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The Governance Models of Universities: The Case of Iran

Somayeh Tohidyan Far [1] Kurosh Rezaei-Moghaddam[2] Bruno Dallago[3]

[1.] Former Ph.D. student of Department of Agricultural Extension and Education, Shiraz University, Iran. E-mail: somayeh.tohidyan@gmail.com.
[2.] Corresponding Author, Professor of Department of Agricultural Extension and Education, School of Agriculture, Shiraz University, Iran. E-mail: rezaei@shirazu.ac.ir.
[3.] Professor of Department of Economics and Management, University of Trento, Italy. E-mail: bruno.dallago@unitn.it.

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Abstract:

Objective: Due to the importance of the relationship between the state and the university, which indicates the governance model of the university, this paper first determined the characteristics of the different models of university governance and then examined and identified the models of governance of Iranian universities during six development plans. We considered three governance models (state-centered model, Humboldt model, market-oriented model).
Methods: Quantitative content analysis was used in order to evaluate the six development plans of Iran regarding different governance model.
Results: The results show that the most frequencies for state-centered model presented in the first Development Plan and the most emphasis of Humboldt model was on the fifth Plan. The component frequency of the market-oriented or entrepreneurial governance dimensions in the Iranian development plans indicates that this model was considered for the first time in the third plan and the emphasis on this model in the development plans shows an increasing trend.
Conclusions: The estimation of the weighting indicators showed that the emphasis of the development plans on turning to the market-oriented or entrepreneurial model in decision making is increasing, so we suggest that more researcher in their study consider transition toward third-generation universities in Iran as a developing country.

1- Introduction

Today, innovation is the only motive for long term competitiveness which is a requisite element in promoting the efficiency of productive factors. Besides, innovation is presented currently as an improving factor in the knowledge-based

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economy. But the traditional understanding of the innovation process is changing because the linear models have lost their efficiency in explaining innovation, and this process has presented as a system and network of various dimensions and elements. Bases on studies, corporation between three sections of industry, university, and government is necessary in the promotion of national and local systems (Philpott et al., 2011;). Among these three factors, universities have a more important role because they are responsible for presenting the newest sciences and techniques. Accordingly, the mission of universities in the bed of time, concordant with the global changes and development and in line with the aim of responsiveness to the necessary needs of communities, has transformed and is moving toward the participation in entrepreneurship paradigm (Etzkowitz and Leydesdorff, 2000; Chen et al., 2022).

For long, universities were dealing with educational activities in their first phases; however, based on universities' internal dynamism and the external pressures on their structures, two scientific revolutions have taken place. The first one occurred in the late nineteenth century in which universities undertook a research mission rather than their previous missions; i. e., teaching and education. The second revolution occurred since the dependency of innovations on the scientific knowledge in the late twentieth century when universities were charged for a third mission of technical innovation besides their two previous missions. Those universities with these three missions are considered as entrepreneurship universities (Philpott, 2011). In the world in which globalism plays an important role in the process of social and economic changes, the roles of universities have transformed with respect to their new responsibilities like national economy, social development, a decrease in the public financial resources, and the educational market on behalf of the developing society (Guerrero et al., 2006; Quiñones et al., 2020). Since governance is one of the most important aspects of higher education and has a great impact on educational and research activities, it has been significantly affected by these changes (Munawir et al., 2019).

A review of previous research shows that as a result of international pressures and internal necessities, the national systems of higher education governance, more or less, have been transformed, developed, modernized, and commercialized in most cases. These transformations have changed the role of government, presented new paradigms for universities' managers, and have role in the new form of relationship between university and industry (Gornitzka and Maassen, 2000; Hausermann, and Landmann, 2003). Generally, the results of researches have stated that among the demand for more efficient universities, policy-makers have developed the governance models for higher education institutions in which the role of government is beside the social-economic role and function of the higher education, a lot of current transformations in the European higher education are placed in the range of government's retreat as a financial provider up to the allocation of strategic authority to universities'

managers, and also they are positioned in the increasing concentration on the economic application of research and education (Gornitzka and Maassen, 2000). So that the European Union has determined the perspective of European universities' governance consisting of such cases as diversity of financial resources, intensification the relationship between university and industry, and a close link the supplied qualifications and the demand of job market (European Commission, 2006).

