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Subject
Residential mobility and spatial disparities in Tehran metropolitan region

Problem Statement
The interplay of centrifugal forces, propelling population divergence, and centripetal forces, propelling population convergence, in metropolitan regions tends to result in residential mobility. Considering the hierarchy of cities in Iran and the role of the city of Tehran in the country[1], the conflict between two forces has specially affected the population dynamics of Tehran metropolitan region[2], bringing about many spatial consequences for the region as well. The growth of the city of Tehran, new developments occurred in varying distances from this city, structural changes specifically in rural areas, widespread land-use changes in the region specially in environmentally advantageous ones, are some examples of the changes that this metropolitan region has gone through during the last 30 to 40 years.

Since the formation of Tehran metropolitan region, a number of plans have been prepared to guide and balance the evolution of the region. Comparing this plans with what has been realized in reality proves that the spatial evolution of the region has not taken place in conformity with the plans. Recognizing the factors and forces guiding the mobility and spatial changes in the region can be useful in effective planning of it, a trait which does not have much resonance in the current approach to planning in Iran.

A new approach to understanding the changes in the region gain more importance when considering the new orientations in planning and human science which are gaining momentum due to the new dynamics of urban change caused by the use of information technology, globalization, economic change and etc. Therefore, acquiring an approach which accounts for the factors, forces, actors and relations that in actuality guide the evolution of the region, can be of great importance in moving towards regional equilibrium.

Since residential mobility can affect (re)production of spatial inequalities, assessing the spatial consequences of current residential mobility trends in the region is useful as well. Achieving such an understanding can also be helpful when deciding about possible interventions in the region.

This research aims to recognize and assess the forces and factors guiding residential mobility and evaluate the impact of this mobility on spatial inequalities. Generally these factors can be categorized into two types: factors related to the individual and household characteristics and the decision making process within this unit (mostly studied about in sociology and demographic studies) and the factors affecting this decision from the outside (policies and environment). The goal of this research is to study the second type of factors. These factors may stem from different scales (national, regional, local) or geographic arena (metropolis, metropolitan region or beyond).

In a time when traditional notions of space and place and consequently other notions such as region, urban, rural and metropolitan region are being challenged, a deep engagement with the new perspectives on the context of new theories on how to view and understand the world as it is right now, provides a useful framework for developing a revitalized residential mobility research agenda which can grapple with new contexts, data and

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[1] Tehran is introduced as the Primate City of Iran (Zebardast, 2007)
[2] The population of the region has increased from nearly 5 million in 1976 to more than 13 million in 2006.

methods thus taking residential mobility research in the new directions suggested by the interplay of contextual change, analytical advances and theoretical innovation.

Methodological study of residential mobility as one of the existing dynamics of Tehran metropolitan region provides a deeper understanding of the spatial evolution of the region and its trajectory towards more or less spatial inequalities which ultimately can be useful in achieving a more effective planning.

Significance of the research

Four eras can be discerned in the process of the formation of Tehran metropolitan region: 1) the formation of historic Tehran, 2) modernization and the formation of new Tehran, 3) the formation of the metropolis of Tehran and 4) formation of metropolitan region of Tehran (1970s up to now) (Hajipour, 2009). It seems that the policies and actions initiated in late 1960s with the purpose of slowing the rate of growth in the city of Tehran (Zebardast, 2007) have led to the formation of Tehran metropolitan region. The region has gone through significant spatial evolution during this time-period. Understanding the dynamics of this evolution and the forces and factors guiding the changes seems necessary in order to move towards more balanced and sustainable decisions.

Hajipour (2009) introduces the economic pattern of dependant capitalism, land reform and its consequences and oil-price and oil-revenue as the driving factors of urbanism in Iran and consequently categorizes the significant factors at play in the formation of Tehran metropolitan region as follows: population growth and migration, investments in infrastructure, road networks, governmental policies of industrialization and decentralization, formation of unofficial settlements, institutional and political fragmentations, sub-urbanism and scattered growth (Hajipour, 2009). This research shows that population mobility with the aim of residency has been, and continues to be, one of the prominent trends guiding the spatial evolution of the region.

It seems that when researching about the dimensions of a phenomenon such as metropolitan regions or residential mobility, it is important to do so considering the changes occurred in the context and essence of the relations and trends in these regions. In a time of intensive globalization, industrial change, capitalist reorganization and environmental risk, as well as economic and human mobility, the way the relations and trends are formed and how they affect the space have been altered and traditional notions of space and place have been disrupted. For example virtual relations, high-speed transportation and the type and intensity of people's participation have all brought about new dynamics to the system of urban and metropolitan areas.

