Presenting a participatory financing model–income based on risk management based on the study of Tehran municipality

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Abstract

Urban finance is one of the most basic urban development policies. This article investigated Tehran Municipality to provide financial sources of income and provide the cooperative financial model. For this purpose, a mixed method was adopted with the priority of the qualitative stage over the quantitative stage. In the qualitative approach, the proficient subject experts were interviewed to meet the objectives of the research until the theoretical adequacy was achieved. Then, the Delphi method was used to confirm or modify the indicators identified from the qualitative content analysis of the interviews. Thus, the pattern of providing financial resources was extracted from the data of the qualitative phase. After that, the questionnaire was given to 300 financial employees of Tehran Municipality to weigh the indicators identified from the qualitative phase. The data were analyzed using SPSS 22 and Lisrel 8.5 software and the confirmatory factor analysis technique to determine the variables' weight. The findings showed that seven dimensions of justice, transparency, local independence, thrift, income adequacy, sustainability and practicality, and non-shifting of the tax base were extracted in the financing model. The indicators of these dimensions include charges on official documents, charges on added value, charges on buildings and lands, charges on communications and transportation, charges on professional business licenses, charges on parking, charges on centralized collection, charges on property (Real estate), and income from municipal services. Obtaining these results showed that we can achieve a comprehensive theoretical and applied model in this field only when we pay attention to identifying its definitions, concepts, dimensions and components based on the conditions governing the economic environment of the country and Tehran municipality because the financing issue is multifaceted and complex in the municipality.

Keywords: financing, Tehran municipality, risk management participation
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1 Introduction

1.1 Problem statement

Until the late 1990s, Tehran Municipality used traditional methods of financing (relying on the central government budget). The share of government aid has been increasing in the years before 1985, but based on the self-sufficiency plan of the municipalities in this year, it was decided that the municipalities would become self-sufficient within a three-year plan. Since then, the share of government aid has decreased. The financial relationship between the government

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and Tehran municipality is such that not only the budgets from the Ministry of Interior to Tehran municipality have been reduced, but government buildings do not pay for the use of city facilities and in many areas the services provided by Tehran municipality is at the national level, the government does not pay its share either. Meanwhile, citizens' expectations from the mayor are increasing day by day, and how to cover the city's expenses is the challenge city managers face [12]. At the same time, as applying the self-sufficiency policy, the municipalities resorted to various methods to cover their costs, the most important of which was the imposition of new taxes or the expansion of existing taxes, including building taxes, density sales, change of use fines, fines for increasing the number of floors in buildings, fines for removing parking spaces from buildings, and fines for construction violations [1]. Therefore, municipalities are gradually resorting to unstable and unhealthy incomes, without paying attention to the negative consequences of these incomes [2]. Two major challenges of the status quo instability and inappropriateness of the income supply system of the city of Tehran municipality and the Tehran municipality failure in reaching the financial and monetary markets faced by this metropolis. The city managers are responsible to finance the city administration costs. The question here is whether it is possible to maintain the city, provide urban and civil services and develop the city without collecting revenues and financing? Or is it possible to run the city with the current financing? Also, what structure and model is there to finance Tehran municipality? Also, what is the past and present trend of financing Tehran municipality? On the one hand, the weak, inappropriate, and unstable income system and on the other hand, the imbalance in expenses and as a result the accumulation of debts, the sale of assets and getting caught in financial bottlenecks from the point of view of urban development and urban planning lead to a decrease in the efficiency of the city, endangering city safety and citizens health [1]. The study of the incomes structure of the cities shows that the city administrations are financed with government grants form local governments current budgets, after taxes and duties [7]. Limitation of the legal and reasonable areas of earning income in the municipality leads to the strong dependence of the revenue sector of the municipality on the construction of urban structures and density sales in such a way that the continuation of this situation has social, cultural and infrastructural adverse effects and consequences on the city of Tehran and its urban management. Accordingly, the review and analysis of a period of 5 to 10 years of urban financing and achieving a stable pattern of financing to cover current and construction costs of the city are among the most important concerns of urban sustainability factors. So, the municipality's revenue and financing system was investigated, while examining the share of Tehran municipality's revenue resources and the process of their changes. Besides, due to the lack of a comprehensive model for the revenue system of municipalities and to act optimally to finance Tehran Municipality, the researcher decided to propose a comprehensive model.

1.2 The importance and necessity of research

In today's societies, the demand for all kinds of urban goods and services has increased due to the expansion of metropolitan areas, and meeting these needs requires having sufficient and stable urban financial resources. Moreover, these revenues, in addition to having reliability and continuity, do not disrupt the process of sustainable urban development. It should be noted that in the concept of cooperative income generation, it is not possible to earn money from any source for the city. Rather, they should be acquired in such a way that the rights of future generations are not violated and the quality of life in the city does not decrease. Therefore, the sustainability stability and cooperation in the city's financing first requires that the acquisition of these incomes does not expose the quality, physical and environmental conditions of the city to threats and destruction [7].

In our country, statistics show that municipalities are significantly funded by taxes received for land and buildings. For this reason, it is often observed that the smallest change and transformation in the price of land and housing greatly overshadows the municipality's income. This method of financing is not only very unstable, but also inflicts adverse economic, social and physical consequences.

Municipalities need new and stable financial resources to provide citizens with services. This is more prominent in Tehran Municipality, because there is no or less government credit, it does not meet their financial needs. Weakness of sustainable financial resources has caused many financial inefficiencies in urban management and has made them dependent on unstable income sources in the implementation of their plans. The attention of urban management and municipalities to upstream organizations to secure their financial resources, selling existing resources, facilities and equipment, etc. are considered among the unstable incomes of urban management, which, although they can meet needs in the short term, are not reliable sources in the long term and may even cause problems. Looking at the municipalities financial resources shows that between 60 and 70% of municipal financial resources are unstable and non-sustainable; therefore, it is necessary for municipalities and other upstream authorities to oversee them to direct urban management towards planning to create cooperative financing.

This article aims to take a step towards helping the relevant authorities by examining the provision of cooperative finaning and providing a model for it in Tehran municipality. Although this action may not be possible in the short

term, it will be possible and helpful in the long term. During the research, the researcher has always observed the urban problems caused by this issue in the municipality, therefore, this paper addresses the author concern to have a small contribution in reducing the municipality financing problems. Also, considering the good potential that Tehran Municipality has for progress in various fields and as the trustee of urban development, the municipality has the duty to control the existing situation for the development of the city and foresight about its development process. This paper can be a new plan and a new perspective for the field of urban management. The innovation aspect of this research can be examined from a theoretical and applied point of view. In the theoretical part, it is possible to formulate a framework for the cooperative financing of the study area, and in terms of application, it is possible to prepare a model for the cooperative financing of the municipality to provide citizens with services.

