

The effect of the Coronavirus on the auditing profession

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Abstract

This study investigates the effect of the Coronavirus on the auditing profession to find out to what extent the Coronavirus affect the audit fees, continuity of activity, audit quality, human capital, salaries, and wages of employees in audit institutions. This research is applied in terms of the purpose and is a descriptive survey concerning the method. The statistical population includes all Iranian audit institutions' partners, supervisors, and managers. A total of 222 questionnaires were completed and analyzed. The random sampling method is employed. The PLS tests were used to investigate the effect of independent variables on the dependent variable. The research hypotheses were tested, and the results indicated that the Coronavirus affects audit fees, continuity of activity, audit quality, human capital, salaries, and the salaries of auditing institutions' employees. In addition, the results indicate the extent to which the Coronavirus affects the auditing profession.

Keywords: Coronavirus, audit quality, audit fee, human capital, continuity of activity
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1 Introduction

Recently, due to the pandemic of Covid-19, the world has faced a major international health, social and economic crisis with significant effects on the global economy. The audit profession has a great role in business and finance. Therefore, any changes in the environment around accounting will significantly affect this profession because the environment around the audit is one of the most important components of the audit process [31]. As a result, the audit risk increased during this crisis [17]. Corona was considered a health problem at the beginning of the outbreak. However, its effects were far from everyone's expectations, and finally, it led to a global health, economic and social crisis worldwide. Khatib and Nour [35] showed that Covid-19 had affected all aspects of business units, including performance, corporate governance, audit committees, and the efficiency of companies. Governments and countries imposed strict measures such as travel restrictions, quarantine, job closure, social distancing, and teleworking. As a

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result, all institutions, organizations, and companies, and consequently, the economy of all countries, were affected by Corona [10, 1, 34]. In addition, Ashraf and Abate [10, 1] showed that Corona had a powerful impact on various economic sectors.

Castka [15] concluded that Covid-19 had a very adverse effect on economic well-being, and its outbreak has had significant financial and economic effects in all countries [28]. The rapid spread of Covid-19 led to substantial economic irregularities and distrusted the investors' trust in the capital markets, which led to immense financial pressures on all economic sectors, including the performance of business units, institutions, and organizations [37]. In addition, Khatib and Nour [35] showed that Covid-19 negatively affected the performance of institutions, financial leverage, liquidity, and the profitability of business units. Castka and Albitar [15, 4] showed that Covid-19 negatively affects auditors' performance and audit quality. Therefore, preventive measures may fail the auditors to perform the audit process as required, which weakens the audit quality [44]. Therefore, the reduced quality of the audit disrupts the auditors' performance, and the potential incorrect performance of auditors can lead to the non-identification of ambiguous mistakes in the audit process [31]. Poor-quality audits decrease the investors' confidence in the audit institutions [26, 31]. It is found that auditors overlook major systematic risks during crises [17], which weakens their performance. There is little practical research in Iran on the impact of covid19 on all aspects of life, including business performance and its future effects, to identify the effects of covid-19 on the performance of Iranian auditors. In other words, there is no research in Iran to provide solutions to stakeholders and relevant institutions on how to deal with any future damage caused by Corona. Therefore, regarding this gap, this research tries to determine the effects of Covid19 on the auditing profession in developing countries such as Iran, which is facing difficult economic-political conditions. In addition, we examine the effects of Coronavirus concerning the severe economic sanctions, which had faced the developing countries with great difficulties in providing Corona vaccine. Therefore, this study examines the effect of Coronavirus on all aspects of the audit profession, from audit fees to the assessment of continuity of activity, audit quality, the human capital of audit institutions, and salaries and wages of employees of audit institutions. Researches in this field indicate that global crises negatively affect audit fees, employee salaries, and audit procedures [17, 63]. In addition, it is also shown that Corona negatively affects audit risks and their costs [63], auditor performance [44], and audit quality [31]. Therefore, this study increases the knowledge and improves the subject literature by filling the research gap on the effect of Corona crisis on the auditing profession in developing markets. Therefore, the research findings give researchers and professionals a deeper understanding of auditing activities and the auditing profession for practical use and future research in this unknown field. In addition, this study is expected to help crisis management and its effects on the auditing profession. Moreover, it indicates more effectively the methods managers, stakeholders, and stakeholders can use to formulate regulations and standards in practical work. Finally, this study aims to investigate the effect of Corona on the audit profession, including audit fees, assessing continuity of activity, audit quality, the human capital of audit institutions, and salaries and wages of audit institutions employees. The following explains the theoretical foundations (e.g., methodology and data analysis). Then, discussion and conclusions are presented.

