An Investigation on Factors Affecting Financial Crisis in Iran's Non-Governmental Universities to Develop a Strategy to Deal with It

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ARTICLE INFO	ABSTRACT
    KEYWORDS 	Private and semi-public universities in Iran have faced several challenges in recent years. The purpose of study was to identify the factors affecting financial crisis in non-governmental universities and to develop a strategy to deal with it with emphasis on the situation of the Islamic Azad University of Tabriz. The method of study was exploratory mixed method and data collection tools in the qualitative part was semi-structured interview and in the quantitative part, a researcher-made questionnaire. The statistical population for the qualitative section included the president, vice chancellors and staff managers of the university (as an expert group) who were selected by targeted sampling method (12 people) .In the quantitative part of the research, 350 faculty members and university students were selected through relative stratified sampling. Exploratory and confirmatory factor analysis tests were used for data analysis and causal diagrams for formulating strategy. The findings of the research based on two scenarios of "confrontation strategy" showed that if the retirement rate of university staff increased, the upward trend of university expenses will stop and then decrease. Also, by increasing the research budget, it is possible to improve university ranking and student enrollment rate. According to the findings, planners of private and non-governmental universities are recommended to increase the retirement rate of employees in a short period of time (5 years). It is also recommended to increase the relationship between the university and industry and commerce to increase research income.

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1. Introduction

Privatization of the higher education is not a new phenomenon, although its growth has not been the same in all societies. The development of higher education privatization can be attributed to several key factors such as the emergence of the knowledge economy, need for more funding for higher education compared to other educational levels, and extra willingness of parents and private sector to pay more for it (Marginson, 2007). Also, the priority of governments - especially in the Third World - has been affected by the pressure of public demand and generally development of private sector participation in higher education (Salmi, 1992). From the perspective of economics, the development of higher education centers and private universities to meet the needs of the rich and middle class mainly gives governments the opportunity to spend public funds on basic education, which is more in favor of the poor. In fact, the idea that higher education is becoming more and more of a public good every day can be considered the fundamental presupposition of all proponents of private university development in the world (Douglas & Thompson 2012; Amour, 2020).

Iran's higher education system has also been influenced by this thought over the past four decades. After the victory of the Islamic Revolution in the late 1970s and the establishment of the Islamic Republic, the country's population policies for a decade were based on encouraging rate of birth, so that the population growth rate increased from 1.5% in 1979 to more than 3.5% in the late 1980s (Roudi, Azadi & Mesgaran, 2017). The consequence of this growth was an increase in Iran's population from 35 million to more than double. Naturally, at the beginning the public education system (primary and secondary schools) was severely pressured to increase the population needed for education. Over time, this demographic pressure shifted from the public education system to higher education. In addition, this pressure led the government to agree to the establishment of semi-private and private universities in addition to the new public universities. Therefore, during the three decades (1990-2010), the Iran's higher education system witnessed the establishment of higher education centers and public, semi-private and private universities at the same time, so that currently 2,500 universities with more than 5 million students are operating throughout the country (ISNA, 2018).

One of the first semi-public /private universities that have been established for about three decades is the Islamic Azad University with more than 400 branches in different cities of Iran (Zare, Mohammadkhani, Arasteh & Mohammad Davoodi, 2019). This university was able to hire a large

number of faculty and staff by receiving government grants (such as land and material facilities) and student registration fees. Thousands of students also studied at this university. However, this upward trend did not continue and during the last decade, due to factors such as reducing the country's population growth rate to less than 1.5 percent and increasing student admission capacity by public and private universities, suffered many problems such as more than 300,000 vacancies and severe shortages of financial resources (Hamshahri Newspaper, 2020). Also, the disorders of Iran's economic system such as inflation and periodic recession in recent years have led to difficult living conditions and elimination of expensive education has been one of the options for families to reduce financial pressures. On the other hand, the unemployment crisis in the Iran economy has caused more than half of job seekers today to be university graduates, a challenge that has reduced the demand for enrollment in private universities such as Islamic Azad University (Tabnak, 2020).

Of course, the findings of various researches in different countries and Iran show commonalities in the process of privatization of higher education. For example, Osokoya (2007) focuses on higher education privatization in Africa. In Bulgaria, Slantcheva-Drust (2010); in Malaysia Wilkinson & Yussof (2005); in Brazil McCowan (2007); in Georgia Pachashvili (2007), in Mexico Casillas (2010) and in Australia Shah and Brown (2009) have examined privatization of higher education. In addition to these studies, we can point to the findings that have addressed and reported on the challenges and problems of private universities. For example, Aithal & Suresh Kumar (2016) showed that in India, the benefits of private universities still outweigh their limitations and problems. Monzurul Huq & Rafiul Huque (2014) states that the common perception among Bangladeshis is that private universities follow business models to maximize their own profits, and as a result, the quality of education at these universities is poor. Orellana (2014) examined the development of higher education in Latin America and the Caribbean countries and found that this expansion has increased social inequalities. Chavez (2017) also found that in Brazil, private universities, instead of allocating funds to increase quality, have to spend a lot of money on advertising to attract students. Mulalic (2012) emphasizes the economic and political roles of private universities in providing the manpower of a new nation-state.