1.3 Research objectives

1.3.1 Main goal

Identify the appropriate cooperative financing model in Tehran municipality (Case study: Tehran Municipality's)

1.3.2 Sub-goals
1. Knowing how to finance the municipality in the current situation
2. Knowing the optimal financing

1.4 Research questions

1.4.1 Main questions

What is the appropriate cooperative financing model in Tehran municipality?

1.4.2 Sub questions
1. What are the dimensions and components of providing cooperative financing model in Tehran municipality?
2. How to finance the municipality in the current situation?

2 Sustainable income

The review of economic literature indicates the presentation of valuable materials regarding the sustainability and sustainable incomes. In this review, Hicks' definition of sustainable income can be mentioned. Hicks defines sustainable income as the maximum income available in a period of time with the guarantee of creating the same level of income in the future period in the condition that the economic system is limited in resources, labor force, capitals produced by humans and natural capitals. Other definitions have been provided by neoclassical economists, in which sustainable income is "the maximum amount of consumption expenditure in one period without causing a decrease in real consumption expenditure in subsequent periods". It should be noted that in economic texts, the category of sustainable income is not independent of sustainable development, and the condition of sustainable development is the existence of sustainable incomes and benefits. In addition to this sustainable development, in the urban economy, it is a function of the amount and how to use the natural resources of the city, the protection of the urban ecosystem and the protection of resources, including water, air and urban green space. In other words, the summarizing different definitions of income concludes that the continuation of increasing income and production of goods and services in the future should be such that the quality of the urban environment is maintained and the welfare of the people and citizens is not reduced. In other words, the revenues of the municipalities will be considered stable if they have at least two characteristics of sustainability and maintaining the quality of the environment and urban space. Sustainability means that income items should be reliable at different times and necessary planning can be done to achieve them [10].

One of the expected methods to reduce the gap between municipal revenues and expenses is the central government financial aids. The central government's aid can be done through granting credit, paying subsidies, or sharing municipalities in the central government's taxes. Of course, these aids are acceptable in cases where the activities of the local government or municipalities have side benefits. This means that the activities of the municipalities should be accompanied by benefits that cannot be financed through direct receipts from the citizens. In other words, the cost of such activities is beyond the public's ability to pay. Most of the goods produced by the municipalities, such as the creation of green space, street construction, road asphalt and city cleaning, are public goods, regardless of who pays for

the production of these services, all people are able to benefit from these services. Although for transportation, funds are paid as transportation costs (bus and metro tickets) by the consumer, but these costs are very small compared to the provision of these services by the private sector. To have an efficiency-based system requires to collect the price of such services from the consumer. However, in any case, it is not possible to deprive people of the free use of the above services (due to the nature of the services, which are not divisible), nor do governments and municipalities want to prevent people from using these services due to their positive effects. In this sense, considering the need to produce such services on the one hand and the inability of all citizens to pay for the costs, it is necessary for the central government to help provide these services through the allocation of grants [16].

Borrowing from banks, financial institutions and credit institutions, as well as the participation of the private sector in the production and provision of infrastructure needed by cities, are other ways of financing municipalities. As mentioned earlier, with the increase in demand for public services and infrastructure in urban areas the range of taxes and sales of government services and assistance is exceeded the issue of financing to meet the needs and local governments or municipalities are constantly trying to provide a wider range and higher quality of social services and physical infrastructure in cities. At the same time, despite insufficient income and in some cases due to the high level of debts, governments are forced to meet these needs. But increasing the burden of the central and local governments often leads to inefficiency in the supply of services and infrastructures, and many government organizations and companies that are active in providing urban services generate expenses for the government instead of generating income. The problems created for urban systems, especially in developing countries, cause other potential facilities to play a more active role in the supply of public services, such as health, education, transportation, as well as physical infrastructure, including electricity, water and telephone services, sewage networks and waste disposal. In this regard, borrowing is one of the well-known methods followed in different ways [16].

The participation and investment of the private sector in urban infrastructure reduces the financial pressure, although the discussion of the usefulness and efficiency of the participation of the private sector in some public and infrastructure activities has many supporters and opponents, however, many of the evidence shows that under the right conditions, private sector investments can play an significant role in the development of urban infrastructure and services. In short, the severe financial limitations of municipalities on one hand and the inefficiency of state investment companies on the other hand justify the necessity of the participation of the private sector, non-governmental organizations and financial markets in the efficiency of providing services for cities [14, 15].

Borrowing and participation in the municipalities required projects can be done in the following ways:

- Investment participation of the private sector and non-governmental organizations;

- Issuance of partnership bonds;

- Borrowing from domestic and foreign banks and financial institutions;

- Mayor's specialized banks and urban development funds.

Issuing partnership bonds includes the way of benefiting from people's aid. Selling and issuing partnership bonds and creating economic incentives for buyers and guaranteeing the repurchase of these bonds by banks or financial organizations will be a suitable and desirable step in the direction of financing municipalities. Almost all countries has experienced issuing partnership bonds with successful results. The examples for issuing partnership bonds includes in Iran include, the Nawab project in Tehran by Tehran municipality with the participation of the banking network, the publication of Hazrat Abdul Azim project, and Tabriz West Market development [19].

3 Governance structure of municipalities in Iran

Iran's political and governmental system is a centralized system. The territory of each province is divided into several counties, each county into several divisions, and each division into several villages. The Ministry of Interior is responsible for administrative and executive management and coordination of the provinces by appointing governors, and district governors, and the executive bodies of the country have general offices in provinces and special departments and offices in cities. The local government in Iran is managed by the municipality like in other countries [17].

The administrative system of Iran is among the highly centralized systems at the macro level, and the administrative and executive system is the urban management. Its subgroups include ministries, coordinating organizations and municipalities. At the regional or provincial level, there is no independent organization under the title of urban management, and the elements of the provincial branches are the elements of the national level. The governorate is

the most important organization affecting urban management at the regional level, which is made up of governorates, and district governorates, and it follows up on the issues related to municipalities through the vice-chancellor of civil affairs. The main duties of this deputy are to supervise the implementation of plans, study the revenue sources of municipalities, supervise personnel and employment affairs of municipalities, etc.