2 Theoretical foundations and hypotheses development

The change in economic conditions has been challenging to audit firms and their clients because these changes affect liquidity, credit risk, company performance, and ultimately audit costs [17].

In particular, there is a higher risk that the company may violate the terms of the debt contracts, which may cause some companies to go bankrupt. These higher levels of risk and increasing concerns of creditors force auditors to adopt more extensive audit procedures and invest in audit work when evaluating the assumptions of companies' continuity of activities [27, 48, 63, 17].

Hypothesis 1 (Covid-19 affects audit fees). The increased demand for assurance and the risk of auditors' lawsuits due to the Coronavirus pandemic increased the auditors' working hours and efforts [60, 62]. Xu [61] studied audit fees in Australia and reported increased audit fees during the financial crisis. They suggested that the increase in audit fees was due to an increase in client risk, which doubles the auditor's efforts in the auditing process and, as a result, increases the fee. However, some studies showed that some businesses during the global financial crisis had requested to pay fewer fees to auditors in their audit contracts [40, 7, 60, 14, 18, 17]. Social distancing and teleworking have become normal during the covid-19 pandemic. However, on the one hand, it seems to increase the auditor's working hours and effort, and on the other hand, firms (clients) are more likely to ask for lower audit fees [17]. In this case, auditors may reduce their efforts to minimize the loss related to the contract. Therefore, this exogenous shock of Covid-19 undoubtedly subjects the auditors under pressure from their clients to reduce audit fees during the crisis [4]. In other words, these reduced audit fees may partially affect audit quality during the outbreak of Covid-19 [4].

Hypothesis 2 (Covid-19 effects evaluating the continuity of activity). The covid-19 pandemic closed many companies and decreased their sales. As a result, auditors face difficulties assessing whether the business unit can continue its activities [36]. In addition, there are many questions on whether companies and auditors need more time to fully assess the effects of this epidemic.

(PWC, 2020). Xu [61] examined auditors' responses to financial crises. They showed that auditors took conservative measures during the global financial crisis, so in addition to expanding audit efforts, they also sought to explain their concerns. This was to protect themselves against higher risks during the global financial crisis. However, Mareque [45] found that the percentage of reports issued on continuity of activity is the same after and before the crisis, and auditors were reluctant about the continuity of activity when collecting evidence, and they reluctantly evaluated the continuation of the business activity. This reluctance increased the risk of activities related to the employer's internal controls (PWC, 2020). In addition, the auditors must spend enough time evaluating the continuity of activity and accept that the auditing process for business owners whose continuity of activity is associated with doubts takes much time. Due to the higher uncertainty, the auditing process became more complicated during the covid-19 outbreak. Therefore, it is necessary to use an appropriate staff level and receive appropriate and adequate support from auditors [36].

The rapid changes in the situation make it necessary for auditors to ensure that the investigation of events after the balance sheet date continues until the signing of the auditor's report (PWC, 2020). During the covid-19 pandemic, the most common reason for issuing modified audit reports has been uncertainty and doubt about the continuity of the business unit. The lack of liquidity causes these uncertainties, the worsening of the economic conditions of the business unit, and the economic crisis that we are currently experiencing in most sectors due to covid-19 [36]. All these conditions have caused many companies to have a higher business risk than usual. Therefore, this pandemic again raises concerns about the continuity of activity, which can significantly affect the audit quality and auditors' performance [53].

Hypothesis 3 (Covid-19 affects the auditing process of financial statements). As an integral part of the audit process, the performance of analytical procedures is another factor that can be affected by the current epidemic [47]. Analytical procedures are used for audit planning and fieldwork, and the audit conclusions are used for evaluation and reporting [59, 47, 48]. During the covid-19 pandemic, auditors are forced to increase their analytical methods because many companies can go bankrupt or manipulate their reported profits, and analytical methods have the lowest cost, and their calculation is relatively easy [52]. Analytical audit procedures are cost-effective and can guide auditors and equip them with sufficient and appropriate documents and evidence [56]. These methods usually include a diagnostic process that determines the cause of unexpected fluctuations, inventory account balances, or the risk of material misstatement due to fraud during the audit process [51, 52]. In cases where the fraud risk in business units is high, this is a potential threat to audit quality [52]. In addition, auditors prefer analytical methods providing them with a comprehensive understanding of the entity's financial position, thus reducing the use of rigorous tests that are very expensive. Moreover, since people communicate via email during the covid-19 pandemic, it is expected to improve the quality of audit evidence to ensure the accuracy of auditors' conclusions [36].

