The Role of Urban Network in Regional Development Case Study: Mazandaran Province

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INTRODUCTION

"Development" means people’s living standards more satisfactory, and these days this is many countries’ disturbance worry [1]. Many development theorists lay stress on reduction of existing unequal rights and elimination of twofold parts as one of main objects of development [2]. The lack of equilibrium in the course of development among many areas causes to create the split and accelerate the regional rights which are an obstacle on the route of development (Zarabi & Tabrizi, 2010, 64). There are so many questions about the greatest agent of production these regional imbalances in development. One of these questions is that "does imbalance in leveling of regional population services cause to aggravate migration or not and cities themselves create this imbalance? [3] The other key question is that: "Does the development strategies from up to down play a role to create regional imbalance or not? Certainly development strategies especially strategies from up to do down play a worthy role in creation regional imbalance because regional systems are a set of connections and affiliations in special structure of energy, goods and information.

So cities and their thresholds have an important role in release development toward down and also urban network have an important role to guide this development to the lower level of permanent urban development. The study of urban network gives us the awareness about how can human overcome their exchanging and
connecting obstacles in a certain geographical areas, and how and depending upon what data can they operate their regional and economical engines, and in spite of the plurality of cities’ role in the network, how can they set up and arrange their complicated connection in the area? For example if a city has the official role, how can it rule in the network and effect on it? And if it has commercial role how can it produce and consume in the network, and what regions does it’s exchanging organization involve? In other words, how does appear the best form of social life and human culture and civilization depend on the texture of regional urban network?

Commercial system of developing countries is base on the sale of sources in comparison with people’s activity, this commercial system (the system based on the sale of sources) doesn’t implement by all the citizens and usually implement by governments and special groups, following this characteristic and because governments and special groups usually are in metropolis of developing world, the development course (money, good, capital, data and energy) are distributed through these cities, and instead of jamming in all parts of city, at first jammed in the state network. So, by this system, the commercial size of cities in these countries never passes their active, structural and population size. Because, before the commercial size of cities coincide with their active, structural and population size, the development courses penetrate in lower level of hierarchy and distribute in it in order to preserve the governmental system. The first reflect of this kind of storing is creation north and south parts in cities and countries but second reflect is migration. Because storing of courses happens in official systems and these systems are more voluminous in metropolises, so development in these cities appears in the level of hierarchy and migration intensifies from lower level of network to higher level, and this is the beginning of regional imbalances. As a result, appearance of populous cities causes forming the first city and it bring about imbalance of urban system and creates an unusual hierarchy [4].

In Iran urban network is affected by some factors like the natural bed of region and water sources, so it had different and various forms. For this reason the population distribution system of Iran is not stable, and nevertheless urban network in Iran is variable, the portrait of placement and stabilization is not suitable. The existing model of placement and it is distribution tends to imbalance and disorganization more than ever. For this reason, in recent decades cities have expended rapidly and became exchanged into big cities. An increase in city population and development in urbanity which contain growth of cities is not arising of natural increase in Iran population because the land reform has a deserving role in this increase. These reforms, which were supposed to create geographical link between village and villagers, cause to migration of many villagers to cities and entirely is the result of “social-economical” transitions arising from increased income which is obtained of petroleum in cities. So, land reforms along with natural increase of population create a disharmony in urban network of Iran.

Urban network in Mazandaran which is near the coast is affected by natural conditions, applying state policies and the rate of participation of private unit. The circumstance and the rate of participation of private and state units in them are depending on facilities and natural or human abilities [5]. These facilities and natural abilities which are prerequisite of access to permanent urban development, is strongly affected by twofold urban network (sector network in the east and linear network in the west) in Mazandaran. This twofold urban network brings about twofold permanent urban development. We try to compile some questions to consider and explain the role of urban network in province Mazandaran in permanent urban development of this province basis on the index of commercial size and the rate of developing, in order that the process of this research doesn’t leave the systematic form and to obtain the positive result to show a reasonable solution about determining the role of urban network in permanent urban development in province.

Some of these questions are: how is the urban network of province Mazandaran? What effect does have urban network of province Mazandaran on permanent urban development of this province? On the direction of systematic way of research and to answer above questions and depend on theoretic studies and representative sample, some theories are presented which are: it seems that urban network in the east of province is sector and in other parts of it is linear, and seems that because of the political-economical centralized system of country, the urban network of Mazandaran in the east of this province more that the other parts of it, has effected on permanent urban development of region because the network of this part is sector and this is the nearest part to the center of network (Sari).