Therefore, in this research, it is very important to choose an approach that can best deal with the notions of residential mobility, relations, actors, metropolitan regions and spatial equity in a complex and relation-oriented context.

It seems that the life course approach has a valuable feature in which it guides us to link residential mobility to the wider structuration of society. By conceptualizing residential mobility as recursively linking the actions of individuals to the (re)production of spatio-temporal structures, life course theories emphasize that residential mobility acts as an 'engine of structuration'1 across a range of spaces and scales. This recursive interplay of people and places through residential mobility is never divorced from power relations ((Bailey, 2009) (Coulter, Ham, & Findlay, 2013)). Coulter et.al argue that a deeper understanding of these processes can be gained through operationalizing and extending the concept of 'linked lives' developed in life course research. By highlighting that the life of an individual cannot be understood without considering the lives of others they are linked to across space-time (for instance family members or friends), the life course perspective (together with literature on transnational households) emphasizes the relationality of residential mobility and immobility behavior (Coulter, Ham, & Findlay, 2013).

Recent years have witnessed a burgeoning work on 'thinking space relationally'. According to its advocates, relational thinking challenges human geography by insisting on an open-ended, mobile, networked, and actor-centred geographic becoming (Jones, 2009). Clearly this approach brings about implications for quintessentially every aspect of planning, not in terms of formulating a new system but simply as a basis for a better and more

timely understanding of the existing condition, as it views the people, the places and the goals in a new light. Exploring residential mobility in Tehran metropolitan region with such an approach can help not only in a better understanding of the variables and changes but also provide a more accurate basis to answer the question of the shift towards a more balanced or unbalanced state in the region.

In this approach the main epistemological questions shifts from the autonomy of systems relative to their environment, towards the identification of attractors governing their dynamics (Pumain, 2003). As a whole, the tendency to represent a theoretical orientation where actors and the dynamic processes of change and development engendered by their relations are central units of analysis can be termed as relational turn (Boggs & Rantisi, 2003). As Boggs and Rantisi mention, in more traditional views, the attempts to understand a phenomenon have focused on "general laws, regulations and patterns" whereas in a relational approach "the extent and nature of interaction of key agents are the central focus of analysis".

As was mentioned, a very important aspect of such an approach is recognizing the actors at play in the context. Healey (2007) categorizes the key actors in spatial strategy making as follows (Figure1):
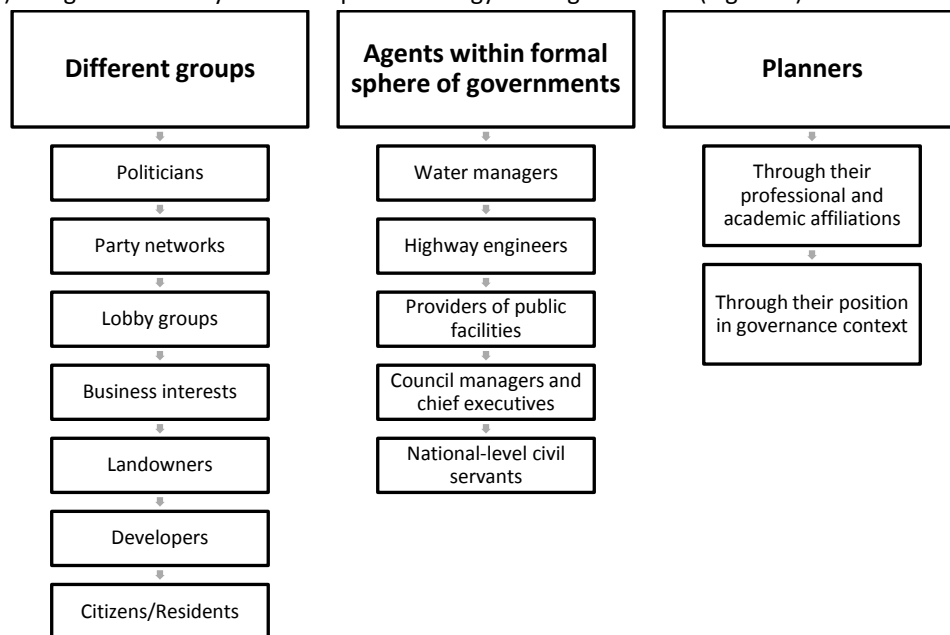
Different groups	**Agents within formal sphere of governments**	**Planners**
Politicians	Water managers	Through their professional and academic affiliations
Party networks	Highway engineers	Through their position in governance context
Lobby groups	Providers of public facilities	
Business interests	Council managers and chief executives	
Landowners	National-level civil servants	
Developers		
Citizens/Residents		