The Asian Development Bank (2012) report on the current situation and challenges of higher education privatization in Asia shows that most private universities. They rely on their budget to cover a lot of costs and therefore sometimes have to choose between providing quality education and ensuring a return on investment. This has raised concerns among governments in the region

about the quality and efficiency of private higher education. In Ethiopia, Tamrat & Tizazu (2014) examine the negative effects of factors such as inadequate infrastructure, staff shortages, and adequate funding by examining managers' views on the development of private higher education. Guthrie (2019) highlighted that in recent years, many private universities in the United States have been forced to increase their tuition to reduce the gap created by declining public funding. This situation has increased the university's debt and student dissatisfaction. Regarding the challenges of higher education institutions in Turkey, Ozturk & Bayrak (2015) found that the average monthly income of university staff in this country is much lower than in other countries, and faculty members try to increase their monthly salaries by teaching additional courses. In his doctoral dissertation, Al Harthy (2011) showed that many higher education institutions in Oman are heavily dependent on government budgets and student tuition while also seeking to make the most profit.

In Iran, several studies have been conducted in recent years on the process of establishment, quantity and quality of education and financial challenges of private and semi-private universities. For example, Salehi Imran, Ebrahimi & Hosseinzadeh (2011) found that girls were more interested in continuing their education than boys. For this reason, if they cannot pass the entrance exam to public universities turn to private universities. Also, only 20% of students belonging to poor socio-economic classes try to continue their education through private universities. Zare, Mohammadkhani, Arasteh & Mohammad Davoodi (2019) while accepting the decrease in the number of students and financial difficulties in the Islamic Azad University, emphasize the role of family, economic and educational quality factors in increasing the number of students .Vijeh and Afshari (2014) believe that the ownership status of semi-public (or semi-private) universities such as the Islamic Azad University is legally ambiguous in Iran. Arasteh & Jamshidi (2014) by examining the quantitative development of higher education privatization in Iran indicated that the most important influential factors include increasing demand for higher education, government's inability or lack of funds, demographic changes, and emphasize the growth of privatization of higher education in the country's macro-development policies.

The purpose of this study is to identify financial crisis factors in non-governmental universities - with emphasis on present situation of the Islamic Azad University of Tabriz - which in recent years has faced various challenges - such as decrease in number of students, lack of funding, and declining professional motivation among faculty members. For example, a study of the situation of the Islamic Azad University of Tabriz shows that the number of undergraduate students during the three years of 2015-2017 has reached less than half (from 16622 to 7309). Also, from a

research point of view, the number of articles published by faculty members in prestigious national and international journals has been declining from 1719 articles in 2015 to 1118 in 2016. In addition, the approximate estimate of the revenues of the Islamic Azad University of Tabriz also shows a downward trend (from about 37 thousand billion Rials in 2015 to less than 33 thousand billion Rials in 2018) (Islamic Azad University of Tabriz database, 2019).

The combination of these issues and challenges has led policymakers, planners, and administrators of private and semi-public universities to seek answers to the question of which strategies can be used to overcome these challenges. Naturally, part of the view of investors and planners of these universities is economic and focuses on reducing costs and increasing profits. Strategic planning is one of the tools that can help private university planners and administrators to deal effectively with these challenges (Hines, 2000). However, many administrators at these universities complain about the inconsistency of strategies with the changes and realities of the business environment. One of the reasons for this can be less familiarity with new models and tools in strategic planning (Grant, 2013). In fact, today universities face complex and turbulent social environments. Proper management of university affairs requires a deep understanding of the environment, a realistic assessment of internal strengths and weaknesses, and smart strategic decisions. This issue has provided the basis for the application of strategic planning models in universities (Hajipour & Soltani, 2008; Machado & Taylor, 2010).

Considering what was said in this introduction, the purpose of this study was first to identify crisis factors of non-governmental universities in Iran (the case of the Islamic Azad University of Tabriz) and then to develop a strategy to deal with issues and problems. Thus, the specific objectives of study are to identify the critical factors and formulate an appropriate strategy. Given the similarity of the research literature on the challenges of private and quasi-public universities in the world, the present researchers hope that the strategy chosen for the Islamic Azad University of Tabriz could provide a comparative perspective for educational planners in other countries - especially developing countries - to find an appropriate strategy suitable for their universities.

2. Research Method

This study is an applied research in nature using exploratory mixed method. In this method, the researcher usually seeks to find the context of "indefinite position". For this purpose, it first collects qualitative data. Doing this leads him to describe countless aspects of the phenomenon. Using this initial identification, it is possible to formulate hypotheses about the occurrence of the phenomenon