Theoretical basis of research:
Regional development:

Historically regional development is come into existence because of some worries like growth, income and occupation. For example "Storper" arguments that regional success and welfare are depend on permanent increase of occupation, income and interest along with economical development. Because of dissatisfactions about main manner of development and neoclassic traditional economic criticisms in 1960s and 1970s, a substituting manner is created in which regional development is based on economical centralization in companies on the field of national and international outlines. Adopting a certain normal or more local condition, even in the level of society, and manners with social tendency as a part of substituting economic strategy,
appears in UK and USA and usually challenging frames among new structures were created in regional level (Pike et al., 2007, 1254).

Urban network:

Urban networks show the mutual connection model and have the control of urban residences, and prepare some structures for social, political and economical activities. So, this concept is comprehensive and wide which is introduced by different aspects and academic fields such as sociology, geography and anthropology. The relations that form urban network usually contain interchange of some sources but there are so many varieties in the form of these connections and their application. The relations of urban network maybe contain the interchange of data, human and materials such migration, productions, etc. Such interchanges service political, social, cultural and economical applications (Neal, 2011, 911).

Theories of urban network and regional development:

Setting the place:

Theories of urban network are strongly related to the change of meaning frame of growth process. This relation starts at 1930s with a tendency to regional differences and preparation new tools to determine the dispersion, and is supported by Kinzi economies. After that, at 1950 and 1960 decades the development economies were formed of main concepts of analysis, programming and regional policies (Eraydin, 2012, 9).

Through recent decades, the concept of development goes out of the monopolistic view of economical growth and western idea, and an increase in per capita consumption is not the aim of development. The view points of social justice, self reliance and ecology balances are easily grafted to new concept of development. Now southern countries have found out that the manner of development in northern countries is not repeatable for them and moreover the yield of development is not their desire and hope anymore [6].

The theories of regional development chiefly have the root in three scientific branches: regional science, regional economy and geography. These academic branches appear in UK and northern America at the end of 50th decade for first time. Theories about regional development are classified in two main branches; The first branches are theories which base on dividing social-economical activities in functional units and depend on district programming for regional development. The second branches are base on priority of special realm of human activities and their integrity in environment, are depend on special programming for regional development. For first branch theories of growth such as "economical units", "district theory", "economical basis" and "development theory base on exports" are introduced and for second branch theories such as "growth pole", "urban cultivate system", "hierarchy system of residences" and "life-zone and permanent development" are introduced (Monzavi, Delir 2010, 135).

Paradigm of urban network and regional development:

Recently the efforts for programming and special policy excite engaging to urban network in researches. We can observe the exact advent of urban network concept in scientific works concordant with some studies about changes in urban system. This literature arguments that population changing (such as growth of two supporter in a single family and families with one member) and appearance of network economy (like interests of transport and connecting technology and the progress in service unit) affect strongly on special structure of cities and regions. According this model on the scale of inter-city and local, cities with one center don’t appear and develop in metro Politian areas providing that sometimes social economical process contain some cities in bigger geographical scale on the other side of city and historically distinct metro Politian areas form on inter-city scale and related with creation of cities with more than one center. So, often urban hierarchy characterizes the concept of traditional central condition in urban system, however this method is old and we can do this better with the viewpoint of urban system because this viewpoint study and consider the concept of central condition base on the lack of urban hierarchy and a degree of importance of special integration. In this model, mutual relations between town and cities in an urban network develop gradually in a system in which towns and cities differ economically. Below table lists some different importance between a hierarchy model and a spatial organization model [7].

In contemporary special policy and programming, we observe a tendency to network model as a solution for regional economical development problems. For this reason, we study an urban network and multi-center policy, and introduce multi-center policy to support earth solidarity and high level of urban and regional rivalry [8]. However considering the urban network idea, multi-center and special integrity causes to ignore the former assessment of network model. So Davoudi believes that a reticulated and multi-center special organization appears in order to select anywhere of regional special structure as an ideal sort of it. And the lack of usual definition and experiential evidences about desirable condition, effectiveness and success potential is substituted by interference policy. In addition the divergent approach to measure the special integrity is not still clear: 1- urban system often presents multi-center and special integrity. 2-mutual relation between cities in special integration and multi-central systems develop gradually instead of compete. 3- special integration and multi-central systems economically are more efficient than one-center system or non-integrated systems.
Table 1: The importance of urban systems in hierarchy model against network models.