Iran's higher education has faced many challenges in the last two decades. Quantitative expansion of universities, the multitude of diverse educational institutions, increasing the number of students and the existence of a large number of unemployed graduates are some challenges that Iran's higher education system has faced them. These challenges have forced the university system to rethink its structure, mission, goals, functions and processes. It can be said that considering the role of higher education in scientific growth and its impact on human capital, as well as the goals of the vision document of the Islamic Republic of Iran in the horizon of 2025, the higher education system needs a systematic transformation. In this situation, if Iran's higher education wants to keep up with environmental changes and maintain its efficiency, it should make meaningful and purposeful changes in all aspects, including its governance system. (Amini Sabegh et al., 2019).

The review of the past researches in the field of governance has shown that, in general, each of the researches, according to the approach, emphasis and goals, expressed some special features and it was not able to cover all features of governance. Despite the importance of university governance, there has been no comprehensive research on determining the characteristics of various models of academic governance. Therefore, this research aims to determining the characteristics of various models of university governance and also it wants to determine Iran's policies are in line with which university governance models. So, this research has been carried out in three phases:

First phase: Extracting the categories and subcategories of triple models of governance.

The Second phase: Determining the historical transition of universities in Iran.

Third phase: Examining and identifying the model or models of Iranian universities' governance during each of six Development Plans. After the victory of the Islamic Revolution in Iran, six Development Plan have been formulated. This research seeks to the content analysis of six development Plans texts and its supplying documents regarding the categories and sub-categories of triple models of governance. In order to reach this goal, two steps were taking into consideration. In the first step, the Development Plans were studied through content analysis with regard to the categories and sub-categories of governance models of universities, and in the second step, the ascending and descending

trends of university's governance have been recognized during the six Development Plans and then compared with each other.

2. The governance models of university

The governance of university is a too complicated issue which it is necessary to redefine according to the vast changes of the university life-world. One more point is that, the structure of university governance is different in various countries in relation to their governance structure, and this causes complexity. For an instance, the governance structure of the European universities consists of single level board of trustees in Anglo-Saxon countries, technical commissions of higher education in the Netherlands, and bi-level structures (monitoring board and Executive board) in the other countries. This structure contains an integrated information system of higher education in Australia, and in the United States of America, it includes a variety of different governance models (OECD, 2007). Some believe that governance is about power and authority (Kennedy, 2003). Some other consider governance as the application of administrative, political, and economic authority for the management of affairs (OECD, 2007).

Researchers have presented different classifications for different types of governance in the higher education (Jongbloed, 2003; Clark, 1983). Clark (1983) classified universities' governance into three models of state-control model, Humboldtian model of academic self-rule, and Anglo-American market-oriented model. This model emphasized on the features of entrepreneurship of higher education institution and its attempts toward strategic planning. In these types of organizations, the high participation of academicians in decision-making is taken into consideration. The researchers have distinguished between Napoleon models of higher education in France and southern Europe that is recognized by ministry top-down legislation, and an auto-governance of academicians (Humboldt model) in northern Europe (Paradis et al., 2009). Cornitzka and Mason (2007) studied the governance model of universities in four groups: fully non-autonomous centralized state control, traditional academic autonomy, semi- autonomous corporate state, and fully autonomous corporate model. Some researchers differentiated two models of state supervision and state control in the field of higher education governance. In the case of state supervision, government emphasized on the autonomy of universities, but in the model of state control, the autonomy of universities is not formalized, and the government interferes in the universities' affairs. In general, if the amount of penetration of government rules and its interference in the governance of university is high, the model will be the bureaucratic state-centered. If the extent of autonomic penetration of faculty members in the power structure and decision-making of university is high, the Humboldt model will be dominant. And in the case that the role of market is dominant in university's decision-making and its changes, then the model of market-based governance will be dominated (Boer et al., 2007).

2-1- The state-centered bureaucratic model (the first generation universities)

In the state-centered model, education is the most important activity of the university. They try to apply professors, resources and appropriate management for the higher education and train specialized human forces. In these universities, fundamental researches had gained the first place (Etzkowitz and Leydesdorff, 2000; Guerrero and Urbano, 2010). In the state-centered model, government plays the role of a guard, and it actively influences on the internal affairs such as qualification assurance, efficiency, and the relationship between business and university, so the universities are managed under the control of government. The structural logic of state-centered system is to perform the predetermined purposes, and universities are considered as intellectual instruments which are applied toward reaching the national priorities. Government directly harmonized the features of most or main parts of the higher education like necessary requirements for application, syllabus, exams, and individuals' assignment for academic positions. Universities are exposed to formal administrative control by the government, and they have a little independency and freedom of action. Budget allocation by the government is taken place through definite cases. The power of government/ministry is represented most in the administrative hierarchy, and the administrative employees are often assigned instead of being selected. Although the systems of higher education do not protect from the pressure of external forces entirely, they tend to change by transformations of political conditions and dominant political wing (Olsen, 2007; Neave, 2004; Kaiser, 2007). In the state-centered universities, knowledge is transferred by the new graduated students in the job market and by the publications in academic journals which are dedicated a long period of time.