When the reported information is not very strong or is of low quality, the audit risk will increase, and the auditor is more likely to give a wrong opinion [51]. Therefore, the auditor needs more auditing efforts to complete the company's information to make a correct and complete opinion. As a result, the quality of audit evidence mainly depends on the form and source of evidence [51]. The covid-19 pandemic causes auditors more likely to rely on evidence from external sources. In other words, auditors trust the documents obtained directly from external parties such as customers, suppliers, or banks, which are much more reliable than those from the employer (PWC, 2020). For example, confirming accounts receivable from a business's customers is more reliable than records prepared by the business. However, the reliability level of evidence obtained from the employer is determined by the reliability of the employer's internal controls [52]. On the other hand, the covid-19 pandemic has increased the use of original forms, such as original invoices, to support payment transactions and reduced the use of copy invoices sent via email. Therefore, social distancing and remote work affect the adequacy and reliability of audit evidence and, consequently, the quality of the audit and the auditors' performance [36].

Hypothesis 4 (Covid-19 affects the human capital of auditing institutions). According to the FRC, audit firm employees' skills, personal characteristics, and training are important factors in determining audit quality. These measures aim at improving the employees' expertise and competence and, consequently, audit quality. In this regard, Francis [25] states that the auditors' training is central to auditing. Previous studies support this view that investment in human capital can improve audit quality [20, 6, 19, 54].

Human capital seems to play an essential role in the audit process and primarily affects the quality of the audit process. As a result, auditors' professional knowledge has an indispensable connection with people and can improve learning and performance during the audit process [13]. Expertise and professional knowledge can be acquired through indirect experiences, such as training, workshops, and direct experiences, such as greater customer interaction in specific industries [42]. Chen [19] concluded that the professional experience gained during auditing could significantly improve the auditor's performance and, consequently, the audit quality. Audit firms prefer to hold monthly employee training sessions, workshops, and professional development activities. However, the outbreak of covid-19 has forced them to cancel all monthly training, workshops, and other development programs and professional development for their auditors at all levels [37], which was done due to the new cost reduction and social distancing plans caused by the covid-19 pandemic. The effects of the social distancing strategy directly reflect on auditors' efficiency and ability and may negatively affect the quality of the auditors' audit and performance. In addition, audit institutions may lose their personnel due to disease or quarantine, which may affect their performance, efficiency, and audit quality.

Hypothesis 5 (Covid-19 affects the salaries and wages of the auditing institutions' employees). In recent years, auditors' salaries have become an important issue due to major changes in the public accounting industry, which have increased auditing's complexity and auditors' responsibilities and workload [49].

Auditors' salaries seem to be significantly dependent on the audit quality. However, given its importance, some studies have investigated the relationship between auditors' salaries and audit quality. Since the outbreak covid-19, some businesses have demanded to reduce salaries or provide unpaid leave [37]. However, the relationship between audit personnel salaries and audit quality remains unclear. Efficiency wage theories show that higher wages should improve the productivity of audit personnel by creating more motivation or attracting higher-quality audit personnel [32]. Therefore, the salaries of audit personnel are expected to be affected by covid-19 pandemic. In addition, the pandemic may negatively affect the audit personnel's performance, as the audit force is less motivated to perform their duties efficiently and effectively. Therefore, it is reasonable to say that reducing the audit personnel's salaries can potentially have a negative effect on the quality and performance of auditors.

3 The research method

3.1 Methodology

This study is applied in terms of purpose and type. In addition, it is a survey and analyzes the collected information. It is a field study in which the researcher uses various tools, including questionnaires, to collect data and information from the statistical population. A survey is used to investigate the distribution of the statistical population's characteristics, examine the current situation, and discover the relationship between events. The collected data are analyzed using the PLS. The collected information is analyzed to determine the correctness of the research hypotheses. Then, the results are generalized to the entire target population.

3.2 Information and data collection tools

The information used in this research is divided into two categories:

First category: Information on theoretical foundations of the research subject acquired by studying internal and external references.

Second category: This category of information is collected through questionnaires.

This study uses a researcher-made questionnaire, of which some questions were deleted due to inconsistency with the conditions of Iran. Some other questions were deleted to decrease the large number of questions. This study was carried out in the stock exchange of Iran, the section of auditing institutions, in 2022. The researcher-made questionnaire considers the factors such as Corona, audit fees, continuity of activity, and salaries and wages of the audit institutions' employees, and it was designed based on the standard intellectual capital questionnaire [46] and the audit quality questionnaire [56].

In this section, respondents must answer two parts of questions: Answering the questions in the first part determines whether this factor, based on the professional experience of the respondents, currently exists in Iran's auditing institutions.