<table>
<thead>
<tr>
<th>Importance</th>
<th>Network system</th>
<th>Hierarchy system</th>
</tr>
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<tbody>
<tr>
<td>The form of morphology</td>
<td>Multi-group: come centers near and adjacent of each other: related centers with same importance</td>
<td>Single-group: one main center: approximately there is separate importance between cities</td>
</tr>
<tr>
<td>Orientation of functional chains and special integrity</td>
<td>Multi-oriented: two ways center-around or around-center between centers with same size</td>
<td>Single-oriented: direct relation with main center- nonexistence of mutual relations between centers with same size</td>
</tr>
<tr>
<td>The kind of special constellation</td>
<td>Urban network or multi-center regional city</td>
<td>Single-center metro Politian region</td>
</tr>
<tr>
<td>Mutual relation between special units</td>
<td>Tendency to evolution and regional cooperation</td>
<td>Tendency to rivalry, local orientation and affiliation</td>
</tr>
<tr>
<td>Economical specialty</td>
<td>The function of centers is independent of the size of center and dependent to the success of urban network: special division of work between centers</td>
<td>Economical function of centers depend on the size of centers, and the functions with high order is concentrated in bigger centers</td>
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<tr>
<td>Lateral economical effects</td>
<td>Storing economics have a share between groups of cities with same size, and the lack of storing has no profit</td>
<td>Storing economics limits to urban nucleus</td>
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</tbody>
</table>

MATERIALS AND METHODS

Selecting the method of research depends on the aim and the nature of research’s subject and it’s enforceable facilities. On the other hand, the aim of selecting the method of research is that researcher distinguishes that what method can he select to help him to answer the questions of research easier and sooner. The method of this research is descriptive- analytical. At first we show the urban network of province with point-plotting model and consider it’s relation with cities’ hierarchy, and then determine the urban permanent development of province which is related to efficient indexes of this development with synthetic index of human development.

Methods and tools to collect data:

In this research we use different methods to collect data such as: library and cartography method in which we analysis the existing maps and field methods by which we can obtain new data. In field method we also use observation method and portrait method.

Statistic society and the number of samples:

The geographical zone of research, urban network and manner of permanent urban development, is province Mazandaran. All cities of this province and specially the center cities of counties, form the statistic society of research to determine the urban network of province which is 51 cities of province and 21 centers of counties. We also measure the permanent urban development in the level of counties that the statistic society of this area contains 16 counties of province.

The tools of measure and techniques and methods for analysis:

In this research, we use separate point model to determine the form of urban network in province Mazandaran, base on economical thresholds and commercial borders in main cities of province, and then determine permanent urban network of province in regions which are under the authority of main cities by using the synthetic development index .Now the summary of these models:

The break-point model:

Gravity model (inspired by Newton law) is one of the methods that we can use to determine the penetration area of city or economical thresholds and commercial borders of them. By this method we can distinct the form of urban network that is affected by central city. The mathematical symbol is:
Development synthetic index model:

The development program of United Nations uses a model to sort countries based on human development in for first time in which indexes have same rate of importance. The United Nation’s program in this model uses three indexes: hope of life, percentage of unlettered people, and per capita income. But we can use more indexes in the scale of region area, cities and districts to determine the degree of development.

The overall structure of model is:

First stage:

\[ X_i = \frac{X_i - X_j}{X_i - X_j} \]

Second stage: in this stage we definite the main index for every city or county

\[ X_j = \frac{1}{n} \sum_{i=1}^{n} X_{ij} \]

Third stage: in this stage we calculate human development which is between one and zero. If this number is nearest number to one, shows more development.

\[ HDI = (1 - X_j) \]

By this calculations and determining the rate of synthetic index for human development in every county, we can divide them to three categories: developed, underdeveloped, and undeveloped (or deprived). We can divide them to five categories which underdeveloped category is become changed to three groups: if \( 0 < HDI < 0.5 \) this area is deprived and if \( 0.5 < HDI < 0.8 \) this area has the median level of development and if \( 0.8 < HDI < 1 \) this area has the high level of development.

RESULTS AND DISCUSSION

Urban network of province Mazandaran base on the index of economical threshold of cities:

We use the method of determining penetration area of city base on gravity mode (inspired by Newton law), to determine commercial Breaking-point of counties’ centers than Sari in province Mazandaran. By using this model and assigning the separate point of counties’ centers until province center Sari, we can determine the form of urban network which is affected by central city.

The Breaking-point of Babol city than Sari:

The Breaking-point of Babol than Sari, between 1956 and 2006 is in favor of Sari and from one decade to another has become near to Baol. This process shows that base on Newton gravity law The Breaking-point of Sari always increase and from 18.41 km in 1956 progress to 21.31. Through five decades from 1956-2006 Breaking-point of Sari than Babol are 202 km, sequentially 0.77 km first decade, 0.81 km in second decade, 0.06 km in third decade, 0.06 km in fourth decade, and 0.24 km in fifth decade, and also in last five years 0.29 km shifted in benefit of Sari. These statistics show that the process of shifting The Breaking-point of Sari than Babol from 1956-1976 has higher velocity, but between 1976-1986 decreases and between 1986-1996 reaches to its minimum velocity and between 1996-2006 again increases.