under study and then the researcher can test the hypotheses by collecting quantitative data (Bazargan Harandi, 2008). Also, to identify the primary factors, research components and modeling, Sterman (2000) five-step process was used as a supporting theory. Since recognizing and determining of university strategy is the responsibility of senior managers, so the statistical community in the qualitative part of the research included the head, deputies and staff managers of the Islamic Azad University of Tabriz (as an expert group). To select the research sample, purposive sampling method was used and semi-structured interviews were conducted with 15 people (base on theoretical saturation). In the quantitative part of the research, the statistical population included all faculty members and students of the Islamic Azad University of Tabriz (2050 person) who were determined using the Krejcie & Morgan's table and relative stratified sampling method (350 people). To collect data, the library method and keyword search in Google Scholar, ProQuest, Elsevier, EBSCO, ERIC databases were used and appropriate sources were selected (including 5 books, 15 articles and 4 dissertations). In the second stage, through semi-structured interviews, factors and items related to the research topic were identified. Then, using the Cohen's kappa coefficient, the experts' agreement on the initial factors and components was determined. In the third stage, a researcher-made questionnaire was developed. The questionnaire consisted of 36 questions with a Likert scale. The content validity of the research tool was confirmed by 5 professors of the management department at Tabriz University and Islamic Azad University of Tabriz. Also, the reliability of the questionnaire through Cronbach's alpha was estimated to be 0.85. In order to analyze the data, circular causal diagrams were used and to test the simulation model and to evaluate it, Vensim software was used.

3. Findings

According to the data analysis, the research results are presented in several sections: First, identifying the factors affecting the crisis in the Islamic Azad University of Tabriz; second, the results related to exploratory factor analysis; third, the results related to confirmatory factor analysis and fourth, formulate an appropriate strategy.

A) Identifying the effective factors

At this stage, based on the conceptual framework and by asking semi-structured interview questions, the opinions of the expert group were received. Then, by comparison and continuous questioning, similar propositions were put together and coded based on a common concept (key primary factor). In the next step, due to the quality of the extracted points, the Cohen's kappa

coefficient test was used to evaluate the agreement between individuals. Finally, inconsistent and trivial items were removed and the remaining items were considered as the main points - to be adjusted in the educational perspective (Table 1).

Table 1: Identified variables and indicators

No.	Variables	Identified Indicators	Frequency
1	Costs	Retirement	9
		Repair and maintenance costs	9
		New investment	10
		Salary costs	11
		Service and training costs	9
		Student welfare costs	11
2	Income	Tuition income	11
		Non- tuition income	9
		Number of students	8
		Research contracts with organizations	9
		Community mentality of the university	10
3	Educational quality	Facilities	9
		Number of professors	11
		Educational and welfare facilities	11
		Laboratory	10
4	Research productivity	Research budget	12
		Academic level of professors	11
		Postgraduate courses	10
		Supervision of dissertations and research projects	10
		Invest in facilities and laboratories	9

B) Results related to factor analysis and development of appropriate strategy

In this first step, Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) test was performed to measure the appropriateness of the research sample size and determine the correlation between the questions.

Table 2: Bartlett and KMO tests

KMO statistics	Bartlett's test		
0.933	Chi-Square value	df	significance level
	4624.852	11	0.001

The results of the table show that the sample size of the research is suitable for factor analysis and the data related to the factors affecting the implementation of strategic planning in the Islamic Azad University of Tabriz can be reduced to several factors, because the value of adequacy Kaiser-Meyer-Olkin sample (0.933) is more than 0.7. Also, the results of Bartlett spherical test (χ^2 =

4624.852) with a degree of freedom of 11 at the level (p <0.05) are significant; this means that there is a correlation between the identified indicators. Therefore, factor analysis test can be used. In order to extract the number of factors, the Kaiser criterion was used:

Table 3: Total variance distribution

Fact or	Initial eigenvalues			Total rotated squares		
	Total	Percentage of variance	Compression percentage	Total	Percentage of variance	Compression percentage
1	12.032	44.562	44.562	6.584	24.384	24.384
2	1.812	6.712	51.273	4.923	18.234	42.618
3	1.160	4.296	55.570	3.497	12.952	55.570
		14.035	45.241	1.362	17.201	58.121

The findings of Table (3) show that 4 factors of costs, income, educational quality and research efficiency can be extracted for the implementation of strategic planning in the university, as in the analysis of the main components, 4 factors with initial eigenvalues are more than 1. Also, the sum of rotated squares shows that 65.241 percent of the variance of the research goal can be explained by factors 1 to 4. However, in order to interpret the 4 factors obtained, the Varimax rotation was performed (Table 4).

Table 4: Rotating factor matrix

No.	Variable	Indicators	Correlation coefficient
1	Reduction in costs	Personnel adjustment (faculty and staff)	0.471
		Repair and maintenance costs	0.529
		Invest in high-yield sectors and eliminate inefficient sectors	0.566
		Salary costs	0.639
		Service and training costs	0.706
		Student welfare costs	0.703
2	Income	Tuition income	0.576
		Non- tuition income	0.687
		Number of students	0.618
		Research contracts with organizations	0.468
		Community mentality of the university	0.518
3	Educational quality	Facilities	0.680
		Number of professors	0.775
		Educational and welfare facilities	0.746
		Laboratory	0.687
4	Research productivity	Research budget	0.752
		Academic level of professors	0.574
		Postgraduate courses	0.622
		Supervision of dissertations and research projects	0.457
		Invest in facilities and laboratories	0.632

According to Table (4), the matrix of factor 1 that is cost reduction consists of 6 components, the correlation of which with the items of the questionnaire is from 0.471 to 0.703. Factor 2 (income) consists of 5 components whose correlation rate is from 0.518 to 0.687. Factor 3 that is educational quality consists of 4 components whose correlation rate is from 0.680 to 0.775 and finally factor 4 (research productivity) consisting of 5 components with a correlation rate of 0.457 to 0.752.

