Faculty of Literature and Humanities

Department Geography and Urban Planning

Thesis M. A Student

Investigation and Analysis of Barriers to Public Transport Development in Ahvaz Metropoli

Supervisor
Dr. majid goodarzi

Advisor
Dr. Mohammad Ali Firoozi

By
Omid Saeidi

December 2019

Preface to "Investigation and Analysis of Barriers to Public Transport Development in Ahvaz Metropolis," Omid Saeedi Master's Thesis

By Todd Litman (litman@vtpi.org)

Director of the Victoria Transport Policy Institute.

15 December 2019

In this insightful and comprehensive master's thesis, Omid Saeidi, describes efficient urban transport as a "gift." His research of factors that affect public transport efficiency and use can help researchers, practitioners and residents make that gift available in cities around the world.

High quality public transport provides many benefits compared with private automobile travel. It reduces vehicle ownership costs, requires far less road space and almost no parking, and so greatly reduces traffic and parking congestion and associated infrastructure costs. It uses less energy and produces less pollution per trip. Public transport encourages more compact, multi-modal development where residents own fewer vehicles, drive less and rely more on walking, bicycling and public transit. These benefits are large and dispersed; all urban residents benefit from high-quality public transport, including motorists who experience less traffic and parking congestion, accident risk and pollution exposure.

Many communities are missing out on these benefits. Although public transit is not suitable for all trips, it is the best option for many personal trip on major urban corridors. Yet, residents use automobiles for many trips that could be made more efficiently by public transit. Omid Saeidi's master's thesis "Investigation and Analysis of Barriers to Public Transport Development in Ahvaz Metropolis," investigates why this occurs and what can be done to make public transport more efficient and attractive so communities can take advantages of its potential gifts. This research focuses on condition in the Ahvaz Metropolis, but the results are transferable to other urban regions.

This study is unique and important because it is broad in scope. Saeidi analyses many factors that affect the attractiveness of public transport travel, including not only system planning and service quality, but also factors related to land use development and neighborhood design, cultural and social issues, economics, and the quality of related modes such as walking, bicycling and taxi travel. He identifies and evaluates specific barriers to public transport travel, which provides practical guidance to policy makers and planners concerning ways to improve and encourage public transit use.

He devotes particular attention to factors that are often overlooked, such as harassment of women, social and psychological attitudes, and economic incentives. He emphasizes the need for strategic planning to ensure that all decisions are coordinated, including those related to public transport service quality, land use development, the quality of walking and bicycling, the supply and design of public parking, transportation regulations, urban aesthetics, and the implementation of new technologies.

The scope of this work is truly astounding. By my estimate, Saeidi considers approximately 300 individual factors that can affect public transit travel in a particular community, ranging from political-managerial barriers such as "Weaknesses in written rules (between travelers, employees and vice versa" to natural factors such as "Land subsidence." He uses transportation and land use data to quantify how various factors affect residents travel behavior.

In addition to its breath, this study contains tremendous depth, including extensive statistical analysis of travel activity by various groups and locations, with numerous graphs and maps.

Based on this analysis the study identified 36 key barriers to public transport travel in the Ahvaz urban region. Although at first this many seem to be a criticism of urban planners and public transport operators, it is actually good news because this research provides guidance for improving public transport services, integrating it better into communities, and providing incentives to encourage its use.

Saeidi provides numerus practical recommendations, ranging from implementation of new information and payment technologies, to more transit-oriented planning. He offers 21 specific suggestions for increasing public transport ridership, plus nine specific suggestions for further research. Many of his recommendations have modest costs and could repay their investment through long-term savings and ridership gains.

This is an important and timely issue. Most cities around the world experience severe traffic problems and seek practical solutions, many of which involve shifting travel from automobile to public transport. As a result, practitioners – planners, engineers, policy analysts and policy makers – want practical guidance for improving public transport, encouraging its use and integrating it into communities. Saeidi's thesis provides comprehensive information and a model for future research on these subjects. In total, this thesis consists of 350 pages in six chapters, and has resulted in seven journal articles published or under review. This is an impressive and useful scholarship.

Well done, Omid Saeedi!

Investigation and Analysis of Barriers to Public Transport Development in Ahvaz Metropolis

Omid Saeedi[1]

MA Student of Geography and Urban Planning, Shahid Chamran University of Ahvaz, Iran.

An overview of the thesis

This thesis consists of 350 pages in six chapters: the first chapter covers the overview of the thesis, the second chapter includes theoretical framework, the third chapter illustrates the study area, the fourth chapter discusses research methodology, the fifth chapter consists of data analysis and the research findings, and the sixth chapter includes conclusions and suggestions for further study. the questionnaires are also attached in the appendix section. In this study, quality barriers with spatial differences in the study area were mapped, and a total of 186 maps were prepared for each of the barriers with spatial differences that were interpreted regionally in an article extracted from the thesis. Seven articles were extracted from the thesis that have been either in press or published in the Iranian scientific journals or are in the process of reviewing:

Table A: Articles extracted from the thesis (Investigation and Analysis of Barriers to Public Transport Development in Ahvaz Metropolis)

Title	Publisher (Journal)	Status
Investigating and Analyzing Morphological Barriers Affecting Public Transport Development in Ahvaz Metropolis	Geography and Environmental Planning (University of Isfahan)	Published
Investigating and Analyzing the Barriers to Making Inter-City Transport Intelligent in Ahvaz Metropolis	Geography and Regional-Urban Planning (Sistan and Balouchestan University)	Published
Investigating and Analyzing the Political-Managerial Barriers to Public Transport Development in Ahvaz Metropolis	Journal of Research on Transport (Ministry of Road)	Accepted
Geographical Analysis of Psychological Barriers of Not Using Public Transport in Ahvaz Metropolis	Research on Urban Planning and Geography (University of Tehran)	Published
Investigating and Analyzing the Sociocultural Barriers to Public Transport Development in Ahvaz Metropolis	Journal of Urban Ecology (Payam Noor University, Tehran Branch)	Accepted
Investigation and Analysis of Land Use Barriers to Public Transport Development in Ahvaz Metropolis	Journal of Space Planning (Tarbiat Modarres University)	Accepted
Investigation and Analysis of Barriers to Development of Public Transport System in Ahvaz Metropolis: Physical Barriers of Vehicles in Focus	Journal of Urban Planning and Research (Azad University, Marvdasht Branch)	Accepted

1. omid.saeidi16@gmail.com

Surname: saeidi	**Name : Omid**
Title : Investigation and Analysis of Barriers to Public Transport Development in Ahvaz Metropolis	
Supervisor/s: Dr. majid goodarzi	
Advisor/s:Dr. mohammad Ali Firoozi	
Degree: Masters student	
University: Shahid Chamran University of Ahvaz	
Faculty: Faculty of Literature and Humanities	**Department :** Geography and Urban Planning

Keywords: Development Barriers, Public Transport, ARAS, Interpolation, Ahwaz Metropolis

Abstract

Where public transport is developed, transport-related damages are more than 80 % lower and also result in reducing travel time, which in some cases is estimated to reduce travel time by more than 50 %. In contrast, in many developing countries, the public transport system is inefficient, causing economic development and underdevelopment of urban public transport, contributing to a lot of inefficiencies. Identifying, analyzing, and measuring the effects of these barriers in recent decades have led to the evolution of intercity transport in some countries. It is therefore necessary to understand the effects of such factors on urban public transport. The present study aims to investigate and analyze the barriers to public transport development in Ahvaz metropolis. The study employed a practical-theoretical and descriptive-analytical research method. The research data were collected through documentary, library, survey, and interviewing with people and experts of public transport. The statistical population of the study consisted of residents of eight districts of Ahvaz metropolis. The sample size was estimated to include 400 participants selected by the proportionate stratified random sampling method in such a way that they were selected based on weight proportion and in each district, with regard to the population. In order to rank the barriers in each of investigated dimensions, a questionnaire of experts was developed which was distributed among 15 academic and executive experts of Ahvaz city using snowball sampling method. The present research analysis method was quantitative and used to rank the barriers using the ARAS, TOPSIS, DEMATEL and ANP models. Also, the Kriging interpolation method has been used in ARC GIS software to map the barriers whose spatial differences are evident in the city. The results show that a total of 286 barriers in 9 categories are effective in underdevelopment of public transport in Ahwaz city which for political-managerial barriers at national.

Statement of the problem

In Iran, one of the most important challenges facing metropolises is the issue of inland transport. Despite the importance of this system in the Iranian cities, there is no strategic planning to guide the development of this system. No sufficient strategic planning for urban transport systems, in addition to duplicating joint investment in the society's infrastructure, has created numerous problems in connecting subsystems to one another, causing these systems to be incompatible and incompatible with one another.

In this regard, urban public transport system in all Iranian cities has development barriers that are different in each city compared to other cities due to the sociocultural and environmental diversity of the cities. This has a growing trend to achieve public transport development. It has challenged the need to identify and analyze these barriers and to provide appropriate solutions to these barriers in order to achieve citizens' comfort, one of the most important goals of urban planning.

Therefore, all barriers to public transport development need to be extracted in order to bring urban public transport closer to development. In addition to what has been stated, the public transport system as one of the main options to mitigate the adverse effects of the increasing population growth, increasing rural migration to cities, and increasing environmental pollution. If this system suffers any disruption, it can affects adversely human life.

In Iranian metropolitan areas, it is also important to study and analyze the barriers to the development of public transport within the city in order to realize the welfare of the citizens as the main goal of Iranian urban planners. Ahvaz metropolis is no exception. As one of the main Iranian metropolises, Ahvaz has always faced barriers to public transport development since the advent of the system in the city. It is a damage that is almost transparent to officials, planners, and executives. Nowadays, the barriers to inter-city public transport development in Ahvaz are caused not only by human-made factors such as economic, political-managerial, socio-cultural, psychological, institutional, infrastructural, land-use, land-use, urban hazards, and morphological conditions of Ahvaz, but by improper environmental conditions such as human-made and natural pollutions. If these barriers are not to be mitigated and, they both reduce the weight of public transport development criteria and raises citizens' dissatisfaction, lack of welfare, and comfort. Consequently, it may causes political struggles at the regional and national levels.

In short, the necessity of this research stems from the fact that Ahvaz metropolis is industrialized, the urban shape dispersed, the lack of open and pleasant urban spaces, the horizontal expansion of the city, the widespread and widespread exhausted textures, the migrant population, the population imbalance, Inappropriate zoning of land, elevation and condensation, as well as lack of proper sewage and air pollution, both internal and external, or factors such as lack of management integrity and interference by informal institutions in management and inadequate access and management. Ethnic differences and curls Along with the urban violations, the regiment has portrayed Ahvaz as a workshop on urban problems. Failure to regulate intercity public transport as one of the key urban issues will not only compound these problems, but will also elude scientific elites, defensive migration, and increase visual contamination and, as a result, drive urbanization. Also, according to the Ahvaz Metropolitan Second Five Year Development Plan (2018-2020) in the transport sector, one of the most important transport strategies in Ahvaz is identifying the barriers to the development of its various dimensions, which makes the necessity of doing this research doubled.

Research objectives

The main objectives

Investigation and Analysis of Barriers to Public Transport Development in Ahvaz Metropolis.

Operational Objectives

Explaining and analyzing the political-managerial barriers to public transport development in Ahvaz metropolis;

Explaining and analyzing the economic barriers to public transport development in Ahvaz metropolis;

Explaining and analyzing the socio-cultural barriers to public transport development in Ahvaz metropolis;

Explaining and analyzing the socio-cultural barriers of women in using public transport in Ahvaz metropolis;

Explaining and analyzing the socio-cultural barriers of the vulnerable (elderly, children and physical-disabled people) in the use of public transport in Ahvaz metropolis;

Explaining and analyzing the psychological barriers of not using public transport in Ahvaz metropolis;

Explaining and analysis of urban morphology barriers to public transport development in Ahvaz metropolis;

Explaining and analysis of barriers to public transport development land use in Ahvaz metropolis;

Explaining and Analyzing Barriers to Public Transport Intelligence in Ahvaz metropolis;

Explaining and analyzing the physical barriers of public transport vehicles in Ahvaz metropolis; and

Explaining and analyzing urban hazards affecting underdevelopment of public transport in Ahvaz metropolis.

Research Methodology

The present study employed a practical-theoretical research method, descriptive-analytical research analysis, and survey design. The research data was collected through documentary, library, survey techniques and interviewing with citizens and transport experts. The research procedure is illustrated in Figure (1).

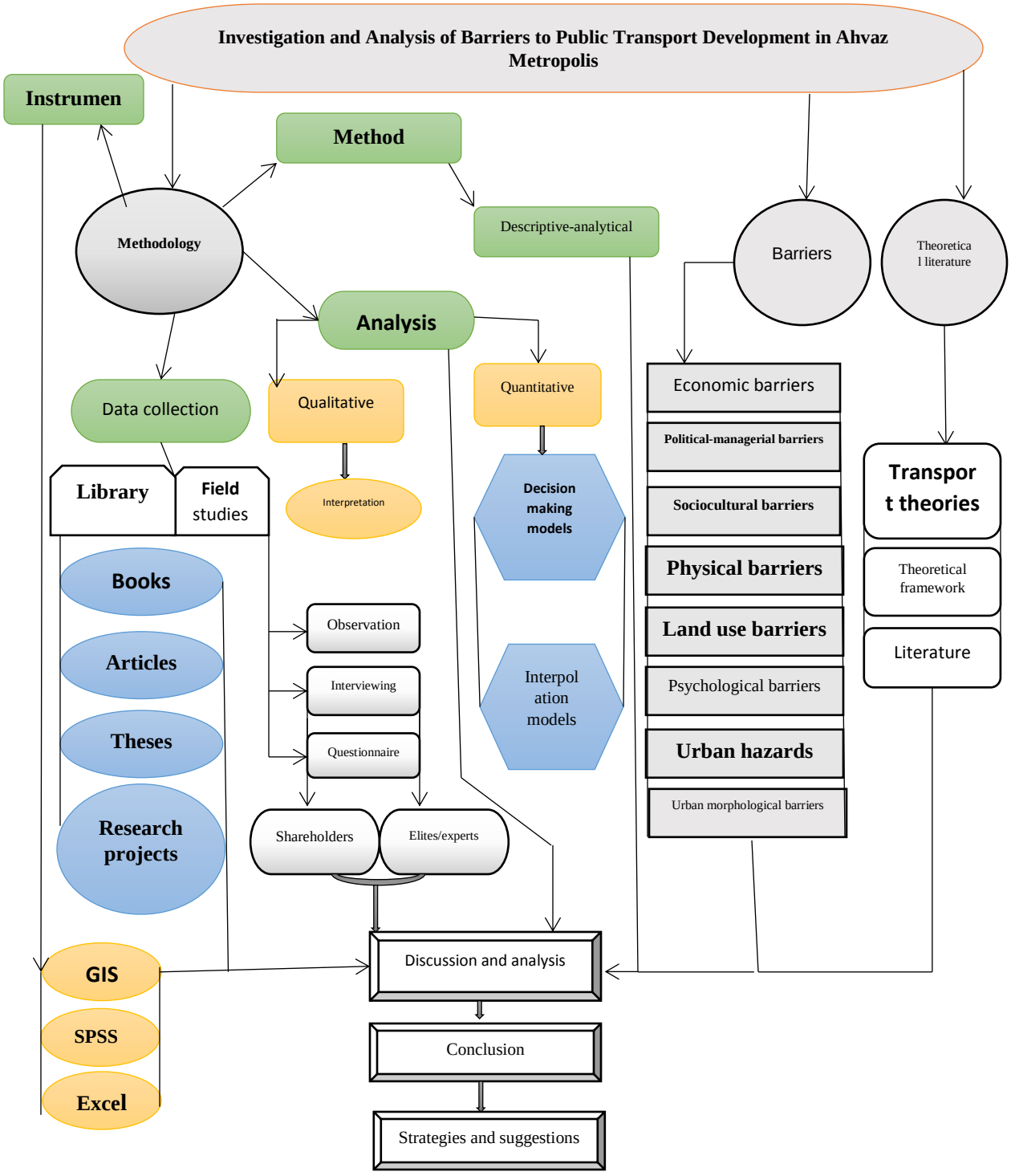


Figure 1: research procedure

In this thesis, nine main indicators were identified as the main barriers to development of inter-city public transport, each having sub-indices, and a total of 286 sub-indicators were identified as barriers to inter-city public transport development in different dimensions. Table (1) illustrates political-managerial barriers, Table (2) economic barriers; in Table (3) sociocultural barriers; Table (4) sub-psychological barriers to public transport use, Table (5) urban morphological barriers; Table (6) vehicle barriers, Table (7) land use

barriers, Table 8 barriers to making public transport intelligent, and Table 9 shows urban hazards affecting the underdevelopment of public transport in Ahvaz.

Table 1: political-managerial barriers to public transport development at different levels

Managerial levels	Code	Political-managerial barriers	References
National	Aa1	Weaknesses in written rules (between travelers, employees and vice versa)	Soltani and Fallah Mshadi,) (2016, 32
	Aa2	Administrative bureaucracy	(Berechman, 2018, 128)
	Aa3	Centralized planning in the country	(Ziyari, 2013, 33)
	Aa4	Lack of urban management integrity	(Montoro, 2018, 1)
	Aa5	Informal institutions' interferences	(Safaiepour et al., 2017)
	Aa6	The national media's disregard for public transport	(Majumdar, 2017, 123)
	Aa7	The reluctance of multinational corporations to invest	(Ahmadi & Jafari, 2013, 23)
	Aa8	Poor long-term planning of upstream national documents	Field Studies (Interviewing)
	Aa9	Weaknesses caused by the transparency of plans	(Soleimani et al., 2017, 66)
	Aa10	Lack of meritocracy in the selection of managers	Field Studies (Interviewing)
	Aa11	Improper organization of insurance affairs	(Khazaei et al., 2018, 9)
	Aa12	People's cynicism about how to manage different dimensions in the country	(Soleimani et al., 1986, 66)
	Aa13	Political support of managers	(Araei et al., 2017, 26)
	Aa14	Managers' disregard for political economy	(Ostadi Jafari, 2013, 23)
	Aa15	Ignoring people's demands	Field Studies (Interviewing)
	Aa16	Upstream managers' low motivation	(Homayounfar et al., 1977, 65)
	Aa17	Management instability in the country	(Rana et al., 2018, 4)
Provincial	Ab1	The lack of indigenous projects in Khuzestan Province's programs	Field Studies (Interviewing)
	Ab2	Poor organizational culture in the province	Field Studies (Interviewing)
	Ab3	Disregard for ethnic, cultural, etc. differences	Field Studies (Interviewing)
	Ab4	Provincial media's disregard for public transport	Field Studies (Observation)
	Ab5	Non-alignment of provincial plans with upstream documents	Field Studies (Interviewing)
	Ab6	Lack of attention to people's participation in urban planning	Field Studies (Interviewing)
	Ab7	Improper allocation of resources to provincial cities	Field Studies (Interviewing)
	Ab8	Managers' non-acceptance of changes in themselves	Field Studies (Interviewing)
	Ab9	Not paying attention to the historical values and cultural heritage of the provincial cities	Field Studies (Interviewing)
	Ab10	provincial managers' low motivation	Field Studies (Interviewing)
	Ab11	Political support of provincial managers	Field Studies (Interviewing)
Urban management	Ac1	Land rent issue of transport projects	(Hosseini Cheshme Makani, 2016, 102)
	Ac2	Managers focus on propagandist projects	Field Studies (Interviewing)
	Ac3	Weakness in collecting statistics and information	(Shahi, 2014, 7)
	Ac4	Long-term delay in launching projects	Hosseini Cheshme Makani,) (2016, 97
	Ac5	Poor balance between supply and demand	Hosseini Cheshme Makani,) (2016, 100
	Ac6	Uncertainty in travel scheduling	(Tores, 2018, 843)
	Ac7	Ethnic views on urban violations	Field Studies (Interviewing)
	Ac8	Information rent	Field Studies (Interviewing)
	Ac9	Ethnic-linguistic discrimination in the provision of transport services	Field Studies (Interviewing)
	Ac10	Not paying attention to the first principle of post-establishment improvement	(Sorour & Amini, 2014)