2-2- The Humboldt model (the second generation universities)

The need of industry for doing specific researches toward satisfying the goals of industrial development, Humboldt universities developed. In this model, applied researches are in the first place, and the university has changed to a place for research and applied education. These universities do not commit to use knowledge for exploitation, commercializing, and making business in contrast to the market-oriented or entrepreneurship model that actively aimed to do so. In this model, governance is taken place based on the cooperation of government-university according to the union's principals and collective agreement (Boer and Goedegebuure, 2003). In contrary to governance models based on the authority of government, this governance model has been defined by the lack of organizational harmony between the strategies of university and industry, or by political purposes. In fact, it does not include a model for planning human resources that relates the social-economic needs to the scientific activities and the replacement of students in the scientific majors; instead, the most ideal and pure copy of Humboldt model is based on the freely researches of scientists and the

inseparable association of research and education. Therefore, the concept of university is equivalent to a common commitment for seeking reality through the freedom of thought regardless of the application, political and economic interests of scientific researches (Olsen, 2007). Most of all, this model has led to a lesser quality of education, bureaucratic accumulation and distrust among government, universities, and the society.

In line with Bologna Process[1] and the development of modern governmental management, the internal institutions of higher education have been exposed increasingly to critical perspectives stated that how the systems and institutions of higher education should be governed (Vaira, 2004; Olsen, 2007). In Europe, the Bologna Process has had a key role in motivating the main reformations in higher education, and there are strong evidence that Bologna has been a promoter in the changes national governance structure. Different analyses have indicated that the Bologna Process has enabled local actors to strengthen their support of some dimensions of higher education in such fields as income and privatization (Dobbin & Knill, 2009; Bieber, 2010; Niemann, 2010).

2-3- The entrepreneurship model or the market-oriented model

The entrepreneurship university is kind of a university in which the traditional paradigm of education that has stayed still for years changes into a new paradigm. In this paradigm, the entrepreneurship university is one which reacts to the technical educational, research, and consulting service requirements of the environment at the same time emphasizing on production of science and extension the frontiers of human's knowledge; meanwhile, by developing creativity and methods of intellectual thought responds to the needs of individuals accurately and quickly while it helps to achieve to the ability for definition, formulation, and satisfaction of problems independently or collectively, and provides an appropriate ground for the stable development of the country (Gibb, 2012; Philpott, 2011; Etzkowtia et al., 2000). The market-oriented model states that in contrast to the Humboldt model, pure knowledge and information are not ideal. Moreover, they are not considered as a public good; rather, it takes into account as a special good and a strategic source (Olsen, 2007). In this model, the entrepreneurship tactics are considered as legal organizational principles and it is believed when universities perform as economic firms in the country and as regional or globally markets, they will be more efficient (Clark, 1998; Marginson Considine, 2000). Accordingly, universities compete for attract students and financial resources, and university managers consider themselves as a producer or an entrepreneur who offer

[1] The Bologna Process is a series of ministerial meetings and agreements between European countries to ensure comparability in the standards and quality of higher-education qualifications. The process has created the European Higher Education Area under the Lisbon Recognition Convention. It is named after the University of Bologna, where the Bologna declaration was signed by education ministers from 29 European countries in 1999: https://en.wikipedia.org/wiki/Bologna_Process.

students educational services. Entrepreneurship universities redefine the traditional roles of a university in the society as an institute for producing knowledge through fundamental and applied researches, technology and the factor of transferring knowledge, innovation, and support the economic development (Arnaut, 2010; Gibb, 2012).