Answering the questions in the second part specifies the importance of this factor (very high, high, medium, low, and very low) from the respondents' perspective.

The questionnaire's validity is evaluated based on the expert's opinions, and its reliability is evaluated using Cronbach's alpha.

3.3 The research population and sample

The research population includes all partners, supervisors, and managers working in Iranian auditing institutions. The sample size using Cochran's formula was equal to 500 participants, of which we got 222 questionnaires. The research sampling methods were non-random sampling and available sampling methods.

3.4 The research model

After reviewing the literature and the research background, the conceptual models of audit quality, salaries, audit fees, continuity of activity, and human capital of audit institutions were used to test the hypotheses.

The following model was used to test hypothesis 1:

Model (1)

$$\text{audit fees} = a_0 + a_1\text{covid} + a_2\text{gender} + a_3\text{age} + a_4\text{job title} + a_5\text{Years of service} + a_6\text{Level of education}$$

The following model was used to test hypothesis 2:

Model (2)

$$\text{Continuity of activity} = a_0 + a_1\text{covid} + a_2\text{gender} + a_3\text{age} + a_4\text{job title} + a_5\text{Years of service} + a_6\text{Level of education}$$

The following model was used to test hypothesis 3:

Model (3)

$$AQ = a_0 + a_1\text{covid} + a_2\text{gender} + a_3\text{age} + a_4\text{job title} + a_5\text{Years of service} + a_6\text{Level of education}$$

The following model was used to test hypothesis 4:

Model (4)

$$\text{human capital} = a_0 + a_1\text{covid} + a_2\text{gender} + a_3\text{age} + a_4\text{job title} + a_5\text{Years of service} + a_6\text{Level of education}$$

The following model was used to test hypothesis 5:

Model (5)

$$\text{salary} = a_0 + a_1\text{covid} + a_2\text{gender} + a_3\text{age} + a_4\text{job title} + a_5\text{Years of service} + a_6\text{Level of education}$$

4 Data analysis

4.1 Data description

Table 1 presents the frequency of demographic data (i.e., the general part of the questionnaire). As is shown in Table 1, most respondents to the questionnaire (more than 75% of them) are male, and more than half of the respondents are less than 40 years old. Most respondents have less than 10 years of service experience and are considered less experienced. Overall, 222 respondents completed the questionnaire, more than 60% of whom have a master's degree, and most had the supervisor job title.

In the following, 93 questions were designed in six main sections to investigate the effect of the Coronavirus on the performance of independent auditors as follows:

- Audit fees
- Evaluating the continuity of activity
- Audit quality
- The human capital of auditing institutions
- Salaries and wages of auditing institutions' employees
- Coronavirus

The answer to each question should be 1-5 (1: very weak, 2: weak, 3: moderate, 4: high, and 5: very high).

Table 1: The frequency of demographic data

	No.	%	No.	%
Gender			Age	
Male	171	77.73	40	129 58.64
Female	49	22.27	40-45	52 23.64
Job title			45-50	23 10.45
Manager	21	9.55	50-55	16 7.27
Administrator	108	49.09	55	0 0.0
Auditor	29	13.18	Experience	
Under bachelor	4	1.82	15-20	30 13.64
Senior auditor	62	28.18	10	99 45.00
Education			10-15	40 18.18
Under bachelor	4	1.82	15-20	30 13.64
Bachelor	53	24.09	20-25	31 14.09
Master	140	63.64	25	20 9.09
PhD	23	10.45		
Total	220	100	Total	220 100

4.2 Data inference

Before testing the research hypotheses, the validity and reliability of the research questionnaires are examined. Once enough evidence is obtained to confirm the questionnaires' validity and reliability, the research hypotheses can be tested correctly. The results are presented in Table 3 in terms of Cronbach's alpha coefficient, composite reliability coefficient, and average variance extracted. The questionnaire's reliability is calculated using Cronbach's alpha, an index measuring internal consistency. This criterion is used to calculate the average correlation of the questions in a survey tool and to measure the questionnaire's reliability. Cronbach's alpha coefficient should be between 0 and 1. Cronbach's alpha coefficient for the research questionnaire is 0.936, which is in the acceptable range. This study evaluates the questionnaire's validity using the content and construct validity of the questionnaire. The average variance index and the Fornell-Larcker criteria are used to evaluate the construct validity. The AVE column in Table 2 represents that the average variance extracted for each model dimension is more than 0.5. Therefore, the model's convergent validity is confirmed. According to Table 2, the AVE values for the model's variables are more than 0.5, so cross-validation-communality is used in calculating the measurement model's convergence index.