The urban management system at the local level includes the sub-department of decision-making (administrative council and city supply council, city Islamic council, governor and municipality and informal elements such as Friday prayers imams and economic capitalists, etc.), civil-technical services sub-department and city infrastructure facilities, sub-section of urban services (welfare services, security, transportation, etc.), sub-section of public and social services (education, physical training, justice, etc.) and sub-section of economic and financial affairs (Financial affairs depend on the central government and local revenues) [17].

Municipalities have been mentioned as local Government that were supervised and managed in the past under the supervision of the local associations, and currently under the supervision of the Islamic councils of the cities. The officiality and authority of the municipality originates from the vote of the public or the people's representatives, and it is independent in its duties, although in Iran, the municipalities never enjoyed this legal independence, at least until the establishment of the Islamic councils, and they have always been under the influence of the central government. The main reason for this is the relationship between the municipality and the Ministry of Interior, which have been subordinate branches of the Ministry of Interior since the beginning of their establishment [5].

In a non-democratic society, the mayor or city council is installed and dismissed by the ruler or the executive body under his supervision. But currently, in most countries, the city manager or city managers are elected by the residents of the same city. Sometimes the mayor is elected by the direct vote of the people, and sometimes the members of the city council are elected by the people. They choose one person from among themselves or people outside council to hold the position of mayor. In some cases, in addition to electing the mayor, the city council approves city laws and directly holds the executive power of the city. The city budget is also under the direct supervision of this council, which is also the case in Iran. This method of urban administration, which has been tried to be used in Iran after the establishment of the city council, is based on political theories that reduces concentration of power in the hands of a single person or party and as a result reducing political, economic corruption, and rent-seeking, but in some countries, the mayor elected by the people or members of the city council is actually the most important piece of political power in the city or region in question, and he can dismiss and appoint city officials without the need for the approval of the city council. Such a municipality also spends the city budget by its own decision [6].

4 Duties of municipalities in Iran

Article 55 of the Law on Municipalities of the country concerns the duties of municipalities. According to this law, the duties of municipalities in Iran include the following:

Health services, cleanliness of the living environment, supervision and action to protect the environment, providing services to homeless and poor people, garbage collection, construction of streets and roads and their maintenance, education and training, providing university services, construction and maintaining libraries, social welfare services, maintaining and monitoring commercial standards, public transportation, and even in some parts of the world, controlling the fire department and the police are among the duties that the municipal institution in today's societies performs a part of them [6].

In Iran, due to the lack of urban unit management, the duties of municipalities have been distributed among numerous local governmental and non-governmental organizations and companies, so that the duties of municipalities and their powers have been limited to specific cases in cities. Currently, the functions of municipalities in the country can be classified into the following five groups:

A) Civil works: including the construction of streets, alleys, passages, squares, parks, public parking lots, gardens, construction of laundromats and cemeteries, etc. commenting on detailed plans - obligation to comply with national building regulations - obligation to accept building plans from the members of the engineering system organization.

B) Service duties: including creation of public facilities for cleaning and maintenance and leveling of passages and waterways, determining landfills for garbage and construction debris, preventing accidents, preventing environmental pollution, preventing the establishment of disturbing places and businesses, maintenance and repairing city tunnels and, etc.

C) Supervisory and protective duties: including implementation of Article 100 commission decisions, issuing building permits, monitoring all buildings that are built in the city, preventing construction violations - preserving the property and assets of the city, filing lawsuits against individuals and defending individuals' lawsuits against the municipality, preserving the green space.

D) Welfare functions: including construction of buildings needed by the city, such as health services, parks, preventing the blocking of public roads.

E) Management of resources: including municipal budget, building taxes and the order of inspection and collection, other municipal taxes and the role of the municipality in determining the transaction value of buildings [8].

Supervisory-protective, welfare and resource management duties constitute the current duties of municipalities [8].

5 Sources of income in the municipalities of the world

The methods of earning money and providing city expenses in the big cities of advanced countries have fundamental differences with the big cities of our country. In most cities of advanced countries, the amount and collection of taxes related to the city is done based on the cost and budget that has been approved by the representatives of the city people in the municipalities, and the approval of these taxes increases the amount of municipal income during the year and definitely specifies its amount, because the tax systems are such that all citizens are obliged and forced to pay it in the prescribed case. These taxes are imposed on many goods and consumer goods, services, land, and housing, as well as receiving costs related to cleaning the city and such things, and people consider themselves obliged to pay it on time. In a number of cities, including some in Germany, municipalities sometimes use government aid because they are not able to cover all city and municipality expenses through their local revenues. It should be said that the municipality and the mayors in the developed countries have special authority and social status and have the necessary ability and possibility in different aspects to manage the affairs of the city, and as a result, all organizations and administrative bodies and the private sector and the people follow the instructions of the municipality. The dignity, authority and power of the mayor and the municipality results from the people's votes in the election of associations and city councils and the mayor and the political support the government, which is possible in such circumstances, and thus the citizens acceptance and compliance to the municipality's instructions in various fields are the most important factors that, in many cases, reduce municipal costs to a significant amount. In addition, citizens compliance to pay their legal fees and dues to the municipality at a certain time is one of the most effective things in providing the necessary income for the city administration on time. At the same time, municipalities benefit from government aid in special cases and if necessary [5].

In general, the financial resources of the world's municipalities can be found classified in four groups, including:

- Local taxes

- The price of services and tolls

- Government transfers

- Borrowing from banks and the government

6 Revenue sources of municipalities

In the past, the most important sources of income of Tehran municipality were the furniture and outskirts of the municipality, the trees of the city of Tehran and the road of Shamiran to Prince Abdul Azim, and city taxes and fees, especially gate fees (the gate fees were canceled by the Council of Ministers and the approval of the parliament in 1969).

In a classification, the main sources of municipal income in the years before the revolution (from 1969 to 1978) included the following:

1. Revenues collected from the Ministry of Interior (revenue from gate tolls, miscellaneous fees collected by the Ministry of Interior)

2. Revenues collected by the financial ministry (duties with taxes, duties related to official documents, sugar duties, oil duties, etc.)