Clark (1998) as a pioneer in presenting the entrepreneurship university in Europe believes that in the emergence of entrepreneurship, there is a growing imbalance between the demand made by universities and their traditional potentials for responding to these demands. According to his belief, the accountability potential of universities to new increasing demands will be exposed to much limitation because of the insufficient university budgets and the inflexibility of structures developed in previous periods. To control this imbalance, systemic changes in universities would be useful. Reducing the regulations, moving toward decentralization, and giving more freedom to universities for taking their own steps are some of the required changes (Clark, 1998b). From the organizational aspect, the entrepreneurship universities are administered in a way that they acquire the capability of being flexible in response to the social-economic needs and the strategy of considering the environmental opportunities. In these universities, entrepreneurship has changed to the main strategy of university and its consequence is the development of entrepreneurship culture in the university which prepared people for changing, seeking, and exploiting the opportunities for innovation and development (Gibb, 2005). Investing on knowledge is the basis for the new mission of university and it causes universities and knowledge consumers to relate with each other closely and the university is defined as an economic factor. They believe that the entrepreneurship university corporate with the other actors in this filed through provoking the entrepreneur attitude and viewpoints and strategic perspectives for advancement of local innovation in the region. In other words, the entrepreneur university is the motivator of the university, industry, and government interaction in the way of innovation (Etzkowitz and Zhou, 2007). The entrepreneur university is natural incubatory which by means of harmonious strategy for all its vital activities (for example, education, research, and entrepreneurship) attempts to provide a sufficient space for studying, evaluating, and exploiting such ideas that can be changed to social and economic entrepreneur designs for the academic society (e. g. academicians, students, and employees) (Kirby and Ibrahim, 2011). The comparison of categories and subcategories of triple models of governance is shown in Table 1.

Table 1: The comparison of categories and subcategories of triple models of governance

Categories	Sub- categories	The state-centered model	The Humboldt model	Market-oriented model
Organizational structure	The main mission of the university	Learning and teaching Providing socio-economic purposes of the government	Learning, teaching and research Academic freedom and long-term commitment to knowledge production	Learning, teaching, research and entrepreneurship Supplying market demand and providing consumer academic services
	Decision making	Government	Faculty and professional managers	University managers
	Organizational form	Up to down Hierarchical, high and permanent Government representative	Up to down Non-hierarchical and wide Corporation between university and government	Bottom-up Non-hierarchical flat Corporate
	Management approach	Board of trustees and chancellor	Academics part-time cooperation	Entrepreneurial professional Management
	Control and evaluation	Ministry	Self-evaluation by academic colleagues (within the framework of macro and general regulations determined by the government)	Governmental and semi- governmental evaluation and validity
Personnel recruitment	Recruiting scientific staff	Appointed by the government	Selected by the professors	Selected by faculty members / university management
	Recruiting managerial staff	Appointed by the government	Selected by the professors	Selected by university management
	Professional background of university managers	Governmental management	Scientists	Managers
Research and teaching	Role	Truth-oriented	Discovering nature	Creating values
	Training method	Formal and teacher-centered	Formal and partly informal, learner-centered and participatory	Informal, learner-centered and participatory
	Teaching orientation	Based on government definition	Scientific progress	Market demands
	The role of disciplines	Scholastic	Mono-disciplinary science	Inter-disciplinary science
	Problem statement	From the university	From the owners of industries and in line with economic goals (More research in collaboration with industries and non-indigenous centers)	From the customer and in the applied social context

	Skills	More equal	Multiple and heterogeneous	It is not necessarily heterogeneous and multiple
	Effectiveness	Fewer	More	More
	Curriculum design	Government/ academics	Academics	Academics/Academic management
	Research emphasis	Fundamental	Applied	Applied and development
	Determine research orientation	Government/ academics	Academics	Academics/ Academic Management
	Scientific findings	General	General	Exclusive and competitive
Financial	Provision of budget	Government budget	Government budget	Varied (income/ donations, research grants, private institutions, government)
	Innt	Defined by the government	According to different situations, it is the responsibility of university managers and academic groups	Multi-dimensional (by the chair of the university, faculty members, knowledge-based companies, technology centers)

3. The historical transition of universities in Iran

3-1- The period of emergence and first development

Universities in Iran appeared in 1934 by the foundation of University of Tehran and University of Tabriz in 1947 (Ferasatkhah, 2009). In this period, university considered as a place to train specialized human forces, and for teaching science, doing research, and producing science. The foundation of university of Tehran was a part of governmental modernization project which conducted by the attempts of modern minded intellectuals and by use of the stability and security provided by the authorized and centralized government and at the same time, inclined to modernization. But it had not been a sudden action; rather, it was a consequent of some reasons and factors which were provided in the previous periods. During this time, the results of processes of one period as an output acted as an input for the next period; therefore, the consequence of these evolution accumulated in the structural reservation of the society. This trend by passing from quantitative changes to qualitative ones, causes university to be formed in Iran. If there had been no detachment resulted from hard political instabilities, and this society could have enjoyed the property of accumulation of change and development more than that, certainly the current conditions would be better and much more different (Ferasatkhah, 2009).