Table 2: The reliability and validity findings of the research

Cronbach's alpha	Composite reliability coefficient	AVE
0.936	0.897	0.754

The researchers use the goodness of fit indices to evaluate the overall model using the observed data. The most common goodness of fit index is the chi-square index, which indicates the significance of the difference between the fitted model's covariance matrix and the observed sample's covariance matrix. In other words, the null hypothesis states that there is no difference between the fitted model and the sample covariance matrix. One should consider that this index is affected by the sample size. Therefore, it will show a slight difference and suitable goodness of fit for a large sample. Therefore, some of its adjusted indices, e.g., the division of the chi-square by the degree of freedom, and other goodness of fit indices are usually used, including: 1) Goodness of Fit Index (GFI), 2) Adjusted Goodness of Fit Index (AGFI), 3) Comparative Fit Index (CFI), 4) Tucker-Lewis Index (TLI), 5) Standardized Root Mean Square Residual (SRMR), and 6) Root Mean Square Error of Approximation (RMSEA). It is worth noting that if the index value is less than 0.08, the approximation errors are considered reasonable in society.

Table 3 reports the goodness of fit indices for the measurement models. It can be inferred that the model is fitted well, and its results can be reliable.

Table 3: The goodness of fit criteria

Indicator	Symbol	Calculation	Acceptable range	Ideal
Chi-square	χ^2	0.001	$0.05 < p \leq 1.00$	$0.01 < p \leq 0.05$
Optimized Chi-square	χ^2/df	2.011	$0 < \chi^2/df \leq 5$	$0 \leq \chi^2/df \leq 3$
Goodness of fit index	GFI	0.917	$0.80 \leq GFI < 0.95$	$0.95 \leq GFI \leq 1.00$
Adjusted goodness of fit index	AGFI	0.911	$0.80 \leq GFI < 0.95$	$0.95 \leq GFI \leq 1.00$
Root Mean Residual	RMR	0.037	$0 < RMR \leq 0.10$	$0 \leq RMR \leq 0.05$
The comparative goodness of fit	CFI	0.913	$0.90 \leq CFI < 0.97$	$0.97 \leq CFI \leq 1.00$
Root Mean Squared Error of Approximation	RMSEA	0.035	$0.05 < RMSEA \leq 0.08$	$0 \leq RMSEA \leq 0.05$

As said before, the distribution of questions to investigate the effect of the Coronavirus on the performance of independent auditors is described in Table 4:

- The audit fee has 8 questions.
- Evaluating the continuity of activity has 10 questions.
- Self-audit quality questions are divided into four parts: management and leadership (5 questions), professional quality (4 questions), goal and mission (4 questions), and customer value (3 questions).
- The human capital questions of auditing institutions are divided into three parts: knowledge (13 questions), skills (7 questions), and expertise (8 questions).
- Salaries and wages of the auditing institutions' employees have 20 questions.
- The final part includes 11 questions about the Coronavirus.

Table 4 presents the components above and the number of questions constituting each. The average of each component is calculated. In addition, this table presents Cronbach's alpha for each part of the questionnaire. The questionnaires have a suitable internal structure since the calculated Cronbach's alpha is between 0.891 and 0.941.

Table 4: Components, the number of questions, Cronbach's alpha, and factor analysis results

Components	Question	Cronbach's alpha	Factor Analysis
Audit fees	8	0.893	0.879-0.997
Assessing continuity of activity	10	0.775	0.672-0.796
Audit quality	16	0.917	0.708-0.947
1. Management and leadership	5	0.875	0.654-0.914
2. Professional quality	4	0.939	0.804-0.945
3. Purpose and mission	4	0.907	0.762-0.911
4. Customer value	3	0.941	0.883-0.978
Human capital of auditing institutions	28	0.928	0.872-0.974
1. Knowledge	13	0.891	0.879-0.997
2. Skill	7	0.937	0.772-0.954
3. Expertise	8	0.901	0.927-0.979
Salaries and wages of the auditing institutions' employees	20	0.847	0.705-0.895
Coronavirus	11	0.933	0.705-0.955

Table 5 presents each variable's descriptive statistics and the symbol. It is worth mentioning that a total of 220 questionnaires were collected. The calculated averages indicate that the most significant effect of the Corona has been on the salaries and wages of the audit institutions' employees. As a result, it has the most significant effect on the performance of independent auditors. Knowledge has the highest average in the auditing institutions' human capital category. Therefore, knowledge has the most significant effect on human capital, followed by skill and expertise.