Managerial levels	Code	Political-managerial barriers	References
	Ac11	Little attention to education in the city	(Imani et al., 2016, 91)
	Ac12	Insufficient transparency in the implementation of transport projects	Field Studies (Interviewing)
	Ac13	Not paying attention to prioritizing programs	Comprehensive Transport Plan,) (2016, 11
	Ac14	Interference between different tasks	(Wang et al. 2017, 307)
	Ac15	Lack of specialists and lack of job-to-employee relationship	(Dortoumi et al., 2017, 94)
	Ac16	Inappropriate allocation of resources to various transport sectors	Comprehensive Transport Plan,) (2016, 11
	Ac17	Managers' lawlessness	(Masoudnia, 2014, 139)
	Ac18	Weaknesses in the information system	Hosseini Cheshme Makani,) (2016, 102
	Ac19	Lack of attention to ethnic-cultural differences in service delivery	Field Studies (Interviewing)
	Ac20	Poor monitoring	.(Rahman et al., 2017, 325)
	Ac21	Lack of attention to vulnerable people in planning	(Rahnema & Joshaghani, 2017, 1)
	Ac22	Weaknesses in zoning (compact zoning and land uses)	(Wang et al. 2017, 307)
Urban districts	Ad1	Lack of publicity in the maintenance of infrastructure and facilities	Field Studies (Interviewing)
	Ad2	Not paying attention to neighborhood differences in planning	Field Studies (Interviewing)
	Ad3	Lack of attention to neighborhood sustainability	Field Studies (Interviewing)
	Ad4	Ethnic-cultural discrimination in urban neighborhood services	Field Studies (Interviewing)
	Ad5	The lack of a neighborhood-based planning system	Field Studies (Interviewing)

Table 2: economic barriers to public transport development

Code	Sub indicators	References
B1	Resistance to public spending	(Duncan etal, 2016:145) (Nalld et al, 2017:14)
B2	Uncertainty in pricing	(GU,2018:94) (Cavallaro,2018:85) (Rudolph et al., 2015: 138)
B3	Inappropriate budget allocation	Rudolph et al., 2015: 94) (Bokohaya et al, 2018) (Alkheder et al, 2018:313)
B4	The growth of private vehicle ownership	(Guldson,2018:3)
B5	Shortage of funds and credits	(International forum transport OESD,2018:8))
B6	Inappropriate resource allocation	(International forum transport OESD,2018:8)
B7	Low government subsidies	(International forum transport OESD,2018:8)
B8	Global economic crises	(Alonso et all,2018:1)
B9	Lack of competing companies	(Rana et al ,2018:5) (Bosch et al, 2018:76)
B10	High depreciation of infrastructure and facilities	(Goodarzi et al., 2018: 65) (Noravesh et al., 2016: 294) (Alkheder et al, 2018: 1)
B11	High maintenance costs	(Bosch et al, 2018:76) (Oldekezer et al, 2018:319) (Goodarzi et al., 2018: 65)
B12	No outsourcing	(Chen,2013) (Ishizaka and blakeston,2012:1)
B13	Shortage of low interest loans	(Abolhassani, 2011: 2)
B14	Economic sanctions	(Pahlavi et al., 1192: 114) (Oldekezer et al,2018:319)

Code	Sub indicators	References
B15	Global fluctuations in the economy	(Rana et al, 2018:5) (Zali & Ashrafi, 2013: 2) (Abbas Tabar et al. 2017, 117)
B16	Lack of self-sufficiency in the preparation of some sections	(Pahlavi et al., 2013: 114) (Oldekezer et al,2018:319)
B17	Poor cost and benefit principle	(Majdzadeh Tabatabai, 2015: 131)
B18	Not being market-oriented	(Comprehensive Transport Plan, 2016, 5) (Fitelson and Cohen Belakston,2018:65)

Table 3: sociocultural barriers to public transport development

Code	sociocultural barriers to public transport development	References
Ca1	Vehicle-centered lifestyle	(Guglielmetti et al., 2018 :566) Asadi and Movahedi Kalibar,) (2017: 119
Ca2	Resistance to paying public costs	(Duncan et al., 2016: 70) (Nalld et al., 2017: 145)
Ca3	Low awareness of the negative consequences of a personal vehicles	Sadat Ayatollah Shirazi and) (Birjandi, 2017: 275
Ca4	Poor social capital	(Nour Alivand et al., 2015, 90)
Ca5	Negative attitudes toward the poor (disabled, elderly, etc.)	Gorgi Azandaraini and Nazarpour,) 1397: 137) (Bjerkan and vstedal, 2018: 1)
Ca6	Gender segregation	(Minton and Clark, 2018: 25)
Ca7	Poor social participation	(Mousavi & Mubaraki, 2017: 257)
Ca8	Weak awareness of home delivery services	Field studies (interviewing)
Ca9	Struggles over fares	Field studies (observation)
Ca10	Negative attitude to public transport	(Luiu, 2018)
Ca11	Irregularities on getting on and off fleets and passages	Field studies (observation)
Ca12	Inappropriate behaviors of other travelers	Field studies (observation)
Ca13	Feeling overwhelmed with fleets and transport centers	(Zali and Birjandi, 2018: 7) (Vaezi, 2018: 131)
Ca14	Non-payment of rent before arriving at destination	Field studies (observation)
Ca15	Celebrations in the passages	Field studies (observation)
Ca16	Weakness in taking responsibility for public property	(Inanlo Cholakhlu & Soheili, 2016: 166) (Saffari Nia, 2015: 304, Volume I)
Ca17	Lack of public monitoring norms	(Araei et al., 2017: 125)
Ca18	Failure in observance of citizenship rights	Soltani and Fallah Menshadi, 2016:) (31
Ca19	Lack of NGOs in promotion and development	(Araei et al., 2017: 125)
Ca20	Reduction in observing traffic norms	(Masoudnia, 2014: 147)
Ca21	Poor citizens' demands for transport services	Field studies (observation)
Ca22	Penetration of begging people in public transport centers	Field studies (interviewing)
Ca23	Drivers' inappropriate behaviors	(Kim et al., 2016: 77)
Ca24	Citizens environmental behaviors	Field studies (interviewing)
Ca25	Sense of low social dignity	Field studies (interviewing)
Ca26	No support of children's travel	(Amanpour et al., 2013: 115)
Ca27	Weak enforcement of traffic laws	(Masoudnia, 2014: 147)

Women's sociocultural barriers to using public transport

Mode of transport	Row	Sociocultural items	References
Walking	Da_1	Taunting	(Riahi & Khachaki, 2016: 78)
	Da_2	Theft	Field studies (interviewing)
	Da_3	Chasing	Field studies (interviewing)
	Da4	Sexism look	(Johnson,2017:36)
	Da5	Inappropriate beeps	(Riahi & Khachaki, 2016: 78)
	Da6	Accumulation of evil individuals	(Zali et al. 2015: 123)
	Da7	Jostling	Sadeghi & Ziaei Nikdel, 2015: 56)
	Da8	Whistling	(Riahi & Khachaki, 2016: 78)
	Da9	Inappropriate gestures	(Jehangir Bharucha, 2018:102)
	Da10	Noisily swerving and braking with cars	(Riahi & Khachaki, 2016: 78)
	Da11	Asking women's phone numbers	Field studies (interviewing)
	Da12	Aggressive factors	(Riahi & Khachaki, 2016: 78)
Bus use	Db1	Weakness in claiming something	Field studies (observation)
	Db2	Spatial inequality	(Sun et al., 2018: 2)
	Db3	Non-assignment of seats to pregnant women	(Sayyedi: 2018: 123-124)
	Db4	Problems with freight	Field studies (interviewing)
	Db5	Men's sexual looks	Field studies (interviewing)
	Db6	Drivers' inappropriate behaviors	(Luiu, 2018)
Cycling	Dc1	Sexism look	Field studies (interviewing)
	Dc2	No commonness of cycling among women	Field studies (observation)
	Dc3	Mocking and scoffing	Field studies (interviewing)
	Dc4	Relatives'/families' disapproval	Field studies (interviewing)
	Dc5	Social unacceptance	(Asgari & Rahimi, 2017
	Dc6	Social norms	(Sorour & Amini: 2013: 267)
Taxi use	Dd1	No observation of appropriate distance	Field studies (interviewing)
	Dd2	No assignment of front seat	(Jamali & Shayegan: 2011: 95)
	Dd3	Setting the mirror to the women's faces	Field studies (observation)
	Dd4	Drivers' touch of women's hands when they are paying taxi fares	Field studies (interviewing)
	Dd5	Drivers' pointless conversations	Field studies (interviewing)
	Dd6	Other travelers' sexism look	Field studies (interviewing)

Vulnerable classes' sociocultural barriers to using public transport

vulnerable classes' sociocultural barriers to using public transport		
Ce1	No seat assignment	Field studies (interviewing)
Ce2	Drivers' impatience when dealing with them	(Kim et al,2016:77)
Ce3	People's humiliating looks	Gorgi Azandariani and) (Nazarpour, 2018: 137
Ce4	Emotional abuse	(Sorour & Amini, 2013) (Kanterand and Rosen hal,2018:1)
Ce5	Noise and bustle	Field studies (observation)

Ce6	Receiving fares from children	Field studies (interviewing)
Ce7	Lack of understanding by fellow citizens when dealing with this class	(Sheikh Esmaili, 2016:17)
Ce8	The staff's lack of familiarity with servicing this class	(Luiu,2018)
Ce9	Not helping these classes when using modes of transport	Field studies (interviewing)
Ce10	No support of children's travels	(Amanpour et al., 2013: 115)

Table 4: Psychological barriers to using public transport

Psychological factors	Code	Barriers	References
Anxiety factors	Da1	Social anxiety	(Huang et al., 2018: 145)
	Da2	Fear of community judgment	(Damarchali, 2017: 271)
	Da3	Post-traumatic injuries	(Khodadadi et al., 2013: 2) (Gharib et al., 2018: 1)
	Da4	Claustrofobia	Field studies (interviewing)
	Da5	Health obsession	Field studies (interviewing)
	Da6	Aggressive obsessions	(Riyahi & Khachaki, 2016:70)
	Da7	Sexual obsessions	(Raisi et al., 2015: 101)
	Da8	Sense of insecurity	(Cfu and Juan, 2017: 70) (Pour Ahmad et al, 2018: 650)
	Da9	Fear of infectious diseases	Field studies (interviewing)
Personality factors	Db1	Isolation	Field studies (interviewing)
	Db2	Megalomania	Field studies (interviewing)
	Db3	Social alienation	(Shatrian et al., 2017: 111)
	Db4	Low self-esteem	Masoudnia and Chenani) (Nasab, 2016: 85
	DB5	Indolence and negligence	Ebrahim Hajir and Ebrahim) (Hajir, 2017
	Db6	Hastiness	Nowruzi and Kouhi Esfahani,) (2013: 124
	Db7	Feeling uncomfortable	Field studies (interviewing)
Cognitive factors	Dc1	No mindfulness	(Ghaffari et al., 2016: in press)
	Dc2	Memory weakness	Imanzadeh and Hamrahzadeh,) (2017: 432
Impulse control factors	Dd1	Aggression	Shrabtian and Imani, 2018:) (167
	Dd2	Impatience	(Galsgow et al., 2018: 318)
	Dd3	Restlessness	Askari Nodushan &) (Sabaghchi, 2018: 39

Table 5: Morphological barriers to public transport development

Morphological barriers	code	Items	References
Urban scattering	Ea1	Open and unused lands	(Alonso et al,2018:1) (Bouzgarrou,2019:72)
Undesirable urban landscape	Eb1	Advertising Posters	(Gemma etal,2018:2)
	Eb2	Winding markets	
	Eb3	Failure to organize jobs	
	Eb4	Blockage caused by false jobs	

Morphological barriers	code	Items	References
	Eb5	The irregularities of transport modes	(Razzeghi et al., 2017: 64)
	Eb6	Inadequate environmental health status	
	Eb7	Urban furniture irregularities	
	Eb8	Improper placement of facilities	
Scattered Industrial Facilities	Ec1	Existence of large industries (steel)	Field studies (observation)
	Ec2	Installations in four directions of the city	
Karun river crossing	Ed1	Number of bridges	Field studies (observation)
High urban distress	Ee1	Narrowness of passages	(Firouzi et al., 2016: in press) (Amanpour et al, 2017: 59)
	Ee2	Distress of main urban arteries	
	Ee3	Organizational digging	
	Ee4	High frequency of suburbs	
Horizontal expansion of the city	Ef1	Low-rise buildings	(Maleki et al., 2018: 184)
	Ef2	Exogenous development	
National railroad crossing	Eg1	North-South roadblocks	Field Studies (observation)
Inappropriate density zoning	Eh1	No population balance	(Shakouei, 2011: 244)
Inappropriate land use zoning	Ei1	No balance in fuel stations	(Shakouei, 2011: 244)
	Ei2	Educational land uses	
	Ei3	Healthcare land uses	
	Ei4	Green space land uses	
	Ei5	Religious land uses	
	Ei6	Commercial land uses	
	Ei7	Residential land uses	
	Ei8	Sports land use	
Vehicle-oriented urbanization	Eg1	Lack of special bus lines	(Guererra,2018:11)
	Eg2	Lack of public parking lots	
	Eg3	Lack of cycling routes	
Extensive oil facilities	EK1	Administrative buildings	Field studies (Interviewing)
	EK2	Oil Ring Fence	
	EK3	Oil rigs	
Existence of military land uses	El1	Military barracks	(Arvin et al, 2016: 58)

Table 6: physical barriers to public transport development

Code	physical barriers to public transport development	References
F1	Shortage of fleets	Field Studies (observation)
F2	Exterior distress of existing fleet	Field Studies (observation)
F3	Poor heating and cooling system	Field Studies (observation)
F4	Poor quality of indoor hygiene	Field Studies (observation)
F5	Low safety	Field Studies (observation)
F6	Poor diversity in the transport fleet	Field Studies (observation)
F7	Poor quality of seats	Field Studies (observation)
F8	Poor quality of curtains and awnings	Field Studies (observation)
F9	Incompatibility with the poor	Field Studies (observation)

Table 7: physical barriers to public transport development

Land uses	Code	Barriers	References
Stations	Ga1	Improper access	(Badri Asl, 2016: 86)
	Ga2	Poor health of stations	Field studies (observation)
	Ga3	Incompatible location	(Pourmohammadi & Badri Asl, 2017: 53)
	Ga4	Poor heating and cooling system	Field studies (observation)
	Ga5	Lack of lighting	(Goodarzi et al., 2016: 105)
	Ga6	Weaknesses in comfort (seats, buckets, etc.)	Field studies (observation)
	Ga7	Station distress	Field studies (Interviewing)
	Ga8	Lack of ticket sales booths	Field studies (observation)
	Ga9	Lack of road sign boards	Field studies (observation)
Main urban arteries	Gb1	Low width of passages	Field studies (observation)
	Gb2	Improper coverage	Field studies (Interviewing)
	Gb3	Lack of special lines	Field studies (observation)
	Gb4	Existence of building materials	Field studies (Interviewing)
	Gb5	Organizational digging	Field studies (Interviewing)
	Gb6	Inappropriate material	Field studies (Interviewing)
	Gb7	No proportion to the poor	(National Road and Transport Organization, 2: 2015)
	Gb8	Distress of existing passages	Field studies (observation)
	Gb9	Poor lighting	Field studies (observation)
Urban terminals	Gc1	Incompatible location	Field studies (observation)
	Gc2	Poor internal and external architecture	Field studies (observation)
	Gc3	Lack of health services	Field studies (observation)
	Gc4	Lack of pleasant and lively spaces	(Sadeghi & Ahmadi, 2017: 564)
	Gc5	Low area/high per capita use	Field studies (Interviewing)
	Gc6	Lack of ticket sales booths	Field studies (observation)
	Gc7	Poor heating and cooling system	Field studies (observation)
	Gc8	Lack of delis and attention-attracting services	Field studies (observation)
	Gc9	Lack of road sign boards	(Safarzadeh and Mazloum, 2015: 98)
Parking lots	Gd1	Farness from crowded streets	(Goodarzi & Gorjianzadeh, 2016)
	Gd2	Farness from sports centers	(Goodarzi & Gorjianzadeh, 2016)
	Gd3	Farness from educational centers	(Goodarzi & Gorjianzadeh, 2016)
	Gd4	Farness from green spaces	(Goodarzi & Gorjianzadeh, 2016)
	Gd5	No mechanization	(Shahi, 2014: 91)
	Gd6	Not being boarding	(Ebrahimi Jam & Ahmadian, 2013: 54)
	Gd7	Improper facilities	(Afandizadeh & Rahimi: 2011)
	Gd8	Low capacity	Field studies (observation)
	Gd9	Farness from healthcare centers	(Goodarzi & Gorjianzadeh, 2016)
Fuel stations	Ge1	Incompatibility	(Mohammadi and Rezaei, 2012: 117)
	Ge2	Low safety	(Mohammadi and Rezaei, 2012: 117)
	Ge3	Low comfort	Mohammadi Deh Cheshmehet al.,) (2018
	Ge4	Poor efficiency	(Rahnema and Farghani, 2008: 82)
	Ge5	Poor access to main passages	(Alavi et al., 2016: 14)

Land uses	Code	Barriers	References
	Ge6	Low frequency	Field studies (observation)

Table 7: Barriers to making public transport intelligent

(Rana,2018:5)	Problems with internet networks	H1
Field studies (observation)	Incompatible location of intelligent installations	H2
Field studies (observation)	Improper access to intelligent transport	H3
Field studies (observation)	Lack of intelligent technical facilities	H4
Field studies (observation)	Distress of existing facilities	H5
Field studies (observation)	Lack of centralized training facilities	H6
Field studies (observation)	Physical security weaknesses	H7
Field studies (observation)	Physical Weaknesses in Safety	H8
Field studies (observation)	Weakness of diversity of intelligent installations	H9
(Rana,2018:5)	Problems repairing intelligent systems	H10

Table 9: Urban hazards affecting the underdevelopment of public transport in Ahvaz

Dimensions of hazards	Sub-indicators of hazards	Code	Barriers	References
Human	Urban movements	Ia1	Mass strife	(Afshani, 2015: 79) (Schafer, 2018: 1) (Nikpour et al., 2015: 129) (Mohammadi Deh Cheshmeh and Alizadeh, 2016: 146) (Domaradzka ,2018 :607) (Kostka et al ,2017 :368) (Mohammadi Deh Cheshmehet al., 2018(
		Ia2	Strikes	
		Ia3	Illegal demonstrations	
	Hazards of technology	Ib1	Fire	)Hassanpour et al., 2016) (Kalsi et al,2018:148) (simah tav,2017: 318) Field Studies (Interviewing)
		Ib2	Accidents	
		Ib3	Hazards of components and materials	
	Social damages	Ic1	Vandalism	)Mohammadi Deh Cheshmehet al., 2013: 78(
		Ic2	Traffic rules violations	
Natural	Hydrology	Id1	Inundation of the Karun River	Field Studies (Interviewing)
		Id2	Pollution of the Karun River	
		Id3	Reduction in the debi of the Karun River	

Dimensions of hazards	Sub-indicators of hazards	Code	Barriers	References
Human	Urban movements	Ia1	Mass strife	(Afshani, 2015: 79) (Schafer, 2018: 1) (Nikpour et al., 2015: 129) (Mohammadi Deh Cheshmeh and Alizadeh, 2016: 146) (Domaradzka ,2018 :607) (Kostka et al ,2017 :368) (Mohammadi Deh Cheshmehet al., 2018(
		Ia2	Strikes	
		Ia3	Illegal demonstrations	
	Hazards of technology	Ib1	Fire	)Hassanpour et al., 2016) (Kalsi et al,2018:148) (simah tav,2017: 318) Field Studies (Interviewing)
		Ib2	Accidents	
		Ib3	Hazards of components and materials	
	Social damages	Ic1	Vandalism	)Mohammadi Deh Cheshmehet al., 2013: 78(
		Ic2	Traffic rules violations	
		Id4	High levels of underground water	
		Id5	Flooded passages	
	Climate	Ie1	Flood	Field Studies (observation)
		Ie2	Increase in air temperature	(Khosravi et al., 2014: 57(
	Pollutions	If1	Dust	(Fattahi, 2017: 311) (Shi etal., 2018: 248) (Lipfert, 2017: 87)
		If2	Noise pollution	Field Studies (observation)
		If3	Industrial pollution	
		If4	Visual pollution	
		If5	Acid rains	(Kazemian et al., 2016: 105)
	Geology	Ij1	Earthquake	(Zarghami et al., 2016: 77-95)
		Ij2	Landslide	Field Studies (Interviewing)
		Ij3	Land subsidence	Field Studies (Interviewing)

Summary of results

As we have considered several operational objectives in the thesis, a summary of the results of these objectives is given below:

Explaining and analyzing managerial political barriers to public transport development in Ahvaz metropolis

Regardless of the shortcomings in modern urban management policies, the historical roots of the forms and institutions in cities for urban management in developing countries require to be properly understood and emphasized. In the urban public transport management sector, these shortcomings are also evident. In Iran, in addition to the barriers of urban public transport management, political aspects are also involved in underdevelopment, so that some of these barriers are outside the realm of urban management chart, and are rooted in political issues and unofficial relationships. Under such circumstances analysis of these barriers

at different management levels is one of the essentials of transport planning. Since these barriers are not remedied in the short term, these barriers need to be identified in terms of the importance of effectiveness and affectedness, and then to prioritize each of the political-managerial barriers at national, provincial, urban levels and the level of eight districts of the city.