From 1946 to 1973, universities were moving toward institutionalization and updating the society socially, culturally, and economically, and also they stepped

toward increase in the economic growth by copying from the west (Ferasatkhah, 2009; Bagheri and Karimov, 2013). From the late 1330s, university of Tehran's cooperation with American universities increased and in 1954, the institution of Administrative Sciences of university of Tehran founded by the help of University of southern California (Mahboubi Ardakani, 1991). After the foundation of University of Tehran, besides the development of its faculties, several centers of higher education affiliated to ministries and governmental organizations established in other cities, especially, capitals of provinces (Davari, 2005). In 1968, the Ministry of Sciences and Higher Education founded, and the structure and organizations of universities had been gradually formed and completed (Ferasatkhah, 2009; Bagheri & Karimov, 2013).

3-2- The period of qualitative growth

In this period, the qualitative growth in universities became important, and the emphasis was on the quality of education, development of scientific thought, creativity and innovation, strengthening the cooperation of university with production-service sectors and widening the international corporation in the fields of science and research (Ferasatkhah, 2009). The turning point of the higher education in the mentioned years was the foundation of Islamic Azad University. This university aimed to apply students in 1976, but because of credit limitation, this delayed until one year, and by developing the network of regional educational centers, indeed, in the second half of the year 1977, 600 students were applied there. Two main missions of Azad University of Iran was training teachers in fundamental sciences majors and the establishment and promotion of distance education (Ferasatkhah, 2009; Bagheri & Karimov, 2013). In this time, the country and the higher education as well were dependent on foreigner powers, and the general policies of the country were planned and explained by the Americans (Ferasatkhah, 2009).

3-3- The postponement period

This period started by the Revolution in 1979, and the ideological-political controversies between various groups followed by closing universities. In spring 1980, Cultural Revolution took place, and the universities closed, and the Supreme Council of the Cultural Revolution formed. The purpose of closing universities was making reformations in the educational contents of resources, textbooks, and syllabi, purification of the educational forces of university, and etc. in line with the direction and advancement of the aims of the Revolution (Bagheri & Karimov, 2013). After reopening the universities, the centralized management and planning model was replaced by the semi-centralized model of the past governed the institutions and the higher education. By the formation of the Supreme Council of the Cultural Revolution, educational and lesson planning separated from universities, and the university education, teaching, and management reorganized based on the new ideological-political considerations

(Davari, 2005; Bagheri & Karimov, 2013). The consequences of reopening universities can be summarized as follow:

- ✓ The reduction of the centers of higher education and the dissolution of the non-governmental sector of higher education;
- ✓ Elimination and insufficiency in the index of student number;
- ✓ The extreme fall of the index of student application;
- ✓ Postponement in the process of adjusting centralization;
- ✓ Creating a source for centralized educational planning based on the needs and facilities of the country (Entezari, 2010).

3-4- The period of quantitative growth

In the late 1980s and 1990s after the Islamic Revolution and after several years of interruption, the universities faced a kind of leap. So, some attempts began to follow and continue the process of evolution and development in the higher education. By the beginning of Azad, Payame Noor, non-governmental, and applied-scientific universities in the realm of the higher education activities, the statistics of the graduated students grow with a highly increasing acceleration. At present in Iran's higher education, there exist different types of universities: universities named as public universities that apply students for free education in daily university (education with amount of tuition in overnight university) and the international university (with a triple tuition of the overnight university). Payame Noor is one of the Iranian universities which founded in September, 1988, and it is one of the largest and the most extensive universities in Iran that covers a large number of Iranian students. This university works based on the method of distance education and has a special teaching methodology (Alipour-Darvishi, 2012).

4. Research method

Quantitative content analysis was used in order to evaluate the six development plans of Iran regarding different governance model. This method is one of the qualitative research method to study the content of policy document. Qualitative content analysis approach is frequency measurement of category units or subject concepts. “Deductive category application” was used in this research (Rezayat, 2012). At first categories and sub-categories of governance model are extracted according to literature and then each development plans have been content analysis according to these categories and sub-categories. This means that the text of development plans has been counted and compared with each other according to the frequency of each categories and sub-categories of governance model. Descriptive criteria are categories and sub-categories related governance model. In this research the unit of analysis includes each development plans and the recording unit contains terms, sentences and words of the development plans that includes the contents and concepts related to the categories and subcategories

of the governance model (Tohidyan Far and Rezaei-Moghaddam, 2019). A Hierarchical Additive Weighting Method (HAW) of decision making models was used to recognize the priority and process of attention to the triple models of governance in the six planning development periods of Iran. Based on these models prioritizing a number of options based on some indices is done. In the HAW method, effective factors and sub factors in decision making are expressed in a hierarchical order (Pourtaheri, 2010).