The Breaking-point of Amol city than Sari:

The Breaking-point of Amol than Sari, in 1956-1966-1976 is in benefit of Amol but in 1986 this point decrease in benefit of Sari, in 1996 this shift if in benefit of Amol and also in 2006 again has an ascending shift in benefit of Sari. According these changes, except two first decades in which The Breaking-point of has a relative constancy in benefit of Babol and against Sari and in moving ahead Sari, there are many disturbances in changing this area in another decades. Through five decades from 1956-2006 The Breaking-point of Sari than Amol are sequentially 0.52 km in first decade, 0.75 km in second decade and 2.71 km shifted in benefit of Amol in third decade, while 1.27 km in fourth decade, and 0.6 km in benefit of Sari in fifth decade, and also in last five years 0.2 km shifted in benefit of Amol.
The Breaking-point of Gaemshahr city than Sari:

There aren’t many fluctuations in The Breaking-point of Gaemshahr city than Sari between 1956 and 2006. In six periods from 1956 until 2011 only in one period between 1966 and 1976 is shifted in benefit of Gaemshahr and in four periods are shifted in benefit of Sari and in last period (2006-2011) there is no change. Totally more than half of a century from 1956 until 2006, The Breaking-point of Gaemshahr than Sari is shifted 0.77 km in benefit of Sari. Through six decades from 1956 -2011, The Breaking-point of Sari than Gaemshahr are sequentially 0.01km in benefit of Sari in first decade, 0.06 km in benefit of Gaemshahr in second decade, 0.36 km in benefit of Sari in third decade, 0.15 km in benefit of Sari in fourth decade, and 0.31 km in benefit of Sari in fifth decade, and also in last five years there is no shifting.

The Breaking-point of Behshahr city than Sari:

The Breaking-point of Behshahr city than Sari, between 1956 and 2006 is shifted in benefit of Sari but the rate of shifting in different decades is variable. Totally more than half of a century from 1956 until 2011 The Breaking-point of Behshahr than Sari is shifted 3.62 km in benefit of Sari. Through six decades from 1956 -2011, The Breaking-point of Behshahr city than Sari are sequentially 0.3 km in first decade, 1.4 km in second decade, 1.1 km in third decade, 0.06 km in fourth decade, and 0.76 km in benefit of Sari in fifth decade, and also in last five years 1.3 km in benefit of Behshahr. According decreasing process in decade 1956-1966 there is a little change in Behshahr market as compared with Sari, but 1966-2006 commercial border and market limit in Behshahr is decreasing. This decreasing is a sign of dominant commercial power of Sari on Gaemshahr but in recent five years (2006-2011) this limitation increases and dominant commercial power of Sari on Gaemshahr decreases.

The Breaking-point of Babolsar city than Sari:

The Breaking-point of Babolsar city than Sari, between 1956 and 2006 and through more than half century is shifted in benefit of Sari and only in 1966-1976 shifted a little in benefit of Babolsar i.e.0.04 km.there was a little exchange at boundary market between Babolsar and Sari cities at years between 1956 till 1976. But there has been increasingly decrease at market boundary of Babolsar city between 1956 till 1986. This decrease has became a little more balance between 1986 till and has added on this decrease again recently past five (2006-2011).

The Breaking-point of Neka city than Sari:

The Breaking-point of Neka city than Sari has considered as statistic limitation at year 1956 in five periods between 1966 till 2011. Neka took more advantage from exchange of cities separation spot during five years and Sari has just advantaged from separation between 1996 till 2006 years. During five period from 1966 till 2011 influence area or separation spot of Sari and Neka have exchange orderly 0.17 km on Sari benefit at first decade, 0.17 km on neka benefit at third decade 0.014 km on Sari benefit at fourth decade and at last recent five years period 0.6 km on neka benefit to the market boundary of Neka city than Sari has had increasingly augmentation from 1966 till 1996, but this process has stopped from 1996 till 2006 and trade power of Neka city has decreased than Sari. Trade boundary of Neka has had increasingly augmentation than Sari during past five years, whereas it has never seen such augmentation to itself from 1966 to right now.

