

ORIGINAL RESEARCH PAPER

## Identify and prioritize the factors affecting fiscal discipline in Municipalities

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### ABSTRACT

**BACKGROUND AND OBJECTIVES:** Global events in recent months, such as the (COVID-19) pandemic, have put pressures on the public budget especially in municipalities that have made it more difficult to understand and measure. Meanwhile, Fiscal discipline as one of the most basic concepts of optimal management of resources and expenditures requires purposeful research and in this regard, the present study was conducted to identify and ranking the factors affecting the fiscal discipline of Municipalities to improve financial aspects of urban management.

**METHODS:** In this research, the mixed exploratory approach has been used so that the qualitative method has played an exploratory role and the quantitative method has played a confirmatory role. Also, in the qualitative stage, the Meta-Synthesis Method and in the quantitative stage, the Shannon entropy method have been used to ranking the factors.

**FINDINGS:** By reviewing 34 studies out of 114 initial studies, researchers identified 14 Indicators and 110 codes as factors affecting the Fiscal discipline of Municipalities mentioned in various studies during the years 2000 to early 2021; identified and categorized in the form of four balanced scorecard (BSC) perspectives.

**CONCLUSION:** The results of this research, in addition to the richness of the literature on the concept of fiscal discipline, assist municipalities in managing fiscal discipline and supervisory institutions in assessments by providing a categorized checklist of factors.

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## INTRODUCTION

In the 1970s, serious efforts were made to improve the financial reporting procedures of public sector organizations. Of course, measures taken in the early twentieth century, especially in the Municipalities of North American States, can be considered the main driver of these developments (Jorge, 2003). Among them, the concept of fiscal discipline was one of the concepts that received special attention. In Iran, too, the history of fiscal discipline goes back to a regulation approved by the Cabinet in 2007. In this regulation, strategies to increase the executive guarantee and strengthen accounting have been approved (Keshavarz and Yazdan Mehr, 2015). According to the Research Center of the Iranian Parliament, the reform of Public sector institutions is one of the main conditions for improving the economic situation in Iran; Because these institutions in the general economic areas of the country play the role of a dominant and monopoly enterprise and affect all economic activities (Midary, 2007); So that Municipalities are expected to play a significant role in achieving the fiscal discipline of the entire country. Regarding the definition of "fiscal discipline", the general financial literature has no unique definition of fiscal discipline and different authors have used different definitions; the macro dimension is usually considered and fiscal discipline is introduced with three indicators: the ratio of current expenditures to Gross Domestic Product (GDP), the ratio of budget deficit to GDP and the ratio of debt to GDP (Nazarovets, 2001). Fiscal discipline is also defined as the equality of all public revenues and expenditures and the prudent maintenance of debt levels and budget deficits (Pirdal, 2017). Fiscal discipline can be considered from two perspectives: one is the macro perspective in which the government, government officials and the central bank and government agencies and institutions are required to implement fiscal discipline in decision-making and monetary and fiscal policies at the national level and the other micro perspective. In this view, fiscal discipline is considered and implemented at the level of every institution, organization and enterprise that is government or under government supervision (Esfandiari and Dehghan, 2015). This research has been done at the level of Municipalities, which is also considered from a micro point of view. The fiscal discipline of municipalities in this study refers to

fulfilment financial indicators, which are connected with achieving financial robustness and stability of municipal finance. Another concept used in this study is the BSC. The BSC supplemented traditional financial measures with criteria that measured performance from three additional perspectives—those of customers, internal business processes, and learning and growth (Kaplan and Norton, 1996). The BSC was developed by two men, Robert Kaplan, a professor at Harvard University, and David Norton, a consultant also from the Boston area. In 1990, Kaplan and Norton led a research study of a dozen companies exploring new methods of performance measurement. The impetus for the study was a growing belief that financial measures of performance were ineffective for the modern business enterprise. The seminal work by Kaplan and Norton provides a Multi-criteria framework within which performance evaluation can be conducted, termed the BSC. This multi-attribute evaluation concept highlights the importance of nonfinancial attributes. By incorporating nonfinancial attributes into the measurement system of a organization, the BSC seeks to create a wider set of measures that capture not only current performance, but also the drivers of its future performance (Niven, 2006). Concerns about fiscal discipline became a key component of governments' credit ratings after the 2008 financial crisis (Duygun et al., 2016) and fiscal measures and structural reforms to strengthen long-term economic potential and restore sustainable economic growth are of serious concern to governments (Tkacevs and Vilerts, 2019); some politically motivated managers resorted to financial manipulation to maintain their positions, often leading to fiscal indiscipline and macroeconomic fluctuations (Eklou and Joanis, 2019). On the other hand, according to international polls conducted by the Organization for Economic Co-operation and Development (OECD), public confidence in governments has declined significantly since the recent crises (Organisation for Economic Co-operation and Development, 2017) and there is a serious need for practical monitoring strategies. And the prevention of financial irregularities was felt more than ever. The importance of this issue has led to a continuing emphasis on the concept of fiscal discipline in UN reform reports, including its 2009 report (Blanchfield, 2011). On the other hand, Iranian Municipalities, with a large share of the

