

## The impact of rail transportation on station areas in Tehran city in Iran

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### Abstract

The modern rail transportation system is one of the major new infrastructures of the cities that are the main factor in organizing, directing, and changing the pattern of urban development. This new infrastructure can create the types of development in different places. The development and density of residential, commercial, and other functions in the cities are impacted by rail transportation systems. Relationships and interactions between the rail transportation system and the physical-spatial structure of the city usually affect patterns in urban development by two different aspects:

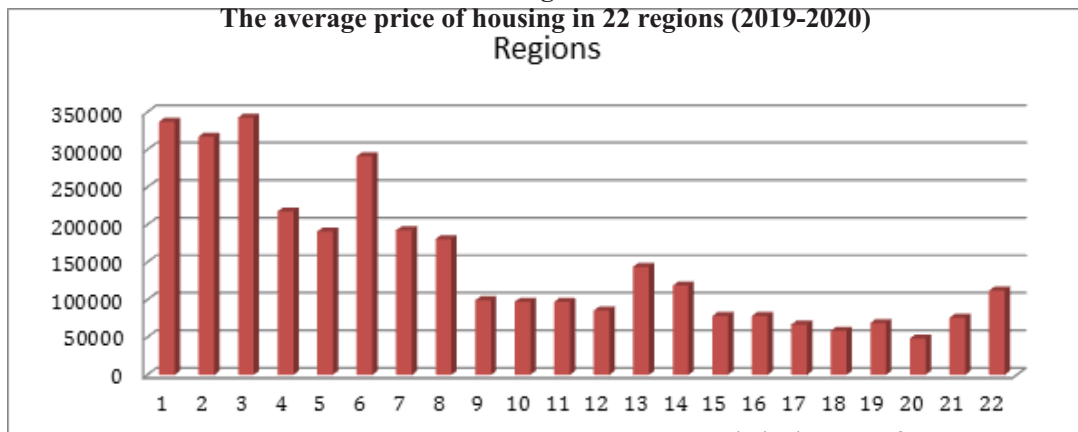
- 1- On the small level, the activity of metro system can help development, renovation, and new construction around the metro stations.
- 2- At the regional level, it can help to create new centers, and new development structures and even new towns in these regions.

Subway stations are the main factor in these impacts. They are the main points that along with other factors can create new developments and changes in some aspects such as physical, social, economic, and environmental at different levels such as neighborhood, local and regional areas. Also subway stations are a new element in the physical structure of the cities. Development in these areas may grow more rapidly than other areas and the focus of development in these areas will lead to development in other areas.

Any way subway stations gradually providing suitable conditions for each activity in different stations. For example, some of the central stations are located in some areas of the city that have been physically fully physically developed in the past and in the other hand number of them are located in developing areas and also some of them, have been restricted by environmental and physical conditions that the impact of this element in each area is different.

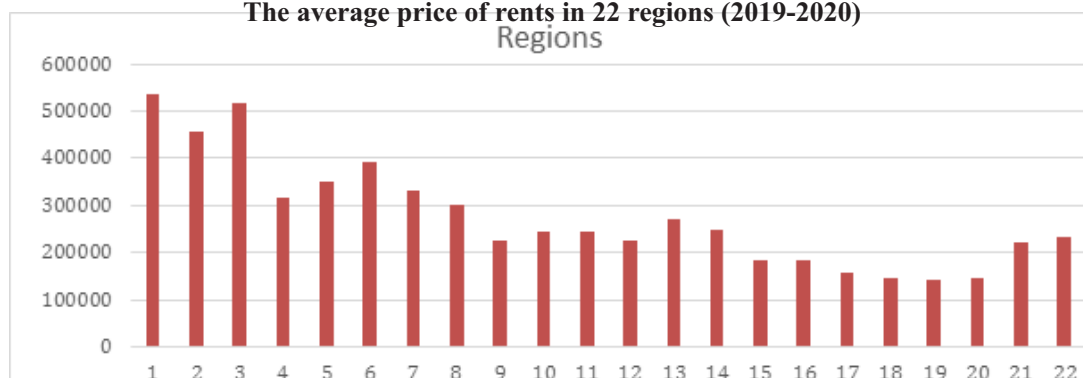
This present shows that subway development and also the creation of new stations in these areas that have helped to development of these areas with different functions. Also this study first shows the average prices and rents in 22 zones in Tehran city in 2001-2020 years. (the currency is Tooman, US 1= 25000 Tooman) also the impact of rail transportation on station areas and also analyses land value, housing prices and the rents around all metro line stations that working, one by one before and after construction.

**Fig.1**  
The average price of housing in 22 regions (2019-2020)  
Regions



Source: Statistical center of Iran, 2019-2020

**Fig.2**  
**The average price of rents in 22 regions (2019-2020)**  
 Regions



Source: Statistical center of Iran, 2019-2020

**Line 1**

Tehran metro line- 1 has extended from the north to south of the city. This line is from the northern regions of Tehran where the most expensive houses and lands are located, to the south areas, in which the land and house prices are lower than other parts of the city.

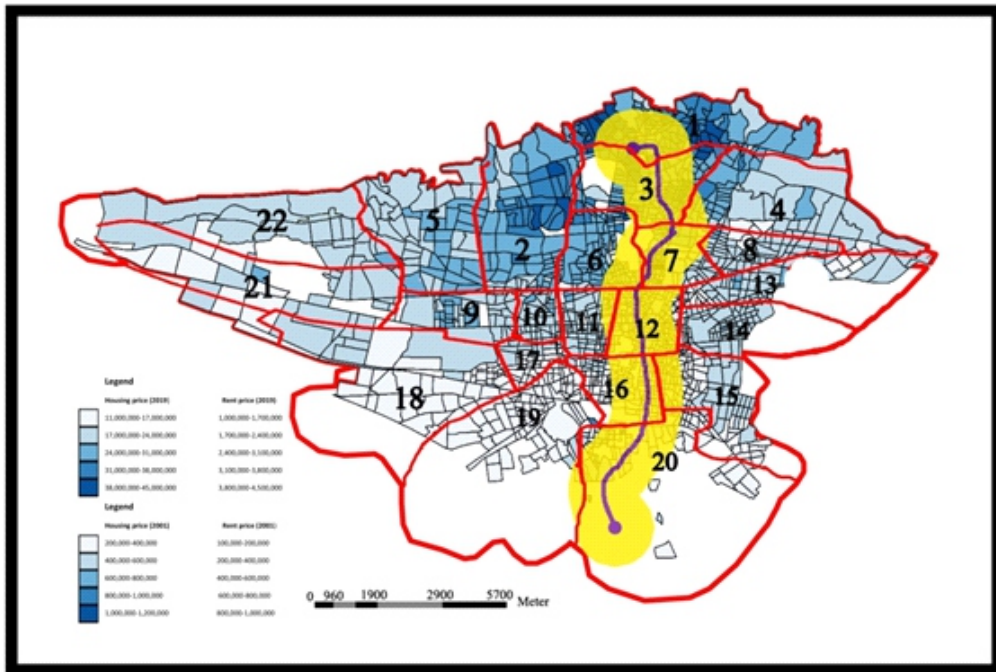
**Table: 1**

**The housing price and rent in line 1, (1 square meter), before metro construction (2001) and after metro construction (2019-2020)**