3. Revenues from continuous taxes collected by the municipality (car and vehicle taxes, cinema and entertainment fees, furnace fees)

4. Non-continuous incomes (renovation fees, quality fees, special buffet fees, slaughterhouses, cemeteries and wash-houses, sale of land and municipal property, court income, construction crimes and violations, air cargo fee, telephone, passport, stall income)

5. Receiving grants or construction loans and special privileges from the Ministry of Interior [8].

According to the budget of Tehran municipality in 2017, public budget resources were categorized into three categories, which remained unchanged until 2017.

7 The solutions for attracting public private partnership

1. Development of a culture of participation in society
2. Motivation
3. Compilation and implementation of the comprehensive urban development plan
4. Creating and strengthening the entrepreneurial space
5. Improving the urban management structure
6. Use of intellectual counseling
7. Notification
8. Privatization
9. Attracting non-governmental funds

In general, the private sector can reduce financial pressure by investing in urban infrastructure. The evidence shows that under the right conditions, private sector investments can play a significant role in the development of urban infrastructure and services. The severe financial limitations of municipalities on one hand and the inefficiency of state investment companies on the other hand justify the necessity of the participation of the private sector, non-governmental organizations and financial markets in the efficiency of providing services for cities. Borrowing methods and participation in projects required by municipalities can be done in the following ways:

- Investment participation of the private sector and non-governmental organizations

- Issuance of partnership bonds

- Borrowing from domestic and foreign banks and financial institutions

- Specialized banks of municipalities and urban development funds [8].

Investment and participation of the private sector is one of the other ways to finance municipalities in the country. Compared to the public sector, the private sector has features and characteristics, the main of which is high efficiency and access to diverse resources. Valuable global experiences in the field of municipalities using the capacities of the private sector to implement urban service projects confirm this issue [8].

Non-governmental organizations can participate in construction and infrastructure projects of municipalities. Due to having sufficient information and considerable influence among the people, especially in local and indigenous areas, these organizations can provide great assistance in providing the resources needed for some projects. Issuing partnership bonds is one of the other ways of benefiting from people's aid. Selling partnership bonds and creating economic incentives for buyers and guaranteeing the redemption of these bonds by banks or financial organizations will be an accurate and desirable step in the direction of financing municipalities. Presenting these documents has been experienced in almost all countries and has brought successful results.

Despite repeated reviews in the libraries and journals of scientific and research articles in Iran, no book or article has been published with the title of providing a cooperative financial model. However, research in financing has been well received in other scientific centers and many books and articles have been published in this field, some were adopted as the sources of this articles.

8 Literature review

Ziari et al. [20] in a research entitled "Study and identify financial resources and providing solutions to improve the sustainability of the income of Mahabad municipality," showed that the said municipality is facing problems in many aspects, the root of which goes back to the lack of sustainable income generation mechanisms and strategies.

Danesh Jafari et al. [7] in a research titled "Evaluating the Sustainability of Financial and Income Resources of Tehran Municipality," showed that the most stable income that can be used in Tehran is a transfer tax from the government to the municipality, either in the form of value added tax or in the form of transferring a percentage of the national tax. Receiving the price of services and all kinds of local tolls are also other sources of stable income.

Hasanzadeh and Shahbazi [9] in a research entitled "Investigation and Identification of Factors Affecting Sustainable Municipal Revenues" (Case Study: Municipalities of Mazandaran Province) showed that increasing toll rate on land value, the municipal toll detection and collection system, and the finance relations between government and municipality, and finally access to the financial and money markets and funding are four significant and influential factors for the municipality to achieve stable incomes.

Hashim [11] state the independance of the municipalities policy in 1983, regardless of the theoretical foundations of the financial relations between the government and the municipalities, and the continuation of this policy in the following years, has put the country's municipalities in a precarious situation, and the reverse number for reducing their contribution started from the government budget. Following the reduction of the revenue dependence of the municipalities on the government and due to the aggravation of the urban problems as the result of population growth and migrations, the large volume of demand for urban services and the reliance of the municipalities on unstable incomes have made the working conditions difficult for the custodians of the affairs in the municipalities.

Panayotou [13] in a research entitled "Effective financing of environmentally sustainable development in Eastern Europe and Central Asia", showed that financial decentralization and its role in the development of the urban economy is an important and fundamental principle in the East.

Trasberg [18] in a research titled "Land and property taxation in the Baltic States" considered property tax to be an old revenue source that is collected by local governments. He further points to the appropriate features of the revenue system and considers a suitable income system as a system that generates sufficient and stable income over time. It also has a neutral effect on the taxpayer's decisions. According to these criteria, he has proposed property tax as a suitable resource for local governments. Thus, this source of income is a mechanism for the independence of the local economy and financial decentralization. According to the researcher, property tax limitations are caused by the smallness of the tax base and the land evaluation problem.

9 Research method

This article has two stages, namely qualitative and qualitative. The first stage includes the qualitative content analysis with a comparative category system. Since most qualitative researches are accompanied by exploration, description, explanation and interpretation, usually the nature of researchers' analysis in this approach is more comparative.

9.1 Qualitative stage (qualitative content analysis of the interviews)

The basis of text content analysis here is the method mentioned in qualitative content analysis methodology texts, and it has three main stages of open, central and selective coding, which are used in many qualitative researches, especially researches based on qualitative content analysis method. In this research, in the open coding stage, concepts were extracted from the key points of the interviews. Axial coding is a stage in which categories are linked and a network of related categories is formed. First, related sub-categories lead to the extraction of main categories, and secondly, there is a connection between all categories (including main and sub-categories). In this research, the output of the analysis phase of the interviews of the qualitative (exploratory) phase of the research were categorized. That is, after analyzing the concepts, we classified them in the form of categories (more abstract concepts) and in the third step, the desired categories were classified in the form of more abstract categories. Then, the relationship between the subcategories is observed. In total, 7 main categories include justice, transparency, local autonomy, thrift, income adequacy, stability and operationality, non-shifting of the tax base. According to the explanations given, coding has been done based on three stages.

9.2 Delphi method adoption

In the Delphi method, questions were sent to Delphi members who were 9 experts in the fields of urban management, urban planning, finance and accounting. The result of the first stage of Delphi was the verification or correction of the variables. After completing the first stage of Delphi, the other two stages were sent to the experts for their comments through questionnaires and were tested through a 5-point Likert scale. In the second step, through a sample t-test (the reason for using this test is detailed in the fourth chapter), the variables whose value was lower than 1.645 were removed, and finally, the remaining variables were sent to the experts again in a form of a 5-point Likert scale questionnaire. The result of which was the confirmation of all the variables through a sample t-tech test, and thus a consensus has been reached among experts in the Delphi method. Having collected the received questionnaires, the researcher examined experts' opinions about the indicators related to the pattern of providing cooperative financing.