Figure1 : Key actors in spatial strategy making (Healey, 2007)

Urban mobility refers to the movement within an urban area, residential mobility of households housing changes. Mobility occurs at different time scales: daily travel (commuting, commuting), weekend, holiday, more sustainable location changes (residential mobility, migration). There has been researches trying to understand these various types of mobility as a system to better analyze the interdependencies between daily mobility and residential or between spatial mobility and social mobility. Residential mobility in this sense is the change of residence by a household. Often linked to social or professional mobility of individuals or the evolution of their family situation, residential mobility can affect the location (change of district, commune, department ...), the type of accommodation (apartment, house) , size and occupancy status (rental, homeownership) (Mobilité , 2002).

A wide range of factors can contribute to residential mobility, factors stemming from local to national and even in some cases global origins. Economic, legal and administrative decisions in these levels (specially the local level in the case of Tehran metropolitan region) and also the outcome of these decisions in terms of land prices, labor market, new developments, transportation network, type of services and industries, ant etc can affect the residential mobility trends in regions and bring about spatial changes. Discovering and understanding the reasons

generating and guiding residential mobility in Tehran metropolitan region can be of great importance when making decisions and planning effective interventions in the region.

When explaining why immigrants live where they do, Pendall and Hoyem (2009) recognize four main sets of explanatory variables: (1) characteristics of the immigrant household,(2) established activity and settlement patterns, (3) characteristics of the built environment, and the (4) urban policy environment (Figure2) (Pendall & Hoyem, 2009). The arrows demonstrate the interplay of these variables. Based on the objectives, in this thesis, the main focus will be on the decisions regarding residential policies and built environment and therefore the underlying reasons of individual decisions in households will not be explored.
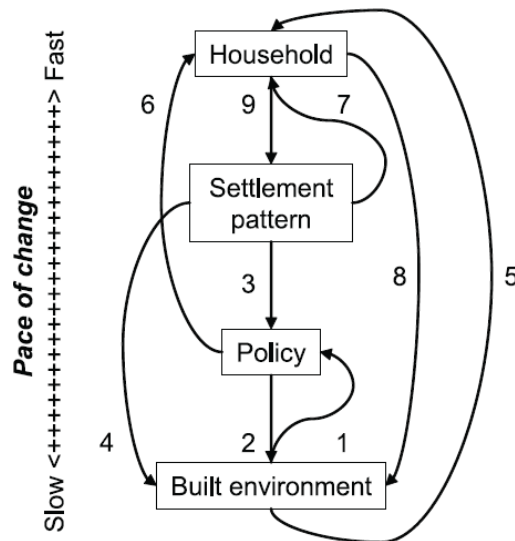

Figure2 : Explanatory variables of residential mobility (Pendall & Hoyem, 2009)

Coulter et al believe that residential mobility studies are faced with two contemporary challenges: power relations and demographic trends. they state that in regards with power relations, poststructural notions of the uneven geography of power relations is at the heart of residential mobility and immobility research and exploring the normative politics of residential mobility and immobility is a second important direction for research. By highlighting how power flows through discourse, poststructural theories allow us to identify and critique how state actors propagate a normative view of mobility which constructs the (non)movements of particular groups. As population distribution configures the geography of demand for services and infrastructure, it is also vital for population geographers to link residential mobility and immobility to demographic trends such as population ageing, growing ethnic diversity, and increasingly varied and complex family structures and domestic living arrangements (Coulter, Ham, & Findlay, 2013)

Reviewing the existing literature shows that a number of reasons are closely related to residential mobility including: the regional and national economy (employment, labour expenses, etc) (L'évolution de la mobilité résidentielle, 2014), housing market (housing price, vacancies, construction activities, etc) (Malaitham, Nakagawa, & Matsunaka, 2013), housing search (rate of household search, opportunities to enter the market, acceptance rate of these opportunities) (Hooimeijer & Oskamp, 1996), population variables and laws and regulations (local, regional, national). This research aims to determine which factors in what levels are affecting the state of residential mobility in Tehran metropolitan region.