country's budget, have a significant role in achieving the country's fiscal discipline and no research has been conducted to investigate the factors affecting the fiscal discipline of municipalities in Iran; As a result, any kind of research that can take a step towards increasing fiscal discipline and economic organization is a special necessity. The purpose of this study is to identify and prioritize the factors affecting fiscal discipline in Municipalities, using the opinions and findings of previous researchers. In this study meta-synthesis has been used to analyze the factors affecting the fiscal discipline of municipalities and the extent and importance of each of the effective factors has been determined using Shannon entropy. The present study is not only new in terms of subject matter, but also innovative in that it examines the issue of financial discipline in the context of BSC and Has identified non-financial factors affecting fiscal discipline in perspectives customer, internal processes, and growth and learning. In other words, this study seeks to fill the gap of previous studies (Macijauskas, 2021; Neto, 2020; Motaleby et al., 2020; Gonzalo et al. 2017; Chowdhury et al., 2016 and Pieschacon, 2012) which usually deal with the macro dimension of fiscal discipline, the micro dimension of fiscal discipline in It has examined the level of Municipalities. On the other hand, the purely economic point of view of most previous researches, this research has used psychological, social, etc. perspectives in identifying concepts and codes. In reviewing a few related types of research, in most cases, the extension method was used or correlation or simple regression tests, and a sample that examined the concept of fiscal discipline by Meta-Synthesis not found (Jalles et al., 2016; Tkacevs and Vilerts., 2019; Jasper et al., 2020). It is expected that this study, by enriching the concepts related to financial discipline, will be able to help the management of municipalities in improving the financial discipline of their respective organizations and improving the studies and planning of regulatory bodies including the Court of Audit, the Audit Organization, the Inspection Organization, the State Planning and Budget Organization, the Ministry of Economic Affairs and Finance, etc.

#### *Empirical background of the research*

Evans (2020) tested the relationship between fiscal discipline, financial development, and economic growth over a 38-year period, confirming

and modeling the multidimensional relationship between fiscal discipline, corruption, economic instability, population size, financial development, and economic growth. Jasper et al. (2020) in their study examined the effectiveness of the budget deficit method on fiscal discipline by examining the fiscal discipline of the European Monetary Union. By examining GDP, they confirmed the direct impact of budget deficit policies on improving financial and disciplinary processes. Shai et al. (2019) aimed to evaluate the degree of fiscal discipline applied in the municipality of Tzwan, South Africa, by examining the variables of accounting and financial auditing skills, length of service and job satisfaction. The results showed a strong correlation between fiscal discipline and the success of projects. Motaleby et al. (2020) in their study entitled "Estimating the shadow economy and tax evasion using government fiscal discipline variables" showed that to reduce the budget deficit and more government fiscal discipline, it is necessary to make the government smaller and reduce spending. Jimenez (2019) also examined the audited financial reports of medium and large cities from 2006 to 2012 and concluded that if citizens had more control over the budget, fiscal discipline in the public sector would improve. In a study, Ekloua and Joanis (2019) examined the impact of financial laws on the fiscal discipline of developing countries. The results of showed a decrease of 1.6% of GDP in the absence of financial laws. In a study entitled "The impact of government borrowing costs on financial discipline," Tkacevs and Vilerts (2019) confirmed the negative effect of interest rate changes on fiscal discipline using financial, political, and macroeconomic variables. Jalles et al. (2016) also examined the relationship between exchange rate policy and fiscal discipline in a study entitled "Exchange rate policies and fiscal discipline". Analyzing data from 79 countries from 1975 to 2012, they concluded that considering the country's conditions and strong exchange rate policy rather than exchange rate stability could lead to greater fiscal discipline. Rahbar and Salimi (2015) also examined the role of government fiscal discipline and the National Development Fund in reducing the Dutch disease in the Iranian economy, and concluded that fiscal discipline is a necessary and sufficient condition to prevent the Dutch disease. In general, the theoretical literature on the subject of research indicates that not much research has been

done on the fiscal discipline of Municipalities and the identification and ranking of factors affecting the fiscal discipline of Municipalities is felt more than ever. The findings of this study facilitating the process of developing guidelines and standards for fiscal discipline of municipalities and will help future researchers to develop concepts of fiscal discipline. The current study have been carried out in Yazd in 2022.

**MATERIALS AND METHODS**

The approach of the present study is an exploratory mix so that in the qualitative part the Meta-Synthesis Method is used and in Quantitative part the Shannon entropy technique is used. On the other hand, because the research is designed and implemented shortly after the end of the qualitative research, the present research is a sequential combination.

*Qualitative part of research  
Meta-Synthesis Method*

By providing a systematic approach to researchers by combining different qualitative research, Meta-Synthesis explores new and fundamental topics and metaphors, and promotes current knowledge and creates a comprehensive and broad view of issues. In this study, the seven-step method of Sandelowski and Barros (2007) has been used.