Regions	Stations	Prices: 2001	prices: 2019	Rents: 2001	Rents: 2019
1	Tajrish	1,200,000	45,000,000	820,000	6,700,000
	Ghaitariyeh	1,200,000	40,000,000	820,000	6,000,000
	Sadr	1,200,000	40,000,000	820,000	6,000,000
3	Gholhak	1,200,000	40,000,000	820,000	6,000,000
	Shariyati	1,000,000	38,000,000	800,000	5,900,000
	Mirdamad	1,000,000	38,000,000	800,000	5,900,000
	Haghani	1,000,000	38,000,000	800,000	5,900,000
7	Mosala	800,000	34,000,000	250,000	2,800,000
	Beheshti	700,000	34,000,000	250,000	2,800,000
	Mofateh	600,000	27,000,000	200,000	2,500,000
6	Haftome tir	600,000	27,000,000	200,000	2,500,000
	Taleghani	450,000	24,000,000	150,000	2,200,000
	Darvazeh dolat	350,000	22,000,000	150,000	2,000,000
12	Sadi	300,000	18,000,000	150,000	2,000,000
	Emam Khomaini	300,000	16,000,000	150,000	1,800,000
	Panzdahe kho rdad	300,000	16,000,000	120,000	1,500,000
	Khayam	250,000	16,000,000	120,000	1,650,000
	Mohamadiyeh	250,000	16,000,000	120,000	1,650,000
	Shoosh	250,000	15,000,000	120,000	1,500,000
16	Terminal Jonoob	250,000	15,000,000	120,000	1,500,000
	Bokharai	250,000	14,000,000	120,000	1,500,000
	Ali abad	250,000	13,500,000	120,000	1,500,000
20	Shahre rey	300,000	14,000,000	120,000	1,500,000
	Bagher shahr	350,000	13,000,000	130,000	1,500,000
	Haram	200,000	11,000,000	100,000	1,300,000
	Kahrizak	250,000	12,000,000	130,000	1,300,000

According to table 1, the beginning of the tables show the larger numbers that prove the high prices and rents of land and housing in these areas, and the end of the table indicates the lower prices in this part of the city. This line is one of the main lines that shows the huge difference in prices in south and north of Tehran, although the opening of the subway has had a positive effect in these areas that this impact on central and southern stations in this line are more than north stations.

**The map of housing price and rent in line 1, before and after metro construction**

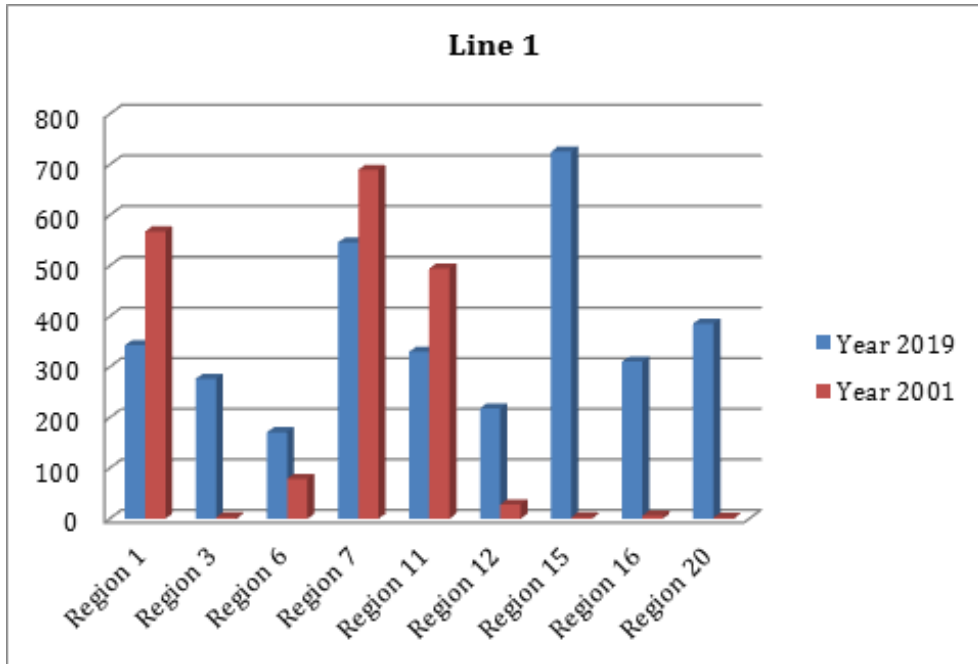


Also according to the survey in this line, rising prices in house and rents over the past 19 years are due to a variety of factors, including economic inflation and recent sanctions, and also metro opening in these areas. However, as mentioned above, in the central and southern areas of this line, the impact of metro is clear, especially in the southern areas which are located at the end of the line. In the central station's areas included the central part of the city and also main commercial center areas, the impact of the metro on this type of land use is much more than residential land use in these parts. According to the research, in fact, in the northern areas that are one of the expensive areas in land and housing prices and the profit of it is always high, the impact of the metro has been less than other areas such as central and southern areas. So this percentage of price has increased significantly in the southern areas and we can see the effect of metro stations on prices in these parts because the accessibility after metro opening has increased.

According to the fig 3 that shows the construction in the areas of metro line 1, before and after metro opening, it can be concluded that in line 1 of Tehran metro, before the opening in this area, more constructions were in the northern part of the city such as regions 1, 6, 7 and 11, which are more profitable areas or are located in the central part of the city, which includes city center and commercial centers that had good access to public transportation. But after the subway opening, we can see more density along the line 1 and especially in southern stations, such as 16, 15, and 12 regions. In fact, in the southern regions, due to the lack of accessibility to public transportation and being far from the main center of the city, after the subway opening, this line has had a high impact on construction. Also, we should mention that municipality plans and comprehensive plans from the Municipality of Tehran

after metro construction in these areas are other factors for this reason.

