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Research Article

Spatial preferences of small and medium knowledge based enterprises in Tehran new business area

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ABSTRACT

In recent decades, there has been a growing emphasis on the importance of small and medium-sized enterprises (SMEs) as a significant driver of economic growth and enhancer of competitiveness. They constitute an estimated 90% of the total population of businesses, and contribute significantly, up to 40% of Gross Domestic Product (GDP), in emerging markets. Furthermore, these enterprises yield a fundamental function in cultivating job prospects, offering employment to approximately half of the worldwide labor force. However, SMEs often face unique challenges related to their size and resources, including accessing finance, developing new products and services, and identifying optimal locations for their businesses. This study seeks to address the latter issue by analyzing the spatial preferences of small and medium knowledge-based enterprises in Tehran's new business area, utilizing the spatial analyst tools by GIS. The research methodology employed in this study is non-experimental in character. It involves the distribution of a social survey to proprietors of SMEs in order to ascertain the key criteria they prioritize when selecting a location for their business. For the purpose of achieving the objective, a conceptual-operational model was developed, comprising four index categories. These categories are delineated as the personal motivations of the entrepreneur, the characteristics of the internal business environment, the spatial environment surrounding the business, and the institutional factors shaping the space. These components constitute critical determinants of the proposed model. The chosen variables were subjected to spatial analysis, and a business environment assistance map was developed in four zones. Following thorough analysis, the northwestern part of the area under consideration has been identified as the optimal zone, and subsequent recommendations for appropriate strategies have been proposed. The study culminated by offering suggestions for improvement, consisting of the implementation of a contextually-oriented model pertaining to new Iranian business improvement districts (BIDs) as a means of augmenting the status of SMEs.

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1. Introduction

The act of firm site selection or relocation, which is an economic practice, occurs in various economic and institutional contexts (Hudson, 2002; Maskell & Malmberg, 1999). The deliberate selection of a suitable company location has the potential to provide a competitive advantage to the enterprise within a given market. Business owners often relocate their operations to regions that offer a higher profit potential, taking advantage of the distinct socio-economic frameworks present in different locations (Domanski, 2003; Hudson, 2001). These advantages also may manifest in various forms, including elevated production capacity, increased profitability, heightened innovation and knowledge transfer, broadened business activities, improved customer service, augmented shareholder value, and decreased operating costs (Mazzarol & Choo, 2003). On the other hand, an inappropriate location leads to adverse effects and failure of the enterprise in various sectors. Moreover, firm relocation is a dynamic process influenced by larger forces such as globalization. The global economic crisis of 2007 (GEC) is one such force that has had an uneven impact on business conditions across different regions (Kapitsinis, 2017; Kinkel, 2012). Therefore, A comprehensive study on business mobility can provide valuable insights into the current situation and the effects of underlying factors (Kapitsinis, 2018).

The point of this article is to recognize the key indicators utilized by entrepreneurs in SMEs in Iran to select their business locations. Additionally, this research endeavors to utilize these indicators to predict the appropriateness of the environment for SMEs in specific case study. Whereas previous studies have investigated the recognizable proof of these indicators, none have focused on assessing a particular area based on these indicators, making this research novel in its approach. Furthermore, conducting such an analysis specifically in the context of Iran has not been previously undertaken, leaving us with limited knowledge regarding the key indicators that hold significant importance for entrepreneurs and their interrelationships. Identifying and analyzing the factors related to the business location is considered as the subject of the first part of location theories which focused on cost minimization (Von Thünen, 1875; Predöhl, 1928; Weber, 1929) and the analysis of the market situation and profit maximization (Hoover, 1948; Isard, 1956; Lösch, 1940; Palander, 1935). Behavioral approaches were proposed during the second half of the 20th century (Pred, 1967). Based on such approaches, the location is selected utilizing the decision makers' behavior under the title of bounded rationality. Currently, selecting the location of the enterprise is largely influenced by factors related to technological and social development (Van Noort & Reijmer, 1999). (see Fig. 1)

A plethora of studies has been conducted to investigate the pattern and rationale behind the placement of enterprises in the global landscape. Kimelberg and Williams (2013) as well as Vlachou and Iakovidou (2015) categorized the expansive frameworks utilized in determining and elucidating the factors affecting the site selection of enterprises into three distinct categories as outlined subsequently.

- Research investigations that evaluate the impacts of either singular or multiple factors on the spatial decision-making processes of business organizations.
- Research endeavors that elucidate the process by which a certain industry or enterprise with distinct attributes determines the optimal geographic locale.
- Research endeavors that identify spatial variables which impact business enterprises in specific geographic regions.