*Step 1: Set up the research questions*

At this stage of Meta-Synthesis Method, the basic questions were asked based on the data in Table 1, and by answering them, the scope of work was determined, until the possible limitations that underlie the possible ambiguities in the later stages of the research are removed.

An appropriate question in Meta-Synthesis can examine a particular phenomenon, its dimensions and consequences and the factors affecting it. If the

research question is too limited and rigorous, it will lead to few studies being identified and reducing the generalizability of the findings. If the question is set too broadly and indefinitely, it may be difficult to draw practical conclusions for the target community (Ridder et al., 2012). The questions of this research are as follows:

- a) What are the factors affecting the fiscal discipline of Municipalities?
- b) What is the classification and ranking of factors affecting the fiscal discipline of Municipalities?

*Step 2: Literature selection*

Past studies and documents have been used to collect research data. These documents include research related to factors affecting the fiscal discipline of public sector organizations from 2000 to 2021. To collect and categorize the content produced in the field of research, refer to Google search engine and scientific databases. A variety of terms such as fiscal discipline have been used to search for related studies, of which a total of 114 were found.

*Step 3: Search and select the right texts*

The researcher deletes a number of studies in each review, which are not reviewed in the Meta-Synthesis process. The review and selection process in this study is summarized in Fig. 1

In this study, after four stages of refinement, out of 114 studies, 80 were deleted and 34 were selected for analysis, some of which are presented in Table 2:

*Step 4: Extract information*

Throughout the Meta-Synthesis, the researcher continuously reviews selected and finalized studies several times to obtain findings within the separate content in which the initial studies are conducted. In the present research, studies information is categorized as follows:

Table 1. The first stage of Meta-Synthesis questions

Explanation parameter	Explanation
(What)	Determining and identifying the components and concepts of fiscal discipline in published studies
(Who)	Various sources (books, articles, parts of books) published in the field of fiscal discipline
(When)	All published studies in the field of fiscal discipline from 2000-2021
(How)	Methods and criteria for resource selection, thematic review of resources, note-taking, analysis, classification and categorization of studied concepts

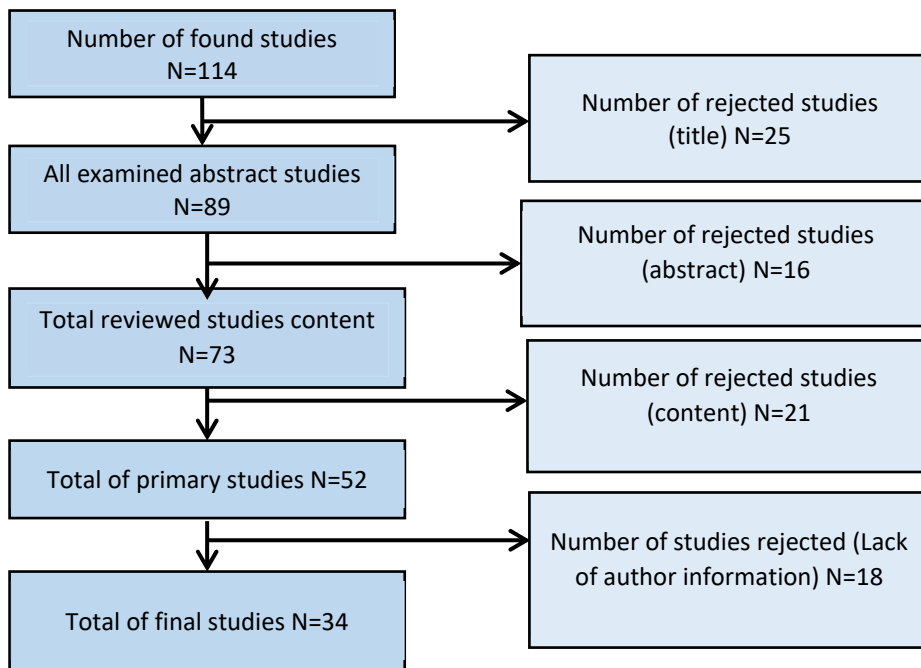


Fig. 1: Review and selection process

Table 2: Some search process findings

Author and Year	Title
Hulsewig and Steinbach (2021)	Monetary financing and fiscal discipline
Al-ahdal <i>et al.</i> (2020)	The impact of corporate governance on financial performance of Indian and GCC listed firms: An empirical investigation
Boehmer <i>et al.</i> (2019)	Raising aid efficiency with international development aid monitoring and evaluation systems
Acerete <i>et al.</i> (2018)	Two decades of design-build-finance-operate roads in the UK and Spain: An evaluation of the financial performance
Chimtengo <i>et al.</i> (2017)	An evaluation of performance using the balanced scorecard model for the university of Malawis polytechnic
Gonzalo <i>et al.</i> (2017)	Fiscal discipline and defaults
Duygun <i>et al.</i> (2016)	The role of sovereign credit ratings in fiscal discipline
Audenaert <i>et al.</i> (2016)	When employee performance management affects individual innovation in public organizations
Hozuri <i>et al.</i> (2015)	Investigating the factors affecting the failure of the financial control system of executive devices
Kholjigitov (2011)	The role of the fiscal discipline in public finance management in developing countries

a) Research ID: Authors name, year of research publication

b) Note: Extracted components

*Step 5: Analyze and combine qualitative findings*

Step 5 in the Meta-Synthesis method is to analyze

and combine the qualitative findings of the research. During the analysis, the researcher searches for topics that have emerged among the studies in the Meta-Synthesis. Once the codes are identified, the reviewer forms a Indicators and places similar code in the Indicators that best describes it. In this research,