The Breaking-point of Chalous city than Sari:

The Breaking-point of Chalous city than sari has sometime altered on Sari profit and sometime on Chalous profit from 1956 till 2011. At six period from 1956 till 2011 separation spot between Sari and Chalous cities were orderly 0.08 km on Sari benefit at first decade, 1.27 km on Chalos benefit at second decade, 10.54 km on Sari benefit at third decade, 0.43 km on Chalos benefit at fourth decade, 3.32 km on Sari at fifth decade and at last has altered 1.3 km on Sari in recent five year (2006-2011). According to chart number on the evolution turning point of Chalous city trade center than Sari was 1976 until 1986 that display mounting decrease .but truly this Breaking-point of on Sari benefit has had more obvious alteration. Generally this alternation has been 11.79 km on Sari benefit more than half century from beginning and the end.

The Breaking-point of Tonekabon city than Sari:

The Breaking-point of Tonekabon city than Sari has sometimes changed on Sari benefit and sometimes on Tonekabon benefit from 1956 till 2011. During six period from 1956 till 2006 separation spot of Sari and Tonekabon cities has changed orderly 13.36 km Tonekabon benefit in first decade, 1.33 km on Tonekabon in second on decade, 7.88 km on Sari in third decade, 4.48 km on Sari in fourth decade, 0.8 km on Sari in fifth decade and finally 2 km on Sari in recently five year. Trade boundary between Sari and Tonekabon was
spreading on Tonekabon more than half century from 1996 till 1976 that attention or increasing spread has happened at 1976 till 1996 decade. Anyway, separation spot has had more obvious change on Tonekabon benefit totally, trading boundary changing between Tonekabon and Sari has change 9.15 km on Tonekabon benefit more than half century from beginning to the end.

The Breaking-point of Noshahr city than Sari:
The Breaking-point of Noshahr city than Sari has changed orderly 11.22 km on Noshahr benefit at first decade, 2.25 km on Sari at second decade, 2.45 km on Sari at third decade, 1.88 km on Sari at fourth decade, 1.1 km on Sari at fifth decade in 6 year duration from 1956 till 2011 and finally 1.4 km on Noshahr city in recent five year (2006-2011). Totally changing level of Noshahr trading boundary than Sari was 4.35 km on Noshahr benefit from the beginning half century till the end , this augmentation level has occurred from 1956 till 1976 and also recent 5 year.(2006 till 2011). As a result, trading center of Noshahr city always decrease than Sari from 1976 till 2006. This decrease displayed Sari trade and market domination and also Noshahr economic deficiency.

The Breaking-point of Noshahr city than Sari:
The Breaking-point of Fereidonkenar city than Sari have replaced orderly , 0.31 km on fereidonkenar at first decade , 0.09 km on Sari at second decade , 2.15 km on Sari at third decade , 0.31 km on Sari at fourth decade , 0.59 km on Sari at fifth decade and finally 0.6 km on Sari recent five year (2006-2011). According to these changing during more than half century Breaking-point of between Sari and Fereidonkenar has replaced 0.31 km on fereidonkenar at the first decade and the rest decade 3.14 km on Sari. As a result replacement level of influence area or trade boundary was 2.83 from the beginning to the end that is on sari benefit. From 1976 till 1986 decade is considered as a turning point at market boundary alteration between Fereidonkenar and Sari because market or trade boundary of fereidonkenar has moved considerably to Sari at this decade. This movement is indication of severs market – trade deficiency that fereidonkenar city has found to Sari. After this decrease to right now fereidonkenar could fix even its trade or market boundary with relation to Sari.

The Breaking-point of Ramsar city than Sari:
The breaking – point of Ramsar city than Sari to each other for six period from 1956 till 2011 has replaced orderly, 11.6 km on Sari at first decade, 37.6 km on Sari at second decade, 11.3 km on Ramsar at third decade, 5 km on Sari at fourth decade, 4.7 km on Sari at the fifth decade and at last 2.7 km on Sari at recent 5 year (2006-2011). Expect 1976-1966 decade in other noted period, trade or market boundary of Ramsar always was changing on Sari benefit. As a result, totally replacement level of influence area was 72.9 from the beginning half century to the end that changed to Sari benefit. This was extended that Ramsar city has missed in point of trade on market functional.

The Breaking-point of Mahmodabad city than Sari:
The Breaking-point of Mahmodabad city than Sari during six periods from 1956 till 2011 has replaced orderly 2.73 km on Mahmodabad benefit at the first decade, 0.24 km on Mahmodabad at the second decade, 1.4 km on Sari at the third decade , 1.57 km on Mahmodabad at the fourth decade , 0.23 km on Mahmodabad at the fifth decade and finally 0.1 km on Mahmodabad benefit in recent five year (2006-2011) market or trade boundary of Mahmodabad city just has changed from 1976 till 1986 decade on Sari benefit and was close to Mahmodabad city. The trade boundary has always spread on Mahmodabad benefit at the rest period more than recent half century. As a result, totally replacement level of boundary is 4.07 km on Mahmodabad from the beginning to end of half century.