C) Results related to confirmatory factor analysis

   1. First-order confirmatory factor analysis

In order to ensure the existence of a relationship between the extracted factors in the exploratory factor analysis - using AMOS22 software - the first order confirmatory factor analysis was performed (Figure 1).
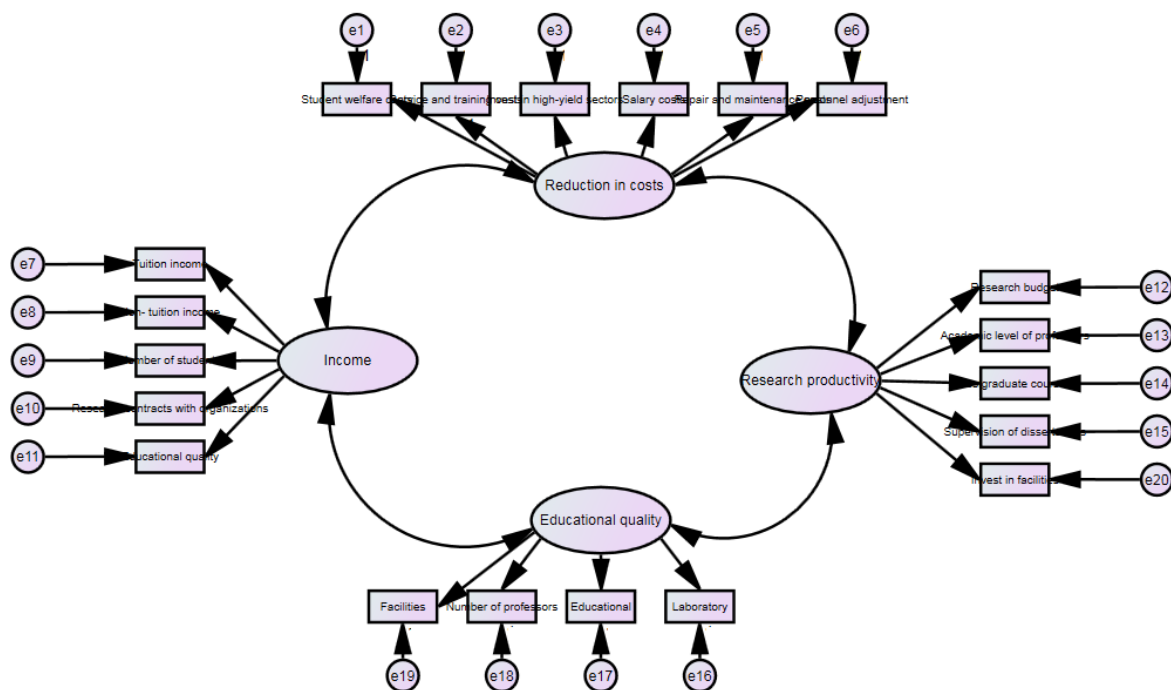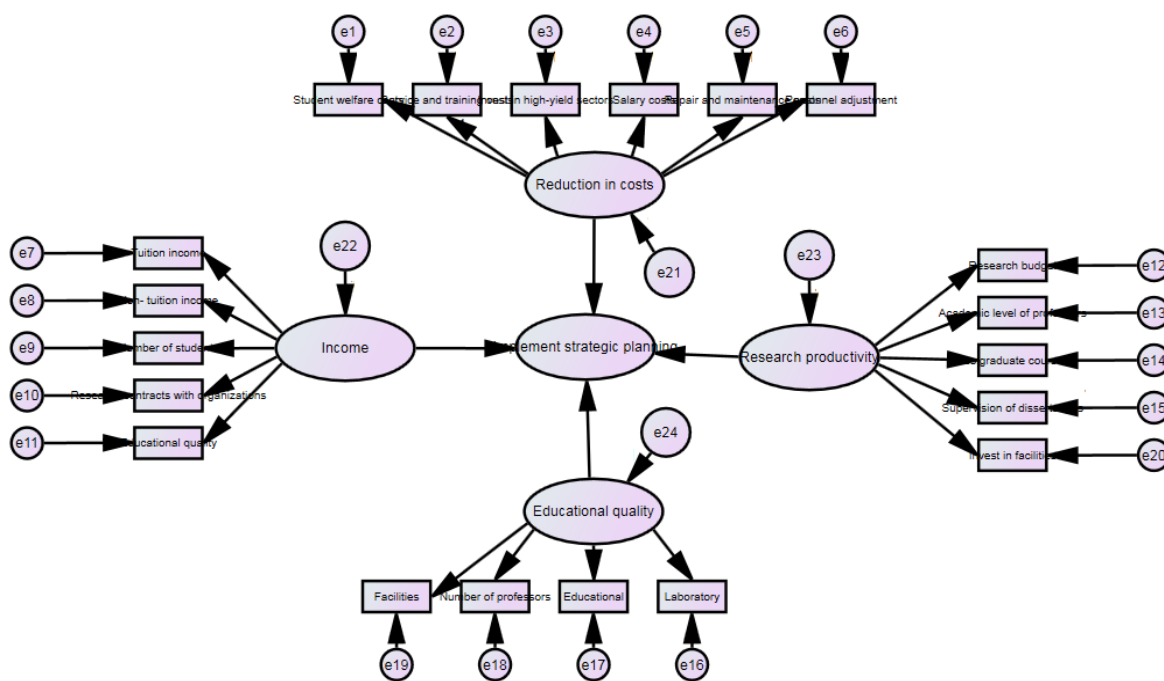