Table 3. Analysis quality control

Analysis quality control indicators	The value obtained
PAO coefficient	0.835
Scott's pi coefficient	0.750
kappa Index	0.760
$\alpha$	0.850

Suitable for Iranian municipalities, all the codes are extracted and an Indicators is defined for similar codes. The resulting concepts were then categorized within the four perspectives of the BSC.

#### Step 6: Analyze quality control

In Step 6, the quality of the Indicators and extracted codes from the previous steps are evaluated. In this regard, four quantitative criteria of Percentage of Agreement Observation (PAO) coefficient, Scott's pi coefficient, kappa Index and Alpha have been used to check the validity, portability, verifiability and reliability, the results of which are presented in Table 3, which are reliable values. The value of these indicators fluctuates between zero and one, and the closer the value of the measurement is to one, indicates the agreement between the results of the researches.

#### Step 7: Present the report and study findings

In this step, the findings of the Steps 1 to 6 are presented. Based on the analysis of 34 final sources for 110 extractive codes, based on the similarity of the codes and after applying the opinion of 3 university experts and 2 municipal financial managers, 14 Indicators including 3 financial concepts, 4 customer concepts, 3 internal process concepts and 4 learning and growth concepts were identified. These results are presented as a comprehensive model in the context of the BSC aspects in Fig. 2. Identifying non-financial influencing factors in Fig. 2 has increased the comprehensiveness of extractive indicators and made the model more practical; the importance of each of the model factors is also presented in a quantitative section.

#### Quantitative research stage

Using Shannon entropy method, the level of support of previous researches for the findings of research is shown statistically.

#### Shannon entropy

According to Shannon entropy method, data

processing is presented with a new perspective and quantitatively. Entropy in information theory is an indicator for measuring uncertainty expressed by a probability distribution. Based on this method, which is known as the compensatory model, the content of the design will be analyzed (Lin, 1991). In this study, after identifying the research factors, Shannon entropy method will be used to analyze the data as follows:

The frequency of each of the identified codes and Indicators must be determined based on the Meta-Synthesis and the desired frequency matrix. For this purpose, the linear normalization method is used in Eq. 1.

$$n_{ij} = \frac{x_{ij}}{\sum x_{ij}} \quad (1)$$

The information load of each factor must be calculated. The Eqs. 2 and 3 are used for this purpose:

$$k = \frac{1}{Ln(a)} \quad (2)$$

$$E_j = -k \sum [n_{ij} LN(n_{ij})] \quad (3)$$

The coefficient of importance of each factor must be calculated. Each factor has a higher information load, the more important it is. The Eqs. 4 is used for this purpose:

$$W_j = \frac{E_j}{\sum E_j} \quad (4)$$

## RESULTS AND DISCUSSION

In the first step, the decision matrix was formed and the scores obtained from the decision matrix were calculated. Based on this method, the factors that have the most weight also have the most role. The final results of the factors are identified and the rank of each of them is presented in Tables 4 to7; according to the results of the quantitative research

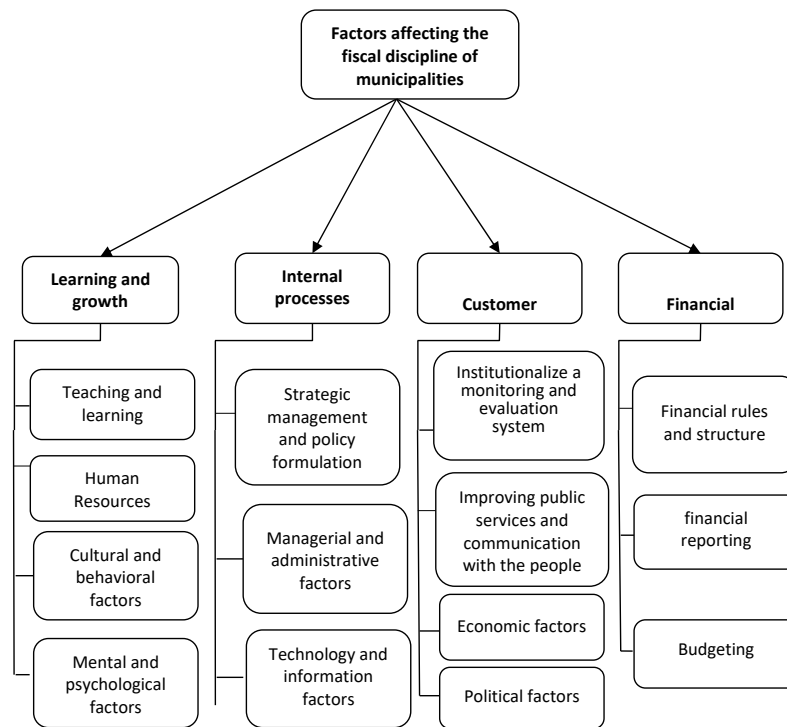


Fig. 2: Comprehensive Model of Fiscal Discipline of Municipalities

section, the perspectives of internal processes, customer, learning and growth, and financial have had the greatest impact on the fiscal discipline of Municipalities, respectively.