The Breaking-point of Joybar city than Sari:
The Breaking-point of Joybar city than Sari have replaced to each after during six periods from 1956 till 2011 orderly, 1.55 km on Joybar on Joybar at the first decade, 0.8 km on Sari at the second decade, 0.68 km on Joybar at the third decade, 0.19 km on Sari benefit at the fourth decade, 0.37 km on Sari at the fifth decade and finally 0.1 km on Sari benefit in recent five year (2006-2011). Market or trade boundary of Joybar city just has changed and expanded from 1956 till 1966 decade. This boundary was always expanding on Sari benefit at the other period. Of course it is necessary to note that the process expansion hasn’t been fixing at variety decades. It what way it had a lowering process from second to fourth decade. While it has increased at the fifth decade than the prior decade. But it had the minimum extent on Sari benefit than the past decade at recent five year, totally, the replacement level in this influence area was 0.49 km on Sari benefit from the beginning to the end of half century.

The Breaking-point of Nur city than Sari:
The Breaking-point of Nur city than Sari:
The Breaking-point of Nur city than Sari have replaced to each other during six periods from 1956 till 2011 orderly, 0.23 km on Nur benefit at the third decade, 0.2 km on Sari benefit at the fourth decade, 0.02 km on Sari benefit in recent five year (2006-2011). Market or trade boundary of Nur city has not had steady process.

The Breaking-point of Galougah city than Sari:
The Breaking-point of Galougah city than Sari have replaced to each other during six periods from 1956 till 2011 orderly, 1.55 km on Sari benefit at the first decade, 1.19 km on Nur benefit at the second decade, 2.09 km on Sari benefit at the third decade, 0.23 km on Nur benefit at the fourth decade, 0.02 km on Sari benefit at the fifth decade and finally one kilometer on Sari benefit in recent five year (2006-2011). Market or trade boundary of Nur city just has changed and expanded from 1976 till 1986 and 1986 till 2006 and the rest periods has been Nur loss or has expended to Sari interest. Totally replacement level of trading boundary has expended 1.04 km to Sari interest from the beginning to the end of half century.

The Breaking-point of Sirgah city than Sari:
The Breaking-point of Sirgah city than Sari have replaced to each other during six periods from 1956 till 2011 orderly, 0.47 km on Sirgah benefit at the first decade, 0.1 km on Sari benefit at the second decade, 0.97 km on Sari benefit at the third decade, 0.28 km on Sari benefit at the fourth decade, 1.22 km on Sari benefit at the fifth decade and finally 1.01 km on Sari benefit in recent five year (2006-2011). Operational beam expansion process of Shirgah city market wasn’t even and had much fluctuation. This beam has had the most expansion than Sari and the least decrease than Shirgah at the fifth decade (1996-2006). Market or trading boundary among Shirgah and Sari cities just expanded at 1956 – 1966 on Shirgah interest and it was always on Sari interest. Totally replacement level of Shirgah city trade boundary was 2.1 km from the beginning to the end of half century that has enlarge on Sari benefit.

The Breaking-point of Kiakola city than Sari:
The Breaking-point of Kiakola city than Sari have replaced from each other orderly, 2.48 km on Kiakola interest at the first decade, 0.54 km on Sari interest at the second decade, 0.55 km on Sari interest at the third decade, 0.07 km on Kiakola benefit at the fourth decade, 0.37 km on Kiakola benefit at the fifth decade and finally 0.07 km on Sari benefit in recent five year (2006-2011). The trading and marketing boundary between Kiakola and Sari has expanded 2.92 km on Kiakola interest at the first, fourth and fifth decades and 1.09 km on Sari interest at the other four decades. But Operational beam of Kiakola city market was expanding permanently according to chart from 1986 ill right now. Expansion level of beam was 1.83 km on Kiakola benefit from at the beginning to the end of half century that has faced with developing process.

The Breaking-point of Sourak city than Sari:
The Breaking-point of Sourak city than Sari has expanded in three periods from 1976 till 2011 from each other orderly, 0.2 km on Sari interest at the first decade, 0.11 km on Sari benefit at the second decade, finally 0.31 km on Sari benefit in recent five year (2006-2011).