Transport casualties are more than 80% lower in countries in which public transport is developed, leading to reduction in the length of travel time estimated as high as 50% in some cases. In contrast, in many developing countries the public transport system is inefficient. There are many barriers involved in this inefficiency, one of which is political-managerial barriers. But for reasons, largely political and managerial, it has challenged the achievement of some of these goals. The barriers outside the organizational structure are urban management rooted in national policies and unofficial relationships serving as political barriers to urban public transportation.

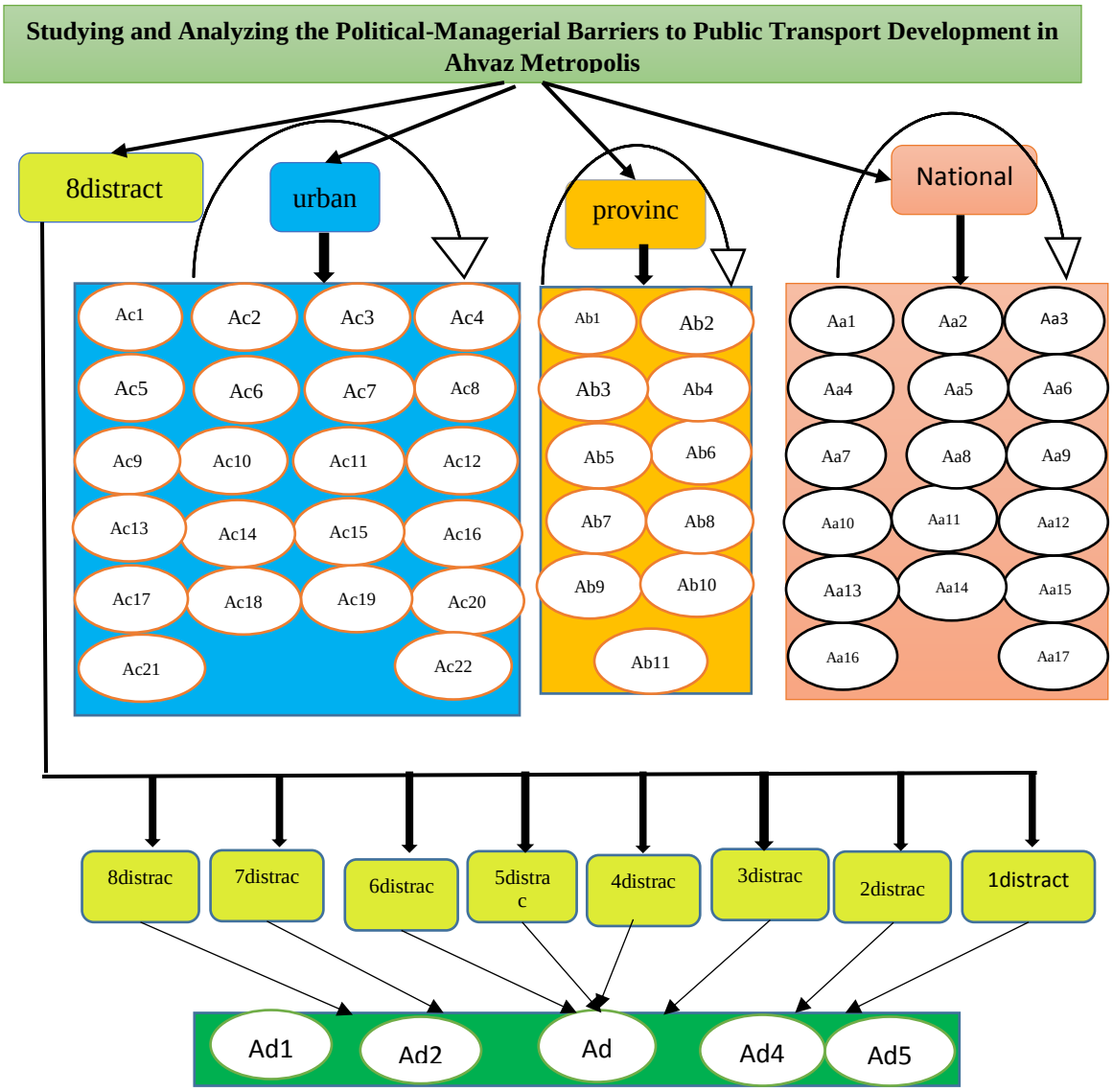


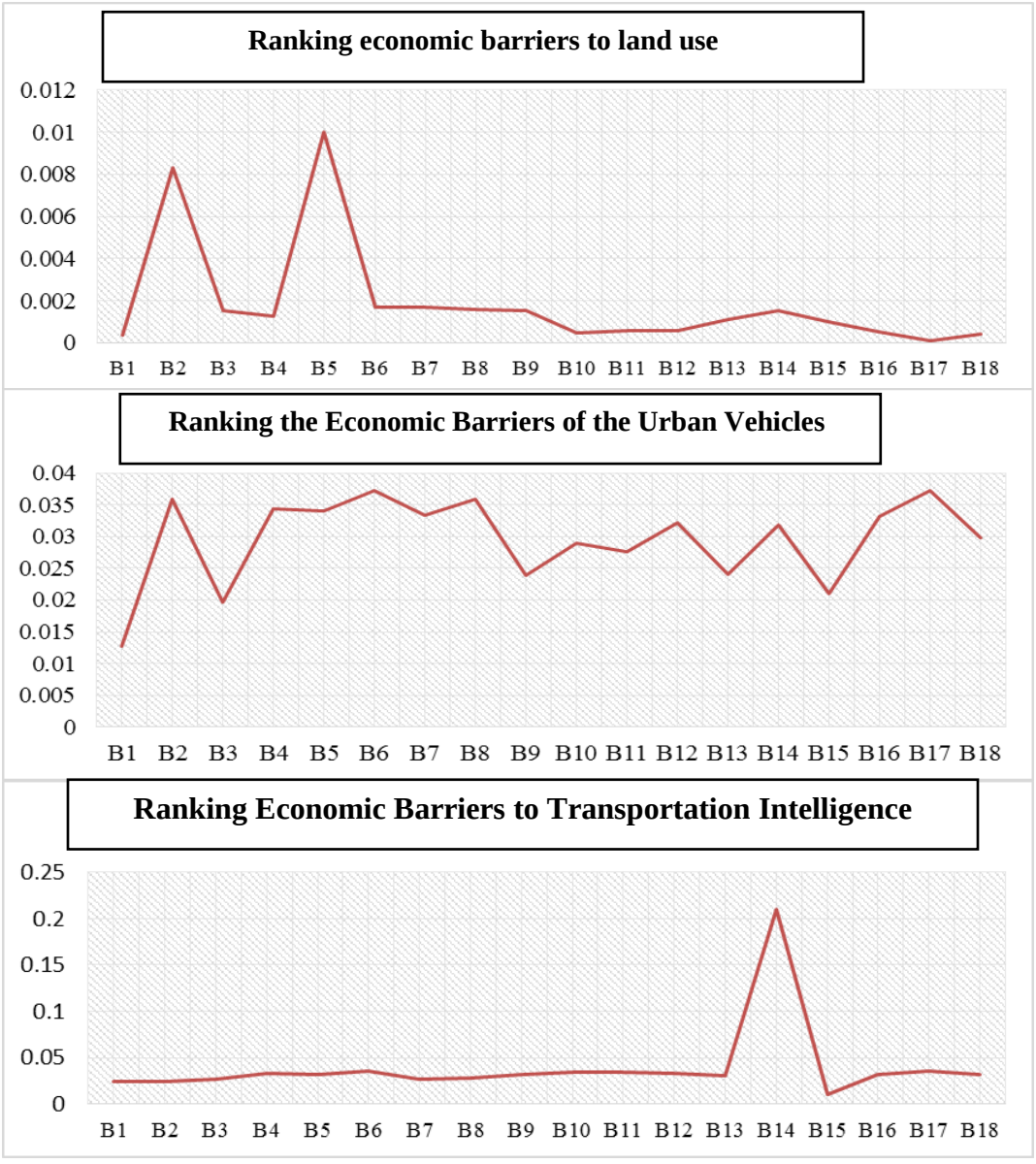
Figure 2: the networking process of political-managerial barriers to public transport in Ahvaz metropolis

The results displayed that the political-managerial barriers to public transport development in Ahvaz can be divided into four categories: political-managerial barriers at national level (17 factors), provincial level (11 factors), urban management level (22 factors) and the level of eight district of Ahvaz Municipality (5 factors). To this end, the DEMATEL technique was used to identify the four influential and effective management levels. The technique final results indicated that the effectiveness and affectedness of the political-managerial barriers to public transport development in Ahvaz varied across national, provincial and urban levels. Accordingly, Iranian management instability was the most effective political-managerial barrier, and the poor codified laws was the most affected barrier at the national level. At the provincial level, too, managers' reliance on upstream political support is the most effective barrier to effective barriers, and the absence of indigenous plans in the province's plans is the main affected barriers. The issue of land rent from transport projects is the most affected factors, and the most effective barriers for managers' non-observance of the law is the most effective barrier at the urban management levels. At the level of management of the eight districts of Ahvaz, the results of the analysis also varied. In District 1, neglecting neighborhood differences in terms of planning is the most effective factor, and lack of propagation for preserving and maintaining the infrastructures was the least effective factor. Ethnic-linguistic discrimination was the most effective factor and poor neighborhood planning, and poor planning in neighborhoods was the most affectedness factor in urban neighborhood service provision. In District 2 of Ahvaz, is the most effective factor lack of propagation in preserving and maintaining infrastructures was the most affected factor, and ethnic-linguistic discrimination was the most effective factor in urban neighborhood services. In District 3 of Ahvaz, the order of effectiveness and affectedness is the same as District 2. In District 4 of Ahvaz metropolis, lack of propagation in preserving and maintaining infrastructures is the most affectedness factor, and poor neighborhood planning is the most effective barrier to urban transport development. in addition, in district 5 of Ahvaz metropolis, poor neighborhood planning and lack of propagation in preserving and maintaining the infrastructures are the most effective and affected factors, respectively. In District 6, the effectiveness and affectedness degrees are reverse compared to District 5. In Area 7, neglecting neighborhood differences in terms of planning and ethnic-linguistic discrimination in service provision to urban neighborhoods has the least effectiveness, and lack of propagation in preserving and maintaining infrastructures has the least affectedness.

Finally, in District 8 of Ahvaz, neglecting the differences between neighborhoods in terms of planning and lack of propagation in preserving and maintaining the infrastructures are the most effective and affected factors, respectively. The ANP model was employed to determine the highest and the least effective political-managerial barriers to public transport. Its results showed that at the national level, centralized planning, at the provincial level, the poor organizational culture, at the urban management level, long-term delays in project implementation are the most important barriers to public transport development. moreover, at the level of eight districts of Ahvaz metropolis, in Districts 1, 2, 3, 4, 5, 6, 7 and 8, respectively, neglecting neighborhood differences in terms of planning, lack of propagation in preserving and maintaining infrastructures, neglecting neighborhood sustainability, lack of propagation in preserving and maintaining Infrastructure, lack of propagation in preserving and maintaining Infrastructure, lack of propagation in preserving and maintaining Infrastructure, neglecting neighborhood differences in terms of planning, and neglecting neighborhood differences in terms of planning are the most important barriers to public transport development of Ahvaz metropolis.

Explaining and analyzing the economic barriers to public transport development in Ahvaz metropolis;

The economic barriers are different in terms of each dimension of vehicles, land use, and making intelligence, as shown in the figure below.



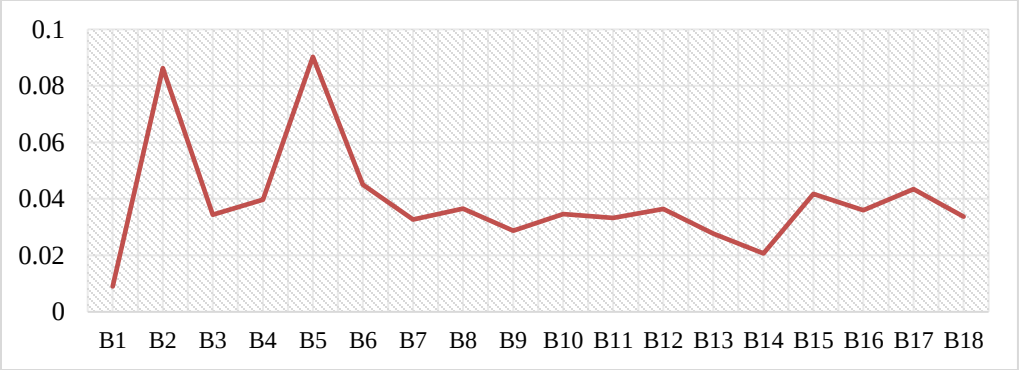


Figure 3. Ranking economic barriers to public transport in Ahvaz metropolis

But in general, it can be said that the lack of (B5) (B2) and (B4) credits are respectively the economic barriers to public transport development in Ahvaz, which illustrates Figure 3 of this ranking.

Explaining and analyzing the socio-cultural barriers to public transport development in Ahvaz metropolis;

Given the importance of cultural and social issues in transport planning, this study explores the social cultural barriers in each of the segments of society (women, children, the elderly and the physically disabled) and in each of the current transport modes (bus and taxi uses, cycling, and walking) in Ahvaz have been explored, for example the results of women's cultural and social barriers:

In this study, 30 items were analyzed in four public transport modes in Ahvaz. These barriers were categorized as sociocultural barriers to walking (12 factors), taxi transport (6 factors), bus transport (6 factors), and cycling (6 factors). In the following paragraphs, how these barriers affect public transport is investigated.

Cycling culture, as one of the ways to achieve green transportation, still has no place in underdeveloped countries, especially among Iranian women. Although there is no prohibition on women's cycling in civil law, but there are social and cultural issues. That has prevented women from using bicycles. Women are less likely to use bicycles because of the lack of cycling culture, lack of proper cycling paths, uncommonness of cycling in Iranian society, inappropriateness of cycling, humiliating views on cyclers, and relatives'/families' disapproval.

In metropolis like Ahvaz, where some of the streets are crowded with evil people, women face numerous barriers while walking. These types of harassment range from beeping to verbal and non-verbal sexual harassments. Strangers' harassments include both verbal and nonverbal behaviors. In Ahvaz, there are many women who are victims of street harassments or abuses. Verbal and physical harassments, braking, car-swerving, rubbing, jerking, whistling, inappropriate gestures, and asking for girls' and asking women's phone numbers are examples of women's barriers to walking. According to interviewees, most victims of these harassments escape or relocate to get out of the harasser's access or at least not to hear their voices quickly as possible. There are few women who protest or raise their voices when facing street harassments. Among the most common street harassments is taunting girls and women. Taunting can be abusive, may be a misconception or much worse mockery, sexual description of women's appearance. However, girls need to be taunted because of their features. According to interviews with four women, the authors found that women were exposed to inappropriate and annoying words while walking. Outside the age range,

clothing, height, age, job type, marital status, etc., most women were confronted by taunting. Walking women said that they were accustomed to it. Others stated that they were abused. As long as the sidewalks are filled with such sentences, one cannot expect women to walk comfortably without stress. This causes women to use a personal car for daily activities, even on short trips. Such barriers are usually not palpable that we can eliminate or change in the short term. These issues are rooted in culture of using public places. This is the issue that solves only with education; urbanism education that defines the urban lifestyles is the only way to save ourselves from such problems.

Research shows that women travel by bus more often than men. However, there are numerous sociocultural barriers that reduce the tendency of women of Ahvaz to use buses. Gender segregation due to delayed arrival and getting off is one of the social barriers to the development of public transport in Iran because not only getting on and off of the buses waste passengers' time, but also leads to increase traffics in the main passages, as there is no special bus routes in Ahvaz and buses use routes common for all other vehicles. Alongside gender segregation, there is also a spatial inequality in buses relative to women's status. This low space creates more problems especially for pregnant women because they need to sit on seats due to their physical conditions, but these seats may be saturated by other younger and non-pregnant women who, if they do not wish to give up their seats, the sociocultural barrier becomes more visible. Another barrier reducing women's acceptance of public transport is the difficulty with carrying stuff and supplies. Women who want to shop, especially in the city's commercial centers, find it difficult to travel in this way, given the low bus space and the amount of stuff they have. In addition to drivers' perceived malice and inappropriate behaviors, these are women's sociocultural barriers to use the buses in Ahvaz.

Another mode of public transport in Ahvaz that deals with transportation of citizens and stuff is taxi driving. In this mode of transport, there are numerous sociocultural barriers. It has been observed that in taxis when a woman is seated in the back seat and a male passenger is seated next to her, the male passenger may not observe the distance and have a sexual look at the woman. So she is forced to stick herself to the taxi door for shame and prudence utile she will reach her destination. These men's behaviors engender insecurity for women traveling alone in the city. At this point, when there is only one woman sitting in a cab based on the values in Iran, the logic is to give the front seat to the woman, but some people are reluctant to give the front seat to the women. This is another cultural barrier to be investigated. Other sociocultural barriers to using taxis are setting the taxi mirror towards women's faces. This factor, besides starting pointless conversations with women, make taxis insecure for women. Another women's barrier to using public transport may be drivers' touch of women's hands when they are paying taxi fares.

After explaining these barriers and understanding how they affect public transport, we now need to analyze them in the study area. To this end, questionnaires were distributed among 400 women living in eight districts of Ahvaz (Figure 2).

As shown in Figure (4), 69% of the participants are married. In terms of age, 50% of them were 16 to 25 years old. Moreover, a low percentage of them were women aged 56 years and above, accounting for 3% of the sample. In terms of employment, 47% of them were students, and only 4% were self-employed. In terms of education, the lowest percentage of participants held elementary education (6%), and the highest percentage of them held in bachelor's degree (47%). This difference is also seen in the way public transport is used. Of the four current public transport modes, 47% of the sample used buses, 2% bicycles, 42% taxis, and 9% walking.

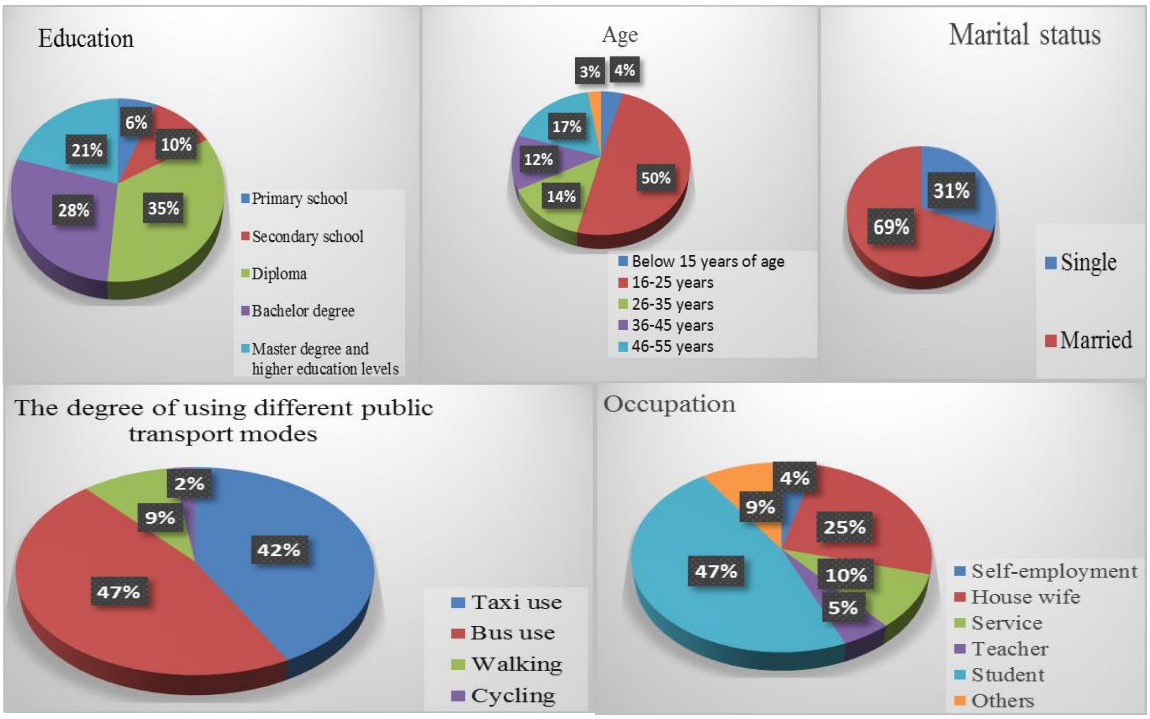


Fig. 4: women's demographic characteristics and their degree of use of four public transport modes

Since public transport in Ahvaz has four modes of bus driving, taxi driving, walking, and cycling, and the barriers vary in each age group of women and in their mode of transport (group or individual modes), there is a need to investigate the sociocultural barriers in the four modes in order to prioritize the effectiveness of each public transport mode and determine which sociocultural barriers in which age group prevail in each of public transport mode. The significance of this prioritization is that because urban organizations are not able to address these barriers altogether, cross-sectional elimination of these barriers is adopted. So, we prioritize these barriers in terms of effectiveness. To prioritize these barriers, the ARAS model is used, the results of which are shown in Table (10) and its effects on age groups is displayed in in Figure (5).