*Financial perspective*

Based on the analysis of 14 codes identified in the financial perspective, 8 codes in the Indicators of “Financial rules and structure”, 4 codes in the Indicators of “budgeting” and 2 codes in the Indicators of “financial reporting” are classified and then ranked based on the calculated Weight factor. The results are presented in Table 4. Accordingly, “Eliminate barriers to performing performance audits”, “Management of financial assets and liabilities” and “Implement internal control and strong financial management system” have the highest rank among the financial perspective codes.

*Customer perspective*

Based on the analysis of 43 codes identified in the customer perspective, 16 codes in the Indicators of “Institutionalize a monitoring and evaluation system”,

6 codes in the Indicators of “Improving public services and communication with the people”, 13 codes in the Indicators of “Economic factors” and 8 codes in the Indicators of “Political factors” are classified and then ranked based on the calculated Weight factor. The results are presented in Table 5. Accordingly, “Improving public trust in public sector organizations”, and “Instability and economic shocks” have the highest rank among the customer perspective codes.

*Internal processes perspective*

Based on the analysis of 29 codes identified in the Internal processes perspective, 11 codes in the Indicators of “Strategic management and policy formulation”, 10 codes in the Indicators of “Managerial and administrative factors” and 8 codes in the Indicators of “Technology and information factors” are classified and then ranked based on the calculated Weight factor. The results are presented in Table 6. Accordingly, “Risk assessment and management”, and “Raising awareness and correcting the thinking of managers” have the highest rank among the Internal processes perspective codes.

*Fiscal discipline in Municipalities*

Table 4. Ranking and importance factor of financial perspectives codes

Indicators	code	Frequency	Entropy <sub>j</sub>	Weight <sub>j</sub>	Rank in indicators	Rank in code	Rank each indicators
Financial rules and structure	Establish financial rules and regulations	4	0.0086	0.0067	4	73	
	Management of financial assets and liabilities	7	0.0134	0.0104	2	39	
	Issuance of direct payment authorization by executive bodies						
	Eliminate barriers to performing performance audits	8	0.148	0.0116	1	31	
	Implement internal control and strong financial management system	5	0.0103	0.008	3	63	9
	Improve cost management and administrative financial health	3	0.0068	0.0053	5	77	
	Payments are automatic and with a set limit	3	0.0068	0.0053	5	73	
Budgeting	Check commitments and restrictions on a monthly basis	2	0.0049	0.0038	8	87	
	Corporate budgeting	3	0.0068	0.0053	1	77	
	Standard budgeting in corporate resource allocation	2	0.0049	0.0038	2	87	13
	Operational budgeting	2	0.0049	0.0038	2	87	
financial reporting	Improving the quality and effectiveness of annual budgets	1	0.0027	0.0021	6	103	
	Investing in Financial Reporting	2	0.0049	0.0038	2	87	14
	Confidentiality of information	2	0.0049	0.0038	2	87	

*Learning and growth perspective*

Based on the analysis of 24 codes identified in the Learning and growth perspective, 6 codes in the Indicators of “Teaching and learning”, 7 codes

in the Indicators of “Human Resources”, 6 codes in the Indicators of “Cultural and behavioral factors” and 5 codes in the Indicators of “Mental and psychological factors” are classified and then ranked



Table 5. Ranking and importance factor of customer perspectives codes

Indicators	code	Frequency	Entropy <sub>i</sub>	Weight <sub>i</sub>	Rank in indicators	Rank in code	Rank each indicators
Institutionalize a monitoring and evaluation system	Retrospective and prospective evaluation	2	0.0049	0.0038	9	87	
	Internal and external financial supervision	6	0.0118	0.0092	2	47	
	Introduce legal provisions related to monitoring and evaluation	2	0.0049	0.0038	9	87	
	Detailed control of payments and commitments established through financial supervisors	2	0.0049	0.0038	9	87	
	Performance evaluation system	6	0.0118	0.0092	2	47	
	Lack of promotion of evidence of monitoring and evaluation and development of demand-driven programs	3	0.0068	0.0053	7	77	
	Lack of budget related to monitoring	5	0.0103	0.008	6	63	
	Increase employee and manager involvement in monitoring and evaluation	2	0.0049	0.0038	9	87	6
	The role of other assessment organizations in monitoring and evaluation	1	0.0027	0.0021	15	103	
	Develop inter-organizational norms and monitoring and evaluation standards	2	0.0049	0.0038	9	87	
	Responsibility for policy, program, performance and process	2	0.0049	0.0038	9	87	
	The relationship between rewards and performance benefits and reporting evaluation results	6	0.0118	0.0092	2	47	
	Reduce financial irregularities and improve efficiency	6	0.0118	0.0092	2	47	