**Fig: 3**  
**The changing construction from 2001 to 2019-20202 in line 1**



Source: The municipality of Tehran in 2019-20202

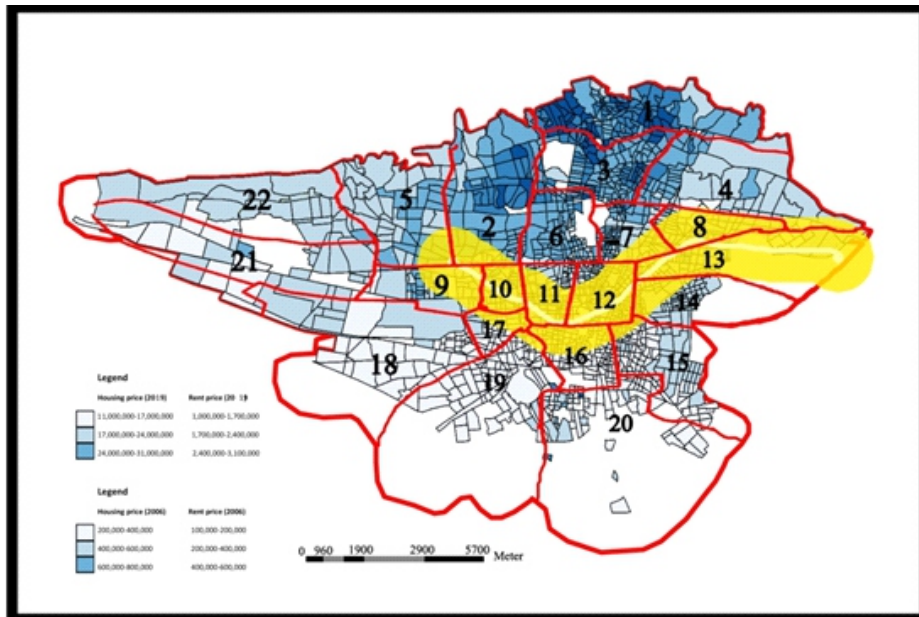
### Line 2

Tehran metro line- 2 is one of the main metro lines in Tehran which has extended from northeast to southwest which passes through the main centers of the city, includes commercial, administrative and main centers of the city, and also with so many passengers that finally it connects to line 5, which runs to Karaj, that it is one of the major cities around the Tehran city. As we can see in table 3, around the analysis of this line, we can say, except the first station, which is the new center of the residential area and its price is lower than other stations, in rest of the stations the price is almost the same because they are commercial, residential and administrative centers of the city (M, land use) and also after metro opening, except the first station, there are no different prices between other stations.

**Table: 3**  
**The housing price and rent in line 2, (1 square meter), before metro construction (2006)**  
**and after metro construction (2019-20202)**

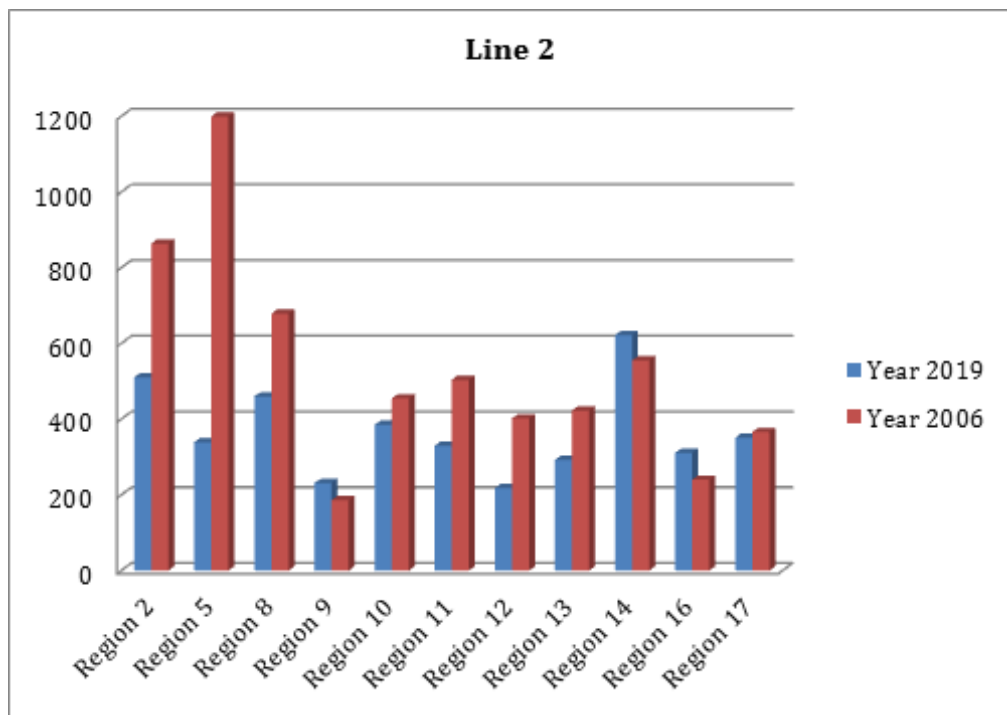
Regions	Stations	Prices: 2006	prices: 2019	Rents: 2006	Rents: 2019
4	Farhangsara	350,000	17,000,000	250,000	2,300,000
	Tehranpars	720,000	22,100,000	350,000	2,800,000
8	Elmosanaat	550,000	20,000,000	300,000	2,500,000
	Sarsabz	750,000	24,100,000	450,000	3,100,000
	Janbazan	500,000	20,000,000	250,000	2,200,000
	Fadak	450,000	19,000,000	250,000	2,200,000
	Sabalan	500,000	21,000,000	300,000	2,500,000
13	Madani	500,000	21,000,000	300,000	2,500,000
12	Emam khomaini	350,000	18,000,000	300,000	2,500,000
	Darvazeh dolat	350,000	18,000,000	300,000	2,500,000
	Baharestan	350,000	17,000,000	250,000	2,200,000
11	Hassan abad	350,000	16,000,000	200,000	2,000,000
	Emam ali	350,000	17,000,000	200,000	2,000,000
	Maidane hor	350,000	18,000,000	200,000	1,800,000
10	Navab	400,000	18,000,000	250,000	1,800,000
2	Shademan	400,000	19,000,000	300,000	2,,100,000
	sharif	400,000	19,000,000	350,000	2,100,000
	Tarasht	450,000	20,000,000	350,000	2,300,000

**The map of housing price and rent in line 2, before and after metro construction**



Also it can be concluded that in the first station before metro opening the price and rent were lower than other stations but after opening, due to the proper accessibility, the increase of price can be seen more clearly. According to the construction fig 4, before metro opening, the construction was the same along this line except for some areas such as 5, 8, 2, 13, 12, which are the main commercial, administrative and residential centers of the city and in this areas was more than other regions that it can be introduced because of proper accessibility and high profits in these areas. But after metro opening, due to the high urban traffic in the commercial, administrative and main centers of the city and also because of municipality plans and centralization and lack of construction permit in these areas, we can see the reduction in construction and density in some areas except 2, 8, 5 and 14 areas that are the residential areas in this line. Also in the first of line (8 region), as we noted, we can see an increase due to the new metro stations that caused the expansion of residential density in these areas.