Figure 1: First-order confirmatory factor analysis

The results of the first-order confirmatory factor analysis show that there is a significant relationship between the four factors of strategic planning in the Islamic Azad University of Tabriz (educational quality, research productivity, income and costs). This is because the value of chi-square (4125/652) with degree of freedom (2268) is significant at the level (p <0.05). Also, the approximate average growth error to the power of 2 (RMSEA = 0.071) is less than 0.08 and the amount of chi-square divided by the degree of freedom (X2 / DF = 1.847) is less than 3 and the Comparative Fit Index (0.941) = CFI) is greater than 0.9. Therefore, the model has the necessary fit.

2. Second-order confirmatory factor analysis

In order to ensure that the factors extracted in the exploratory factor analysis are the constituent factors of a larger structure a second-order confirmatory factor analysis - using AMOS22 software - was performed (Figure 2).

Figure 2: Second-order confirmatory factor analysis

The results of the second-order confirmatory factor analysis show that the four extracted factors can form a more general variable namely "factors affecting the implementation of strategic planning". In fact, because the value of chi-square (4285/265) with the degree of freedom (2169) is significant at the level (p <0.05); the approximate mean growth error to power 2 (RMSEA = 0.061)

is less than 0.08. Also, the value of chi-square divided by the degree of freedom (X2 / DF = 1.621) is less than 3 and the Comparative Fit Index (CFI = 0.939) is more than 0.9. Therefore, the model has the necessary fit.

D) Develop an appropriate strategy

After identifying and examining the four factors of strategic planning implementation in Islamic Azad University, Tabriz Branch - using factor analysis tests -; causal-circular diagrams were designed by Vensim software:
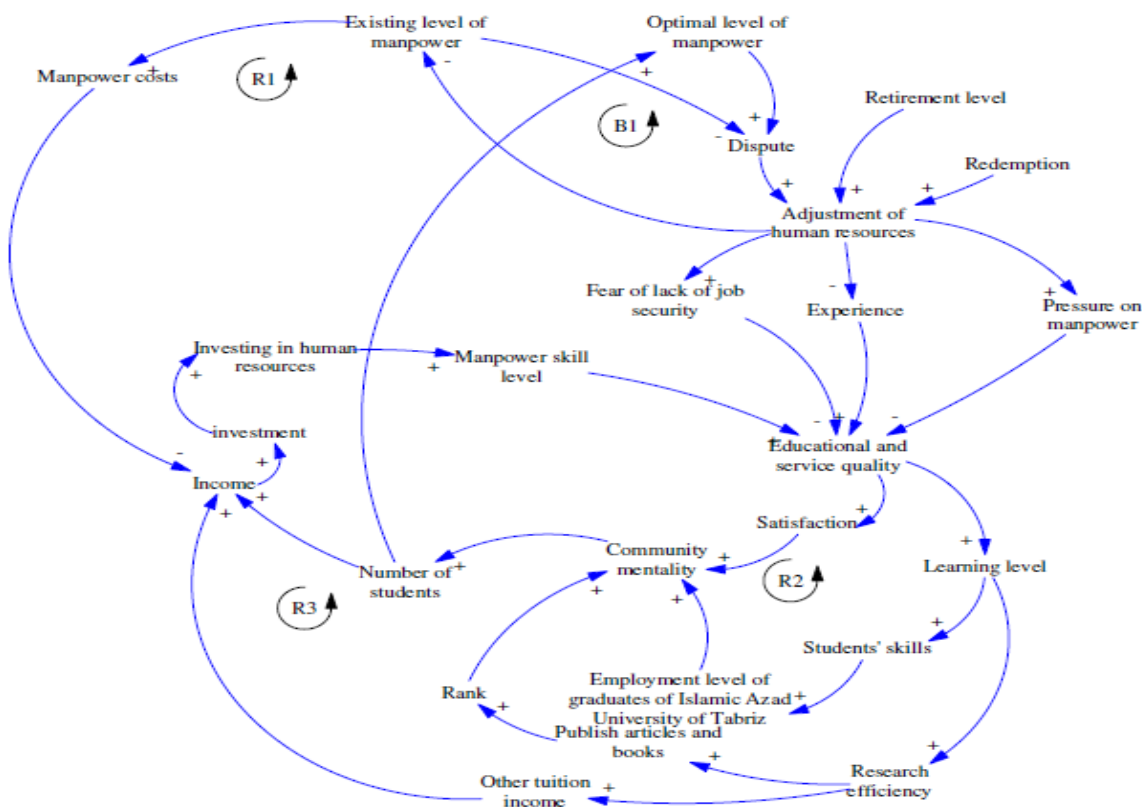