Table 10. Final results of the ARAS mode

Items	**Age group**						**Mode of transport**		**Total utility**	**Final weight**
	Under 15	**16-25**	**26-35**	**36-45**	**46-55**	**Above 56**	Group	Individual		
Weight of criteria	0.385	0.865	0.798	0.668	0.436	0.265	0.236	0.365		
Hypothetical ideal	0.0027	0.0360	0.0322	0.0271	0.0238	0.001	0.0121	0.0190	0.1541	
Da_1	0.0122	0.0360	0.0280	0.0260	0.0134	0.0012	0.0089	0.0190	0.1445	0.9334
Da_2	0.0292	0.0287	0.0309	0.0268	0.0236	0.0036	0.0090	0.0189	0.1707	0.1030
Da_3	0.0122	0.0329	0.0323	0.0218	0.0098	0.0203	0.0090	0.0153	0.1535	0.9921
Da_4	0.0100	0.0359	0.0307	0.0237	0.0101	0.0049	0.0109	0.0194	0.1455	0.9404

Items	Age group						Mode of transport		Total utility	Final weight
	Under 15	**16-25**	**26-35**	**36-45**	**46-55**	**Above 56**	Group	Individual		
Weight of criteria	0.385	0.865	0.798	0.668	0.436	0.265	0.236	0.365		
Hypothetical ideal	0.0027	0.0360	0.0322	0.0271	0.0238	0.001	0.0121	0.0190	0.1541	
Da_5	0.0174	0.0324	0.0309	0.0223	0.0129	0.0020	0.0080	0.0082	0.1340	0.8658
Da_6	0.0098	0.0124	0.0094	0.0124	00066	0.0073	0.0056	0.0131	0.0766	0.4952
Da_7	0.0174	0.0351	0.0309	0.0274	0.0162	0.0053	0.0057	0.0130	0.1510	0.9755
Da_8	0.0174	0.0329	0.0292	0.0223	0.0161	0.0091	0.0046	0.0044	0.1360	0.8788
Da_9	0.0086	0.0329	0.0267	0.0261	0.0200	0.0069	0.0080	0.0077	0.1367	0.8830
Da_{10}	0.0261	0.0283	0.0270	0.0235	0.0145	0.0135	0.0072	0.0082	0.1482	0.9578
Da_{11}	0.0100	0.0347	0.0302	0.0102	0.0000	0.0140	0.0080	0.0118	0.1189	0.7684
Da_{12}	0.0269	0.0141	0.0253	0.0234	0.0183	0.0000	0.0080	0.0056	0.1215	0.7853
Db_1	0.0074	0.0090	0.0085	0.0075	0.0061	0.0118	0.0034	0.0049	0.0586	0.3784
Db_2	0.0122	0.0360	0.0280	0.0260	00134	0.0055	0.0080	0.0190	0.1479	0.9558
Db_3	0.0292	0.0287	0.0309	0.0268	0.0236	0.0036	0.0090	0.0189	0.1707	1.1030
Db_4	0.0122	0.0329	0.0323	0.0201	0.0098	0.0203	0.0090	0.0153	0.1519	0.9813
Db_5	0.0100	0.0359	0.0307	0.0274	0.0146	0.0049	0.0109	0.0194	0.1538	0.9936
Db_6	0.0174	0.0324	0.0309	0.0223	0.0129	0.0014	0.0080	0.0082	0.1334	0.8621
Dc_1	0.0098	0.0124	0.0094	0.0124	0.0066	0.0073	0.0056	0.0131	0.0766	0.4952
Dc_2	0.0174	0.0351	0.0309	0.0274	0.0162	0.0053	0.0057	0.0130	0.1510	0.9755
Dc_3	0.0074	0.0193	0.0264	0.0262	0.0225	0.0091	0.0105	0.0115	0.1329	0.8587
Dc_4	0.0017	0.0181	0.0208	0.0218	0.0190	0.0219	0.0000	0.0000	0.1033	0.6675
Dc_5	0.0027	0.0117	0.0142	0.0198	0.0190	0.0175	0.0034	0.0176	0.01061	0.6858
Dc_6	0.0101	0.0178	0.0181	0.0224	0.0224	0.0215	0.0105	0.0107	0.1335	0.8623
Dd_1	0.0007	0.0359	0.0302	0.0237	0.0132	0.0220	0.0004	0.0000	0.1259	0.8135
Dd_2	0.0074	0.0090	0.0085	0.0075	0.0061	0.0063	0.0034	0.0049	0.0531	0.3428
Dd_3	0.0091	0.0353	0.0306	0.0174	0.0129	0.0055	0.0114	0.0113	0.1335	0.8627
Dd_4	0.0091	0.0347	0.0266	0.0223	0.0132	0.0075	0.0079	0.0066	0.1279	0.8266
Dd_5	0.0194	0.0359	0.0309	0.0239	0.0120	0.0016	0.0122	0.0153	0.1513	0.9773
Dd_6	0.0024	0.0329	0.0264	0.0199	0.0070	0.0030	0.0120	0.0116	0.1150	0.7431

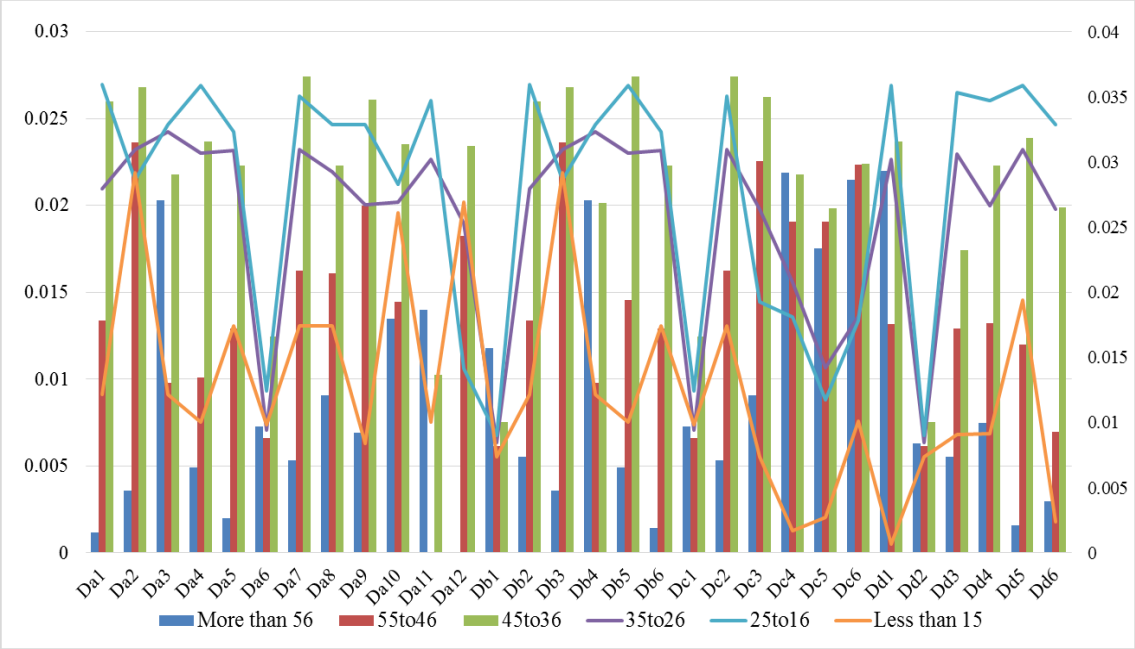


Figure 5. Effects of sociocultural barriers on the use of public transport in terms of age

As illustrated in Figure (3), for women aged under 15 years, (Da2) is the most effective sociocultural barrier on walking, but it is the least effective barrier for women 56 years and above. For women aged 16 to 25 years, the most effective sociocultural barriers are taunting (Da1) and sexism look (Da4). This difference is also evident for women aged 26 to 35, with women of this age group being the most likely to be chased (Da3). But for women aged 36 to 45, deliberate jogs by evil people (Da6) have the most and least effects on walking, respectively.

In the women aged 45 to 56 years, evil people's aggregation (Da6) is the least effective barrier to women's walking. Analysis of women's sociocultural barriers to bus use shows that the most effective barriers are men's sexual views (Db1), problems with carrying supplies and stuff (Db5), inappropriate drivers' behaviors (Db6), and space inequality (Db1) in the age groups below 15 years, 16 to 25 years, 26 to 35 years, 36 to 45 years, 46 to 55 years and 56 years and above, respectively. Analyzing women's sociocultural barriers to cycling also shows that for women aged 56 years and above, ridicule (Dc3); for women 46 to 55 years, social disapproval (Dc5) and sexism look (Dc1) were the least and the most effective barriers. Also ridicule (Dc3) was found to be the most effective barrier for women aged 36 to 45 years. Women of Ahvaz, aged 26 to 35 years, also believe that sexism look (Dc1) and social considerations (Dc6) have the most and least effective sociocultural barriers, respectively. In this regard, sexism look (Dc1) is the most important obstacle for women under 16 who are most likely to use bicycles. There is a difference in the ranking of sociocultural barriers to taxi use by age in the territory under study, such that, according to this mode of transport, from small to large, non-transfer of front seats (Dd2) is the same for all; But the gendered looks factor by other travelers (Dd6) is more for women aged 16 to 25 years than other age groups. Drivers' touch of women's hands when they are paying fares (Dd4) is more for women aged 16 to 25 than those aged 36-45 years. Assignment of front seat to women (Dd2) is the same for women aged 36 to 45 and 26 to 35 years. Ultimately, no observation of distance (Dd1) is lower for women aged 15 years and below.

These barriers are also different in terms of women traveling individually or in groups. This difference is illustrated in Fig. 6, showing that sexism looks (Da4), men's sexual looks (Db5), relatives'/families'

disapproval (Dc4), and drivers' pointless conversations (Dd5) are the most effective barriers to walking, bus use, cycling and taxi use, respectively.

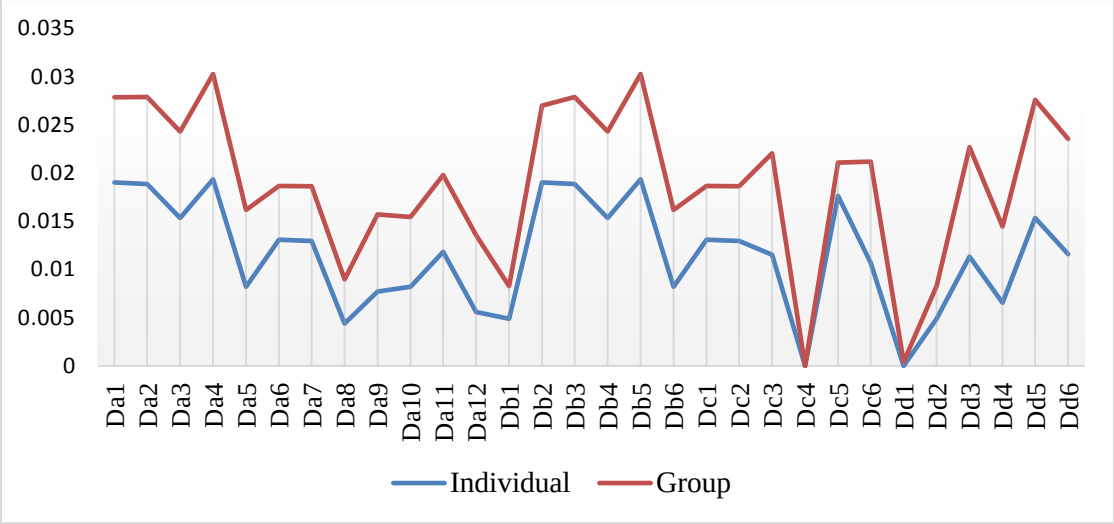


Figure 6. Ranking of women's sociocultural barriers to using public transport in terms of individual and group trips

After analyzing the sociocultural barriers of women in terms of age groups and individual or group trip patterns, these barriers need to be ranked in order to determine what barriers women in Ahwaz face when using four modes of public transportation. Figure 7 illustrates these barriers

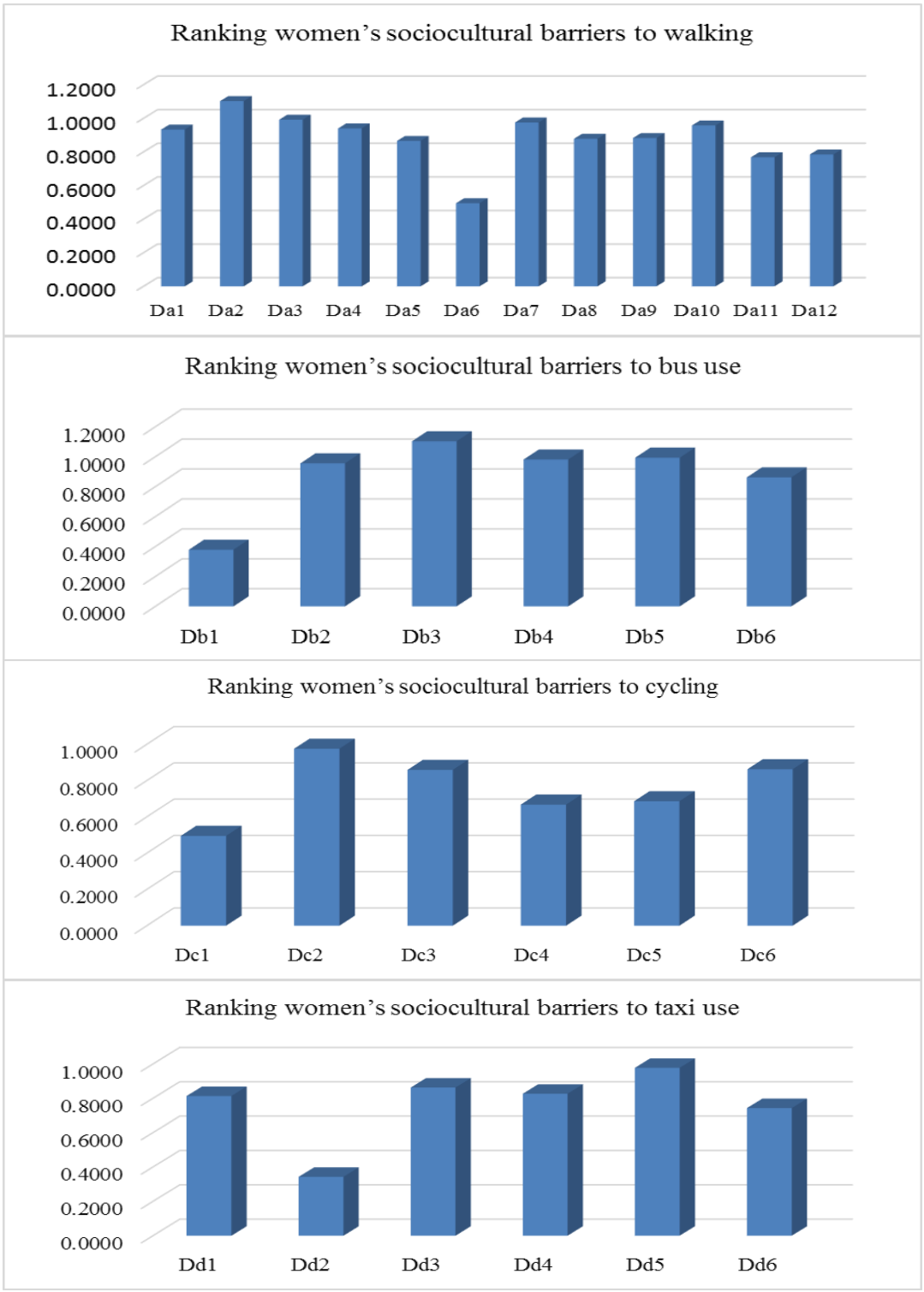


Figure 7: ranking women's sociocultural barriers to using four public transport modes in

After ranking women's sociocultural barriers in each of the public transport modes, their spatial differences should now be identified. To this end, zoning is needed. The Kriging interpolation method is used for zoning. This model's inputs are both raw data that are the citizens' views, and certain points in the city.

After collecting the necessary data, it is now necessary to identify the geographical analysis of each of the women's sociocultural barriers to using the public transport modes in Ahvaz. Figure 6 illustrates the overlay of the barriers to using the four public transport modes.

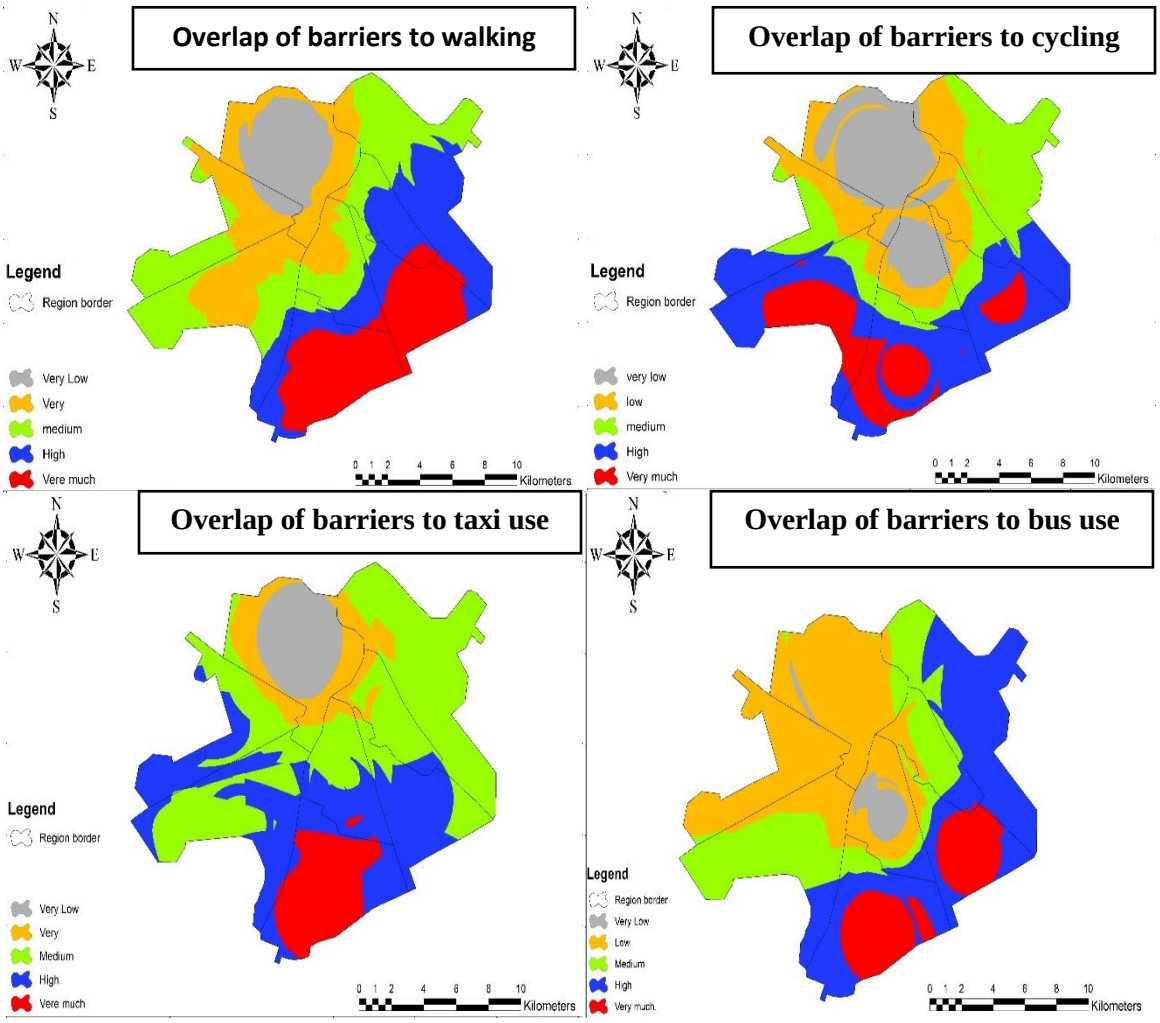


Figure 8: overlay of women's sociocultural barriers in each of the four public transport modes in Ahvaz

As illustrated in Fig. 8, the spatial differences of women's sociocultural barriers to using public transport in Ahvaz differ in the use of public transport modes. The overlay of women's sociocultural barriers during cycling indicates that the largest area of districts 1 and 2 is in the low range. But the largest area of district 3 is in the middle range. Also the southern areas of the city, such as districts 4, 6 and 8 are in the high and very high ranges. In other words, women sociocultural barriers to cycling in Ahwaz are such that the further one moves from south to north, the greater these barriers are.