9.3 The second stage of research: quantitative research

In the quantitative phase, the final questionnaire was designed with 38 items and its items were adjusted based on a 5-point Likert scale, from very little (1) to very much (5). According to the confirmatory factor analysis technique, using the Lisrel software, the specified paths of the research were investigated according to the identified pattern, and all the combined reliability coefficients were higher than 0.6 and Cronbach's alpha coefficients were higher than 0.7, so the measurement tool is reliable and items for measuring dimensions and variables are reliable. In addition, the accepted value for ave is 0.5, which in this study, all values were greater than 0.5, and therefore, the convergent validity of the model is confirmed.

9.4 First stage research and sampling

In the first stage of the research, books, articles and resources available in the printed library (National Document and Document Center, Supreme Council of Cultural Revolution and Islamic Azad University, Tehran Science and Research Branch) and electronic resources (valid scientific databases and websites) in the field of the research topic. About 80 sources have been selected for this research using the purposeful sampling method.

9.5 First stage data collection method and tools

The tools for collecting information and data in the first stage of the research are slips and forms and tables made by the researcher to record the categories, dimensions and components that are used. In this research, first, the texts related to the main purpose of the research were selected. In the first stage, the texts were studied and the sentences and paragraphs related to the research questions were selected. In the second step, the concepts related to the topic were extracted from each paragraph, and in the third step, the extracted concepts were placed in similar categories. In the fourth step, the appropriate name and title that represents the main theme of the research was explained for the categories with the same concept.

9.6 First stage data analysis method

A comparative categorical system method was used for data analysis. First, the determined texts were reviewed by presenting and assuming specific definitions, and then judgment was made about the existence or non-existence of examples of that definition in the target texts by comparing the predetermined definitions and the analyzed texts. After encoding the message and categorizing it, the obtained information was analyzed. Then a questionnaire was designed and the experts were asked to determine the high priority variables in preparing the optimal model of providing financial resources. Finally, the theme is obtained based on the highest mean and the lowest variance of the data results that are the result of summarizing these categories. The content was reviewed in 2 stages to maintain reliability, one after 10-50% of the categories are completed and the other at the end.

9.7 Second stage data analysis method

In the second stage of the research, the Delphi technique is used to determine the importance and priority of the items. The implementation steps of the Delphi technique can be summarized as follows:

1. Finding and selecting members from among experts on the topic under investigation and forming the Delphi panel. People are selected in Delphi panel,
2. Designing and setting up the questionnaire of the first round of Delphi,

3. Explaining the questionnaire and finalizing it to clarify the words and remove ambiguities,
4. Distribution of the questionnaire among the panel members,
5. Analysis of the answers of the first round,
6. Preparation of the second round of Delphi questionnaire,
7. Distribution of the second round questionnaire among the panel members,
8. Analyzing the responses of the second round (steps 6-8 are repeated until the necessary consensus is reached between the members),
9. Preparing the report and presenting the results by the analyst team.

9.8 Second stage statistical population and sampling method

In this research, the purposeful snowball sampling method was used to determine the panel members. To collect the required information regarding the importance of each dimension, component and indicator based on the purposeful sampling method of the snowball type in the Delphi method, 9 experts, experts in the field of planning and urban and financial management in the municipality and members Faculty of Tehran universities were identified in the fields of financial engineering, accounting, and urban planning. (9 subjects with an age range between 35 and 65 years) so that at first 8 experts were identified in the field of research and then 5 other subjects were introduced by these 4 subjects.

The methods of analysis are determined based on the purpose of Delphi, the structure of the rounds, the type of questions and the number of participants [4].

Identification of experts: in line with the guidelines of Delbek et al, in this research, a multi-step approach was used to identify experts, the steps of which are as follows:

1. Preparation of a worksheet of knowledge resource candidates,
2. Filling out the worksheet with names: after completing the worksheet,
3. First round of calls, nominating other experts,
4. Ranking experts based on features,
5. Inviting experts to research.

Due to the limitation in the statistical population, the size of the sample and the population is equal (total number). Therefore, in this research, all members of the statistical population are considered as samples. In other words, a purposeful sampling method was used and subjects who met the inclusion criteria were selected as samples.

9.9 Qualitative data analysis method

9.9.1 Qualitative content analysis process

In general, the qualitative-inductive content analysis process in this research is as follows:

1. Preparation: In this step, if there is an audio file, the data was converted into written text.
2. Definition of the analysis unit: The analysis unit refers to the basic part of the text for the purpose of categorization during the content analysis. In this research, the unit of analysis is the topic, and the implemented texts were coded based on the topics contents.
3. Coding scheme: It means a basis for classification. A coding scheme can come from three sources: data, previous relevant studies and reviews, and theories. Coding schemes can be developed both deductively and inductively. In studies where there is no theory, the classifications are inductively derived from the collected data and formed. When the categories are developed inductively from the raw data, the constant comparison method is used. In qualitative content analysis, one can have a preliminary model of theoretical foundations or an initial list of categories. Also, based on qualitative content analysis, one part of the text can be considered for more than one category at the same time. Here, by designing a mechanism for coding based on three stages of open, central and selective coding, concepts and categories were identified and tables and lists of them were prepared along with descriptive and interpretative texts of these categories. These cases have been used as a guide for the researcher in addition to drawing conclusions.
4. Testing the coding scheme: The best method to check the clarity of the definitions of the categories is to re-code part of the data. Therefore, after the sample was coded, through the evaluation of the internal coding agreement, its coordination was evaluated and the coding scheme was reviewed and modified.
5. Coding of all texts: The coding scheme was used for the entire set of texts. During the process, we need to review the coding iteratively to avoid being "driven by a personal sense of what the codes mean".

6. Evaluating the coherence of the codings: In this step, the coordination between the codings is examined. Considering that the coder's understanding of the codes and coding may change over time, the entire coding results were reviewed to confirm the consistency of the codes in the placement of concepts and categories, and in some cases, corrections were made regarding the categories, concepts, and location.

7. Extracting the results from the coded data: In this step, specific categories and their indicators were identified. Then the conclusion was made and extracted.

8. Reporting the method and findings: To ensure the accuracy of the content analysis process, it is necessary that the research process is fully and correctly monitored and reported.