The majority of the studies enumerated above were predicated on classifying spatial indices and assessing their relative ranking in relation to enterprise performance. Lambooy (1995) categorizes the milieu of business operations into three distinct dimensions i.e. the market environment (with commercial/market relationships), the physical environment, and the institutional environment. In addition, Lloyd and Dicken (1990) and Van Dijk and Pellenburg (2000) divided the factors affecting location selection into three categories including internal factors (quality of management, organizational goals, ownership structure, employment, and profit), those related to location (plot size, size of possible expansion space, and distance to customers and suppliers), and external ones (natural conditions, legal position, government policy, and regional economic structure). Further, Van Noort and Reijmer (1999) divided the factor influencing location selection into three categories including those related to the Commercial environment (presence of suppliers/customers and presence of top companies (image)), those related to the physical environment (accessibility per car and public transportation, quality and image of business location, size of the location, and representative surroundings), and institutional environment (environmental legislation and stimulating measures), and listed four critical factors for location including accessibility, lack of space, quality

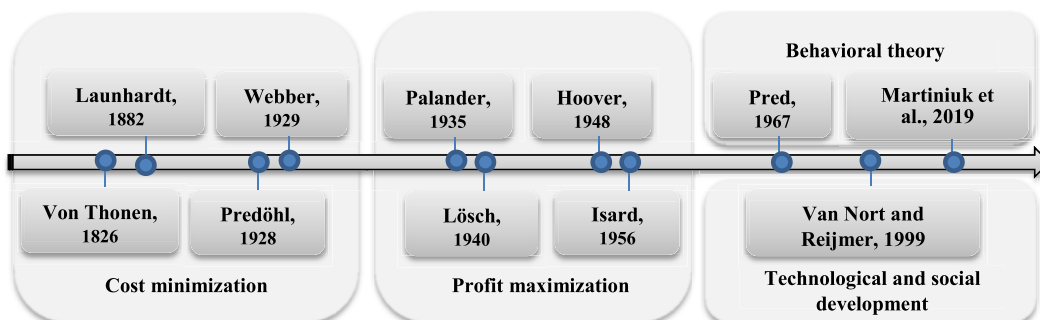


Fig. 1. Evolution of the theories related to the location of businesses.

of location, and human capital. Furthermore, Al-Salamin and Al-Baqshi (2015) ranked eight key factors influencing the location selection in Alhassa, Saudi Arabia including parking, residents' income, street width, rental rate, area of the location, number of floors, infrastructure, and population. In another study, Peczek et al. (2017) found that entrepreneurs and owners of SMEs focus more on personal factors than cost and income. For instance, they cared more about living conditions, quality of public space, education, and public health. Van Noort and Reijmer (1999) classified the most significant factors influencing the selection of SMEs location into three categories including accessibility, lack of space (push factors¹), quality of location (pull factors²), and social capital (keep factors³) based on the attractive, repulsive, and maintaining forces.

Limited research has been carried out pertaining to the aforementioned matter within the context of Iran, particularly with respect to the domain of urban planning. The variation in scale among these companies leads to distinct differences in their preferred indicators across various locations and contexts. This discrepancy is particularly pronounced among SME entrepreneurs, whose preferences differ considerably across different countries and cities. These disparities can be attributed to the influence of personal interests on their decision-making processes, unlike big companies. Consequently, it is not straightforward to generalize the findings from other countries to the context of Iran.

Nedae Sharifzadegan & Nedae Tousi, 2014, 2023) evaluated the tendency of competitive enterprises to select a location in Tehran and identified the central areas facing the north and northwest as the destination of knowledge-based enterprises (the area examined here) due to their intent to distance from the negative stemming from the concentration of less knowledge-based enterprises and businesses in the central area of the market such as traffic, pollution, congestion, reputation, and negative spatial image. In addition, Tabari et al. (2008) presented a new model for selecting the location by enterprises in which the most significant factors include floor, infrastructure, population, parking, width of the passage, residents' income, rental rate, and unit area. Based on the literature review and also the weakness of theoretical and experimental foundations in this subject in Iran, the present study aims to investigate the most critical spatial factors affecting the attraction and maintenance of SMEs and their classification based on the context conditions in Iran. To this aim, the spatial preferences of such SMEs in the studied area are measured by a questionnaire after compiling the conceptual model of selecting their location in a documentary review through a social survey, and the missing indices in the documents are added to the model. Finally, the condition of the area is evaluated in terms of the appropriateness of the business environment based on the final indices applying ArcGIS software.

1.1. Theoretical foundations

Since the early 1970s, it has become increasingly recognized that the location of economic activity cannot be adequately understood in isolation from its wider socio-economic and technological context, and thus that we cannot understand spatial economic change without linking it to the overall processes of transformation of capitalist production systems, institutions, and markets (Maskell and Malmberg, 1999). Contexts can be either conducive or detrimental to entrepreneurial events, and this is partly governed by the rules and regulations in place. If a stable business environment is guaranteed, this is likely to positively influence the risk-taking behavior of people, including entrepreneurial activity (Koster and Kapitsinis (2015). Indeed, several studies show that indicators such as fiscal freedom, lack of corruption, protection of property rights and ease of starting businesses have a positive impact on entrepreneurship (see, e.g., Estrin et al., 2009; Stenholm et al., 2013; Hechavarría & Reynolds, 2009).

