other accounting professionals, and simplifying declarations. These solution suggestions are of a nature that will reduce the workload of CPAs and allow them to spend more time on their private lives.

In future studies, institutional strategies can be developed to solve the problems. At this point, the main problems, sub-problems, and solution suggestions stated in this study can be used. In

addition, the problems of CPAs can be modeled more comprehensively by using different MCDA methods and fuzzy sets.

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The author declares no conflicts of interest.

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