Figure 3: Causal-cyclical relationships of educational quality and research productivity

In this model, there is 1 negative and 3 positive loop. In the negative circle, there are factors such as the desired level of manpower, fear of lack of job security and the level of retirement. While positive circles refer to the role of such things as students' skills, income, investment in manpower training, and the positive attitude of society towards the performance of the university.
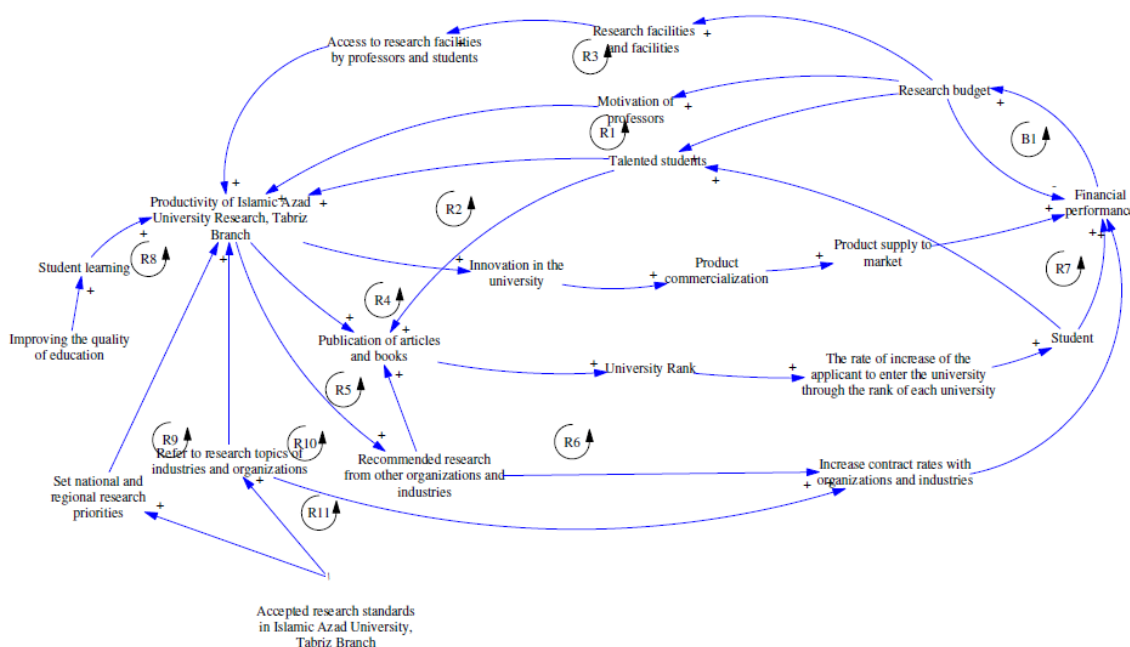
Figure 4: Causal-cyclical relationships of research income, cost and productivity

In Figure (4), one negative loop and eleven positive loops indicate the effectiveness of components related to the three factors of revenue, costs and research productivity in the Islamic Azad University of Tabriz. The negative circle is only affected by the component of research budget, while components such as publication of articles, university revenues from research contracts with private organizations and companies, attention to regional research needs, and commercialization of research have a positive effect on university exit from the financial crisis. It also shows that the amount of university research budget has a fundamental effect on the performance of revenue, cost and research components.

Figure 5: Causal-cyclical relationships of facilities, revenue, cost and productivity

Figure (5) shows the relationships between four factors affecting the implementation of strategic planning. Causal-cyclic relationships indicate that 3 negative loops and 5 positive loops can be considered. Components such as the cost of maintaining and repairing physical and material facilities, equipment depreciation, manpower maintenance costs, and total costs constitute negative loops, while components related to research income and productivity play a positive role and give more loops. After creating the required positive and negative loops, the connection between the loops was established and final model was created. In the next step, the researchers developed a scenario and dynamic simulation of the university strategies. The purpose of these simulations was to reduce costs and increase the quality of teaching and research at the university. Therefore, the developed scenarios were developed and evaluated based on these goals. After ensuring the validity of the model, two scenarios were evaluated according to the objectives set for the development of the strategic plan:

First Scenario: Increase the retirement rate to reduce costs

In the first scenario, the retirement rate is increased by 10%. With the implementation of this scenario and increase of the retirement rate of staff and faculty members according to Figure (6), the rate of decline of staff and faculty in the coming years will increase sharply. As the rate of decline increases, the number of employees will decrease by 9% over a period of 5 to 15 years. As the number of staff decreases, the cost of the university will also decline.
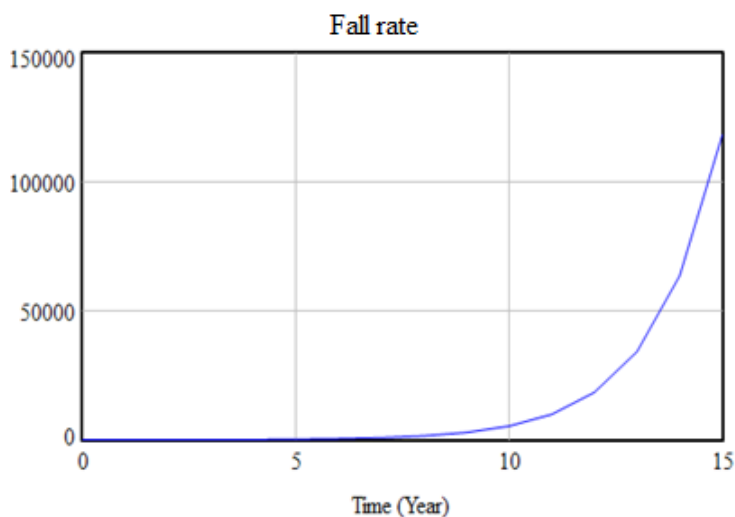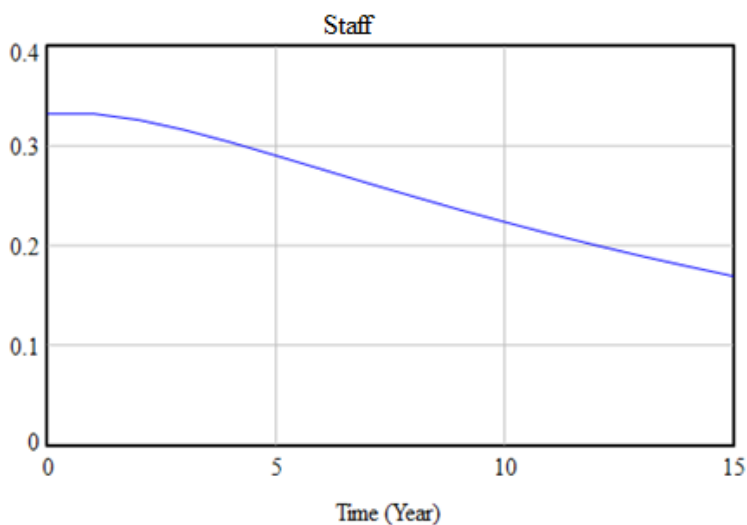

Figure 6: Staff fall rate
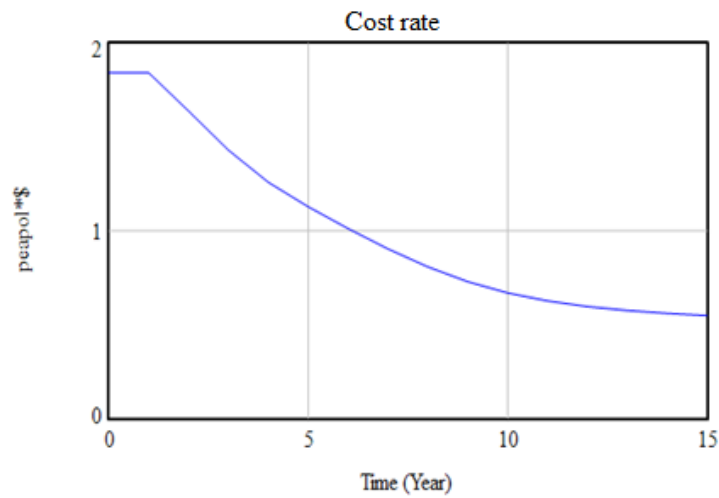

Figure 7: Number of employees

Figure 8: University tuition rates

Second Scenario: Increase research budget

In this scenario, the university research budget increased by 40%. This change caused the rate of publication of articles and books to have a positive effect on the university ranking and student enrollment rate (increase about 22%).
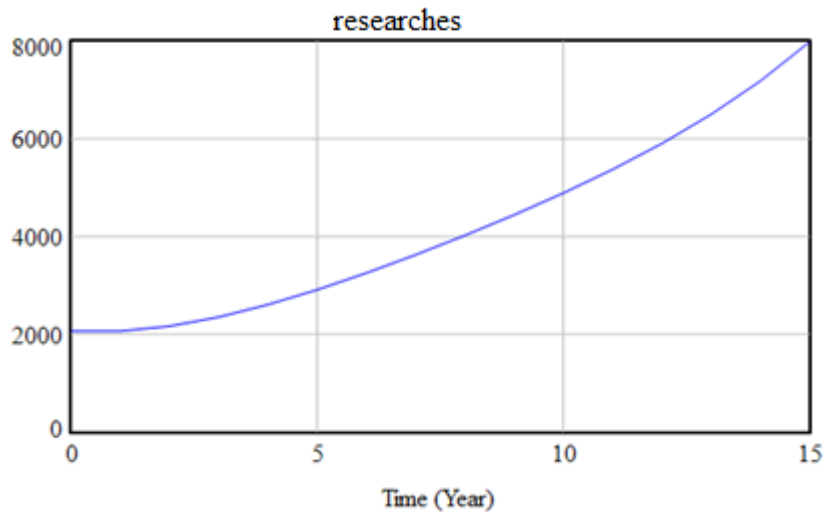