Table 5: The descriptive statistics of the research latent variables

Variables	Symbol	Observation	Avg.	Deviation	Min.	Max.
Performance of independent auditors	PIA	220	3.431	0.461	2.005	5.000
Audit fees	AUF	220	3.325	0.561	1.875	5.000
Business continuity assessment	EXF	220	3.449	0.532	1.800	5.000
Audit quality:	AUQ	220	3.374	0.496	2.221	5.000
1. Management and leadership	MUQ	220	3.503	0.601	1.800	5.000
2. Professional quality	PUQ	220	3.372	0.676	1.500	5.000
3. Purpose and mission	TUQ	220	3.355	0.630	1.500	5.000
4. Customer value	VUQ	220	3.221	0.620	1.333	5.000
The human capital of auditing institutions:	HUC	220	3.471	0.478	1.878	5.000
1. Knowledge	AUC	220	3.576	0.582	1.615	5.000
2. Skill	SUC	220	3.485	0.582	2.143	5.000
3. Expertise	EUC	220	3.351	0.554	1.875	5.000
Salaries and wages of auditing institutions' employees	SWS	220	3.503	0.554	1.750	5.000
Coronavirus	CRW	220	3.713	0.584	1.500	5.000

Table 6 indicates the correlation between the latent components of the research. All five components (including audit fees, assessing continuity of activity, audit quality, the human capital of audit institutions, and salaries and wages of audit institutions' employees) positively affect the performance of independent auditors. In addition, these five components positively affect and strengthen each other. Moreover, the variable of Corona negatively and significantly affects the performance of the independent auditors' institutions at the 99% confidence level.

Table 6: The correlation matrix of the research latent variables

	CRW	VUQ	TUQ	PUQ	MUQ	AUQ	SWS	EXF	AUF	EUC	SUC	AUC	HUC	PIA
PIA														1.000
HUC													1.000	0.915
AUC												1.000	0.751	0.852
SUC										1.000	0.670	0.670	0.800	0.670
EUC										1.000	0.511	0.451	0.776	0.740
AUF									1.000	0.632	0.585	0.552	0.705	0.869
EXF								1.000	0.701	0.524	0.683	0.595	0.721	0.853
SWS							1.000	0.708	0.635	0.546	0.845	0.866	0.905	0.874
AUQ						1.000	0.645	0.641	0.810	0.850	0.594	0.507	0.775	0.880
MUQ					1.000	0.774	0.735	0.665	0.572	0.664	0.783	0.610	0.821	0.787
PUQ				1.000	0.525	0.802	0.442	0.417	0.530	0.853	0.442	0.338	0.646	0.630
TUQ			1.000	0.517	0.534	0.813	0.575	0.543	0.728	0.671	0.415	0.511	0.635	0.739
VUQ		1.000	0.549	0.485	0.361	0.753	0.339	0.427	0.763	0.514	0.304	0.218	0.410	0.607
CRW	1.000	-0.233	-0.373	-0.218	-0.480	-0.390	-0.638	-0.752	-0.453	-0.311	-0.525	-0.684	-0.611	-0.634

Note: All the coefficients are significant at the 99% confidence level. Figure 1 depicts the output and the effect of the latent and manifest variables of the questionnaire. It shows the effect of the Coronavirus on the performance of independent auditors. All five performance indicators positively and significantly affect the performance of independent auditors. On the other hand, Corona's effect on independent auditors' performance is negative and significant. In addition, Corona is negatively and significantly correlated with these five indicators.

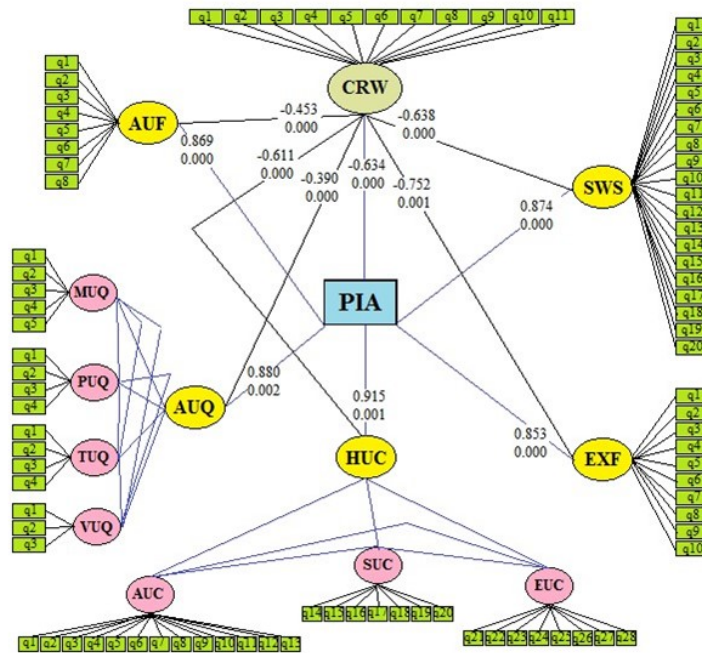


Figure 1: The effect of the latent and manifest variables of the questionnaire

The ordinary least square regression (OLS) is used to investigate Corona's effect on independent auditors' performance. Table 7 presents the results of the goodness of fit for each research hypothesis separately.