A three-level model including the purpose of decision making at the first level, the affecting indicators on decision-making purpose in second level, and policy documents of six development plans about governance model at third level was used. In order to assessing the importance of each index regarding to other indices, determine weighting indices is very crucial. The selection of decision-making model and weighting is based on available information. According to obtained information from the content analysis, Shannon entropy weighting method was used. This method calculates the weights of each index based on the distribution of the values of the indices. To prioritize the plans based on the steps of the HAW decision making model, at first the existing status matrix was developed (including six rows (options) and three columns (indicators)), and the sum of the frequencies obtained from content analysis of policies put in the related cell for each indicator. Then the options weight for each index was calculated by standardizing the digits of each column with the number 1 function and the obtained standard matrix (W3) was plotted. To calculate the weights of the indices (W2) using the Shannon entropy method, after plotting the existing status matrix and normalizing its values with function No. 1, function number 2 was used to calculate the entropy of the jth indices (Ej), and then the uncertainly (dj) was calculated with function number 3 and finally the weight of the indices in entropy method was calculated with function 4. In these functions, m is the number of options and n is the number of indices (Pourtaheri, 2010; Azar, 2001).

Function 1:

$$P_{ij} = \frac{a_{ij}}{\sum_{i=1}^{6} a_{ij}}$$

Function 2:

$$E_j = -K \sum_{i=1}^{m} \left[P_{ij} ln P_{ij} \right]; \forall_j \; K = \frac{1}{\ln(m)}$$

Function 3:

$$d_j = 1 - E_j; \; \forall_j$$

Function 4:

$$W_j = \frac{d_j}{\sum_{j=1}^{n} d_j}$$

5. Analysis and Results

The frequency of components of state-centered governance dimensions of universities in the Development Plans presented in Table 2. The results indicated that the most frequencies presented in the first Development Plan, and the second Plan ranked in the second position, but the third and fourth Plans have decreased by emphasizing on the state-centered governance model, and it has had an increase in the fifth Plan. In the sixth Plan, the quantity of categories and subcategories have reduced in the state-centered model (table 2).

Table 2: Components frequency of state-centered governance dimensions in Iran development plans

	First plan	Second plan	Third plan	Fourth plan	Fifth plan	Sixth plan
Organizational structure	155	88	53	56	39	21
Personnel recruitment	17	6	5	-	2	1
Research and teaching	1	-	2	1	2	-
Financial	22	40	29	25	56	32
Sum	195	134	89	82	99	54

The component frequency of the Humboldt governance dimensions in Iran's Development Plans are shown in Table 3 in which the most emphasis of this model was on the fifth Plan, and the fourth Plan ranked in the second position. The least emphasis of this model was on the first Plan with a minimum amount. In the next Plans up to the fifth one, the emphasis of this model had gradually increased, and in the sixth, it encountered a reduction (table 3).

Table 3: Components frequency of Humboldt governance dimensions in Iran development plans

	First plan	Second plan	Third plan	Fourth plan	Fifth plan	Sixth plan
Organizational structure	8	29	62	93	126	87
Personnel recruitment	6	8	15	23	32	18
Research and teaching	1	-	3	2	-	1
Financial	3	13	22	32	45	21
Sum	18	50	102	150	203	127

The component frequency (table 4) of market-oriented or entrepreneur model dimensions in the Development Plans of the Iran stated that this model was considered for the first time in the third Plan, and the extent of consideration to this model in the Development Plans has had a gradual increase in such a way that in the third Plan, it had been emphasized the least and in the sixth, it has been emphasized the most (Table 4). In fact, before the beginning of the third Development Plan of the Islamic Republic of Iran, there was not serious attention