Continued Table 5. Ranking and importance factor of customer perspectives codes

Indicators	code	Frequency	Entropy <sub>j</sub>	Weight <sub>j</sub>	Rank in indicators	Rank in code	Rank each indicators
	Report on budget deduction by reducing violations and holding managers accountable	7	0.0134	0.0104	1	39	
	Improve productivity, transparency and accountability Government	3	0.0068	0.0053	7	77	
	accountability to parliament for law enforcement	1	0.0027	0.0021	15	103	
	Proving effectiveness and increasing responsibility for the demands of society	7	0.0134	0.0104	2	39	
	Allocate scarce resources to provide public services	5	0.0103	0.008	4	63	
Improving public services and communication with the people	Reconstruction of the public sector	5	0.0103	0.008	4	63	
	Explicit requirements for setting public service goals	5	0.0103	0.008	4	63	8
	Increase the power and interest in responding to citizens	6	0.0118	0.0092	3	47	
	Improving public trust in public sector organizations	14	0.0227	0.0177	1	1	
	Cut dependence on heavy and discontinuous revenues and use the open market operation	4	0.0086	0.0067	12	73	
	Justice-oriented economic decisions	5	0.0103	0.008	10	63	
	Economic development and poverty reduction	10	0.0176	0.0137	4	12	
	Instability and economic shocks	14	0.0227	0.0177	1	1	
	Linking economic and financial policies in formulating programs and budgets	11	0.0189	0.0148	2	7	
Economic factors	Lack of monitoring money supply, goods, and capital,	11	0.0189	0.0148	2	7	2
	Unexpected economic conditions	9	0.0163	0.0127	6	26	

Continued Table 5. Ranking and importance factor of customer perspectives codes

Indicators	code	Frequency	Entropy <sub>j</sub>	Weight <sub>t</sub>	Rank in indicators	Rank in code	Rank each indicators
	Economic sanctions and the effects of international decisions	10	0.0176	0.0137	4	12	
	Lack of interaction with international professional economic associations	5	0.0103	0.008	10	63	
	Inflation control	8	0.0148	0.0116	7	31	
	Reduce corruption and economic embezzlement	6	0.0118	0.0092	9	47	
	Cost-benefit analysis of economic decisions	8	0.0148	0.0116	7	31	
	Transparency of business environment for domestic and foreign investments	2	0.0049	0.0038	13	87	
	Governance structure and political authoritarianism	6	0.0118	0.0092	1	47	
	Political considerations and influence in law enforcement	2	0.0049	0.0038	5	87	
	The rule of law and the fight against political corruption	2	0.0049	0.0038	5	87	
Political factors	Informal pressures for non-implementation of the system and transparent financial oversight	6	0.0118	0.0092	1	47	10
	Political determination	3	0.0068	0.0053	4	77	
	Reducing the conflict of public interests and political factions	5	0.0103	0.008	3	63	
	Foreign political developments	2	0.0049	0.0038	5	87	
	Strengthening international political relations and political stability	1	0.0027	0.0021	8	103	

Table 6. Ranking and importance factor of Internal processes perspectives codes

Indicators	code	Frequency	Entropyj	Weightj	Rank in indicators	Rank in code	Rank each indicators
Strategic management and policy formulation	Strategic development and planning	7	0.0134	0.0104	5	39	
	Identify the strengths and weaknesses of the organization	10	0.0176	0.0137	1	12	
	Amend the rules for allocating resources within the organization	6	0.0118	0.0092	6	47	
	Commitment to integrity, moral values and the rule of law	3	0.0068	0.0053	11	77	
	Lack of coherence of performance management, strategies and operational goals	6	0.0118	0.0092	6	47	
	Development of combined indicators of structural resources, capital, management systems and human resources	4	0.0086	0.0067	10	73	4
	Strategic roles of each actor in the financial system	5	0.0103	0.0080	9	63	
	Flexibility and risk-taking	8	0.0148	0.0116	3	31	
	Mission, strategic goals, outputs and stakeholders	8	0.0148	0.0116	3	31	
	Strategic goals and operational goals of the organization's budgeting policy	9	0.0163	0.0127	2	26	
	Idealistic and abstract policies	6	0.0118	0.0092	6	47	
	Managerial and administrative factors	Risk assessment and management	14	0.0227	0.0177	1	1
Effective gesture by managers and incompatibility of managers' powers and responsibilities		8	0.0148	0.0116	8	31	
Raising awareness and correcting the thinking of managers		14	0.0227	0.0177	1	1	1
Categorize organizational outputs		9	0.0163	0.0127	7	26	

Continued Table 6. Ranking and importance factor of Internal processes perspectives codes