Table 7: The results of fitting the variables of participation in budgeting and management accounting systems on managers' performance

Variable	PIA Model	AUQ Model	EXF Model	AUF Model	SWS Model	HUC Model
CRW	-0.714***	-0.643***	-0.805***	-0.668***	-0.779***	-0.735***
Gender	0.120**	0.032	-0.003	0.066	0.219***	0.181**
AGE	0.043	0.136**	0.022	0.054	-0.035	0.013
Experience	0.010	-0.018	0.020	0.013	0.041	0.017
Education	0.132***	0.154***	0.075**	0.139**	0.105**	0.118***
Position	0.079***	0.120***	0.061***	0.099***	0.035	0.070**
Obs.	220	220	220	220	220	220
R ² Adj.	98.68	97.68	98.91	97.47	98.41	98.53
F	2733.01***	1543.99***	3333.90***	1413.76***	2264.31***	2452.53***

Model 1 (AUF Model): It measures the effect of Corona on audit fees. The calculated goodness of fit coefficient is -0.668. Therefore, the Coronavirus (CRW) reduces the audit fees at the confidence level of 99%. As a result, it can be concluded that Corona has a significant effect on audit fees. Among the control variables, education at the 95% confidence level and job position at the confidence level of 99% increase the audit fees.

Model 2 (EXF Model): It measures the effect of the Corona on assessing the continuity of activity. The calculated goodness of fit coefficient is -0.805. Therefore, the Coronavirus (CRW) reduces the continuity of activity at the confidence level of 99%. As a result, hypothesis 2 is confirmed, and Corona significantly affects the continuity of activity. Among the control variables, education at the 95% confidence level and job position at the confidence level of 99% increase the continuity of activity.

Model 3 (AUQ Model): It measures the effect of Corona on audit quality. The calculated coefficient for the goodness of fit is -0.643. Therefore, the Coronavirus (CRW) reduces the audit quality at the confidence level of 99%. As a result, hypothesis 3 is confirmed, and Corona significantly affects audit quality. Among the control variables, education and job position at the confidence level of 99% improve the audit quality.

Model 4 (HUC Model): It measures the effect of Corona on the human capital of auditing institutions. The calculated coefficient for the goodness of fit is -0.735. Therefore, the Coronavirus (CRW) reduces the human capital of auditing institutions at the confidence level of 99%. As a result, hypothesis 4 is confirmed, and Corona significantly affects the human capital of auditing institutions. Among the control variables, the human capital of auditing institutions is higher in men than in women at the confidence level of 95%. The education level at the confidence level of 99% and job position at the confidence level of 95% improve the human capital of audit institutions.

Model 5 (SWS Model): It measures the effect of Corona on the salaries and wages of the auditing institutions' employees. The calculated coefficient for the goodness of fit is -0.735. Therefore, the Coronavirus (CRW) reduces the salaries and wages of the auditing institutions' employees at the confidence level of 99%. As a result, hypothesis 5 is confirmed, and Corona significantly affects the salaries and wages of the auditing institutions' employees. Among the control variables, the variable of salaries and wages is significantly higher for men than women at the confidence level of 99%. The education level at the confidence level of 99% increases salaries and wages.

Model 6 (PIA Model): It measures Corona's effect on independent auditors' performance. The calculated coefficient for the goodness of fit is -0.714. Therefore, the Coronavirus (CRW) weakens the performance of independent auditors at the confidence level of 99%. As a result, it concludes that Corona significantly affects the performance of independent auditors. In addition, the performance of independent auditors is better for men than women at the confidence level of 95%. The education level and job position improve the performance at the confidence level of 99%.