to entrepreneurship. Even though in academic and scientific meetings, except for rare occasions, no action had taken place in this regard. For the first time, in the third cultural, social, and economic Development Plan (2000-2004) the subject of entrepreneurship has taken into account, and the specific design and credits in the form of this program and the annual budget plans of the Iran were predicted for the development and extension of entrepreneurship in the several governmental organizations and ministries. The problems related to unemployment and anticipation of its being more critical, especially among the University graduated has led to propose the subject of entrepreneurship among some ministries such as the Ministry of Science, Research, and Technology at the time of preparation the third Development Plan, and some credits have been predicted for it. Since 2000s, entrepreneurship has been taken into consideration, and the by-law for the plan of developing entrepreneurship in universities of Iran was prepared and notified to universities for manipulation. Creating entrepreneur faculties and considering the entrepreneurship course in all majors is one of the main substances of this notification. Subsequently in the fourth Plan (2005-2009), especially in its fourth chapter (Knowledge base development), by forecasting different legislative substances such as Substances Nos. 45, 46, 47, 51, 53, in order to develop commercializing the researches and university entrepreneur activities have been anticipated. At present, various plans and programs have been implemented to support the development of university entrepreneurship and commercializing the results of researches so that KARAD plan (Entrepreneurship in Iran's Universities Development Plan) (implementing the paragraph d of law article 45 of the fourth Plan) can be mentioned. The Research and Technology Fund, supplying the implementation of semi-industrial plans and also a lot of financial resources like the Plan of Industrial, Educational, and Information Researches (TAVA), and the entrepreneurship development plan of Industrial Development and Renovation Organization of Iran which have been active since some years before with a supportive role for providing financial resources for researches and development of the Iran are famous organizations in this field.

Table 4: Components frequency of market-oriented governance dimensions in Iran development plans

	First plan	Second plan	Third plan	Fourth plan	Fifth plan	Sixth plan
Organizational structure	-	-	57	14	119	157
Personnel recruitment	-	-	4	2	1	2
Research and teaching	-	-	-	2	5	4
Financial	-	1	30	85	84	88
Sum	-	1	91	103	209	251

In order to determine the priorities and the procedure of consideration to the periods of universities' governance models in the development plans and policies and their supportive documents based on HAW method, decision-making matrices for the current situation include three indicators of in rows (state-centered, the Humboldt, entrepreneurship) and six options in column (plans) formed (Table 5), then the standard matrix (W3) calculated (Table 6). The calculated weights of each indicator estimated by anthropic method in Table 7, and according to these results, the state-centered model has the minimum weight and the market-oriented (entrepreneurship) has the maximum weight; i. e., the emphasis of development plans toward the market-oriented (entrepreneurship) model has been increasing in decision-makings, and the universities of the Iran should consider this model in their decision-makings. Now, different structures that have been formed and extended in research organizations and universities are performing in the field of entrepreneurship. The Office of Industrial Communication established in 1980s, are the oldest forms of these structures, and from the development perspective, it can be stated that all units of universities have such offices. These offices previously played the role of supporting common and conventional researches with industry, supporting the affairs of students' training, and recently they have provided and directed students in the process of academic patent. Entrepreneurship centers are another kind of these structures that have been formed since 2000, and today, they have reached the number of 77, and they are developing in other units of university. These centers committed for cultivation, education, and promotion of entrepreneurship among academicians and especially students based on implementing by-law of KARAD plan. Science parks and business incubators have been formed since 2001 and 2002 in universities and research organizations and other public institutes, and now, over 30 science parks and 115 business incubators are working in the Iran, and according to their implementing by-laws, supporting commercialization of the research results and providing the substructures and different supports in the phase of developing ideas and results of researches and also the formation of companies based on knowledge and technology are parts of the legal responsibilities of these structures.

Among commercializing mechanisms in universities of Iran, the common researches and contracts with the industry and the other organizations are in a relatively good situation. In other words, they enjoy a specific institution, a definite working process, and often several specialists for the management and supporting these activities. This is because universities have had an approximately three decades of empirical backing in this regard, and namely, corporation with industry has been institutionalized in universities (Fakour and Haji Hosseini, 2008). By developing entrepreneurship literature and the formation of knowledge-based companies in recent years, there have been

attempts in policy-making for the development of entrepreneurship and supporting small and medium businesses. In this respect, considering the formation and support of university knowledge-based spin-off are high significance in the Perspective document of Iran and the fifth year of Development Plan. However, in fact, most universities in Iran are in the second generation of universities; i. e., the Humboldt or research-based universities, so they do not have a serious activity in line with commercializing the results of researches, training entrepreneur individuals, and transforming to universities of the third generation; i. e., the entrepreneurship universities (Salamzadeh et al., 2011).