Indicators	code	Frequency	Entropy <sub>j</sub>	Weight <sub>j</sub>	Rank in indicators	Rank in code	Rank each indicators
	Increasing the quality of managers' decisions and their performance orientation	10	0.0176	0.0137	4	12	
	Lack of proper knowledge and insight of performance auditing in the public sector	7	0.0134	0.0104	9	39	
	Delegate authority and achieve work and effectiveness and increase the responsibility of managers	11	0.0189	0.0148	3	7	
	Merit in appointments and decisions of managers	12	0.0202	0.0101	10	46	
	Motivate and provide opportunities	10	0.0176	0.0137	4	12	
	Encourage people to innovate	10	0.0176	0.0137	4	12	
	Lack of documentation of information and processes	10	0.0176	0.0137	3	12	
	Computer auditing and online systems	11	0.0189	0.0148	1	7	
	Create an independent database for monitoring and evaluation	11	0.0189	0.0148	1	7	
Technology and information factors	Systematization and integration of functional information production	9	0.0163	0.0127	5	26	5
	Weak technology infrastructure	10	0.0176	0.0137	3	12	
	Verify performance data and prevent repeated manipulation	6	0.0118	0.0092	6	47	
	Non-transparent information system	3	0.0068	0.0053	8	77	
	Excess bureaucracies	6	0.0118	0.0092	6	47	

Table 7. Ranking and importance factor of Learning and growth perspectives codes

Indicators	code	Weightj	Entropyj	Frequency	Rank in indicators	Rank in code	Rank each indicators
Teaching and learning	Identify organizational training needs	9	0.0163	0.0127	2	26	
	Establish knowledge management	12	0.0202	0.0158	1	6	
	Strengthen the specialized skills of auditors in performing operations	5	0.0103	0.008	6	16	
	Attention to education in sector-based budgets	8	0.0148	0.0116	3	31	7
	Encourage people to come up with innovative ways	6	0.0118	0.0092	5	47	
	Complete, expand and coordinate MandE system shaping methods and tools	8	0.0148	0.0116	3	31	
Human Resources	Intelligence capabilities	10	0.0176	0.0137	2	12	
	Intellectual and analytical competencies	10	0.0176	0.0137	2	12	
	Individual and group communication skills	10	0.0176	0.0137	2	12	
	Inadequate human resource structure and composition	10	0.0176	0.0137	2	12	
	Qualifying and hiring specialized and efficient staff	14	0.0227	0.0177	1	1	3
	Training skilled academics and identifying educational needs	10	0.0176	0.0137	2	12	
	Creating a competitive system in attracting efficient and specialized personnel	10	0.0176	0.0137	2	12	

Continued Table 7. Ranking and importance factor of Learning and growth perspectives codes

Indicators	code	Weightj	Entropyj	Frequency	Rank in indicators	Rank in code	Rank each indicators
Cultural and behavioral factors	Spirituality at work	1	0.0027	0.0021	6	103	11
	Lack of commitment to integrity	2	0.0049	0.0038	5	87	
	Creating organizational motivation to adopt a culture of accountability	6	0.0118	0.0092	2	47	
	Resistance to change	6	0.0118	0.0092	2	47	
	National determination to eliminate relationalism	7	0.0134	0.0104	1	39	
	Moral values and the rule of law	3	0.0068	0.0053	4	77	
Mental and psychological factors	Lack of justice and past failed experiences	1	0.0027	0.0021	3	103	12
	Public distrust	4	0.0086	0.0067	2	73	
	Lack of common belief and understanding of communication policies	7	0.0134	0.0104	1	39	
	Positive attitude towards work and human beings	1	0.0027	0.0021	3	103	
	Spiritual thinking	1	0.0027	0.0021	3	103	

based on the calculated Weight factor. The results are presented in Table 7. Accordingly, “Qualifying and hiring specialized and efficient staff”, and “Establish knowledge management” have the highest rank among the Learning and growth perspective codes.

*Discussion*

The concept of “fiscal discipline” has a complex and multifaceted nature; this means that although financial factors have a direct impact on fiscal discipline, the impact of non-financial factors is also inevitable. In this research, considering this complexity has been considered by applying the perspectives of the BSC technique. The results of this study provide a comprehensive view of the factors affecting the fiscal discipline of municipalities, a feature that has been less considered in previous

studies. For example, [Shai et al. \(2019\)](#) in their results mentioned only 3 factors of accounting and financial auditing skills, length of service and job satisfaction as factors affecting the fiscal discipline of municipalities, and [Jimenez \(2019\)](#) in its results, only the role of citizen control in the fiscal discipline of municipalities is considered. The results of studies such as [Alijan and Al-Rabeawi \(2021\)](#) and [Valibeigi et al. \(2020\)](#) have been conducted on the basis of a BSC and to evaluate the overall performance and not just the fiscal discipline of municipalities. According to the results of [Aleksandrova \(2020\)](#) research’s, which is considered as one of the few researches in the field of fiscal discipline of municipalities, economic, demographic and financial factors have been identified as the most important factors affecting the fiscal discipline of municipalities. The present study covers

these results and identifies the economic factor in the customer perspective, demographic factors in the growth and learning perspective, and financial factors in its financial perspective.