**Fig: 4**  
**The changing construction from 2006 to 2019-2020 in line 2**



Source: Municipality of Tehran in 2019-2020

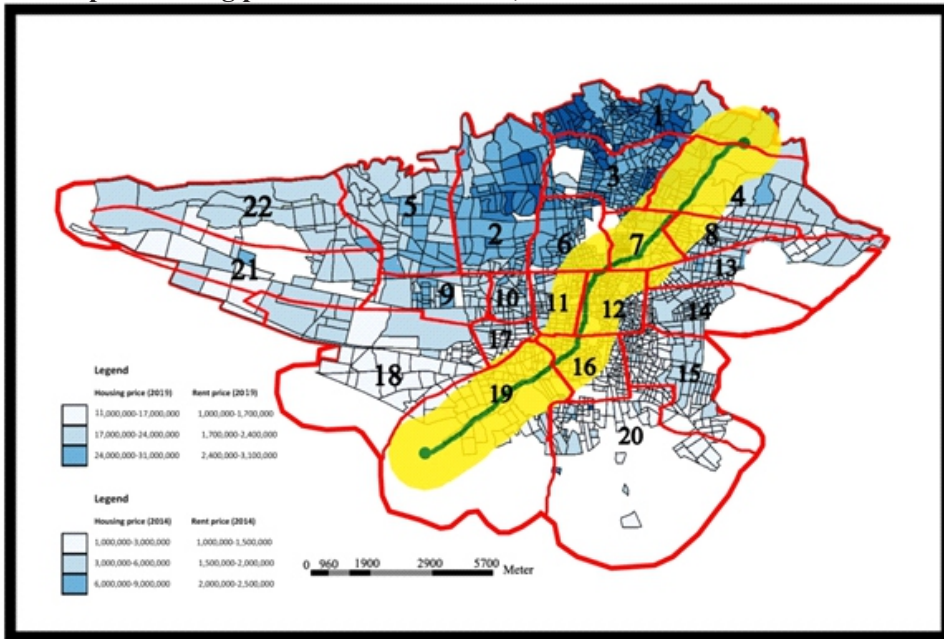
**Line 3**

Metro Line- 3 has been extended from the northeast of Tehran to the southwest. (Similar to line 1). It runs from the highest parts of the city that has high land prices in compare to southern parts of the city where the land price is low. According to table 5, the price and rent of housing from north to south is decreased and the reason is the different prices that itself is because of the location of these areas. Also, as we can see before the opening of the subway, first station ( Ghaem) that it is a new residential area in this part of the city, had low prices than other stations in this part and from second stations (Aghdasiyeh) which includes expensive places in Tehran to Sohrevardi station the price is high and after this station that there is central parts of the city, the housing price is being increased and finally in last stations that they are located in the southern part of the city, the prices is lower than other parts. But if we compare the price in 2014-2019 in these areas we can see the price after the metro is going high because of the accessibility and new plans in the south of Tehran.

**Tale: 5**  
**The housing price and rent in line 3, (1 square meter), before metro construction (2014) and after metro construction (2019-2020)**

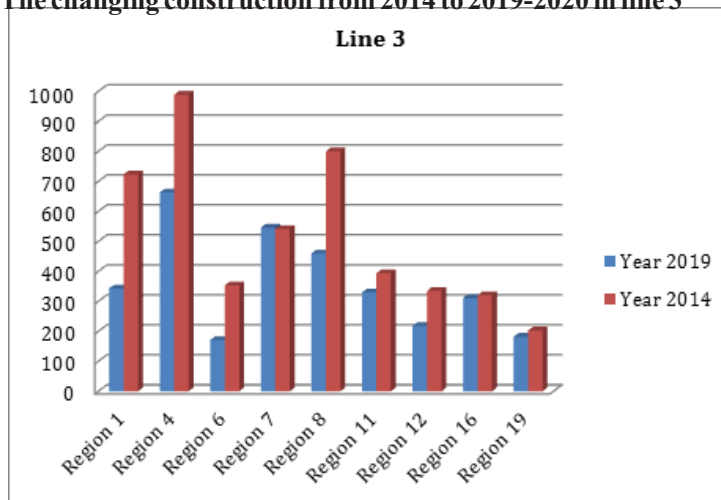
Regions	Stations	Prices: 2014	prices: 2019	Rents: 2014	Rents: 2019
1	Ghaem	4,000,000	22,000,000	1,000,000	2,200,000
	Aghdasiyeh	9,000,000	28,000,000	2,150,000	3,100,000
	No bonyad	8,000,000	25,000,000	1,800,000	3,000,000
4	Hossain abad	8,000,000	25,000,000	1,800,000	3,000,000
	Heravi	8,000,000	24,000,000	1,700,000	3,000,000
	Zainodin	7,000,000	21,000,000	1,500,000	2,200,000
	Khaje abdollah Ansari	6,000,000	20,000,000	1,200,000	2,200,000
7	Sayade shirazi	6,000,000	20,000,000	1,200,000	2,200,000
	Ghodoosi	7,000,000	22,000,000	1,500,000	2,500,000
	Sohravardi	8,000,000	24,000,000	1,600,000	3,000,000
6	Mirzaye shirazi	7,000,000	22,000,000	1,300,000	2,500,000
	Jahad	6,000,000	20,000,000	1,200,000	2,200,000
	Vali asr	7,000,000	22,000,000	1,300,000	2,500,000
	Teatre shahr	7,500,000	22,000,000	1,400,000	2,500,000
	Enghelab	2,000,000	18,000,000	700,000	1,400,000
11	Moniriyeh	2,000,000	18,000,000	700,000	1,400,000
	Rah ahan	1,300,000	14,000,000	500,000	1,500,000
	Javadiyeh	1,300,000	14,000,000	500,000	1,400,000
16	Zamzam	1,400,000	14,000,000	500,000	1,500,000
19	Shariati	1,500,000	15,000,000	500,000	1,500,000
	Abdol abad	1,500,000	1,500,000	500,000	1,500,000
	Azadegan	1,400,000	12,000,000	400,000	1,400,000

**The map of housing price and rent in line 3, before and after metro construction**



As we can see from fig 5, before the opening of the subway, the highest amount of construction was in the residential areas, which have the most expensive prices, and also in the commercial and main centers of the city, included the 1, 4, 7, 8 and 11 regions but after the metro opening, this amount of construction, due to some factors that we mentioned in the previous lines regarding the reduction of construction in this part of the city, we can see a decrease in construction and density of housing in these areas. But at the end of the line in both sides that there are new residential areas and also south areas, we can see the increase in construction after metro line opening that it shows the impact of metro stations and in these areas.

**Fig: 5**  
**The changing construction from 2014 to 2019-2020 in line 3**



Source: Municipality of Tehran in 2019-2020



**Line 4**

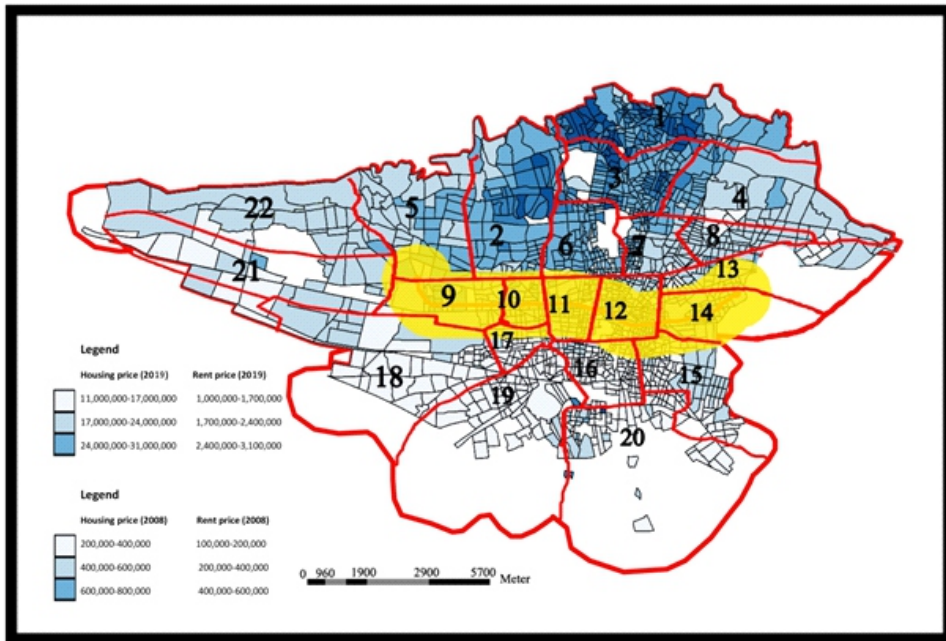
This metro line is one of the lines that have been extended from the east of Tehran to the west and it runs exactly through the main residential areas of the city. According to table 7, in this line, from the beginning to the end, except Dr Habibolah stations that it is main centers in this part of line, the housing price and rent price are same even after metro opening because as we noted these areas are located in the main residential and commercial areas of the city and they had access to public transportation even before metro opening then the impact of the metro on this line is not so important.