Zoning women's sociocultural barriers to walking also shows that the further one moves from north to south and from east to west, these lower these barriers are. Regional analysis of these factors shows that district 4 is the most unfavorable range because over 90% of its area is in the high and very high ranges. District 2 is the most favorable because all its area is in the low and very low ranges. But, four low, medium, high, and very high ranges uniformly cover the area of the district 1. In addition, the overlay of women's

sociocultural barriers to bus use across Ahvaz is different, as the city' widest area is in the high range. This range is higher as one moves from south to north and west to east. A more detailed analysis of this determines that districts 4 and 8 are the least favorable and 3 are the most favorable zones.

This spatial difference in barriers to taxi use is also evident in the study area, as the highest urban area being in the middle range, the southern and western parts of the city being in the high and very high ranges. It covers the most barriers in the southernmost areas of city, i.e. district 4. District 2 is only less than 10% in the medium range, but more than 90 % of it in the very high range. After measuring the sociocultural barriers to the four public transport modes, it is now necessary to overlay all barriers to draw the final map of women's sociocultural barriers to using public transport (Figure 9).

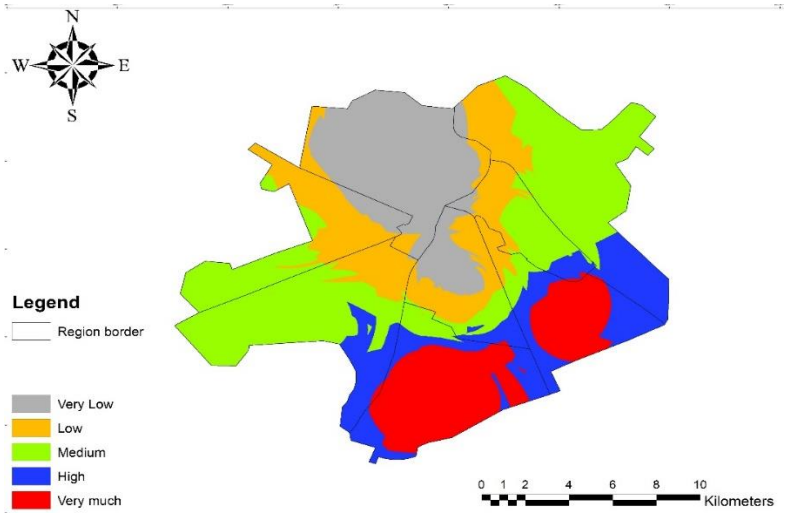


Figure 9: final overlay of women's sociocultural barriers to using public transport in

As illustrated in figure 7, most of the city's area is in the medium range and the lowest area is in the very high range. In other words, the more one moves from north to south, the greater the barriers are. A regional view of this map reveals that about 90% of districts 4 and 8 are in the high and very high ranges, and 30% of district 3 is in the high range. These areas are less favorable than other districts of Ahvaz, but district 2 is the most favorable zone because its entire area is in the low and very low ranges.

Explaining and analyzing the psychological barriers of not using public transport in Ahvaz metropolis;

Therefore, no use of public transport apart from infrastructure issues such as fleet depletion, fleet shortages, economic issues, socio-cultural barriers, environmental issues and the management weaknesses of psychological barriers are also effective in preventing public transport use because psychological barriers are also one of the barriers to the development of public transport. Understanding citizens' psychological factors via public transport can have important implications for urban transport policies as well as its promotion and management. The urban public transport system in all Iranian cities also has a number of psychological problems hindering not using. This issue varies in different cities due to the cultural, social and environmental diversity of Iranian cities and citizens' psychological characteristics.
In this paper, the psychological barriers to not using four public transport modes were measured and prioritized. This prioritization is significant because the relevant organizations are not capable of removing these barriers in one place and they need to be addressed in a cross-sectional method at different points of time, so they need to be prioritized. These barriers were then zoned across the city. The final zoning results showed that the psychological barriers to not using public transport in Zone 1 are very high because more than 85% of the area is in this range. Zone 2 has the least psychological barriers to not using public

transportation because most of its zones are in the low and very low range. Zone 3 also has the most psychological barriers to public transport use after Zone 1, as more than 90% of it is in the very high range and less than 5% is in the very low range. In addition, about 15% of Zone 4 is in the mid-range and other zones are in the high range. The analysis in Zone 5 also indicates that the medium, high, and low ranges divide it into relatively equal parts. Overlapping psychological barriers to not using public transport in Zone 6 shows that the medium range is its lowest area, the difference is also seen in zone 7, because the high and medium range have the highest and the lowest area respectively. Make it up. Finally, Zone 8 is only in the medium range, with only three small zones comprising 10% of the total area, but 90% of it is in the high range.

In sum, this study proved that in not using public transport apart from infrastructure issues such as fleet burnout, fleet shortage, economic issues, socio-cultural barriers, environmental issues and management weaknesses, psychological barriers are also effective on not using public transport. Thus, psychological barriers are also one group of barriers to the public transport development, and these (psychological) barriers are the missing link of urban planning and management. These barriers also vary from place to place with respect to the natural environment, the human environment, and the psychological processes. This research privileged compared to other studies in terms of accurate, scientific and comprehensive identification, ranking, zoning and their application in measuring psychological barriers to not using four public transport modes in the city. So far, little research has been done in this area.

Explaining and analysis of urban morphology barriers to public transport development in Ahvaz metropolis

The public transport system is not sufficiently inefficient in developing countries, especially Iran. This inefficiency contributes to various inefficiencies such as economic, infrastructure, political, managerial and social-cultural barriers. Significant changes in urban morphology have been combined with spatial, socio-economic, and organizational factors. Understanding such urban morphological factors on public transport is vital because sometime it is the form of a city that determines the mode of paths and passages, and especially accesses via natural elements and factors. Furthermore, in urban geological analysis, one of the factors affecting land use is in fact the road network structure and land use are the basic constituents of a city. Although it is difficult to provide definitive conclusions about the effect of the city shape on transportation because many indirect factors are also involved (such as vehicle speed or congestion), however, the morphology of the city can somehow affect transport performance. Thus, one group of the barriers to the development of public transport in particularly in metropolises are urban morphological barriers.

Research Findings: The results indicate that urban dispersion (Ea1) with the weight of 0.0322, the oil company buildings (Ek1) with the weight of 0.02089, and exogenous development (Ef2) of urban horizontal expansion with the weight of 0.0392 engender the highest morphological barriers to of public transport development in Ahvaz. Also imbalance of fuel supply stations (Ei1) with the weight of 0.0056, lack of special public transport lines (Eg1) with the weight of 0.0069, and population imbalance (Eh1) with the weight of 0.0093 impose the lowest morphological barriers affecting the of public transport development in Ahvaz.

It also confirmed that urban morphological barriers have different effects on each mode of public transport, and these effects can be rated in each mode of transport, so that for large scale industries such as steel (Ec1), the most effects on cycling are in industrial dispersed installations. There are numerous facilities in four parts of the city (Ec2) that have the lowest effects on taxi driving. In terms of unfavorable urban landscape, all of its items have the greatest effects on cycling and the lowest effects on taxi driving. But among these factors the irregularity of various modes of public transport (Eb5) is the greatest barrier to public transport

development. Urban sprawl has the greatest effect on walking, low-rise buildings (Ef1) have the most effects on cycling, and exogenous development (Ef2) has the most and least effects on bicycles and taxi driving, respectively. Among four urban decay measures, the total of these modes cause underdevelopment of cycling compared to other modes, but a closer look reveals that narrow passage widths (Ee1) have the greatest effects on cycling and the lowest effects on walking. However, decay of the major urban arteries (Ee2) has the lowest effects on the underdevelopment of taxi driving in Ahvaz. Moreover, the Karun River crossing Ahvaz had the greatest effects on the underdevelopment of cycling and then bus transportation. Inappropriate zoning of different land uses in Ahvaz is another barrier to public transport development. Its effects vary according to the type of land use and different modes of public transportation such as poor zoning of commercial land uses (Ei6) in the underdeveloped taxi driving system of Ahvaz. poor zoning of religious land uses (Ei5), poor zoning of green space land uses, (Ei4), poor zoning of sports centers (Ei8), poor zoning of health-care applications (Ei3), poor zoning of educational applications (Ei2) and lack of balance at fuel stations (Ei1), poor zoning of educational land uses (Ei2), and poor zoning of religious land uses (Ei5) has the greatest development barriers, and poor zoning of health care land uses (Ei3) has the lowest barriers to development affecting underdevelopment of bus driving. The effects of this irregular zoning on cycling and walking are also evident, as zoning pf commercial land uses (Ei6) and zoning of green space land uses (Ei4) are the greatest barriers to cycling and walking development in Ahvaz, respectively. The order of the effects of the existence of many military land uses is that in clean transport it has the most and in motor transport it has the lowest effects. The situation is the same in terms of the existence of large oil installations.

Zoning these barriers in the city confirms that in terms of the dispersed industrial installations northwest of the Ahvaz metropolis is quite favorable and its south is quite unfavorable. However, most of Ahvaz is in the medium range. West of Ahvaz city is considered to be completely unfavorable due to unfavorable landscape and the smallest urban area in south is completely unfavorable. In terms of urban sprawl, other than the fact that the most area of the city is in the completely unfavorable range, the more we move from west to east, it is more deteriorated. In terms of the effects of the oil installations that occupy a large part of the Ahwaz oilfield, the west of Ahvaz with the smallest area is in quite favorable range, but most of the city is in the medium range. Zoning land uses as one of the factors driving urban planning goals is also intertwined in Ahvaz so that the more we move from south to north, the more unfavorable it becomes. But in terms of poor condensation zoning, the city's smallest area is completely unfavorable and most of its areas are in the medium range. Also, in terms of vehicle-oriented urbanization, a small area of the west and another at the center are quite favorable, but most of the city is in the medium to slightly favorable range. The horizontal extension of the city is most moderate and the smallest in the spectrum is quite unfavorable, but its west is quite favorable. In terms of the effects of a national railroad crossing that has increased traffic jams at railroad points, the more we move from west to east the more unfavorable conditions are, but the more favorable conditions are in the south and southwest. In terms of distressed urban textures, this difference can also be seen in the city, with the largest city area being slightly favorable, but the most favorable zones are in the west and northeast of the city.

The significance of the research findings is that they are consistent with the strategies of the Second Five-Year Development Plan of Ahvaz. Because one of the strategies of this plan in the transport and traffic sector has been to identify barriers to transport development in different dimensions through which this study has investigated the morphological barriers of public transport development. Another significant point of this study is to categorize the effects of urban morphological barriers on different modes of public transport in Ahvaz. This classification can guide transportation policy makers to differentiate each public transport mode from the morphological barriers of each of the modes separately. This kind of classification makes one of the bus and taxi driving companies of the Municipality of Ahvaz be self-aware of the effects

of urban morphology on the transport fleet, and the road and urban organization be aware of these barriers to walking and cycling paths. Generally speaking, findings of the present study can be used by the municipality, housing and urban planning organization, military departments, oil companies, and small and large companies in order that they can cooperate and organize the morphology of Ahvaz and its public transport can take a step closer to development.

Explaining and analyzing the physical barriers of public transport vehicles in Ahvaz metropolis;

the public transport system plays a significant role in reducing energy consumption and greenhouse gases. By reducing private vehicles, vehicle congestion, and travel distances due to the use of public transport, millions of liters of gasoline can be stored and carbon dioxide emissions increased. However, in order to achieve these public transport objectives, it faces numerous economic, political, managerial, infrastructure, and other barriers. Public transport fleet in Ahvaz metropolis has a number of barriers that slow down the mode of public transport development. urban bus and taxi uses are two modes of motor travels in Ahvaz that need to be analyzed besides other infrastructural issues such as terminals, stations, urban arteries, parking lots, etc. The present paper aims to investigate and analyze the barriers to the development of the public transport system in Ahvaz metropolis with emphasis on the physical barriers of vehicles and assuming that the physical barriers of public transport vehicles vary across the city of Ahvaz. Answering the question what are the barriers to public transport in Ahwaz? And what is the distribution of these barriers across the city?, the present study is to evaluate and analyze these barriers and identify the significance factor of each one in order to prioritize these barriers in terms of effectiveness in Ahvaz transport planning and then zone each of these barriers at the city level and consequently zone Ahvaz as well.

The results indicated that poor quality of curtains and lack of shadows in fleet (Ge8), poor quality of internal health (Ge4) and low quality of seats (Ge7) are the most barriers and disproportionate to poor layers of society (Ge9), lack of fleet (Ge1) and existing fleet exhaustion (Ge2) are the bottom line of the Ahvaz public transport fleet barriers. In addition, these barriers in each bus and taxi fleet have a different effect size as the barriers of Ahvaz taxis are different from those of the buses. This difference is such a way that for taxi uses, lack of fleet (Ge1) and lack of fleet diversity (Ge8) were the highest barriers and existing fleet exhaustion (Ge2) is the lowest barrier to public transport development. But for bus fleet exhaustion (Ge2), weakness of cooling heating system (Ge3) and low safety (Ge5) are the most barriers, and proportionality with the poorest layers of society (Ge9), none of Ahvaz's public transport fleet enjoys diversity (Ge6). The zoning results also displayed that most of Ahwaz's zones are very inappropriate in terms of public transport fleet barriers. North of Ahvaz is more favorable than its south region, west of Ahvaz is more favorable than its east, and west and east of Ahvaz have higher dispersion of ranges than north and south. Districts 2, 4 and 7 are better off than other areas, but District 5 is more inappropriate than others.

Explaining and analysis of barriers to public transport development land use in Ahvaz metropolis

Collective mobility focuses on sharing trips, transport modes, and infrastructures. This can reduce the number of vehicles on roads. Thus, it is important to evaluate and measure transport subsystems. One of the most important of transport subsystems is urban transport as a key element of human and commodity transportation, playing an essential role in the viability of all communities and as a justified choice to avoid unintended urban problems such as road and traffic congestion as well as air pollution. Therefore, urban transport organization is one of the necessities of urban planning. However, transport itself is not such a challenge, but rather a gift. However, it will become a problem when its effects will cause dissatisfaction with the transport network and thereby reduce the quality of urban services. Political-managerial, environmental, physical, and socio-cultural barriers are involved in transportation challenges, most visible of which are physical barriers. These barriers vary in different Iranian cities according to their natural and

human geography, but in Ahvaz City they are effective on preventing Land use barriers to transportation apart from human, environmental, and climate issues. Also, according to Ahvaz Metropolis Second Five Year Development Plan in the field of transportation and traffic, one of the most important strategies of Ahvaz transportation and traffic development is to identify the barriers to transportation development in different dimensions, one of which is the physical barriers to transportation, doubling the significance of doing research in the field. Therefore, these barriers need to be identified and categorized in each public transport infrastructure and land use. The present study aims to investigate the physical barriers of inter-urban public transport in six dimensions of stations, urban arteries, urban terminals, urban public parking lots, fuel stations, and public transport urban fleet in the eight urban districts of Ahvaz and seek to answer the following question. What are the most important physical barriers to urban transport development of Ahvaz Metropolis? To this end, the study makes attempts to examine and analyze these barriers and identify the significance of each one in order to prioritize them in terms of effectiveness and weight in Ahvaz transportation planning and then zone each of these barriers in Ahvaz.

In sum, this study identified 36 key barriers to each of Ahvaz public transport land use for analyzing the Land use barriers to public transport development in Ahvaz. These barriers were for public transport stations (9 factors), urban arteries (9 factors), urban terminals (9 factors) and public parking lots (9 factors) This classification is such that it encompasses the different public transport modes in Ahvaz such as those used to measure the public transport stations of the bus and taxi stations. In measuring urban arteries, physical barriers to Ahwaz's various public transport modes such as walking as well as bus and taxi driving were considered. In assessing the barriers related to urban terminals in Ahvaz, eight existing terminals were evaluated. Due to the lack of accurate statistics on types of urban public parking lots such as mechanized and non-mechanized parking, flat or floored, marginal etc. public parking lots, barriers to urban parking lots are generally evaluated inadequate access, organizational carving, weakness of the heating and cooling system, avoidance of health centers, lack of fleet and incompatibility are the major barriers to stations, urban arteries, terminals, parking lots, urban transport fleets and fuel stations, respectively. In addition, zoning these barriers also depicts that most of Ahvaz's zones in terms of stations, urban arteries, urban terminals, parking lots, transport fleets and fuel stations were in the range of relatively inappropriate, relatively inappropriate, relatively inappropriate, relatively inappropriate, very inappropriate, and moderately appropriate levels, respectively.

The present study employed barriers covering each of the six physical dimensions. We then need to rank these barriers to identify the most effective barriers to each of the six dimensions of physical barriers (stations, urban terminals, urban arteries, public parking lots, fuel stations, and transport fleets). The significance of this ranking is that the underlying organizations are not capable of removing all of them at a given time, and removing these berries over certain courses of time is important. To this end, we performed each of the barriers to the six dimensions separately. Until these criteria are met, the extent of the barriers to each of the physical dimensions will be identified; and public transport development planning was facilitated. Eliminating existing barriers is among public transport development strategies. The research findings can be generalized and employed by the Municipal Transport and Traffic Departments, the Urban Housing Agency, the Reconstruction and Renovation Organization, and other related agencies. Collecting and extracting multiple barriers to public transport in each of the applications and categorizing them as a package that informs the related organizations of the status quo one of the significance of the research findings which depict that the geographical distribution of these barriers in the study area is known.

Explaining and analyzing barriers to making public transport intelligent in Ahvaz

In Ahvaz metropolis, when it comes to transport, the traditional ways of running the transport business come to mind. The congestion of vehicles and passengers, the disruption of public transport, and the

tendency to use public transport on the one hand, and the lack of intelligent transport infrastructure and no intelligent transport infrastructure along with economic problems and barriers caused by urban managers are among the main barriers to using public transport. The intercity transport system in Ahvaz is in poor conditions. It lacks sufficient and efficient intelligent devices, for example. In some areas and even throughout the metropolis, there is no the simplest intelligent equipment such as video surveillance cameras, traffic flows cameras, variable message sign (VMS), making intersections intelligent, speed control cameras, Automated license plate readers (ALPRs) cameras, electronic public transport fleet fares payment, automatic vehicle location) (AVL), vehicle height detection and required alerts, and public parking lots information systems.

Reviewing the second five-year development plan of Ahvaz metropolis in the transport and traffic sector over time (2018-2022) proves that the plan is to increase fleet intelligence and productivity of communications networks and transport systems based on existing assets of 40%, while The favorable status of these indicators is 80% according to the same program and 50% is far from the intelligent transport indexes.

Barriers to transport intelligence also have different impact coefficients (physical field) such as inadequate access to intelligent equipment (3H) Internet network problems (1H) incompatible location of intelligent facilities (2H) and most effective factors (2H). 7H) The lack of centralized training facilities (8H) are the most influential physical barriers to intercity public transport Ahvaz.

Explaining and Analyzing Urban Hazards Affecting the Underdevelopment of Public Transport in Ahvaz

Among all types of contamination, dust is the most important, but visual contamination is less effective than other contaminants. Among the tectonic hazards, landslides and earthquakes in Ahvaz have the greatest impact on underdevelopment of public transport. This difference is observed in the hydrological hazards because the floods of the passages and the high groundwater levels are more than other obstacles. In this regard, pollution of the Karun River is the least important factor. Climate hazard analysis also shows that the increase in air temperature is greater than floods and acid rain.