Table 5. Existing status matrix regarding university governance in development plans

	Market-oriented model	The Humboldt model	The state-centered model
First plan	195	18	-
Second plan	134	50	1
Third plan	89	102	91
Fourth plan	82	150	103
Fifth plan	99	203	209
Sixth plan	54	127	251
Sum	653	650	655

Table 6. standardize matrix

	Market-oriented model	The Humboldt model	The state-centered model
First plan	0.30	0.03	-
Second plan	0.21	0.08	0.002
Third plan	0.14	0.16	0.14
Fourth plan	0.13	0.23	0.16
Fifth plan	0.15	0.31	0.32
Sixth plan	0.08	0.20	0.38

K= 0/55811

Table 7. Entropy, unconfidency and indexs weights of university governance

The state-centered model	The Humboldt model	Market-oriented model	
0.73	0.91	0.96	Indexs entropy
0.27	0.09	0.04	Unconfidency
0.675	0.225	0.10	Indices weights

6. Conclusion

The mission of university in the past was education and research which todays, by global transformations and changes in the relation among three main operators in the national innovative systems of university (Industry, government, university), a third mission has been dedicated to universities. This is actually the

university entrepreneurship and its corporation in the social and economic development of societies. Indeed, universities' becoming entrepreneurs has been the second revolution in the mission of universities. The change of Iran's higher education under the umbrella of entrepreneurship is inevitable because of environmental change, change in the public expectations, criticism of financial and structural situations of the higher education, dependency upon government budget, changes in the policies of the higher education, creating powerful collections for making policy, reduction of bureaucracy, the importance of considering the consumers and maintaining the respect of people, the advancement of communicative and informative technologies. Therefore, developing innovative activities by means of creating entrepreneur universities is necessary. The component frequency of market-oriented or entrepreneur governance dimensions in Iran's Development Plans indicated that for the first time this model has been considered in the third Plan and the amount of attention to this model in Development Plans has had a raising procedure so that in the third Plan, the minimum and in the sixth Plan, the maximum emphasis was on this model. The estimation results of weight indicators showed that the emphasis of Development Plans on moving toward the market-based or entrepreneur model in decision-makings is increasing; however, in fact, commercializing activities of Iranian universities often restrict to creating science parks which do not offer a remarkable output to the business market. So, creating innovative activities by establishing entrepreneur universities is necessary since without reaching to such universities, the results of the scientific researches would just store in treasures of academies and universities that rarely would change to innovative activities, productions, and services (Ghenaati et al., 2010).

Based on the findings, it is necessary to analyze the challenges and obstacles of entrepreneurship in universities of Iran, determining the basic strategies, processes and practical steps to establish a third-generation university in this country as well as SWOT analysis of transition strategies towards agricultural entrepreneurial university in Iran. Also it is suggested to develop a policy framework to improve processes and measures (managerial, organizational, educational, etc.) in order to establish a third-generation university in Iran. Identifying the components of an entrepreneurial universities and determining the factors affecting its establishment is another suggestion of this study.

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مدل‌های حکمرانی دانشگاه‌ها: مورد مطالعه ایران

چکیده

با توجه به اهمیت رابطه بین دولت و دانشگاه که بیانگر مدل حکمرانی دانشگاه است، در مقاله حاضر ابتدا ویژگی‌های مدل‌های مختلف حکمرانی دانشگاه مشخص گردید و سپس به بررسی و شناسایی مدل‌های حکمرانی دانشگاه‌های ایران در طی شش برنامه توسعه پرداخته شده است و سه مدل حکمرانی (مدل دولت محور، مدل هومبولت، مدل بازارمحور) در نظر گرفته شد. از روش تحلیل محتوای کمی برای ارزیابی شش برنامه توسعه استفاده شد. نتایج نشان می‌دهد که مدل دولت محور بیشترین فراوانی را در برنامه اول توسعه به خود اختصاص داده است و بیشترین تاکید بر مدل هومبولت در برنامه پنجم توسعه بوده است. فراوانی مؤلفه‌های ابعاد حکمرانی بازارمحور یا کارآفرینانه در برنامه‌های توسعه ایران نشان می‌دهد که این مدل برای اولین بار در برنامه سوم مورد توجه قرار گرفته است و تأکید بر این مدل در برنامه‌های توسعه روند افزایشی را نشان می‌دهد. برآورد شاخص‌های وزن‌دهی نشان داد که تاکید برنامه‌های توسعه بر روی مدل بازارمحور یا کارآفرینی در تصمیم‌گیری ها رو به افزایش است، بنابراین پیشنهاد می‌شود که پژوهشگران بیشتری در مطالعه خود گذار به سمت دانشگاه‌های نسل سوم در ایران را به‌عنوان یک کشور در حال توسعه در نظر بگیرند.

کلمات کلیدی: مدل های حکمرانی، مدل دولت محور، مدل هومبولت، مدل بازار محور.