**Table: 7**

**The housing price and rent in line 4, (1 square meter), before metro construction (2008) and after metro construction (2019-2020)**

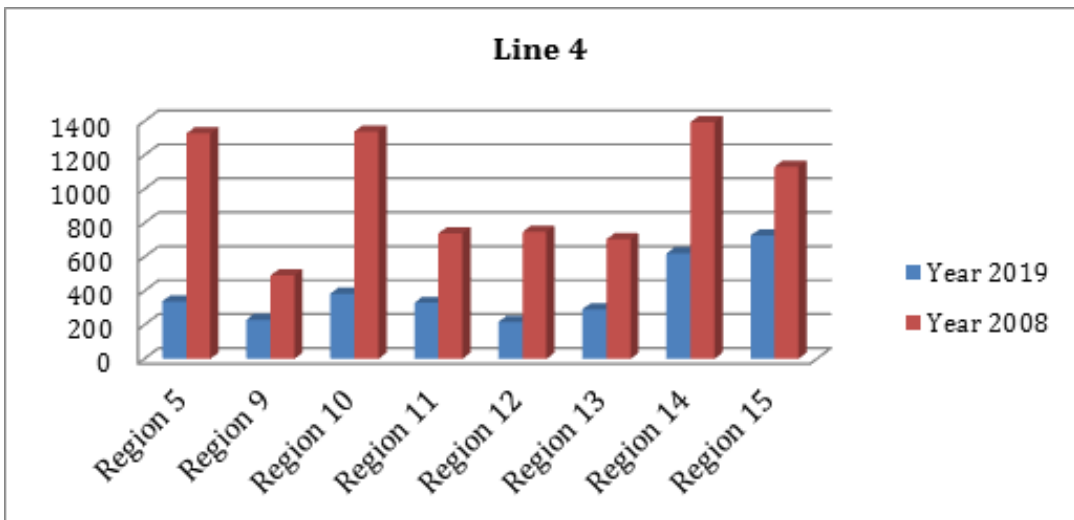
Regions	Stations	Prices: 2008	Prices: 2019	Rents: 2008	Rents: 2019
13	Kolahdooz	380,000	15,000,000	180,000	1,500,000
14	Niroo havai	550,000	15,500,000	300,000	1,600,000
	Nabard	550,000	15,500,000	300,000	1,600,000
	Piroozi	550,000	15,500,000	300,000	1,200,000
	Ebne Sina	600,000	16,000,000	450,000	1,800,000
13	Maidane shohada	600,000	16,000,000	450,000	1,800,000
6	Doolat	700,000	16,500,000	500,000	1,700,000
	Ferdoosi	700,000	16,500,000	500,000	2,000,000
	Tohid	800,000	18,000,000	550,000	2,200,000
2	Dr Habibolah	800,000	24,000,000	550,000	2,400,000
	Ostad Moin	600,000	14,000,000	300,000	1,500,000
9	Maidane Azadi	650,000	14,000,000	300,000	1,700,000
	Ekbatan	700,000	18,000,000	400,000	2,000,000
	Foroodgah	600,000	16,000,000	400,000	1,900,000

**The map of housing price and rent in line 4, before and after metro construction**



But according to fig 6, it is said that this line is one of the main lines in the city center which includes residential and commercial centers, and it is also one of the lines that we can see some changes in construction before and after the metro opening. Before the subway, we can see the construction in all stations was high, but after the metro opening, this amount in some areas where are residential and commercial density was high and after metro opening due to the urban plans and centralization in these areas, residential density has decreased while in some areas, such as 14 and 15 regions, which are located in the new residential areas, this construction has increased.

**Fig: 6**  
**The changing construction from 2008 to 2019-2020 in line 4**



**Line 5**

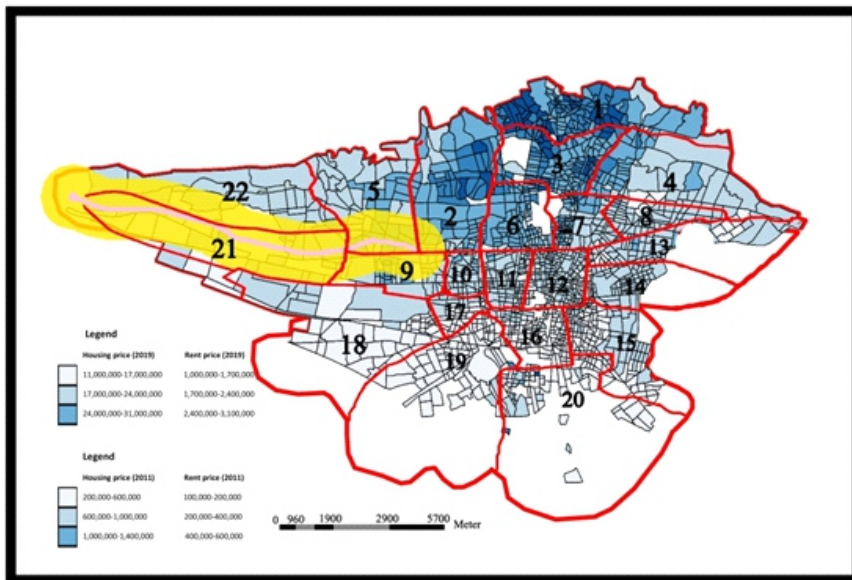
Tehran Metro Line- 5 is one of the main lines that connect the Tehran city to Karaj city, which is one of the most important provinces around the Tehran, and because of this location, we can understand the volume of daily passenger traffic. This line has 11 stations that only 7 of them are located inside the city of Tehran and the rest of them are located out of Tehran city, therefore, 7 stations are important in this line. According to table 9, from 7 stations, 2 stations are important which are main centers of residential and commercial in this part of the city, and other stations are growing due to the new urban plans. That's why the price was high in the first 2 stations even before the metro opening and after metro opening is also high but the other stations the price increase is growing high that it can be considered for the impact of the subway and also other factors such as inflation and sanctions in this part of the city and we can see annually price changes in these regions.