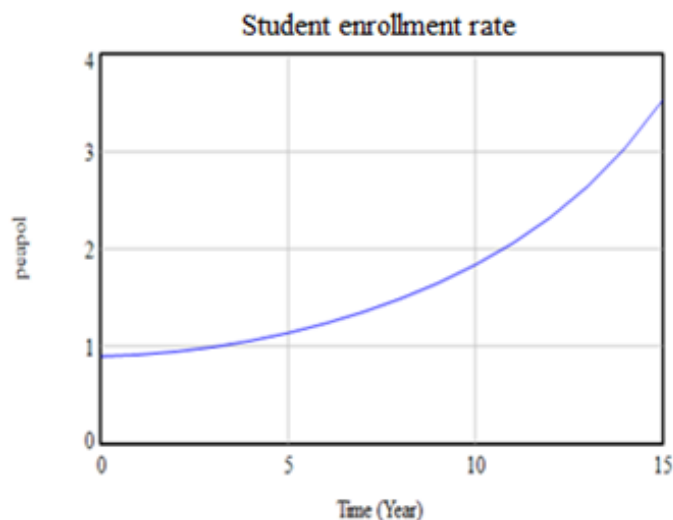Figure 9: University research growth rate
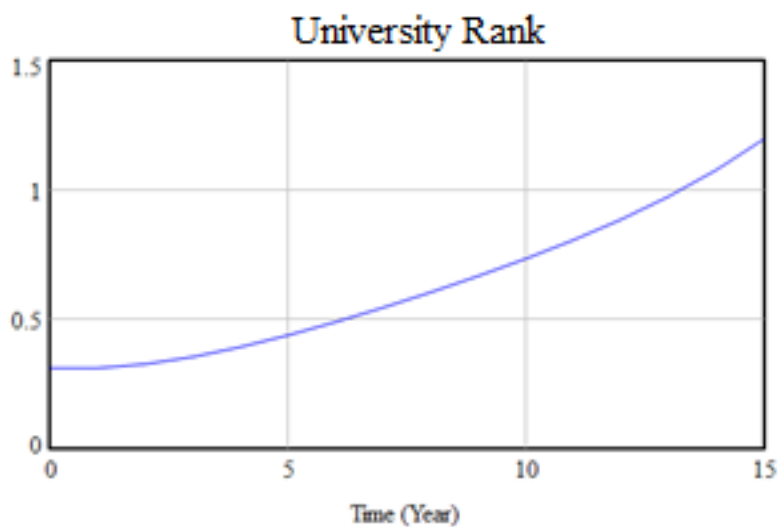
Figure 10: Student enrollment growth rate

Figure 11: University Rank Growth Rate

Figures 9 to 11 clearly show the upward and positive trend of the Islamic Azad University of Tabriz in the components of research, student recruitment and overall rank. In terms of research, the university can increase the number of researches to more than 8000 in a period of 15 years. Also, the number of students has quadrupled during this period and the university's position among other Iran's universities has significantly improved.

4. Conclusion

The aim of this study was to identify the factors affecting the crisis in Iran's non-governmental universities and to develop a strategy to deal with it in the Islamic Azad University of Tabriz. A review of the research background revealed that the establishment of private and semi-private universities in Iran - including the Islamic Azad University - was the result of factors that have manifested themselves in other countries as well (Casillas, 2010; McCowan, 2007; Mulalic 2012; Osokoya, 2007; Slantcheva-Drust, 2010; Pachuashvili, 2007; Salehi Imran , Ebrahimi & Hosseinzadeh, 2011; Shah & Brown, 2009; Wilkinson & Yousef, 2005;).

Also, the research findings are in line with the results of Aithal & Suresh Kumar (2016), Monzurul Huq & Rafiul Huque (2014); Orellana (2014) and Chavez (2017) which showed that many private and semi-public universities face several challenges in recent years. The present study supports findings of Guthrie (2019); Tamrat & Tizazu (2014) and the Asian Development Bank (2012) which indicated that many private universities rely on their own budgets to cover high costs and sometimes have to sacrifice quality to reduce costs. Findings based on two selected scenarios in the present study, i.e. increasing the retirement rate and university research budget is in line with the findings of Al Harthy (2011); Arasteh & Jamshidi (2014); Orellana (2014); Ozturk & Bayrak (2015), and Zare et al. (2019). Research findings also show that the four factors of educational quality, research productivity, income and costs - as fundamental variables - affect the implementation of reform programs such as strategic planning (Casillas, 2010; McCowan, 2007; Pachuashvili, 2007). However, the present researchers could not find similar research to support some of their findings. For example, one of the findings of the study was based on the adoption of two scenarios by researchers: The first scenario to develop a strategy showed that if the staff retirement rate is increased, the upward trend in university costs will stop and then decrease. The second scenario revealed that by increasing the research budget of the university, the publication of articles and books can be accelerated. The realization of this scenario will improve the university's ranking and increase the student enrollment rate.

Based on these findings, it is suggested that in in non-governmental universities facing financial challenges, the retirement rate of employees should be increased within a short time (Maximum 5 years). This increase may initially include retirement volunteers, female employees with more than 22 years of service, employees with incurable diseases, and male employees over 60 years of age. It

is also recommended to increase the relationship between the university and industry and commerce to increase research costs. The last point is that present researchers have also faced limitations. For example, the lack of quantitative data related to the cost of some services made it difficult to estimation of functions. Also, due to the lack of access of the main researcher to financial resources, it was difficult to evaluate some variables.

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