9.10 Qualitative indicators coding criteria

Qualitative indicators coding was done according to the following:

- Addressing important, basic and related words and sentences to answer the research questions;

- Identifying the key points and discovering the hidden concepts in it;

- Focusing on recognizing and explaining explicit and implicit ideas instead of counting words and phrases; although the repetition and frequency of some words in the process of conducting interviews has pointed to the importance of the topic in question. In other words, the importance has been in abundance;

- Addressing data context and preserving richness of the first-hand data;

- The frequency of using this keyword or similar words in the literature;

- Theoretical sensitivity of the researcher in terms of receiving and recording the emphatic states of the interviewee, mental and experiential quality

9.11 The Researcher reliability and validity of the questionnaire

Any social research requires validity and reliability measurement, and confirmatory factor analysis is no exception to this rule. Below we will explain each of these two cases.

1. Validity: The validity of a research is the level of accuracy of indicators and criteria that have been prepared in the way of measuring the desired phenomenon. Using the theoretical foundations and studying the available texts, first the categories were defined and then the categories were coded and given to 6 experts in finance, urban management and planning (people outside the scope of the research). After receiving their opinions, revisions were made and the final framework of the components was compiled, to increase the validity, a proper and accurate notes were taken, followed by accurate preparation of a checklist and the presentation of operational definitions of the concepts. Thus, the validity of the work was confirmed.

2. Reliability: Reliability is one of the technical characteristics of the measurement tool. This concept deals with how much the measurement tool gives the same results in the same conditions. Usually the range of the reliability coefficient is from zero (no correlation) to positive one (complete correlation). This coefficient indicates how much the measuring tool measures the stable characteristics of the subject or its variable and temporary characteristics [5].

Cronbach's alpha was used to calculate the reliability coefficient. Therefore, the reliability of the questionnaire used in this paper is evaluated with the help of Cronbach's alpha. This method is used to calculate the internal consistency of the measuring instrument that measures different characteristics. Cronbach's alpha coefficient is between 0 and 1, which is actually the correlation coefficient of data at different times; The number 1 indicates the maximum correlation and the number 0 indicates the minimum correlation [5].

10 Analysis of interviews (codings)

The data analysis phase begins after conducting in-depth and analytical interviews. According to the principles of research based on qualitative content analysis mentioned in the previous chapter, the interviews should be categorized and processed after editing.

Table 1: Content validity and reliability index

No.	Dimension	Variable	CVR	CVI	Reliablity
1	Justice	Duties on official documents	0.77	0.87	0.725
		Value added taxes	0.94	0.94	
		Duties on buildings and lands	0.9	0.86	
		Duties on communication and transportation	0.76	0.76	
		Duties on professional business licenses	0.871	0.737	
		Parking fees	0.935	0.841	
		Centralized collection duties	0.677	0.842	
		Taxes on immovable assets (property)	0.786	0.771	
		Income from municipal services	0.737	0.721	
2	Transparency	Duties on buildings and lands	0.99	0.75	0.73
		Duties on communication and transportation	0.95	0.99	
		Income from municipal services	0.92	0.94	
3	Local autonomy	Effects on communication and transportation	0.79	0.95	0.766
		Duties on buildings and lands	0.737	0.737	
		Value added tax	0.98	0.99	
		Duties on official documents	0.935	0.677	
4	Thrift	Duties on communication and transportation	0.95	0.87	0.813
		Duties on buildings and lands	0.871	0.771	
		Value added tax	0.94	0.94	
		Income from municipal services	0.99	0.86	
5	Sufficient revenue	Duties on business and profession licenses	0.95	0.76	0.764
		Duties on communication and transportation	0.786	0.871	
		Duties on buildings and lands	0.737	0.771	
		Value added tax	0.89	0.94	
		Duties on official documents	0.96	0.89	
6	Revenue stability	Tolls on the removal of parking	0.97	0.93	0.782
		Taxes on movable assets (real estate)	0.721	0.737	
		Duties on business and profession licenses	0.842	0.786	
		Duties on communication and transportation	0.935	0.871	
		Duties on buildings and lands	0.94	0.97	
		Value added tax	0.786	0.737	
		Duties on official documents	0.94	0.85	
7	Stability of the tax base	Duties on official documents	0.99	0.87	0.795
		Value added taxes	0.841	0.767	
		Duties on buildings and lands	0.859	0.703	
		Duties on communication and transportation	0.757	0.72	
		Duties on professional business licenses	0.793	0.75	
		Parking fees	0.795	0.82	

Based on the three stages of coding around the indicators of providing financial resources in the first step, the interviews text concepts were extracted. After analyzing the concepts, we classified them in the form of categories (more abstract concepts) and in the third step, the desired categories were classified in the form of themes (more abstract categories). The table below shows the titles of the main and subcategories. Table shows 7 main categories, with efficiency main category containing some more subcategories.

10.1 Loading Factors (index validity)

Loading factor was used to analyze the questionnaire structure and discover the constituent factors of each structure. Table 2 presents the results of factor loadings of research variables. The value of the loading factor for each index is more than 0.5 and also the calculated values of the significance level for each of the factor loadings are less than 0.01, so the consistency of the questionnaire items to measure the concepts can be shown as valid at this stage. In fact, the above results show that what the researcher intended to measure through the questionnaire has been achieved by this tool. Therefore, the relationships between constructs or hidden variables can be cited. An index with a higher factor load is more important than other indices. Standardized factor loadings that are estimated should be higher than 0.5 and ideally 0.7 or higher.

10.2 Model goodness of fit index

This index shows the compromise between the quality of the structural model and the measured model and is equal to:

$$GOF = \sqrt{\overline{AVE}} \times \sqrt{\overline{R^2}}$$

Table 2: Content validity and reliability index

Order of factor analysis	Variable	Item	Factor loading	Sig.	Result
1	Justice	A11	0.603	0.001	Accepted
		A12	0.701	0.001	Accepted
		A13	0.667	0.001	Accepted
		A14	0.740	0.001	Accepted
		A15	0.831	0.001	Accepted
		A16	0.796	0.001	Accepted
		A17	0.732	0.001	Accepted
		A18	0.738	0.001	Accepted
		A19	0.481	0.001	Accepted
2	Transparency	B21	0.658	0.001	Accepted
		B22	0.658	0.001	Accepted
		B23	0.734	0.001	Accepted
3	Local autonomy	C31	0.752	0.001	Accepted
		C32	0.823	0.001	Accepted
		C33	0.724	0.001	Accepted
		C34	0.663	0.001	Accepted
4	Thrift	J41	0.666	0.001	Accepted
		J42	0.550	0.001	Accepted
		J43	0.623	0.001	Accepted
		J44	0.732	0.001	Accepted
5	Sufficient revenue	E51	0.735	0.001	Accepted
		E52	0.792	0.001	Accepted
		E53	0.643	0.001	Accepted
		E54	0.865	0.001	Accepted
		E55	0.752	0.001	Accepted
6	Revenue stability	D61	0.896	0.001	Accepted
		D62	0.890	0.001	Accepted
		D63	0.752	0.001	Accepted
		D64	0.893	0.001	Accepted
		D65	0.652	0.001	Accepted
		D66	0.809	0.001	Accepted
		D67	0.577	0.001	Accepted
7	Stability of the tax base	F71	0.567	0.001	Accepted
		F72	0.802	0.001	Accepted
		F73	0.632	0.001	Accepted
		F74	0.852	0.001	Accepted
		F75	0.634	0.001	Accepted

Where, AVE and R represent twice the average. The GOF value index greater than 0.4 shows the fit of the model. The data analysis shows that the value of the fit index is equal to 0.621 that is bigger than 0.4, which indicates the appropriate fit of the model. Simply, the data of this research fits well with the factor structure and the theoretical foundation of the research, and this indicates that the questions are consistent with the theoretical structures.

10.3 Examine the research diagram and path analysis results

The diagram below shows the confirmatory factor analysis model in standard coefficient estimation mode. All research variables are classified into observable (rectangle) and latent(ellipse) categories. Observable variables are directly measured by the researcher, while latent or unobserved variables are not directly measured, but inferred based on relationships or correlations between the measured variables. Latent variables represent a set of theoretical structures such as abstract concepts that cannot be directly observed and are constructed and observed through other observed variables. In this diagram, numbers or coefficients are divided into two categories. The first category is called measurement equations, which are the relationships between latent variables (ellipses) and observable variables (rectangles). These equations are called first-order loading factor. The second category is the structural equations that are the relationships between latent and latent variables. These coefficients are called path coefficients or second-order loading factor. The permissible limit for loading factor is 0.4, if the value of loading factor is less than 0.5, it should be removed from the model. All loading factors less than 0.4 have been removed and re-estimated, and the modified model is presented in Figure 1. Any index with a larger loading factor has created more weight in the measurement of its variable.

Achieving a model requires the implementation of a regular process and the creation of a continuum of different stages, which are placed in order, and in this research, it starts from collecting the literature on the subject and making it coherent around the axies of the research to include the design of in-depth and semi-structured interviews items,
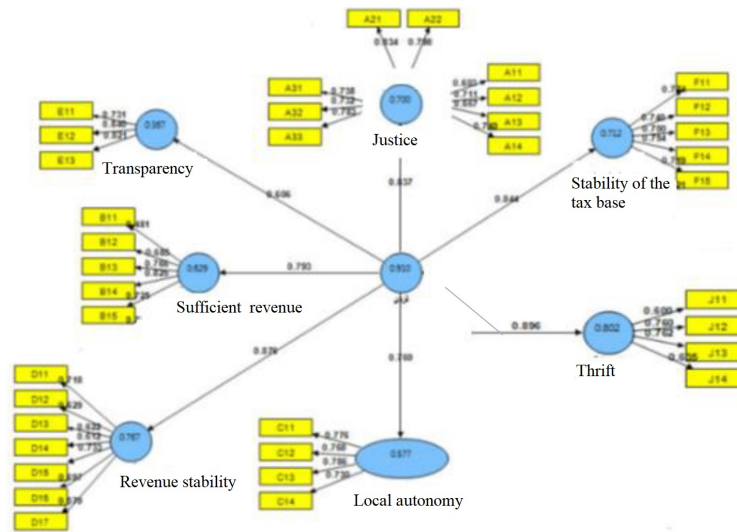
Figure 1: Diagram of factor analysis model in the standard coefficients mode

Table 3: Loading factor and values - table of sub-indices of the research measurement model

Variable	Dimension	Loading factor	t-value	Sig.
Justice	Duties on official documents	0.603	9.658	0.001
	Value added taxes	0.701	20.170	0.001
	Duties on buildings and lands	0.667	14.089	0.001
	Duties on communication and transportation	0.740	28.503	0.001
	Duties on professional business licenses	0.831	43.060	0.001
	Parking fees	0.796	61.913	0.001
	Centralized collection duties	0.732	39.126	0.001
	Taxes on immovable assets (property)	0.738	46.906	0.001
	Income from municipal services	0.481	21.457	0.001
Transparency	Duties on buildings and lands	0.658	30.532	0.001
	Duties on communication and transportation	0.658	28.306	0.001
	Income from municipal services	0.734	29.821	0.001
Local autonomy	Effects on communication and transportation	0.752	8.603	0.001
	Duties on buildings and lands	0.823	18.942	0.001
	Value added tax	0.724	38.235	0.001
	Duties on official documents	0.663	45.905	0.001
Thrift	Duties on communication and transportation	0.666	42.723	0.001
	Duties on buildings and lands	0.550	35.284	0.001
	Value added tax	0.623	39.705	0.001
	Income from municipal services	0.732	37.315	0.001
Sufficient revenue	Duties on business and profession licenses	0.735	28.726	0.001
	Duties on communication and transportation	0.792	31.732	0.001
	Duties on buildings and lands	0.643	26.262	0.001
	Value added tax	0.865	30.265	0.001
	Duties on official documents	0.752	39.126	0.001
Revenue stability	39.126	0.896	46.906	0.001
	Taxes on movable assets (real estate)	0.890	21.457	0.001
	Duties on business and profession licenses	0.752	30.532	0.001
	Duties on communication and transportation	0.893	28.306	0.001
	Duties on buildings and lands	0.652	29.821	0.001
	Value added tax	0.809	45.905	0.001
	Duties on official documents	0.577	42.723	0.001
Stability of the tax base	Income from municipal services	0.567	35.284	0.001
	Centralized collection duties	0.802	30.534	0.001
	Taxes on immovable assets (property)	0.632	28.203	0.001
	Tolls on the removal of parking	0.852	18.236	0.001
	Duties on business and profession licenses	0.634	15.756	0.001

selection of the interviewed team, conducting in-depth and semi-structured interviews with experts, implementing interviews through typing and editing the text of the interviews, analyzing the qualitative content of the interview text through open coding, extracting concepts from open codes, conversion of similar concepts into sub-categories,

conversion of sub-categories into main categories, core coding and selective coding and then, Qualitative Delphi was conducted to increase the reliability of this part of qualitative research and also confirm or modify the indicators obtained from the content analysis. The Delphi method was carried out in the form of a systematic survey of experts in the field. In fact, semi-structured in-depth interviews are exploratory interviews, which the Delphi method has completed and increased the reliability of this stage of qualitative research, which is generally the subject of qualitative research, and the weight of indicators in the target model was determined through confirmatory factor analysis after extracting the pattern of financial resources of Tehran municipality and also the municipality.