**Table: 9**

**The housing price and rent in line 5, (1 square meter), before metro construction (2011) and after metro construction (2019-2020)**

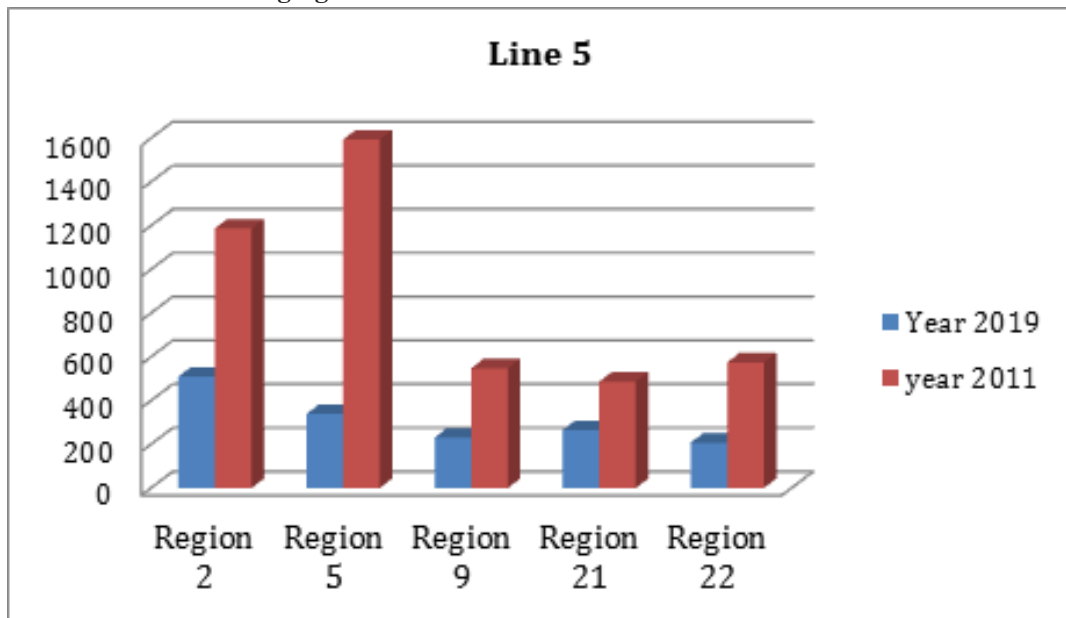
Regions	Stations	Prices: 2011	Prices: 2019	Rents: 2011	Rents: 2019
5	Sadeghiyeh	1,500,000	25,000,000	500,000	2,500,000
	Erame sabz	1,300,000	24,000,000	450,000	2,500,000
	Varzeshgah Azadi	750,000	15,000,000	250,000	1,500,000
22	Chitgar	400,000	14,000,000	200,000	1,300,000
	Vardavar	300,000	13,000,000	200,000	1,300,000
	Garmdareh	300,000	13,000,000	196,000	1,300,000

**The map of housing price and rent in line 5, before and after metro construction**



According to table 9, as we mentioned, except first and second stations that they are main centers in this part, in other stations the housing price is almost the same and after the metro opening in these regions, the housing price has increased very clearly in these parts of the line. Also this line is one of the most important urban lines that connect Tehran city to Karaj city, that this city is located in the west of Tehran. This line runs from residential areas and also a suburb of the city. According to fig 7 which shows the amount of construction before and after subway, before metro opening, 2 and 5 regions, that they are commercial and residential areas of the city, they had the highest amount of construction, but after metro opening and municipality's decision to develop the city for other areas, this amount of construction every day is decreasing in these parts and in the future, other areas of the city will be one of the main centers of the city. These urban areas are very impressive, which are included 21 and 22 areas.

**Fig: 7**  
**The changing construction from 2011 to 2019-2020 in line 5**



Source: Municipality of Tehran in 2019-2020

### Line 6

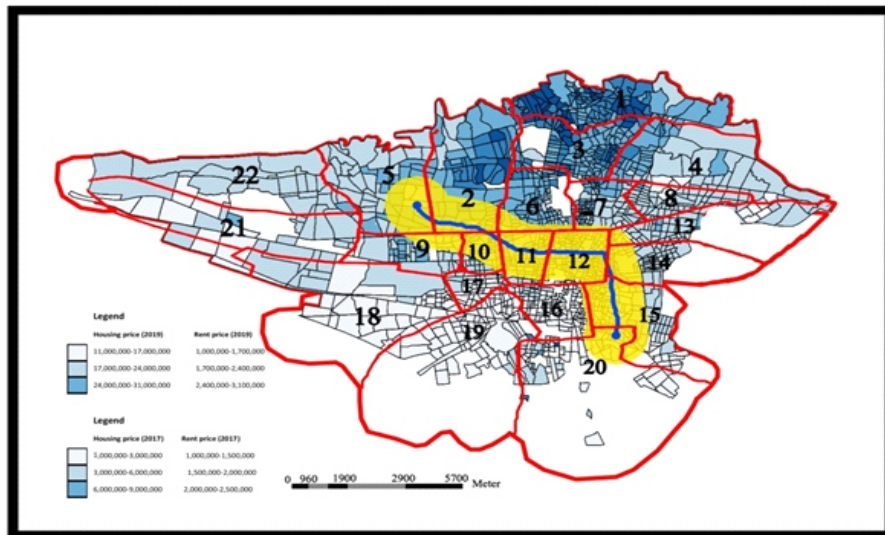
Line 6 of the metro has extended from the southeastern to the northwest of Tehran and also like other lines; it runs through the main centers of the city. According to table 11, after the metro opening, the price increase can be seen in the last stations. In fact, in the middle of the line and almost beginning of the line there are main centers, which are commercial centers and also center of the city and at end, there are residential areas that have been growing recently with the development of the city. In these areas, we can see the impact of the metro more clearly because after the metro opening these areas were located in the suburb of the city and after the metro opening these areas are growing very well meanwhile in other stations this impact is less.

**Table: 11**

**The housing price and rent in line 6, (1 square meter), before metro construction (2017) and after metro construction (2019-2020)**

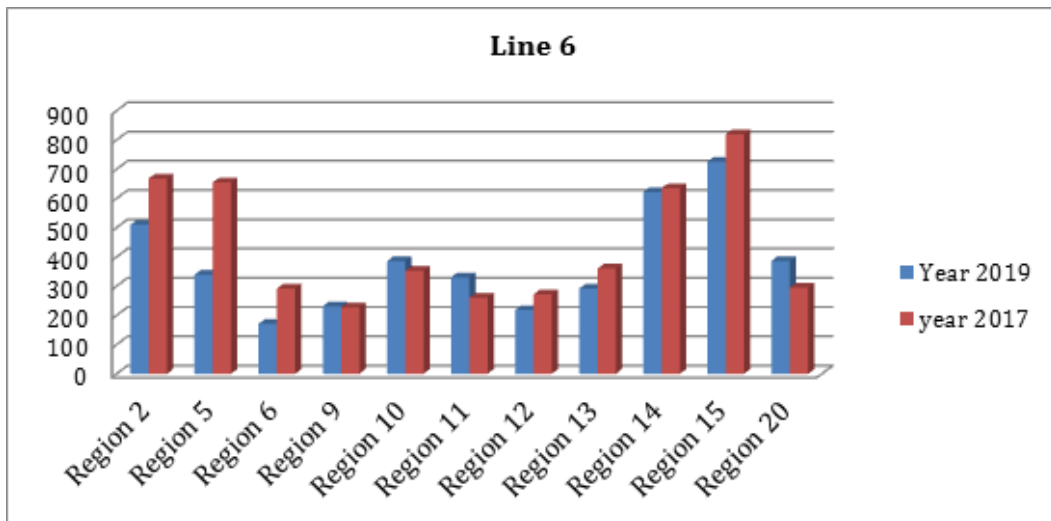
Regions	Stations	Prices: 2017	Prices: 2019	Rents: 2017	Rents: 2019
20	Dolat abad	2,000,000	12,000,000	800,000	1,200,000
15	Beasat	2,500,000	11,000,000	800,000	1,200,000
	Maidane khorasan	2,500,000	13,000,000	800,000	1,200,000
12	17 Shahrivar	2,000,000	14,000,000	600,000	1,000,000
6	Amir kabir	1,700,000	13,000,000	600,000	1,000,000
	Sarbaz	1,500,000	14,000,000	700,000	1,200,000
	Nejatolahi	4,000,000	25,000,000	1,200,000	2,500,000
	Kargar	3,000,000	25,000,000	800,000	2,000,000
	Tarbiyat modares	2,500,000	25,000,000	1,000,000	2,500,000
2	Shahrake azemayesh	8,000,000	30,000,000	2,000,000	3,000,000
	Marzadaran	9,000,000	31,000,000	2,100,000	3,100,000
5	Ashrafiye esfahani	7,000,000	25,000,000	1,500,000	3,000,000
	Satari	7,000,000	27,000,000	1,500,000	2,500,000
	Ayatolah kashani	8,000,000	30,000,000	2,000,000	3,000,000
	Shahran	7,000,000	25,000,000	1,500,000	2,500,000
	Abshenasan	5,000,000	22,000,000	1,400,000	2,400,000