5 Conclusions and suggestions

The health crisis due to the Coronavirus outbreak has severely affected the economy of business units and auditing institutions worldwide. This research investigates the effect of Corona on the auditing profession empirically. It considers five features of the auditing profession: auditing fees, continuity of activity, auditing quality, the human capital of auditing institutions, and salaries of the auditing institutions' employees. The respondents included Iranian auditing institutions' managers, partners, and supervisors. The results of this study indicated that the Coronavirus negatively affects audit fees, which is consistent with Chen, Zhang and Huang [17, 63], and Albitar et al. [5], who found that the Coronavirus reduces the audit fee. Another research with similar results [50]. They showed that the Coronavirus pandemic reduced the audit fee and increased the psychological pressure on auditors. In addition, [12] showed that the Coronavirus outbreak reduced the audit workload and increased psychological pressure on auditors. Moreover, research conducted by the International Federation of Accountants (IFAC) in 2020 showed that more than 90% of the world's auditors believe Corona negatively affects audit activities. Some of these effects include reducing the auditing work, changing the work procedures, and increasing psychological pressure on auditors.

In addition, the research results indicate that Corona negatively and significantly affects the continuity of audit institutions' activities, which is consistent with KPMG (2020) [36]. Moreover, Almohaimeed et al. [8] showed that various factors affect the continuity of auditing companies' activities during the Corona outbreak in Saudi Arabia. Some factors affecting the continuity of audit activity include delay in holding audit meetings, delay in producing audit reports, low quality of audit performance, delay in paying audit fees, etc. In addition, Chan et al. [16] examined the changes in customer needs during the virus outbreak. They examined the effect of the pandemic on accepting new projects and delays in project delivery and studied how the Covid-19 virus can affect the continuity of these companies' activities. They concluded that increased workload and customer needs changes may lead to accepting or rejecting new projects. In addition, companies can access human and financial resources in emergencies to improve

their activities.

On the other hand, Covid-19 negatively and significantly affects audit quality, which is consistent with Saddam et al. [31], Albitar et al. [5], and Castka et al. [15], who concluded that Corona decreases audit quality. Other studies conducted by Chan et al. [16] and AICPA [2] reported similar results regarding the effect of Corona on audit quality and concluded that Covid-19 has decreased audit quality.

For example, these researchers concluded that the conditions created by the Covid19 outbreak due to the change in how organizations work and operate have directly or indirectly decreased audit quality. On the other hand, Albitar et al. [5] and Castka et al. [15] mentioned that some companies have only provided limited information to auditors due to a decrease in their activities in the last year, which failed the auditors to make a complete and accurate investigation. As a result, Corona decreases audit quality. On the other hand, the current research showed that Corona negatively and significantly affects the human capital of auditing institutions, which is consistent with Deloitte [23]. In addition, there is research on the effect of the Coronavirus on the human capital of auditing with similar results to those obtained in this research. For example, Gupta et al. [29] investigated the effects of Covid19 on human and job capital in the auditing industry. They investigated the effect of Corona on the human and job capital of auditors. In addition, they discussed how the auditing industry responds to the challenges created by Corona. The research results showed that Corona negatively affects the salaries and wages of audit institutes, which is consistent with Chen et al. [17] and Zhang et al. [63], who showed that crises negatively affect the salaries and wages of employees. In addition, a study by the Mercer consulting firm in 2020 showed that about 45% of companies with the most advanced work strategies are willing to increase their employees' salaries in 2021. Moreover, they showed that more than 60% of these companies are willing to increase their employee's salaries slightly in 2021. On the other hand, another study showed that Corona negatively affects employee salaries in most countries. The study was conducted by the International Labor Organization and found that even in countries where the government is trying to protect workers, workers are still at risk of falling wages.

In general, the research results revealed that Corona has negatively and unfavorably affected the auditing profession in Iran. In other words, the audit methods during the crisis were insufficient to obtain sufficient evidence and data needed for the audit process. Preventive measures such as remote working, social distancing, quarantine, etc., were the main reason for not implementing traditional auditing methods that institutions used to obtain accurate financial information before the pandemic. Therefore, these preventive measures negatively affect audit quality. In other words, quarantine policies, the dismissal of auditors, and reduced salaries and audit fees reduce companies' income and face companies with operational processes challenges. Therefore, companies and institutions are suggested to use this crisis to improve audit effectiveness in the future. Modern systems and technological tools, such as artificial intelligence and the development of network security, will help audit institutions avoid similar recent problems in the future. In addition, institutions following a specific system and having strong management turn the crisis into an opportunity to benefit from establishing strong audit programs in the future. This research provides several opportunities for further research. For example, researchers can discuss the laws controlling audit fees and procedures and their outcome on audit quality. In addition, they can discuss the economic impact on the auditing profession during the Covid-19 outbreak. More empirical research is needed to examine the effect of the Corona outbreak on the financial reporting of companies and auditing institutions.

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