Since residential mobility can affect the spatial inequalities, another aim of this research is to assess the consequences of existing residential mobility trends on spatial equity in the region. To answer this question, it seems necessary to provide an assessment framework. The questions of balanced growth and spatial inequalities are usually answered using the literature of growth patterns, each of which are rooted in an specific planning approach. When the focus of planning is the relations, flows and actors, there are often two main terms used for

the development in metropolitan regions: polycentric development and the process of metropolisation, which are in some aspect similar. Using these notions, a framework can be provided for the assessment of spatial inequalities.

Polycentrism arises as a result of the existence of a set of integrated urban centers in the urban region, with high potential of attractiveness, competitiveness and internationalization. It embodies the idea that a metropolitan urban area might generate a structure consisting of multinuclear peripheral urban areas, with which the 'central city' establishes a series of complementary relations, even though the economic relations established by these cities might be independent of the central city. This multinuclear scheme is due, in large measure, to the extension of the original metropolitan centers into the spread of job centers and equipments. As Castelles (1997) states, these sub-centers play an important economic dynamic because they turn into focal points of work, commerce and entertainment, which result in a pattern of urban concentration in a smaller scale than the central city (Nunes, Mota, & Campos, 2011). Metropolisation also has a more or less similar definition. Metropolisation is characterized by an increasing concentration of population, wealth production, strategic services and command functions in urban areas (Delmas, 2011). Or from an economic point of view, a process by which a city gains major functions of coordination of complex economic activities (Bourdeau-Lepage, 2011). Metropolisation is often described as a set of two-fold selective dynamics: the concentration of conception, command and coordination functions in major urban areas and their parallel deconcentration within these urban areas (Halbert, 2007).

To conclude, identifying the reasons and drivers of this residential mobility in the framework of relational approach would help better evaluate the current condition of the selected region since as Coombes (2006) states, complex geography of polycentric regions requires a more flexible method than any based on 'centre and hinterland'. In addition in a more practical viewpoint, one of the outcomes of such a study is that it can reveal the possible interventions which may result in a more balanced trajectory of evolution in the context.

While residential mobility research would benefit from drawing on poststructural theories, other subfields of human geography could be enriched by harnessing the longitudinal emphasis on contextualising change over time that is becoming a key theme in studies of residential mobility. Overall, re-contouring the outcomes of residential moves and rethinking the meanings of residential mobility and immobility opens up promising new directions for geographical scholarship (Coulter, Ham, & Findlay, 2013).

Research Questions

Main question:

What are the factors guiding residential mobility in Tehran metropolitan region[3]? Based on these trends, how has the state spatial inequalities changed within the region?

Subsidiary questions:

- What are the characteristics of residential mobility trends in the region?
- How are actors defined? What are the actors affecting the residential mobility in Tehran metropolitan region?
- What are the relations guiding the residential mobility in the region? And how are they affecting the changes?
- How is spatial equality conceptualized in the context of the new dynamics of the world? How has the state of spatial inequalities changes due to residential mobility?

Expected Outcomes

- A methodological framework for exploring complex urban systems such as metropolitan regions
- Identifying the factors generating and guiding residential mobility in metropolitan regions

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[3] After the initial assessment, due to the size of the region and limitations of research, a specific area within Tehran metropolitan region will be selected.

- Reaching a well-founded understanding of dynamics of Tehran metropolitan region in terms of residential mobility
- An explanation of how residential mobility affects spatial inequalities

Research Methodology

This research can be categorized as an explanatory applied research with both qualitative and quantitative approaches. In the first stage existing literature on approaches toward understanding complex systems, residential mobility, spatial inequalities, metropolitan regions and their spatial evolution would be reviewed attempting to reach an analytical explanation of what constitutes the new approaches and how residential mobility ans spatial inequality are conceptualized in it, along with its agents, factors, implications and etc.

From this point on, and in order to answer the main question of the research, the state of residential mobility in Tehran metropolitan region will be evaluated using data and statistics available. The last stage would consist of finding meaningful relations and analyzing the effects of extracted data regarding the actors and decisions and the outcomes evident in the study area.

Possible methods and techniques which may be useful during the course of the research are as follows:

- Complex system analysis methods
- Spatial analysis methods
- Agent based analysis methods
- Multi-agent systems (MAS) methods
- Computable General Equilibrium (CGE) Models (econometrics)

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