11 Results

This article, after explaining some of the theoretical foundations and its advantages, identified the components of financing Tehran municipality and the components importance. This paper has raised the following question, and the results are as follows:

Question: How is the financing of the municipality in the current situation?

Incomes: Municipal incomes are the receipts that Tehran Municipality collects based on the laws and regulations and approvals of the Islamic council of Tehran, such as taxes, service fees, deposit interest, investment interest, and the like. It includes the following:

1. Revenues from public duties (continuous revenues),
2. Revenues from special duties,
3. The price of services and revenues of municipal for-profit institutions (sales of services and goods),
4. Revenues from property funds, assets and real estate of the municipality,
5. Aids granted by the government and government organizations (Government Grants),
6. Contributions and donations of private individuals and organizations and property and assets given to the municipality accidentally or by law.
7. Duties and revenues collected in the cities zone

The main sources of income for urban management can be classified as follows:

- Revenues from public duties,

- Duties including taxes collected on site,

- Taxes on buildings and lands and taxes on communication and transportation,

- Duties on licenses, business and sales,

- Revenues from the sale of movable and immovable property and revenues collected for providing services,

- Income of municipal facilities and crimes and violations,

- Income from municipal funds and property,

- Assistance granted by the government and government organizations,

- Contributions from individuals and private organizations,

- Resources from the sale of bonds,

- Income from the partnership of the municipality with the private sector,

- Income from grants and subsidies of non-governmental public institutions,

- Resources from loans received from banks and other institutions,

- Revenues from the price of services and revenues of municipal for-profit institutions,

- Municipality's share of the country's general budget,

- Income from special taxes.

Achieving a model requires the implementation of a regular process and the creation of a continuum of different stages, which are placed in order, and in this research, it starts from collecting the literature on the subject and making it coherent around the research axis, and then it includes the design of interview questions. in-depth and semi-structured interviews, selection of the interviewed team, conducting in-depth and semi-structured interviews with experts, implementing interviews through typing and editing the text of the interviews, analyzing the qualitative content of the interview text through open coding, extracting concepts from open codes, conversion of similar concepts into sub-categories, conversion of sub-categories into main categories, core coding and selective coding and after that increase the reliability of this part of qualitative research and also confirm or modify the indicators obtained from the content analysis following the Qualitative Delphi method. The Delphi method was carried out in the form of a systematic survey of experts. In fact, semi-structured in-depth interviews are exploratory interviews, which the Delphi method has completed and increased the reliability of this stage of qualitative research, which is generally the subject of qualitative research, and is validated after extracting the pattern of financing. The desired pattern and the weight of the variables were determined through confirmatory factor analysis. This paper addresses the question : "What is the appropriate model for sustainable financing of Tehran municipality?"

To answer the research question and sub-questions, we must know the different stages of the research. In general, achieving this optimal pattern is the result of a step-by-step and regular process that includes the following steps:

1. Accuracy and purposefulness in the selection of experts based on the two criteria of expertise in scientific record and executive experience and mastery of the subject.
2. Set questions according to research objectives to prevent the bias of the interviewees.
3. Conducting in-depth interviews regarding the topic under investigation.
4. Conducting interviews, initial typing, editing, performing open coding, extracting (sub) categories from concepts and extracting main categories from subcategories and extracting the primary pattern.
5. Carrying out the Delphi method (survey of a selection of subject matter experts) which has been identified and tested before, carrying out the Delphi method led to increasing the reliability of the qualitative phase of the research. The maximum confirmation and in some cases correction or addition of categories that somehow overlapped with the categories identified from the interviews text analysis was the result of the implementation of the Delphi method.
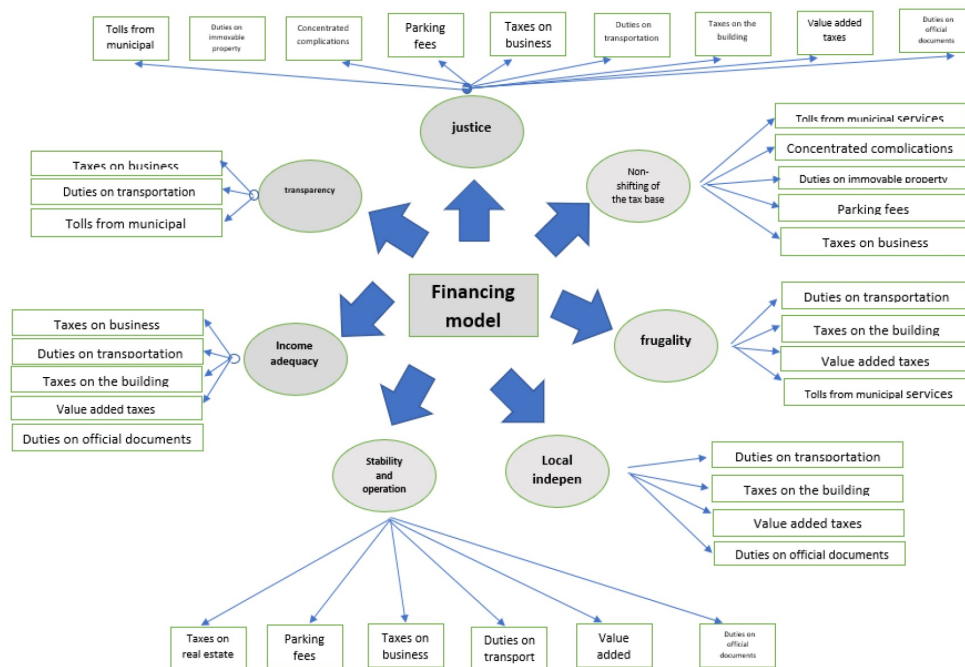

Figure 2: The optimal model of cooperative financing of Tehran Municipality

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