The Breaking-point of Abbasabad city than Sari:
The Breaking-point of Abbasabad city than Sari has replaced from each other during six period from 1956 till 2011 orderly, 2.62 km on Abbasabad interest at the first decade, 6.97 km on Abbasabad benefit at the second decade, 3.3 km on Sari interest at the third decade, 2.29 km on Sari benefit at the fourth decade, 1.2 km on Sari benefit at the fifth decade and finally 5.65 km on Abbasabad benefit in recent five year (2006-2011). The trading and marketing boundary between Abbasabad and Sari has expanded on Abbasabad at the first and second decades and recent five year (2006-2011). This process was on century during 1976 till 2006 and operational beam of Abbasabad market decreased permanently than Sari. But totally trading boundary of Abbasabad has expanded than Sari more than half century.

The Breaking-point of Polsefid city than Sari:
The Breaking-point of Polsefid city than Sari has replaced from each other during six period from 1956 till 2011 orderly, 1.27 km on the first decade, 0.25 km at the second decade, 0.92 km at the third decade, 0.81 km on the fourth decade, 0.8 km on the fifth decade and finally one km on Polsefid benefit in recent five year (2006-2011). The trading and marketing boundary of Polsefid decreased permanently and with much in
fluctuation than Sari from 1956 till 2011. This decrease is more than half century that has no in fluctuation. It is approaching to city physical center year to year. Totally, Pusafid city trading boundary has expanded 5.75 km on Sari interest more than half century. Number one figure display one the breaking- point of cities of county center of Mazandaran province than Sari.

![figure](image)

**Fig. 1:** The breaking- point of cities of county center of Mazandaran province than Sari.

**Main network cities and developing level at of their regions at Mazandaran province:**

In order to appoint regions developing level (province counties) under governance province main cities has used human development combinational index. The varieties that was considered in this model, is regional development varieties that consist of social, economic and environmental varieties. In this model solidarity each on to has considered to each order in model. The second table shows the coefficient index of model criteria. This coefficient level is indication of indexes company level at regional development.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>indexes</th>
<th>Coefficient solidity</th>
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<tr>
<td>Social scope of urban sustainable development</td>
<td>Urban literacy rate 0.85</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The ratio of people having M.A and PHD degree than literate population. 0.75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student number in exchange for 100000 person 0.62</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Human development index 0.61</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Urbanization percentage 0.84</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cinema number in exchange for each 100 person 0.76</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High school number in exchange for each 100 guide high student 0.58</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teacher number in exchange for each 100 student 0.55</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Guide school number in exchange for each 100 guide school student 0.52</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Library number in exchange for each 10000 person 0.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sport number in exchange for each 10000 person 0.71</td>
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</tr>
<tr>
<td></td>
<td>The ratio of girl student than boy 0.59</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Universities number in exchange for 100000 person 0.76</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Literate number of man and woman 0.68</td>
<td></td>
</tr>
<tr>
<td></td>
<td>stable house percentage 0.89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Economic growth rate from 1998 till 2006 0.87</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Income per capita logarithm 0.75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>On contrary dependence rate 0.71</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Employed having high education in industry section 0.66</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Validity per capita 0.66</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Allocation index of industrial activities 0.90</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Under guardianship number of insurance to all population 0.80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Employed ratio to all population 0.92</td>
<td></td>
</tr>
<tr>
<td></td>
<td>On contrary unemployment ratio 0.89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In exchange for industry employed to whole employed 0.68</td>
<td></td>
</tr>
<tr>
<td>Economic scope of Urban sustainable development</td>
<td>Hospital number in exchange for each 100000 person 0.89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pharmacy number in exchange for each 10000 person 0.82</td>
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</tr>
<tr>
<td></td>
<td>Hospital number in exchange for each 100000 person 0.81</td>
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<tr>
<td></td>
<td>Laboratory number in exchange for each 10000 person 0.65</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specialized doctor number in exchange for each 10000 person 0.60</td>
<td></td>
</tr>
</tbody>
</table>

The province counties are classified to five level that is developed, among high developed, among low developed , lowered developed and deprived by combing indexes with their participation level at regional development of Mazandaran province counties . The table number three shows the classification more clearly.

The table number three shows unbalanced at urban regional development level completely at Mazandaran province. Because the counties Sari, Chalous and Ramsar are at the first level of development in point of urban
sustainable development index. Galoigah and Miandoroud are in the lowest level of development with Great difference than the other counties. As it is obvious above table, the most west counties of province are in high level development special counties that are in linear urban network. On contrary urban network limitation of province. Among seven counties at high developed category just Amol and Babol belong to sectorial urban network and other five counties are in linear urban network of province.