Analyzing and interpreting the human hazards affecting the underdevelopment of public transport in Ahvaz metropolis also show that each of these hazards differs in different dimensions so that among the hazards caused by urban movements there are more mass strikes, strikes and non-destructive factors. Accidents, component hazards, and burning materials are the order of importance of technology-related hazards; and ultimately, the social damage diagram shows that vandalism is more effective than violating traffic laws and risky behaviors.

Solutions

1. Codifying written and transparent rules on public transport and its installation in urban passages (national level);

2. Applying meritocracy criteria in selecting managers (at the national level);

3. Allocating monetary and non-monetary resources to the provincial transport sector based on detailed budgeting forms (at the provincial level);

4. Creating a database and information that includes all factors affecting the public transport sector (at the urban management level);

5. Prevent unnecessary urban growth and fill the empty spaces of the city in order to facilitate public transport services (at the urban management level);

6. Increasing advertisement through digital billboards and billboards to enhance the culture of urbanism to maintain and maintain public transport infrastructure (at the level of urban areas);

7. Informing women of their citizenship rights on the basis of the crime of street harassment, because women who suffer abuse can complain about harassment and follow up on the case;

8. Establishing an organizational unit consisting of the Department of Psychology, Sociology and Urban Planning in municipalities to collect and measure the socio-cultural barriers of women in public transport use;

9. Creating a database for collecting women's socio-cultural information when using public transport;

10. Training and applying the variables of this research in the training programs of the relevant organizations to reduce the socio-cultural barriers of women using public transport, especially in the Taxi and Bus Driving Organization;

11. Comprehensively viewing each and every public transport land use when preparing and implementing urban plans;

12. Severe Judicial Conflicts under Article 687 of the Ta'zir Law of 1996 with Persons Damaging Public Transport Usage Facilities;

13. Establishing an organizational unit consisting of the Department of Urban Planning and Psychology in municipalities to collect and assess the psychological barriers to public transport use;

14. Creating a database for collecting citizens' psychological information when using public transport;

15. Fairly distributing public transport fleets in neighborhoods and urban areas commensurate with the population of each neighborhood and area;

16. Diversifying the public transport fleet, especially the taxi that is more diversified;

17. Establishing and maintaining public transport fleet cooling and heating system due to inappropriate climate of Ahvaz;

18. Teaching travel culture to citizens in keeping the fleet clean, especially bus curtains, seats and etc.;

19. Beautifying terminals, stations and other transport-related space for greater efficiency and thus capital flow to the relevant organizations;

20. Centralized training in the transport of important passengers, drivers and staff of the relevant organizations; and

21. Setting the fare rate in line with inflation indicators and in a specific strategy.

Suggestions for further research

As it turned out, there are many barriers preventing public transport development in Ahvaz. Figure 10 shows the sum of these barriers.

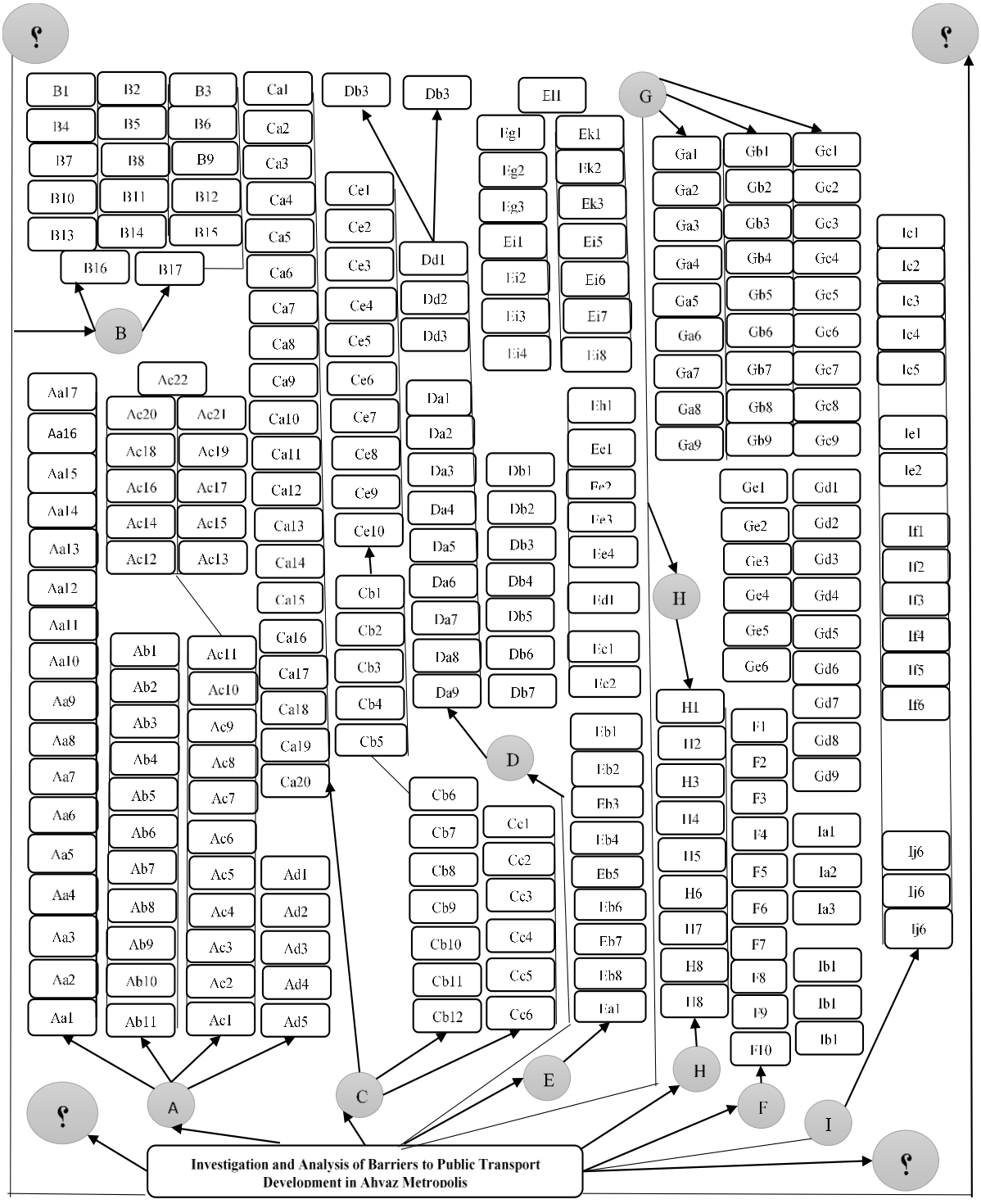


Figure 10. An overview of barriers to public transport development

As seen in the figure. 4, there are four corners of the question mark that indicate that despite the researchers' efforts, the barriers to public transport development still need to be further explored by other researchers. The following topics are therefore recommended to the following researchers:

1. Evaluating parents' awareness of the need for public transport fleet in metropolises and its application in children pedagogy (psychological barriers)

2. Measuring women's awareness of their citizenship rights when using public transport in metropolitan areas (sociocultural barriers)

3. Pathology of urban plans from the perspective of disregarding the barriers of public transport uses (political-managerial barriers)

4. Feasibility study of development of intercity water transport in the Karun river of Ahvaz metropolitan area (next to urban morphology barriers);

5. Investigating and analyzing barriers to water transport development in the Karun river of Ahvaz metropolis (urban morphology barriers);

6. Spatial analysis of the barriers to making bus lines intelligent in Ahvaz (barriers to making intelligent);

7. Spatial analysis of the barriers to making taxi driving intelligent in Ahvaz (barriers to making intelligent);

8. Spatial analysis of the barriers to making public transport intelligent in Ahvaz metropolis (barriers to making intelligent);

9. Spatial analysis of intelligent barriers to public transport development in Ahvaz metropolis (barriers to making intelligent)

References

1. *Afandizadeh, Sh. & Rahimi, M (2011) Transportation Engineering, Principles of Transportation Planning and Modeling, Fourteenth Edition of Iran University of Science and Technology, Tehran.*
2. *Ahmadi, S. A. A. & Jafari, M., 2013, An Analysis of Globalization in Iranian Governmental Organizations (Case Study: Four Ministries of Science, Research and Technology, Islamic Culture and Guidance, Mine Industry, Trade and Sport and Youth, Journal of Strategic Studies in Public Policy Making (Strategic Studies of Globalization), Vol. 4, No. 11.*
3. *Ahvaz Municipality (2016): Ahwaz Metropolis Statistics, Human Resources Planning and Development Department, Ahvaz.*
4. *Ahvaz Municipality (2017): Ahvaz Metropolis Statistics, Human Resources Planning and Development, Ahvaz.*
5. *Ahvaz Municipality (2018) Second Five-Year Plan of Ahvaz Metropolitan Development Period 2000-2010]. Ahvaz.*
6. *Ahvaz Municipality (2018): Second Five-Year Plan of Ahvaz Metropolitan Development, Ahwaz, 2018-2022.*
7. *Akif, K, M. (2018) Transportation and Urban Development:Urban Growth and Spillover Effect of Transportation Infrastructure Investment, Source Title: Handbook of Research on Urban Governance and Management in the Developing World,Copyright,PP 23.*
8. *Alavi, A Moezazbarabadi, Mohaddesse; Divsalar, Asadollah; & Jafari Farhood. (2018)"CNG fuel locations using fuzzy operator techniques and GIS spatial analysis case study: region 7 of Mashhad" Urban Ecology, Volume 7, Number 13, Pp. 18-9 (In persean).*
9. *Alavi, A. Parhizgar, A. Rakneddin Eftekhari, A. Ghalibaf, M. B & Badr Mousavi, (2016)M"Spatial modeling of travel demand based on traffic forecasting and reduction in district six of Tehran". The Journal of Spatial Planning, Vol. 15, No. 4, pp. 43-61 (In persean).*
10. *Alipoura,M., Hafezi,R., AmerdA.M., Akhavan, N. (2018) A new hybrid fuzzy cognitive map-based scenario planning approach for Iran's oil production pathways in the post–sanction period, Energy, Vol 135, Pp 851-864.*
11. *AlKheder, S., AlRukaibi., F and Zaqzouq, A. (2018) Optimal bus frequency for Kuwait public transportation company: A cost view, Sustainable Cities and Society, Sustainable Cities and Society, pp312–319.*
12. *Alonso ,A., Monzo´n A., and Cascajo, R ,2018, Measuring Negative Synergies of Urban Sprawl and Economic Crisis over Public Transport Efficiency, International Regional Science Review,pp 1-38*
13. *Alonso, A., Monzo´n, A., and Cascajo, R. (2018), Measuring Negative Synergies of Urban Sprawl and Economic Crisis over Public Transport Efficiency, International Regional Science Review,pages 1-38.*
14. *Alonso, A.Monzo´n, A. and Cascajo.R . (2018). Measuring Negative Synergies of Urban Sprawl and Economic Crisis over Public Transport Efficiency, International Regional Science Review,pages pp1-38*
15. *Amanpour, S. & Daripour, N (2018) Sustainable Urban Transportation Planning with Emphasis on Bus Fleet Performance in Iran. Tehran: Negaristan Andisheh Publications, Journal of Road, Vol. 23, No. 85, pp. 257-272,2017. (In persean).*
16. *Amanpour, S. Nemati, M & Alizadeh, H (2013)Evaluation and prioritization of sustainable urban transportation indices using fuzzy logic of Ahvaz case study". Journal of Spatial Geography, Vol. 14, No. 4, Islamic Azad University, Ahar Branch, pp. 213-23. (In persean).*
17. *Amanpour, S., & Daripour, N., (2017) Sustainable Urban Transportation Planning with Emphasis on Bus Fleet Performance in Iran, Tehran: Negarestan Andisheh Publications. (In persean).*

18. *Amaya,M., Cruzat,R., M.,Marcela A. (2018), Estimating the residence zone of frequent public ransport users to make travel pattern and time use analysis, Journal of Transport Geography Volume 66, January 2018, Pp 330-339.*
19. *American Psychiatric Association., 2013, Diagnostic and Statistical Manual of Mental Disorders (Fifth ed.). Arlington, VA: American Psychiatric Publishing. pp. 646–49.*
20. *American Public Transportation Association. (2017), PUBLIC TRANSPORTATION FACT 67th Edition,Washington, DC.*
21. *American Public Transportation Association. (2017), PUBLIC TRANSPORTATION FACT 67th Edition,Washington, DC.*
22. *Amirabadi, F., (2015) What are the Psychologies of Transportation?, Tin Newsletter, News Code, 62285. (In persean).*
23. *AngJinLin,,J., Lu G.. Sunb,L., Yin,J (2015) Optimal allocation of protective resources in urban rail transit networks against intentional attacks, Transportation Research Part E: Logistics and Transportation Review,Volume 84, Pp73-87.*
24. *Anowar, S., Naveen, E., Luis, M., Moreno, F. (2018), How household transportation expenditures have evolved in Canada: a long term perspective, Transportation, September 2018, Vol 45, Issue 5, pp26-42.*
25. *Arayi, V., Ghasemi, A., & Moeinifar, Y., 2017, Political Recommendations for Obstacles to Realization of Good Governance in Public Administration (Case Study of Minudasht County Governance and Municipality, Quarterly Journal of Strategic and Public Policy Studies, Vol. 7, No. 25, pp. 113-137.*
26. *Asgari Nodoushan, A., & Sabaghchi, M., (2018) Assessing Youth Needs and Related Political Priorities in Yazd City by Using Performance Importance Model, Journal of Applied Sociology, Vol. 29, No. 70 (2), pp. 39-64. (In persean).*
27. *Asgari, M., & Rahimi, M. (2017). Assessment of social acceptance of bicycle use at metropolitan areas (case study of Tehran Metropolis), Journal of Applied Sociology, 27(1); pp. 185-206.*
28. *Ayodeji, O.,O. (2019), Urban Transport Scicority: Analiss Of Tranzit Crimei N Oosogobo, Negeria, Analele Universităţii din Oradea, Seria Geografie, no. 1,pp.9-18.*
29. *Azimi Ameli, J., & Rezaei, M., 2016, The Role of ICTs in the Management and Regulation of Urban Transportation (Case Study of District 21of Tehran) Quarterly Journal of New Attitudes in Human Geography, Vol. 9, No. 1, pp. 187-205.*
30. *Badri Asl, Sh Foundations of urban transportation system,(2016) First Edition, Tabriz University Press, (In persean).*
31. *Barati, D. P., DARVISHI, M., & HEIDARBEIGI, K., (2016) Neurological Alterations in Cognitive Impairment.*
32. *Basagaña, X. Margarita,T, Mas, Agisabc, D. Pérez,N. Reche,C. Alastue, A Querol,X (2018) Effect of public transport strikes on air pollution levels in Barcelona (Spain), Science of The Total Environment,Vol 6,pp10–61.*
33. *Batur, İ., Koç, M.,2018 Travel Demand Management (TDM) case study for social behavioral change towards sustainable urban transportation in Istanbul, Cities,Volume 69, PP 20-35,*
34. *Beaudoina,J. Lin Lawellb,C (2018) The effects of public transit supply on the demand for automobile travel, Journal of Environmental Economics and Management,Vol 88, Pp 447-467.*
35. *Bel, G., Holst, M ,2018, Evaluation of the impact of Bus Rapid Transit on air pollution in Mexico City, Transport Policy,Volume 63, PP 209-220.*
36. *Bemanian, M. R., Rafieian, M., & Zabteian, E. (2009). Assessing the factors affecting the improvement of women's security in urban environments, Journal of Women's Research, 2(3); pp. 67-69.*
37. *Berechman, J. (2018) Overseeing Institutions, The Infrastructure, We Ride On, pp 127-146.*
38. *Bhattacharya, T (2018) Use of Public Transport by Older Women in Semi-urban West Bengal, India, Indian Journal of Gerontology 2018, Vol. 32, No. 4, pp. 348–363.*
39. *Boko-haya,D.Didier, L,Y. Liao,X. Yao, C. Wang, C. and Qiqi, X (2018) Key Issues and Challenges in Developing Integrated Road Networks Infrastructure With Regional Connectivity: A Study Case of Porto-*

novo in the Republic of Benin, International Conference on Mechatronics and Mechanical Engineering (ICMME 2017), page(p5s).

40. *Bosch,P. Becker,M.Felix, B. Henrik, A.Kay, W (2018) Cost-based analysis of autonomous mobility services, Transport Policy, Transport Policy 64 (2018) 76–91.*
41. *Bouzgarrou, A. R. Claramunt, C. & Rejeb, H. (2019). Visualizing urban sprawl effects of a Tunisian city: a new urban spatial configuration of Monastir, Journal Annals of GIS,Vol, 25,pp71-82.*
42. *Buzarkhomari, Kh., Abdollahi, S., & Torkaman Nia, N. (2011). Women, urban security and transportation, Third Conference on Urban Planning and Management, Ferdowsi University of Mashhad, Iran.*
43. *Buzasi, A., Csete, M. (2015) Sustainability Indicators in Assessing Urban Transport Systems, Periodica Polytechnica Transportation Engineering,p138-145.*
44. *Cetin, T. (2017) The Rise of Ride Sharing in Urban Transport: hreat or Opportunity? Urban Transport Systems, IntechOpen,the first native scientific publisher of Open Access books.*
45. *Chant S., Datu K. (2015) Women in cities: prosperity or poverty? A need for multi-dimensional and multi-spatial analysis, in: the city in urban poverty. EADI global development series. Palgrave Macmillan, London, pp 39-63.*
46. *Chen,Y, H.Chin,W,Tien,C-Yen,W (2011)strategic sdecisionn using the fuzzy promethee floris outsorcing expert system with application, vol38 p131216-131222*
47. *Comprehensive National Transportation Plan., 2016, Office of Transportation Planning and Economics]. Page Numbers 325.*
48. *Cooper, J., Mundy. R. (2016), Taxi! Urban Economies and the Social and Transport Impacts of the Taxica, Routledge Taylor & Francis Group London and New York.*
49. *Coulombel, N., Dablan,L., Gardratc,M., Koning, M. (2018), The environmental social cost of urban road freight: Evidence from the Paris region, Transportation Research Part D: Transport and Environment, Volume 63, Pp 514-532.*
50. *Cruz,R., OtavioMoreira M., TrindadeCâmara,J., José,G., Aragão,Y (2010)outsourcing rural school transportation, brazilian handbook for practiceatthe research transportation29, Pp 312-318.*
51. *Dadashpour, H., Yazdanian, A., & Keshtkar, V. (2017). Identifying and analyzing the factors affecting the equal presence of women in urban public spaces (case study: Shoush Garden in Tehran) Journal of Development and Policy, 2(2); pp. 21-43.*
52. *Davidsson, P., Hajinasab, B.,Holmgren, J., Jevinger, A., and Persson J., A. (2016), The Fourth Wave of Digitalization and Public Transport: Opportunities and Challenges, Sustainability , 8(12).*
53. *Davis Stacy. C., Susan, E.W., and Robert, G. (2018): Boundy 'Transportation Energy Data Book Edition 36, Energy and Transportation Science Division", Oak Ridge National Laboratory.*
54. *Davis, S,C.,Susan, E.,Williams, R., Boundy, G. (2018), Transportation Energy Data Book Edition 36, Energy and Transportation Science Division, Oak Ridge National Laboratory.*
55. *Davood, B., (2016) Traffic Attitudes and Expectations of Passengers in Bandar Abbas Urban Transport System, Bandar Abbas Applied Science and Wellness Center, Iranian National Congress on Social Psychology, Vol. 3. (In persean).*
56. *Diagnostic and Statistical Manual of Mental DisordersAmerican(2013)Psychiatric Associati (5th ed.). Arlington: American Psychiatric Publishing, pp 189–195.*
57. *Domaradzka,A (2018) Urban Social Movements and the Right to the City: An Introduction to the Special Issue on Urban Mobilization, VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations,August 2018, Vol 29, pp 607–620.*
58. *Donchenko, V., Kunin, Y., Ruzski,A., Barishevb,., Trofimenkoc,Y., and Mekhonoshin, v. (2016): Estimated Atmospheric Emission from Motor Transport in Moscow Based on Transport Model of the City, Transportation Research Procedia,Volume 14, 2016, Pp: 2649-2658.*
59. *-Dorantes, L. (2018). An example of working women in Mexico City: How can their vision reshape transport policy? Transportation Research Part A: Policy and Practice.*