**The map of housing price and rent in line 6. before and after metro construction**



As we mentioned, this line runs through the commercial and main areas of the city, and residential areas are located at the beginning of the line and also in the last stations at the end of this line. According to fig 8, construction in this line, in the first stations and last stations after metro opening is more than other stations. As we noted, these areas are residential areas that are growing recently because of the metro opening. Also according to the urban plans, the construction of this area has been increasing, and also we can see urban development in this part recently. This growth in some regions such as 2, 20, 15 regions is more than in other parts of the city that commercial and main areas are located in this part.

**Fig: 8**  
**The changing construction from 2017 to 2019-2020 in line 6**



Source: Municipality of Tehran in 2019-2020

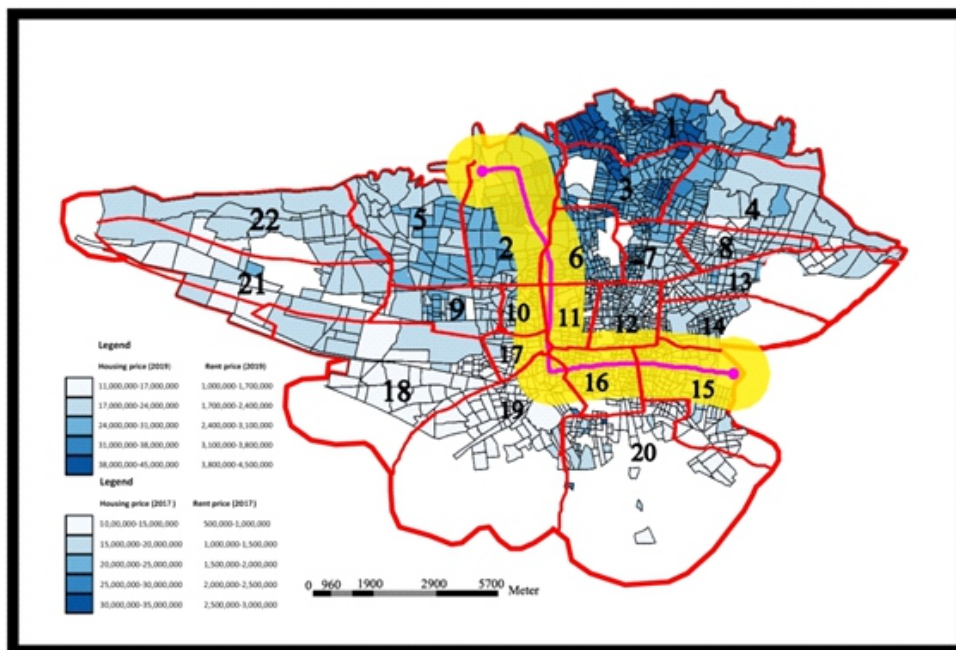
### Line 7

Tehran Metro Line -7 is extended from southeast to northwest. This line is almost from the south of Tehran, which has less valuable in housing prices, to the northwest of Tehran which is one of the most expensive areas in housing prices and rents according to table 13 when we move toward these areas, the housing price is increasing also, the graph shows that if we compare the years before and after metro opening, we can see the price difference is not high because this line like line 6, has been opened in recent years and this shows that the impact of the metro on this line is not very significant yet, and if there is an increase in prices at the last stations, it is due to the location of this area that is expensive areas not for the effect of metro opening. Also in the other stations that are commercial centers and central part of the city, this price before and after metro opening is not so different because before opening in this line, other lines that through these areas, had effected on the housing price and rent in this parts of the city.

**Table: 13**  
**The housing price and rent in line 7, (1 square meter), before metro construction (2017) and after metro construction (2019-2020)**

Regions	Stations	Prices: 2017	Prices: 2019	Rents: 2017	Rents: 2019
15	Varzeshgahe basij	11,,500,000	16,000,000	800,000	1,500,000
	Shahid Mahalati	11,500,000	16,000,000	900,000	1,500,000
16	Maidane ghiyam	9,000,000	11,000,000	900,000	1,500,000
11	Molavi	9,500,000	11,000,000	700,000	1,200,000
	Helale ahmar	9,500,000	11,000,000	700,000	1,200,000
6	Roodaki	11,000,000	14,000,000	1,500,000	1,800,000
	Tarbiyat modares	11,000,000	14,000,000	1,500,000	1,800,000
2	Boostane goftegoo	13,000,000	23,000,000	2,000,000	2,500,000
	Borje milad	15,800,000	30,000,000	2,000,000	3,000,000
	Maidane sanat	21,000,000	45,000,000	2,800,000	4,500,000
	Dadman	20,000,000	40,000,000	2,500,000	4,000,000
	Maidane ketab	20,000,000	40,000,000	2,500,000	2,500,000