## CONCLUSION

Achieving fiscal discipline requires comprehensive determination in various fields, and one of the biggest financial challenges for municipalities and their supervisory institutions is the lack of a roadmap for managing and evaluating fiscal discipline; a map that can show signs of fiscal indiscipline and provide solutions to address them. At the international level, and especially in Iran, the concept of fiscal discipline has not been paid much attention so far, especially at the micro level, and the need for purposeful and operational research is felt more than ever. As a result, the present research tried to play a significant role in paving the way by identifying and ranking the factors affecting the fiscal discipline of municipalities and prepare municipalities to perform their legal duties and submit periodic reports of revenues and expenditures. In this study, using Shannon's entropy and Meta-Synthesis techniques and using 34 different references, the theoretical summary and saturation on the subject of factors affecting financial discipline were discussed. According to the findings of this study, these factors include 4 perspectives: financial, customers, internal business processes, and learning and growth, which consists of 14 indicators and 110 codes. So that the Indicators of "Financial rules and structure", "budgeting" and "financial reporting" in the financial perspective, the concepts of "institutionalize a monitoring and evaluation system", "Improving public services and communication with the people", "economic factors" and "Political factors" in the customer perspectives, the Indicators of "Strategic management and policy formulation", "managerial and administrative factors" and "technology and information factors" in the internal processes perspectives and the Indicators of "Teaching and learning", "human resources", "Indicators" Cultural and behavioral factors" and "mental and psychological factors" were identified in the perspectives of learning and growth. Results of this study indicate that improve fiscal discipline in Municipalities, the technologies and processes of the organization must be optimized in the first step, Plan to meet the needs of the organization's stakeholders in The second step, promoting innovation

and continuous improvement in the third step, and in the last step, improving the previous three perspectives. Will improve financial indicators. Also, "managerial and administrative factors", "economic factors" and "human resources" as the most effective indicators and "Improving public trust in public sector organizations", "Instability and economic shocks", "Risk assessment and management", "Qualifying and hiring specialized and efficient staff", "Raising awareness and correcting the thinking of managers" and "Creating a competitive system in attracting efficient and specialized personnel" have been identified as the most widely used and important codes, they play a significant role in promoting fiscal discipline of municipalities. The above results can help officials and individuals to plan to identify strengths and weaknesses in the field of fiscal discipline of municipalities and efforts to plan and improve it.

## Suggestions

According to the research findings, it is suggested, to pay attention to the following:

- Strengthen the audit committee: Strengthen the audit committee and increase interaction between the financial departments of municipalities to improve the financial and budgetary structure and proper reporting;
- Use of new technologies: Using artificial intelligence tools and management dashboards to evaluate and continuously improve fiscal discipline;
- Supporting whistleblowers: Supporting whistleblowers and Establish a secure communication platform for sending abuse reports to improve public trust in public sector organizations;
- Individual Development Plan: Establishment of a specialized working group for Individual Development Plan to purposefully train existing managers and employees and hire specialized and efficient employees;
- Support for applied research: Utilizing the potential of universities and research centers to provide solutions to address the challenges of fiscal discipline of municipalities and also to address possible problems in the conceptual model of this research.

## Limitations and future research

In this research an attempt has been made to overcome many of the limitations of quantitative and qualitative methods by using a mixed exploratory



approach; The main limitation of our study is that we chose to include most of the studies that met our inclusion criteria, sometimes in spite of quality, and low methodological rigor this was done to include as much available data as possible and issues such as the possibility of bias and prejudices of the researcher may impair the findings and results of the research. Although in the present study, an attempt has been made to obtain more reliable results by achieving theoretical saturation. Also, since in qualitative research, the phenomenon under consideration in the context in which it occurs is investigated; the possibility of generalizability of the results and findings of the qualitative part of the research is limited to other areas. The wide dimensions of the concept of “fiscal discipline” and the limited resources and research indicate that the results of this study can play an important role in addressing this concept in future research. The suggestions of this research for the future are as follows:

- The fiscal discipline model presented in this study is related to municipalities, and it is suggested that this model be considered in other organizations, macro level (national budget) or micro level (individual or family).
- In this research, Meta-Synthesis method has been used, which suggests that the feasibility of other qualitative methods be examined.
- Identifying factors that assess fiscal discipline can also be considered in future research.

#### AUTHOR CONTRIBUTIONS

S.Motahari performed the literature review, analyzed and interpreted the data, prepared the manuscript text. A. Taftiyan helped in the literature review, methodology review and manuscript edition. M. Moeinadin helped with the literature review.

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#### CONFLICT OF INTEREST

The authors declare no potential conflict of interest regarding the publication of this work. In addition, the ethical issues including plagiarism,

informed consent, misconduct, data fabrication and, or falsification, double publication and, or submission, and redundancy have been completely witnessed by the authors.

#### ABBREVIATIONS

α krippendorff coefficient for Reliability assessment

*BSC* Balanced Scorecard

*CASP* Critical Appraisal Skills Program

*GDP* Gross domestic product

*IDP* Individual Development Plan

*OECD* Organization for Economic Co-operation and Development

*PAO* Percentage of Agreement Observation

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