60. *Dorantes,L(2018) An example of working women in Mexico City: How can their vision reshape transport policy? Transportation Research Part A: Policy and Practice.*
61. *Duncan,D. Nadella,V.Giroux, S.Bower,A. Graham, J, D(2016) The road mileage user-fee: Level, intensity, and predictors of public support, Transport Policy, Vol 53, January 2017, Pp 70-78.*
62. *Ebrahimi Hejir, M., Ebrahimi Hejir, Z., (2016) A Study of the Concept of Negligence and the Symptoms of the Neglected Person, Third International Conference on Modern Research in the Humanities, Tehran, page No. 14. (In persean).*
63. *Ebrahimi Jam, S & Ahmadian, R (2013)The Reasons for the Formation of Defenseless Urban Spaces in the West Terminal of Tehran City", Journal of POGRA (Research of Police Affairs), Vol. 1, No. 4, pp. 54-76, (In persean).*
64. *Economic Commission for Europu, (2017): The UNECE Transport Statistics for Europeand North America,Volume LVIII, United Nations New York and Geneva.*
65. *Eghbali, H., & Saremi, H. R(2016) An Introduction to Environmental Psychology and its Function in Urban Architecture and Design, Geography, Journal of Civil and Urban Management Studies, Vol. 2, No. 4, pp. 1-10. (In persean).*
66. *Eskandari Sani, M., Moradi, M, & Ebrahimi, A. (2019): Investigating the factors affecting sustainable urban transportation based on green economy theory study: Birjand city, Journal of Urban Research and Planning, Volume 10, Number 37, pp. 13-24.*
67. *Fanni, Z., Ahmadi, T., & Razavian, M. T., (2017) Sustainable Urban Development Strategies Using Network Analysis (Case Study: Tabriz Metropolitan Transport Management Structure) . Journal of Geography and Planning, Vol. 21, No. 59, pp. 221-224 .*
68. *Fazelnia, Gh., Hakim Doost, Y., and Balbani, Y. (2014): A comprehensive guide to GIS-based application models in urban and rural and environmental planning, Third Edition, Zabol University Press.*
69. *Fazelnia, Gharib;H. Doost, Y & Bliani, Yadollah. (2014)Community guidelines for GIS-based applied models in urban rural urban planning", Vol. I, No. 3, Zabol University Press, (In persean).*
70. *Feitelson, E., Cohen-Blankshtain, G. (2018) Public transport planning in a spatially segmented city: The case ofJerusalem, Transportation Research Part A 107, pp65–74.*
71. *Ferdowsi, Sajjad and Shokri Firouz Chah, Perry (2015): Spatial-physical analysis of urban areas based on smart growth indicators, Journal of Urban Research and Planning, Volume 6, Number 32, pp. 32-32.*
72. *Fu, X, .Juan, Z., (2017) Exploring the psychosocial factors associated with public transportation usage and examining the "gendered" difference, Transportation Research Part A: Policy and Practice.*
73. *Furlan, R., Faggion, L. (2015), The Development of Vital Precincts in Doha: Urban Regeneration and Socio-Cultural Factors, American Journal of Environmental Engineering pp120-129*
74. *Ganin,A.,A. Mersky,C., Andrew,S., Jin, K.,Jeffrey.M., Linkov, K. (2019) Resilience in Intelligent Transportation Systems (ITS), Transportation Research Part C, Emerging Technologies.*
75. *Gemma,M.Sabchez,E. Alves,S. and Bott, E. D. (2018). perception driveb Approaches to urban assessment and desing IGI global disse minatory of know ledge.*
76. *Ghaderzadeh, O. & Khazaei, S. (2014). A Qualitative study of the semantic implications of women's feeling insecure in public space, Journal of Women's Development and Policy Making, 12(3); pp. 405-424.*
77. *Ghaffari, A., Khoda Yari, A., & Abedini, S., (2017) Design and Implementation of Intelligent Decentralization System for the Detection of the Driving Senses, Amirkabir Journal of Mechanical Engineering, Vol. 5, No. 5, pp. 1144-1154. (In persean).*

78. *Ghazanfarpour, H., Ghasemi, M., & Rahimi, M. (2019): Strategic planning of safe and psychotic inter-city travel with emphasis on travel goals (case study: Central area of Kerman), Journal of Spatial Planning, Volume 8, Number 3; Pp. 107-130.*

79. *Gholami, Y., Hossein, S. A., Shatarian, M., Mohammadi, A., & Dehghan Jazi, A., 2019, Evaluation of Urban Land Use Impacts on Traffic Generation to Organize and Redistribute Their Spatial Distribution (Case Study: Central Fabric of Kashan City)].Journal Sepehr Geographical Research, Vol. 28, No. 109, pp. 146-167.*
80. *Glasgowa, T .E., Gellera, S., Huyen, T., Steve, K., Hankeyb, L(2018) Travel mood scale: Development and validation of a survey to measure mood during transportation, Transportation Research Part F: Traffic Psychology and Behaviour,Vol 59, Part A, Pp318-329.*
81. *Good, N., Ellis, K., A. Mancarella, P. (2017), Review and classification of barriers and enablers of demand response in the smart grid, Renewable and Sustainable Energy Reviews, Elsevier, vol. 72, pp 57-72.*
82. *Goodarzi, M. Mollai, M. & Abdollahi(2018) M"An analysis of urban tourism spaces in new cities with a women's sense approach, a case study of the new city of Baharestan", Journal of Regional Planning, Vol. 6, No. 22, pp. 97-108 (In persean).*
83. *Gorgizadeh, O & Goodarzi,(2016) M"Locating parking lots via GIS in Yasouj". 4th New Horizons Scientific and Research Conference on Geography and Planning, Architecture and Urban Planning of Iran, Science and Technology Development Association, Scientific Society and Civil Engineering, Tehran, (In persean).*
84. *Gosman,C., Cornea,T., Dobre,C., Pop,F. Castiglione,A(2018) Controlling and filtering users data in Intelligent Transportation System, Future Generation Computer Systems,Vol 78, Pp 807-816*
85. *Gouldson ,A., Sudmant ,A., Khreis ,H., Papargyropoulou, E .(2018) The Economic and Social Benefits of Low-Carbon, Cities: A Systematic Review of the Evidence (Background Paper), conter for cilimate change economic and policy, Coalition for Urban Transport The new climate is a special climate,Pp92*
86. *Gouldson,A. Sudmant,A. Khreis, H and Papargyropoulou,E (2018) The Economic and Social Benefits of Low-Carbon Cities: A Systematic Review of the Evidence (Background Paper), conter for cilimate change economic and policy, Coalition for Urban Transport The new climate is a special climate,p(92p).*
87. *Guerra, E. (2018). the the geography of car own sership in mexico city a joint model of houdeholds residential location and car owhership decsisons,journal of transport geography.43,pp180-171.*
88. *Hang, W., Han,Ch.J. (2016) Experience in managing an urban massive burn incident: The Hangzhou bus attack on 5 July 2014, Burns,Vol 42, Pp 169-177.*
89. *Heidari Sorshajani, R. (2018). Structural modeling of factors affecting women's satisfaction with public transportation system (case study: Kashan city), Journal of Urban Economics and Management, 1(2); pp. 123-128.*
90. *Homayounfar, M., Fadaee Ashkhi, M., & Sedaghat, R., (2018)The Effect of Safety Management System, Ethical Leadership and Self-Efficacy on Safety Behaviors of Employees with Hard and Harmful Jobs in Gilan Production Industries]. Journal of Ergonomy, No. 9, Volume 16, p. 74-65.*
91. *Hosseini Cheshmeg Makani, S. T., Ariana, M., & Abroodi, M., (2018) Traffic Management and Urban Traffic in Tehran from an Economic Perspective, Quarterly].Journal of Urban Economics and Management, No. 15, pp. 97- 111.*
92. *Hosseini Shahparian, N., (2015)An Analysis of Spatial Justice with Emphasis on Public Utilities in Ahwaz Metropolis].Master thesis of Shahid Chamran University of Ahvaz.*
93. *Hosseini Shahprarian, N. (2015): An Analysis of Spatial Justice with Emphasis on Urban Public Services in Ahvaz Metropolis, Supervised by Saeed Amanpour, MA Thesis in Shahid Chamran University of Ahvaz.*
94. *Huanga,Y,W., Linb, C.,Wangc,J (2018) The influence of bus and taxi drivers' public self-consciousness and social anxiety on aberrant driving behaviors, Accident Analysis and Prevention 117, PP145–153.*

95. *Imani, A., Mansouri, F., & Amoi, M. R., (2016) Evaluating Social and Cultural Effects of Geometric Correction of Urban Roads with Geometric Correction of District 18 of Tehran].Journal of Urban Research and Planning, Vol. 7, No. 25, pp. 85-104.*
96. *Imanzadeh, A., & Mobizadeh, M., (2017) Identification of Facilitating and Deterrent Factors in Quality of Life in Elderly Women and Men (A Phenomenological Research), Iranian Journal of Elderly, Vol, 12, No. 4, pp. 430-445. (In persean).*
97. *Internationall forum transport OESD. (2016), Competitive Tendering in Local and Regional Public Transport in the Netherlands, Prepared for the Working Group on Public Transport Market Organisation and Innovation, Discussion.*
98. *Internationall forum transport OESD. (2018), The Social Impacts of Road Pricing Summary and Conclusions, forem Roundtable170.*
99. *Jamali, H., & Shayegan, F. (2011). The role of women's wireless taxis based on women's security in Tehran, Journal of Police Management Studies, 6(1); pp. 95-113.*
Jehangir, B. Rita, K. (2018) "The sexual street harassment battle: perceptions of women in urban India", The Journal of Adult Protection, Vol. 20 Issue: 2, pp.101-109, https://doi.org/10.1108/JAP-12-2017-0038.
100. *Jehangir,B. Rita,K (2018) "The sexual street harassment battle: perceptions of women in urban India", The Journal of Adult Protection, Vol. 20 Issue: 2, pp.101-109*
101. *Jiang, C, P., Rau,P.,2018, Rule obedience as a mediator between normlessness and risky driving in hazy conditions, Transportation Research Part F: Traffic Psychology and Behaviour,Vol 59, Part A, PP 188-194.*
102. *Joelsson, T., Christinaauthor, K. Lind, L. S. (2019). The political in transport and mobility: towards a feminist analysis of everyday mobility and transport planning, integrating gender into transport planning, Palgrave Macmillan, Cham; pp 1-22.*
103. *Joelsson,T., Christinaauthor,k. Lind, l.S (2019) The Political in Transport and Mobility: Towards a Feminist Analysis of Everyday Mobility and Transport Planning, Integrating Gender into Transport Planning, Palgrave Macmillan, Cham,pp 1-22.*
104. *Johnson, H (2017) Why Doesn't She Just Report It? Apprehensions and Contradictions for Women Who Report Sexual Violence to the Police, Canadian Journal of Women and the Law, Vol 29 pp. 36-59.*
105. *Kadlubek, M. (2015), Examples of sutainable development in the area off transport,porocedia Economics sand finan cepv,pp497-500.*
106. *Kanter, A. and Rosenthal,S (2018) Eric, The Right of People with Disabilities to Asylum and Protection from Deportation on the Grounds of Persecution or Torture Related to Their Disability (April 20, 2018). Human Rights Brief,. Available at SSRN.*
107. *Kaszczyszyn ,P., Sypion-Dutkowska ,N.,(2019) Walking Access to Public Transportation Stops for City Residents. A Comparison of Methods. Sustainability, 11, pp37-58.*
108. *Kaszczyszyn, P. Sypion-Dutkowska,N. (2019). Walking Access to Public Transportation Stops for City Residents. A Comparison of Methods. Sustainability, vol 11: 37-58.*
109. *Khaksari, A., Goodarzi Nejad, Sh., & Goodarzi Nejad, B. (2016). The effective parameters on women's intra-city public transport using AHP, 16th International Conference on Traffic and Traffic Engineering, Municipality of Tehran.*
110. *Khazaei, S. A., Sadeghi Moghadam, M. H., & Soltani, M., (2018) Prudential and Assistance Support for Aircraft Travelers' Rights in Case of Airlines Bankruptcy].Quarterly Journal of Public Law, Vol. 19, No. 568, pp. 9-36.*
111. *Khodadadi, N., Ghanbari Khangeh, S., Talkh Khaled Mousavi, M., & Jijou, Sh., (2013) Factors Related to the Onset of Post-Traumatic Stress Disorder, Journal of Nursing and Midwifery, Vol. 24, No. 2, pp. 9-17. (In persean).*
112. *Khuzestan Province Broadcasting Center(2016) Karoon Nights Program. Ahvaz Mayor's Interview on Karoon Nights Program on Sunday, August 15, (In persean).*

113. *Kim, D,-G. Lee,C. and Jung Park, B (2016) Transportation Research Record: Journal of the Transportation Research Board Jan. Vol. 2585, pp. 77-84.*
114. *Kumar, M., Singh, A.T., Sarbojit, G., Sangeetha, P., and Wilson, A. (2016): Informal public transport modes in India: A case study of five city regions, IATSS Research, Volume 39, Issue 2, March 2016, Pp: 102-109.*
115. *Kututa, V., Kazimieras, E., Zavadskasb, M, L., (2013) Assessment of Priority Options for Preservation of Historic City Centre Buildings Using MCDM (ARAS), Procedia Engineering, Vol, 57. PP 657 – 661.*
116. *Laurie, L.L. (2017), Report Crossr OADS Choosing A Future for London Transport in the Digital age, Institute for Public Policy Research, London, pp(p33).*
117. *Levy, C. (2019). Travel choice reframed: "deep distribution" and gender in urban transport: from one to many tracks. pp. 65-43.*
118. *Levy,J. M. Yasemin,. N.,Irvin,E. Vigne, L (2018) A case study of bicycle theft on the Washington DC Metrorail system using a Routine Activities and Crime Pattern theory framework, Security Journal, Vol 31, , pp 226–246.*
119. *Litman , T., 2013, The New Transportation Planning Paradigm, ITE Journal, June*
120. *Litman, T. (2013) The New Transportation Planning Paradigm, ITE Journal, June.*
121. *Liu, X.,Tang, Sh., Lin, Y., Li, Z., Chen, Z .,2017, ACP-Based Management and Control for Urban Passenger Transportation Hubs, IEEE Intelligent Systems Volume: 32 , Issue: 6,pp58-66.*
122. *Liu, X.Tang, Sh. Lin, Y. Li, Z. Chen, Z. (2017) ACP-Based Management and Control for Urban Passenger Transportation Hubs, IEEE Intelligent Systems Vol 32,,pp58-66.*
123. *Liu,Y., Wub,J., Hobc,Kee.,. Huabd,Haiping., Chenb,H. Cena,Y.Songxue. Ch., Hanb,G., Wang,,X. (2018) Epidemiology of bus fires in mainland China from 2006 to 2015, Burns,Volume 44, Issue 4, Pp 995-999.*
124. *Lois Monzón, A., & Hernández, S. (2018) Analysis of satisfaction factors at urban transport interchanges: Measuring travelers' attitudes to information, security and waiting, Transport Policy, Volume 67, Pp 49-56.*
125. *Luiu, C., Tight, M. & Burrow, M. (2018) Factors Preventing the Use of Alternative Transport.*
    a. *Majumdar, S, R. (2017) The case of public involvement in transportation planning using social media, Case Studies on Transport Policy,Volume 5, Pp 121-133*
126. *Majumdar, S, R.,2017, The case of public involvement in transportation planning using social media, Case Studies on Transport Policy,Volume 5, Pp 121-133,*
127. *mari, H., (2014) Urban Psychology of Everyday Life, First Edition, Tehran: Tisa Publications. (In persean).*
128. *Masoud Nia, E.(2014) ،Investigating the Relationship between Social Opportunity Norms and Motorcycle Avoidance in Yazd City. Journal of Applied Sociology, Vol. 25, Serial No. 54, pp. 139-158.*
129. *Masoud Nia, E., (2014) Investigating the Relationship between Social Opposition Norms and Motorcycle Avoidance in Yazd City, Journal of Applied Sociology, Vol. 25, No. 54, pp. 139-158. (In persean).*
130. *Masoud Nia, E., Mirzaei, M., & Chenani Nasab, H., (2016) The Relationship between Perception of Disease and Perceived Social Stigma in Patients with HIV Symptoms, Journal of Jiroft University of Medical Sciences, No 1, pp. 9-12. (In persean).*
131. *Mattson, J., and Fargo, N-D. (20117), Rural Transit, Upper Great Plains Transportation nstitute Small Urban and Rural Transit Center. Pp(p 60).*
132. *McArthur, E, R. Jenny, S. (2019) Socio-spatial and temporal dimensions of transport equity for London's night time economy, Transportation Research Part A: Policy and Practice, Vol. 121; pp 433-443.*
133. *Mehmood, P., Meriton, R.F., Graham, G., Hennelly, P., and Kumar, M. (2017): Exploring the influence of big data on city transport operations: a Markovian approach, International Journal of Operations & Production Management, Vol. 37 No. 1, Pp: 75-104.*
134. *Mendus, S (2005) "Feminism". In Honderich, Ted (ed). The Oxford Companion to Philosophy (2nd ed). Oxford University Press. pp. 291–294.*

135. *Mendus, S. (2005) "Feminism". In Honderich, Ted (Ed.). The Oxford Companion to Philosophy (2nd Ed.). Oxford University Press. pp. 291–294.*
136. *Menouar,H., Guvenc,I., Akkaya,K., Selcuk,U.,A. Kadri.,A . Tuncer,A. (2015) UAV-Enabled Intelligent Transportation Systems for the Smart City: Applications and Challenges, Communications Magazine ,Vol 55 ,pp22-28.*
137. *Mercier, J., Fanny, R.T. C., and Mario Duarte, F. (2018): Governance and Sustainable Urban Transport in the Americas, Publisher NamePalgrave Pivot, Cham, Online.*
138. *Ming Wey, W.,(2017) Sustainable Urban Transportation Planning Strategies for Improving Quality of Life under Growth Management Principles, Sustainable Cities and Society, Volume 44, pp 275-290.*
139. *Mir Baha, B., Omrani, H., & Jahandideh, Z., (2016) Investigation of the Influence of Behavioral Parameters (Latent Variables) on Pedestrian Violations at the Lighted Intersection (Case Study: Qazvin City), Journal of Transportation Engineering, Vol. 9, No. 4, pp. 693 -739. (In persean).*
140. *Mir Moqtadaie, M. & Adli, F. (2018). Development of urbanization based on public transportation and women's security, Journal of Haft Shahr (Special Issue), No. 1; pp. 171-185.*
141. *Mohammadi Deh Cheshmeh, M. & Firoozi, M A(2018)Neighborhood spatial analysis in acoustic uses from the perspective of Ahvaz metropolis". The Journal of Spatial Planning, Volume 22, Number 3, pp. 79-54. (In persean).*
142. *Mohammadi, J. & Rezaei, M(2012)Spatial analysis and locating CNG fuel locations in Shiraz" The Journal of Spatial Planning, Volume 1, Number 4, pp. 132-111,. (In persean).*
143. *Montoro, L., Useche, S., Alonso, F., Cendales, B. (2018), Work Environment, Stress, and Driving Anger:A Structural Equation Model for Predicting Traffic Sanctions of Public Transport Drivers,International Journal of Environmental Research and Public Health — Open Access Journal, Int. J. Environ. Res. Public Health, 15(3).*
144. *Mostaghim, M., Toghyani, Sh., Tabibian, M., & Gandomkar, A. (2018): Investigation of spatial reflection of land use lines in the network of attractions on car-based trips (study area: district 7 of Qom)", Journal of Urban Research and Planning , Volume 9, Number 33, pp. 149-162.*
145. *Mourey,T.Köhler,D (2017) POLIS – European Cities and Regions networking for innovative transport solutions, Juan Caballero, Brussels – BELGIUM.*
146. *Municipality of Ahvaz (2018). Statistical Yearbook of Ahvaz Metropolis.*
147. *Municipality of Ahvaz(2012)Ahvaz metropolitan area statistics, Deputy of Planning and Human Resources Development, (In persean).*
148. *Municipality of Ahvaz(2018) second five-year plan of Ahvaz metropolitan development timeframe 2018-2022, Ahva. (In persean).*
149. *Municipality of Ahvaz, (2018), Second Five Year Program of Ahwaz Metropolitan Development Period 2018-2022, Ahvaz. (In persean).*
150. *Municipality of Ahvaz., (2016) Ahvaz Metropolitan Statistical Office, Deputy of Planning and Development of Human Resources. (In persean).*
151. *Nadarian, H., Taghdisi, M. H., Shojaeizadeh, D., Nejat, S., (2018),The Effects of Sanandaj Urban Traffic Congestion on Social Determinants of Health from the Perspective of Key Residents and Informants: A Qualitative Study]. Journal of Education and Community Health, Vol. 5, No. 17, pp. 50-60.*
152. *Nanaki, E.A., Koroneos, C.J., Roset, J.T., Susca, T.H., Christensen,S.D., Gregorio Hurtado, A., Rybka, J., Kopitovic, O., Heidrich, P., and Amparo, L.J. (2017): Environmental assessment of 9 European public bus transportation systems, Sustainable Cities and Society,Volume 28, January 2017, Pp: 42-52.*
153. *Naqdi, A., & Darabi, S. (2014). Women's access to urban space (case study: Women of Ilam), Journal of Woman in Culture and Art, 6(4); pp. 461-470.*