**The map of housing price and rent in line 7, before and after metro construction**

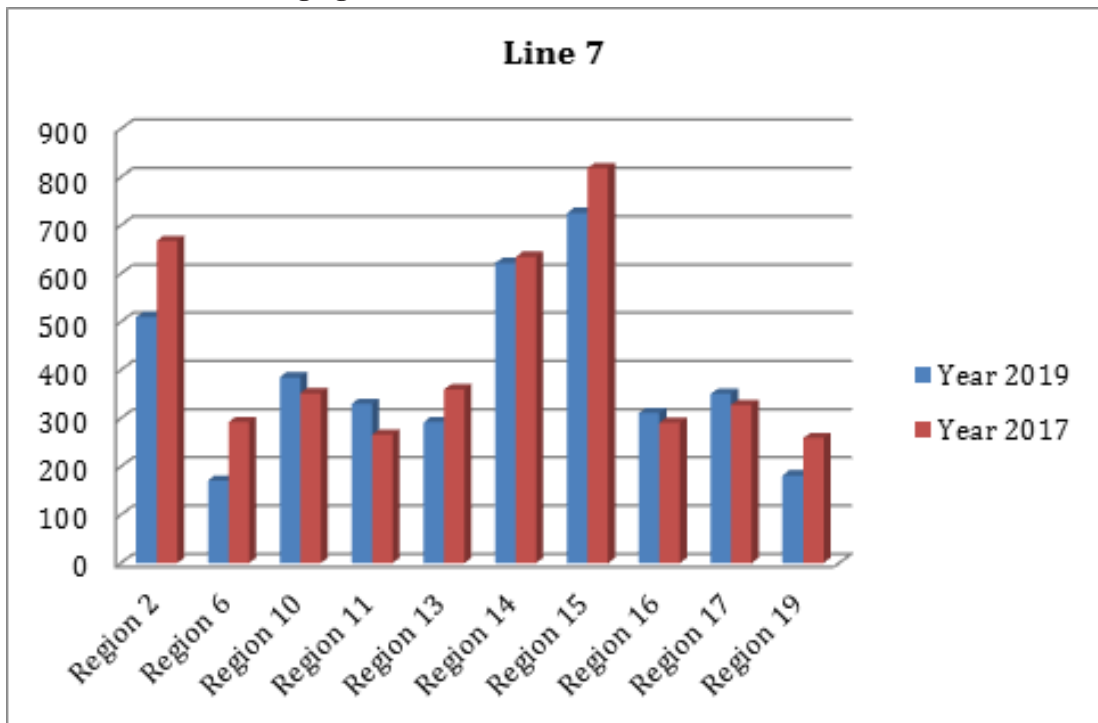


These areas had proper accessibility even before metro opening. Even in some stations such as Rudaki and Tarbiat Modares that they are administrative and residential areas, the housing price is always high.

As mentioned, Tehran metro Line-7 is one of the lines that have been opened during recent years, and the different price before and after the metro opening is not very clear yet. According to fig 9, the amount of construction in the all stations is same, except 14, 15, 16 and 17 regions which are located in the southeast of Tehran and according to the urban plans these areas need to be developed and also 2 region of Tehran, which are most expensive areas of Tehran that have always higher construction rate, the rest of the areas as we noted are almost the same. In general, during recent years, due to sanctions and economic inflation, the rate of construction in Tehran has decreased, and this decrease in construction which can be seen in all lines, is the conclusion of economic factors.

Fig: 9

The changing construction from 2017 to 2019-2020 in line 7



Source: Municipality of Tehran in 2019-2020

**Conclusion:**

- The impact of the subway lines and its stations on the city development, are briefly as follows:
- 1) Reducing the residential land uses and value of them in the old city and central part of the Tehran city and also developing the non-residential functions and value of them in these areas.
  - 2) Increasing the residential value land use in suburb and new centers along the subway lines and also far from central part of the city, and growing and expanding of urban areas and increasing the value in these areas and new towns.

Metro areas in the center of Tehran, on the other hand, by providing the accessibility and increasing the property's value and development and the tendency for changes activates, have been increased the non-residential land uses and employment rate in these areas and also on the other hand, because of social and traffic problems and also decrease in environmental quality in these regions, it



has reduced the population growth and population density and density of residential land use in these parts of the city.

Establishment of subway stations in suburban areas, have been provided access to central areas and also increasing the environmental quality in the downtown and central parts of Tehran city. Also, it has been able to increase the urban population density in other areas. Also with metro development and distribution of some services in some areas it created new centers around the metro stations and also it helped to increase in value of land and housing price in some parts of the city. The rail transportation system in different station areas indeed has a different impact on land uses and activities. In some areas, the subway system has become more attractive for residential functions, and in other stations, it developed the other urban functions. According to the analysis, the expansion of the metro system in Tehran city, in the developing regions has accelerated growth by providing favorable benefits in these areas. The development of this system has also had some benefits for undeveloped areas. It helped to these areas for growing development such as Sadeghiyeh and Javanmardeh Ghasab Stations in line 1. Also according to the findings, the significant effects of the metro in Tehran mostly are in areas that access was low before the subway opening.

The system has less effective in some areas that have already well-accessed such as public transportation. But this is not the case for all areas because in some areas the metro line helped to change the functions in central of the Tehran city and also in new development areas have been encouraged for growing. However, this study shows that public transportation before metro lines that could help to the distribution of functions and services in the city and has a significant impact on the distribution of land uses such as residential or non-residential but after metro constructions, these lines help to property value and function changes and also the density of buildings in these areas. In this regard, it is important to note that the growth and development of activities in central of the city had negative effects on environmental quality and it has led to decrease in housing construction and population density and value in these areas and the population moved to the suburb of the city and new regions and even new towns in around the Tehran city. Also according to this research, with increasing distance from the subway and reduction inaccessibility, residential function levels and density of population have increased and with decreasing distance from subway and accessibility to it, the density of non-residential functions and density of them have increased in these areas.

Generally, the present study shows the relationship between the subway system and some of the characteristics of the physical-spatial structure of the city. Also to these findings, accessibility and distance from the subway have a relationship with changes in residential and commercial activities, the density of population, and even some of the lands that can be developed in the future. On the other hand, there is no relationship between accessibility from the subway and building density in these areas. But according to this research, between the metro system and land value, there are three possible impacts:

1- Access to subway lines increase the property value in some land uses such as commercial, administrative, and in the central of the city and distance from it, has reduced the property value of them such as some stations in line 1. (Emam Khomainsi, Panzdahe Khordad, Sadi,...) in some parts of the city.

2- The value of the residential area in these places has reduced because of some other factors, such as vibration, traffic, and pollutions, and in other areas such as suburbs and new centers it has increased and also in some stations in the city it helped to increase the housing price and value of land and . For example in some stations in line 3. (Farhangsara station and the new town of Parand)

3- According to interview with real estates in Tehran city in this field, it became clear that the metro subway system harmed the value of residential land uses that they are within 200- to 500 m, distance from metro stations, and also from 600 to 1000 m, this value has increased. In some parts of the city like central part of the city it has negative effects in residential areas such as Panzdahe Khordad station and Darvezeh dolat station and in some stations such as Ghiyariyeh and Maidane Sanat that

they are expensive areas and also there is public transportation such as an express bus or other public transportations, this impact is 5-7% and also in some parts of the city and stations such as Tarasht and Vardavard stations that they are located in suburb areas and new town, after metro opening, this impact is 20-25%. The impact of metro stations in housing price in Tehran city depends on the location of stations. Also we should be noted that the increase of housing price and too much difference between before and after the metro opening in recently is also due to inflation in the land market and sanction in Iran. In generally metro system is an important means of transportation for urban residents in mega-cities such as Tehran, where not all families can afford the cost for moving during the day and this moving from each metro station to other areas, can effects on land use around the metro areas and suburban. For this reason, the influence of the proximity of a metro station on housing prices should be researched. The results show that the opening of new metro stations revitalizes lands around the suburban stations more than other lands that are located around the central stations. However, the area around the central stations exhibits a greater population increase than does the area surrounding suburban stations before a new line opens. It proved that the results for suburban and central stations seem to be paradoxical. According to the research, opening new metro stations significantly increase the value and housing prices in suburb and some stations. The subway stations are one of the main factors for growing the functions around the stations and their areas. In main stations in the central of the cities and other areas, if there is no proper planning for growing and development, the density of buildings and functions will be increased and it can impact land value. Also, urban transit systems play a fundamental role in the social and economic development of large urban areas, as well as significantly affecting the quality of life in such areas. The quality of urban transit systems also affects real estate values: the higher quality and quantity of transit system services in an urban area, the higher the active and passive accessibility of the area, and the higher the average real estate values.

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