Table 3: Developed level of Mazandaran provinces counties base on human development indexes of urban network.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Level development</th>
<th>counties</th>
<th>number</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed</td>
<td>Ramsar , Chalo,Sari</td>
<td>3</td>
<td>14.28</td>
<td></td>
</tr>
<tr>
<td>Among high developed</td>
<td>Amol, Babol,Babol,Bar, Feresdonkenar, Tonekabon, Abbasabad and Nosher</td>
<td>7</td>
<td>33.33</td>
<td></td>
</tr>
<tr>
<td>Among low developed</td>
<td>Savadkoh, North Savadkoh, Ghaemshahr, Simorgh and Nur</td>
<td>5</td>
<td>23.8</td>
<td></td>
</tr>
<tr>
<td>Lowering developed</td>
<td>Belshahr, Jovbar, Mahmoudabad and Neka</td>
<td>4</td>
<td>19.04</td>
<td></td>
</tr>
<tr>
<td>Deprived</td>
<td>Galogah and Miandorod</td>
<td>2</td>
<td>9.52</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 2: Comparison of development level with urbanization of Mazandaran province regions.

The figure number tow shows influence level of urban network on regional development completely. The counties like Sari, Ramsar and Chalous having the highest development level in point of regional development. This development level conforms completely with their urbanization level, and all of them having high urbanization level. But Sari put in sectorial urban network but both Ramsar and Chalous are in a linear urban network. But the point to think is, deprived and low developed cities of province have high urbanization percentage. For example Galouagh in east of province that has 40 till 60 percentage urbanization. For this reason it completely proves that urbanization level increase cannot layered in regional development level, but it is urban network cause development with on time transport and out time intake cause cities development and deprived. sectorial network of eastern Mazandaran can t create regional development on balance in all region cities because they provide suitable conditions for current intake by cities brekking-point movement on Sari interest. In doing so Mazandaran western cities all change there self breaking-point than Sari on their self benefit because of getting far from Sari city. In this reason, Sari city could put negative effect on regional development of Mazandaran eastern cities as a center of sectorial urban network. But about western cities of Mazandaran could perform current intake to their self interest because of being network lineal. In doing so, Mazandaran western cities perform intake from other centers such as Tehran separately without no connection with Sari. For this reason, cities likes Chalous and Ramsar are cities with high development level beside Sari in spite of less population and extent. According to this test and reason, the second hypothesis don’t approve that was indication affirmative effective of Mazandaran eastern sectorial urban network on regional development in region.

Conclusion:
The obtain result of this research is consist of:
- Mazandaran province have no unity urban network as special kind of topography, it has sectorial network at eastern part and lineal network at western part.
- Nonparallel regional development is prominent at Mazandaran province. Because cities like Sari, Chalous, and Ramsar are the first level of development in point of regional development indexes and Galoigah and Miandoroud are the lowest level of development with great difference than the other counties.
- The most western counties of Mazandaran are in high development level specially cities which are in lineal urban network of province and on contrary all cities that are in low development and deprived level are in sectorial urban network limitation of province.
- Among seven counties in higher average development just Amol and Babol belong to sectorial urban network of province and the rest all are in lineal urban network of province.
- Sari, Ramsar and Chalous have the highest development level in point of regional development. This level of development match eith their urbanization level, and all have high urbanization level. But Sari is in sectorial urban network, but Ramsar and Chalous both are in lineal urban network.
- Deprived and low developed counties of province have high urbanization percentage, for example Galoughah at east of province that has city dweller between 40 till 60 percentage. As s result, urbanization level increase don’t perform role at regional development at Mazandaran province.
- Province urban network cause development by on time current transport and makes underdevelopment and deprive of cities by out time intake according to cities break-pointing of Capital County from Sari city.
- Sectorial network of Mazandaran eastern cannot create regional development on balance because it provides suitable condition for currents in take by moving city break-point to Sari benefit. In doing so, Mazandaran west cities all change their self break-point than Sari city their self interest because of getting far from Sari city.
- Sari city could put negative effect on regional development of Mazandaran east cities as a center of sectorial urban network. But about Mazandaran west cities couldn’t perform current intake to their self interest due to be lineal and for this reason, west cities of Mazandaran with volume and mass size performed intake from other centers like Tehran separately without no direct cities like chalous and Ramsar with less population and extent than Sari are as cities with high development level beside the Sari as a representative west cities of Mazandaran.

Due to different in lineal and sectorial urban networks with each other in Mazandaran province, settle two network in one system of political administrative division is not fit for regional development of province. in doing so, political division separation of two network was both network profit and perform intake and current transport at own network length deliberately. During regional development process become possible far both network. According to condition, one of the main plan suggestions is, lineal and sectorial urban network of province separate to each other and each one constitute separate province in point of political division. With doing this, both provinces have homogeneous urban network and intake and current transport in one homogenous urban network definitely cause regional development and especially regional sustainable development.

REFERENCES