154. *Nasr Azadani, S. M., & Akbari Varmziyari, M., (2018) Prioritizing Design Options for the Durrod-Andimeshk Railway Using ANP and DEMETEL]. Journal of Transportation Research, No. 57, pp. 104-129.*

155. *Nasrollah Tabar, A. & Izadi, A. (2017): An Introduction to Traffic Engineering, Second Edition. Tehran: Avar Book Publication.*

156. *National Institute for Transportation and Communities(2017) CHANGING ATTITUDES TOWARD,SUSTAINABLE TRANSPORTATION: THE IMPACT OF META-ARGUMENTS ON PERSUASION, P.O. Box 751 Portland, OR 97207.*

157. *Nolan, R, W. (2017) Dev elopmental Nthropology, encounters in the real world, Rout iedge, Taylor francis, new york, London, pP(p59).*

158. *Olde, K., Minou C,A.. Ruud, H., Teuntera, J., Veldmana, M., Zied, B. (2018) Condition-based maintenance for systems with economic dependence and load sharing, International Journal of Production Economics Vol 195, January 2018, Pp 319-327.*

159. *Ostad Jafari, M. & Rassafi, A. A(2011), Evaluating Sustainable Development Policies in Urban Transport Sector Using Dynamic System Models (Case Study: Mashhad)].Journal of Urban Management, Vol. 11, No. 21, pp. 281-294.*

160. *Peterson, R., Littman, T., & Andrea, B., (2015), Sustainable Urban Transport Management].M. Shorecheh (Trans.).First Edition, Tehran: Parham Nagh Publications.*

161. *Poorahmad, A., Ziyari, K., Hataminejat,H., Rezaei Nia, H., (2018) Analysis of Public Space control in Parks in Tehran, Urban Planning Geography Research, Vol,9, No.4,pp 643-679. (In persean).*

162. *Pour Ahmad, A., Arvin, M., & Rahimpour, N. (2017). Assessing women's security in urban areas: A case study of Ahvaz city, Journal of Urban Studies, No. 23; pp. 53-68.*

163. *Pour Ahmad, A., Ashrafi, Y., & Rashidi, T. (2013). Transformations of women's presence in urban public space case study of Tabriz El Goli and Khaghani parks, Journal of Women in Development and Politics, 1(2); pp. 351-376.*

164. *Pour Taher, M. Bagheri Serangjia, N& Rokneddin Eftekhari, Abdolreza. (2016) "Evaluating transport accessibility and its role in the development of rural settlements". The Journal of Spatial Planning, Vol. 16, No. 4, pp. 89-110. (In persean).*

165. *Pourmohammadi, M. R (2015) Urban land use planning, Twelfth Edition, Tehran: SAMT Publications. (In persean).*

166. *Pourmohammadi, M. R., Khazrnejad, P., Ahmadi, F., & Jahanbin, R. (2015). Investigating the adaptation of urban public spaces to the needs of women in Urmia, Journal of Women in Development and Politics, 1(1); pp. 23-40.*

167. *Pourmohammadi, Mohammad Reza & Badri Asl,(2018) Shirin. "An analysis of the pattern of location of urban subway stations, case study of Tabriz city". Journal of Geography and Urban Planning, Vol. 20, No. 60, pp. 53-71, (In persean).*

168. *Qingsong,H, Yaolin L. Chen,Z.Yin,C(2018)School of Resource and Environmental Science, Wuhan University, Wuhan, Hubei Province, P.R. China,View further author information, & Ronghui Tan.*

169. *Rafieian, M. Asgari Nosrati, H & Esfandiar, Sedighi. (2010)Application of transport-based development approach in urban land planning and usage, sample study of Sadeghieh metro station". The Journal of Spatial Planning, Vol. 4, No. 3, pp. 296-312, (In persean).*

170. *Rahman, F. Chowdhury,T. Datta, H,Tanvir, R. Rezwanur, I.,Aminul (2017) Identifying Existing Bus Service Condition and Analyzing Customer Satisfaction of Bus Service in Dhaka City, Journal of Transportation Technologies,, 7, PP107-122.*

171. *Rahman, F., Chowdhury,T., Datta, H.,Tanvir, R., Rezwanur, I.,(2017), Identifying Existing Bus Service Condition and Analyzing Customer Satisfaction of Bus Service in Dhaka City, Journal of Transportation Technologies,, 7, PP 107-122.*

172. *Rahnama, M. R. & Farghani, H (2010)Bus access planning in Mashhad, Iran ". The Journal of Spatial Planning. Vol. 12, No. 2, pp. 74-96. (In persean).*
173. *Rahnama, M. R., & Hejazi Joshghani, M(2017), Employing Project Risk Management Knowledge to Develop Strategies for Improving Participation in Public and Private Urban Projects (Case Study of Mashhad Municipal Participatory Projects)].Journal of Urban Research and Planning, Vol. 8, No. 26, pp. 1-22.*
174. *Rahul,T.M,Verma.ashish,Dixit,malvika(2015)sustainability impatt assessment of transportation policies acasevstudy for Bangalore city, Case Studies on Transport Policy.*
175. *Raisi, F., Ghasemzadeh, H., Misami, A. P., Firouzi Khojastehfar, R., Moghaddam, N., & Sarayani, M., (2015) Sexual Dysfunction in Patients with Obsessive-Compulsive Disorder, Faculty of Medicine, Tehran University of Medical Sciences, Vol. 73, pp. 101-109. (In persean).*
176. *Raisi, S., Hamzeh, A., & Makui, A., (2011) ، Multi-criteria hybrid model design for six-sigma project selection].Journal of Operations Research, Vol. 8, No. 4, pp. 71-92.*
177. *Rana,N. Luthra,P. Sachin, S. Mangla,R. Kumar, R.Sian, D. Yogesh, K. (2018) Barriers to the Development of Smart Cities in Indian Context, Information Systems Frontiers,A Journal of Research and Innovation,Vol21,pp1-23.*
178. *Rana,N., Luthra,P., Sachin, S., Mangla,R., Kumar, R.,Sian, D., Yogesh, K.,(2018) Barriers to the Development of Smart Cities in Indian Context, Information Systems Frontiers,A Journal of Research and Innovation,pp1-23*
179. *Rastogi,A. Albert,V. Mukherjee,R. Mainak(2018) A Review of Vehicular Pollution and Control Measures in India, Advances in Health and Environment Safety pp 237-245.*
180. *Rezazadeh, R., & Mohammadi, M. (2009). Investigating the factors restricting the presence of women in urban space, Journal of Fine Arts in Urban Architecture, No. 38, pp. 105-114.*
181. *Riahi, M. E., & Lotfi Khachaki, T. (2015). Types and dimensions of individualized and interpersonal street harassment among female students of Mazandaran University, Iranian Journal of Social Studies, 12(44); pp. 50-66.*
182. *Riahi, M. E., & Lotfi Khachaki, T., (2016) Social Analysis of Factors Affecting the Rate of Street Harassment for Women and Girls (Case Study of Female Students of Mazandaran University), Journal of Strategic Research in Social Security and Order, Vol. 2, No. 2, pp. 69-88. (In persean).*
183. *Riggs, W. & Schwartz, J. (2018). The impact of cargo bikes on the travel patterns of women, Journal Urban, Planning and Transport, Research An Open Access Journal Volume 6, - Issue1, pp95-107.*
184. *Riggs,W and Schwartz,J (2018) The impact of cargo bikes on the travel patterns of women, Journal Urban, Planning and Transport,Research An Open Access Journal Volume 6, - Issue1, pp95-107.*
185. *Road and Transportation Organization. Social approach to transportation(2016) of the Ministry of Urban Development of Iran,. Vol. 5, No. 5, Budget Office. (In persean).*
186. *Rodrigue, J.P. (2013), The Geography of Transport Systems,Routledge talor fracisgrou, london and neyork.*
187. *Sadeghi Fassaei, S. & Nikdel, N. (2015). A qualitative study of how actors perceive and perceive humiliating instances, Applied Sociology, 26(57); pp. 41-58.*
188. *Sadeghi, A. & Ahmadi, F (2019)Reading components of location in urban environment design (case study of historical fields of Naghshjan, Ganjalali khan, del Campo, and grant police". Journal of Technology and Environment, Volume 19, Issue No. 5, pp. 570-59, (In persean).*
189. *Safari Nia, M., (2014), An Introduction to Urban Psychology, First Edition, Vol. 2, Tehran: Tisa Publications. (In persean).*
190. *Saffari Nia, M., (2014) An Introduction to Urban Psychology, First Edition, Volume One, Tehran: Tisa Publications. (In persean).*
191. *Saffarzadeh, M. & Mazlum, S(2015)Presentation of an integrated fleet allocation model and schedule of the radiofrequency bus transportation". Moddares Journal of Civil Engineering Research, Vol. 15, No. 1, pp. 105-97, (In persean).*

192. *Saghafi, A., Bolu, A., & Mehdi Dana, M., (2015) The Relationship between Quality of Profit and Non-Information Symmetry]Journal of Empirical Accounting Research, Vol. 4, No. 16, pp. 1-16. (In persean)*
193. *Sarvar,R,., & Amini, M., (2013) Social Impact Analysis and Evaluation of Urban Traffic and Transportation, First Edition, Tehran: Tisa Publications. (In persean).*
194. *Schreieck, M., Pflügler, C., Soto S., David,W., Manuel, K.H. (2018), Improving Urban Transportation: an Open Plat-Form for Digital Mobility Services,Digital Marketplaces Unleashed pp 479-489.*
195. *Seifeddini, F. & Shourcheh, M(2014) Intelligent land use planning and urban transportation, Second Edition, Tehran: Nowruz Managers Publications,. (In persean).*
196. *Senaratne, H., Mueller, M., Behrisch, M., Lalanne, F., Javier, B., Jiménez, J. (2018), Urban Mobility Analysis With Mobile Network Data: A Visual Analytics Approach, Browse Journals & Magazines, IEEE Transactions on Intellig, Vol 19, Pp1537 – 1546.*
197. *Seyyedan, Fariba (2018). Women and the quality of life: A look at women's quality of life in cities. Tehran: Tisa Publications.*
198. *Shahi, J(2014)Traffic engineering, 12th Edition, Tehran: University Publishing Center. (In persean).*
199. *Shahi, J., (2014) Traffic Engineering].Twelfth Edition, Tehran: University Publishing Center.*
200. *Shahraeeni, M., KouroshMalek, A., Van, B., lend, D., and Kjeang, E. (2015): Life cycle emissions and cost of transportation systems: Case study on diesel and natural gas for light duty trucks in municipal fleet operations, Journal of Natural Gas Science and Engineering,Volume 24, Pp: 26-34.*
201. *Sham, R, Soltani, S. H. Khalifah, Sham, M, Suhana,M (2018) Travel Pattern and Fear of Crime among Women Commuters, Journal of ASIAN Behavioural Studies,Vol 3, No 7,pp131-139.*
202. *Sham, R. Soltani, S. H. Khalifah, M., & Suhana, M. (2018). Travel Pattern and Fear of Crime among Women Commuters, Journal of ASIAN Behavioural Studies,Vol 3 No 7,pp131-139.*
203. *Shatarian, M., Sohrabzadeh M., Emamali Zadeh, H., & Hosseinizadeh, S. S., (2017) Identity Crisis And Social Isolation in New Cities and Its Relationship with Satisfaction with Residence (Case study of Pardis New Town), Journal of Urban Research and Planning, Vol. 8, No. 28, pp. 111-134. (In persean).*
204. *Sheikhi, H., & Rezaei, M. R. (2017): Environmental quality assessment of pedestrian urban spaces and social responsibility (Case Study of Ferdowsi Street of Ilam), Journal of Urban Research and Planning, Volume 8, Number 28, pp. 83-98.*
205. *Shi, J, Wen, Sh, Zhao, X, ID,Orc and Wu,G (2019) Sustainable Development of Urban Rail Transit Networks: A Vulnerability Perspective, Sustainability, Vol 11,pp13-35.*
206. *Shi,Y. Xie, X.Chi,H. Fung,J.Ng,E (2018) Identifying critical building morphological design factors of street-level air pollution dispersion in high-density built environment using mobile monitoring, Building and Environment,Vol, 128,, Pp 248-259.*
207. *Shibayama, T. (2017) Organizational structures of urban public transport- a diagrammatic comparison with UML, World Conference on Transport Research- WCTR 2016 Shanghai. 10-15, Transportation Research Procedia pp3674–3693.*
208. *Shokooh, R. Nikitas, A. (2017). Urban growth, and transportation in Kuala Lumpur: Can cycling be incorporated into Kuala Lumpur's transportation system? Case Studies on, Transport Policy,Vol 5pp615-626.*
209. *Sinha, C.,(2003) Sustainability and Urban Public Transportation, Journal of Transportation Engineering,Vol. 129, Issue 4 .*
210. *Soltani, A., Fallah Menshadi, E., (2016), Citizens 'and Drivers' Satisfaction with Taxi Services (Case Study of Shiraz City)].Journal of Urban Research and Planning, Vol. 7, No. 27, pp. 21-36.*
211. *Soltani, A (2016) Urban Land Use Planning, First Edition, Shiraz University Press. (In persean).*
212. *Song, L, Kirschen, M,John, T (2018) Women on wheels: Gender and cycling in Solo, Indonesia, Department of Geography, National University of Singapore, Vol40, Pp 140-157.*

213. *Sorour, R., & Amini, M. (2014). Analyzing and evaluating the social and cultural impact of urban traffic and transportation. Tehran: Yasta Publications.*
214. *Sorour, R., & Amini, M., (2014) Analysis and Assessment of the Social and Cultural Effects of Urban Traffic and Transportation].First Edition, Tehran: Yasta Publications.*
215. *Stanley, J.Brain, P., Cunningham, J. (2017) Improved public transport services supporting city productivity growth: an Australian city case study, Bus Industry Confederation, O Box 6171, Kingston, ACT, 2604, Australia,Kingston, ACT.*
216. *Sun, Ch., Luo, Y. long, L. J. (2018). Urban traffic infrastructure investment and air pollution: Evidence from the 83 cities in China, Journal of Cleaner Production Volume 172; pp. 488-496.*
217. *Sun,C. Luo,Y.Li,J (2018) Urban traffic infrastructure investment and air pollution: Evidence from the 83 cities in China, Journal of Cleaner Production,Vol 172, Pp 488-496.*
218. *Sun,Ch. Luo,Y. long,LJ (2018) Urban traffic infrastructure investment and air pollution: Evidence from the 83 cities in China, Journal of Cleaner Production Vol 172,, Pp 488-496.*
219. *Sundaravalli, N., 2017, Urban transportation: innovations in infrastructure planning and development", The International Journal of Logistics Management, Vol. 28 Issue: 1, pp.150-171.*
220. *Tandiseh, M. & Rezaei, M. R(2019) Strategic Planning of Sustainable Urban Transportation in Iranian Metropolis (Case Study: Mashhad City" Journal of Transportation Engineering, accepted online publication, (In persean).*
221. *The World Bank Group(IBRD). (2009), Air Transport Annual Report,: IDA: International Development Association, IFC: International Finance Corporation, MIGA: Multilateral Investment Guarantee Agency, Fiscal Year 2009 pp(p 48).*
222. *Tolbert,Amy S,McLean Gary N, MyersRay C (2002)creating the global learning rganization(glo) enternational journalof intercultural relations, Pp463-472.*
223. *Torres,P, A. Caballero, Rafael , L,Igor, I.Fernando ,L. Vasant, P (2018) The urban transport planning with uncertainty in demand and travel time: a comparison of two defuzzification methods. Journal of Ambient Intelligence and Humanized Computing June 2018, Volume 9, Issue 3, pp 843–856.*
224. *United Nations Economic Commission for Europe. (2013) Climate Change Impacts and Adaptation for International Transport Networks, United Nations New York and Geneva pp(p 201).*
225. *Vanhove, N. (2018), Regional Policy A European Approach, Edition 1st Edition, eBook Published, location London, ISBN 9780429826160.*
226. *Vasconcellos E.A. (2017), Emerging Economies, The Urban Book Series, Brazilian Public Transport Association (ANTP), São Paulo, Brazil*
227. *Wang, A.,Chao ,X., Zhou, X., Nedjah, N .,(2016), Soft computing in big data intelligent transportation systems, Applied Soft Computing ,Volume 38 , Pp 1099-1108.*
228. *Wang, A.Chao,X. Zhou, X. Nedjah, N. (2016) Soft computing in big data intelligent transportation systems, Applied Soft Computing,Vol 38, Pp 1099-1108.*
229. *Wang, H.,Yuan, X., Cao, L.,Yang, Y .,(2017), Evaluation and zoning of various urban land spaces based on restrictive indicators: the case of Shanghai, China, World Journal of Engineering, Vol. 14 Issue: 4, pp.307-317.*
230. *Wang, H.Yuan, X. Cao, L.Yang, Y. (2017) Evaluation and zoning of various urban land spaces based on restrictive indicators: the case of Shanghai, China, World Journal of Engineering, Vol. 14, pp.307-317.*
231. *Wei, F., Koc, E., Soibelman, L., Li, N. (2018), Disaster Economics and Networked Transportation Infrastructures: Status Quo and a Multi-disciplinary Framework to Estimate Economic Losses, Workshop of the European Group for Intelligent Computing in Engineering EG-ICE 2018: Advanced Computing Strategies for Engineering pp 3-22.*
232. *Wolnowska,E. Konicki, (2019) Multi-criterial analysis of oversize cargo transport through the city, using the AHP method, Transportation Research Procedia,Vol 39,pp 614-623.*
233. *World Health Organization. (2016). ICD-10 Version, 2016. Published onl online.*

234. *Yaghfouri, S. Fotouhi, Hossein; & Masjedi, N. (2016)Investigation of Spatial Distribution of Public Parking and its Optimal Location (Case Study: District 2 and 8 of Shiraz Municipality". Urban Research and Planning, No. 24, pp. 173-190, (In persean).*
235. *Yang, T.H. (2015), Power Point Chapter 8 Air Transportation, Book: International Logistics: Global Supply Chain Management by Douglas Long pages Slides 31.*
236. *Yun, H., Ling, Y., Shing, C.D. (2017), Oil Price Uncertainty, Transport Fuel Demand and Public Health, Int. J. Environ. Res. Public Health.*
237. *Zali, N., & Mansouri Birjandi. A. (2015). Analysis of key factors affecting sustainable transportation development in horizon 1404 of Tehran Metropolis via SEM, Journal of Space Planning and Preparation, Vol. 19; pp. 1-31.*
238. *Zali, N., & Mansouri, S., (2015) Analysis of Key Factors Affecting Sustainable Transportation Development in Tehran Metropolis in Iran's Vision Policy of 1404 (Structural Analysis Method)].Journal of Spatial Planning, Vol. 19, No. 2, pp. 1-19.*
239. *Zali, N., Rahimi, Y., & Chareh, N. (2015). Evaluation and critique of the design and empowerment of informal settlements, Journal of Urban Research and Planning, 6(23); pp. 115-232.*
240. *Ziyari, K(2014)Urban land use planning, Fifth Edition, Tehran: University of Tehran Press. (In persean).*
241. *Ziyari, K., (2014), Principles and Methods of Regional Planning].Twelfth Edition, Tehran: Tehran University Press. (In persean)*
242. *Ziyari, K., Haji Sharifi, A., & Ramazanzadeh, M. (2013): Evaluation of Satisfaction with the BRT System; Case Study of Line 3 of Khavaran Science and Technology Terminal, Journal of Spatial Planning, Volume 3, Number 1, pp. 57-74.*
243. *Zorrilla,M.C, Hodgson,F. Jopson,A(2019) Exploring the influence of attitudes, social comparison and image and prestige among non-cyclists to predict intention to cycle in Mexico City, Transportation Research Part F: Traffic Psychology and Behaviour,Volume 60, Pp 327-342.*