The spatial preferences of SMEs are reviewed by spatial analysis. In order to realize this objective, the scholars utilize spatial theories, predominantly drawn from Von Thunen's paradigm on land use planning. Launhardt studied the location of some industries utilizing geometrical principles at the end of the 19th century. In addition, Mackinder offered ideas and thoughts in this field, which were later followed by Weber in 1909 (Latifi, 2009). Even today, a large number of researchers seek to obtain a model to identify and formulate the spatial preferences of SMEs. Spatial preferences are considered determinants that influence the selection of location for this businesses. The attainment of the aforementioned criteria may encompass factors such as the availability of resources, a proficient workforce, suitable urban infrastructure, proximity to the consumer market, the potential for establishing a cluster with comparable enterprises, and others. In fact, the location of an enterprise determines its performance in the future, affects its development, and may influence its ability to create and maintain a local, regional, and national competitive advantage significantly (Porter, 2000). Competitiveness is hard to define, but generally means the capacity to enhance market share, profitability, and value-added growth while simultaneously sustaining a presence in the realm of equitable and international competition over an extended duration (Porter, 1990). Ni (2012) emphasized the reality of competitiveness, growth, and creation of more wealth, the use of more effective methods, and citizens' well-being.

The classification of economic units into small, medium, and large enterprises is influenced by a myriad of factors, chief among which are employee count, capital investments, aggregate assets, sales turnover, production potential, and countless other such indicators. However, the number of employees in an economic unit is regarded as the most significant and influential criterion. According to the aforementioned definition, small and medium-sized enterprises (SMEs) are self-reliant establishments having a workforce below a specified threshold that varies across different jurisdictions (Karimi & Kiasar, 2017). The most common upper limit for the number of employees in SMEs equals 200–250 people. The Organization for Economic Cooperation and Development (OECD) has delineated that small-scale enterprises comprise of less than 50 individuals in the workforce, whereas micro-enterprises have less than 10 employees. It

¹ Factors which pressure businesses to abandon their objectives, leading to their destruction.

² The attractions which are transferred to the enterprise through the location, leading to its progress.

³ The reasons which persuade the enterprise stay in the intended location and make the employees doubt to relocate.

Table 1

Difference between selecting the location of SMEs and that of large ones.

Enterprise criterion	SMEs	Large enterprises
Location selection perspective	short term	Strategic decision-making (long-term)
Spatial preferences	Urban environment	Edges of town/industrial estates
most important reasons to move	the life stage of business (growth hindered)	business economic motives
Location factors	Mostly "hard" factors	"Hard" and "soft" factors

Source: Van Noort & Reijmer, qtd. in Bruinsma & Rietveld, 1998

is noteworthy that certain nations, such as the Euro zone, differentiate the financial assets held by enterprises from their workforce size (Karimi & Kiasar, 2017). This research focuses on analyzing enterprises within a specific employee range of 10–150, so micro businesses and solo self-employed individuals are not included. The enterprises in this study are categorized as follows.

- Micro businesses: Less than 10 employees
- Small enterprises: Between 10 and 49 employees
- Medium-sized enterprises: Between 50 and 149 employees

Choosing the right location for a business can provide advantages such as increased production capacity, better customer service, and reduced costs while selecting the wrong location can have negative consequences. However, a generalizable and universal set of influential factors cannot be proposed in deciding on the location of the enterprise. In addition, even a hundred factors may be considered during selecting the location, while only a few can be regarded (Vlachou & Iakovidou, 2015). Table 1 indicates some basic differences between the spatial preferences of SMEs and large ones.

Soft factors in competitiveness which cannot be measured include local attitudes, the economic profile of the location, social climate, and quality of life, standard of living, local arts and entertainment, quality of public spaces, and spatial order. In addition, hard factors which depend more on the cost and capital intended for investing in business in question include supply of office and production space, proximity to markets, suppliers, and business partners, energy purchases, transport, qualified labor, regional taxes, macro subsidy policies, research, and academic institutions, as well as quality and flexibility of the administration (Van Noort & Reijmer, 1999). Table 2 shows the indices extracted by a documentary review of available sources.

According to Nedaie Sharifzadegan & Nedaie Tousei, 2014, 2023), SMEs in the city of Tehran have the option of choosing a location dependent upon a variety of factors. These factors may include the availability and quantity of knowledge and technology needed, or the extent to which the spatial requirements of their specialized human resources dictate their selection. For example, the knowledge-based clusters in Tehran often form a mono-centric development pattern in the vicinity of each other. Generally, the location of SMEs is selected considering a large number of factors. Probably, hundreds of indices can be indicated, all of which cannot be discussed because every enterprise uses its own criteria depending on the objectives and activities or even personal conditions of its owner. Spatial boundaries affect business owners' decisions, but they ignore unique conditions in different urban areas. Location indices can be analyzed based on literature and opinions. However, such indices should be applied in other spatial areas and communities with more investigation due to context of the study. In addition, such issues should be generalized with caution. Table 2 illustrates a general set of indices indicated in the reviewed sources. The indices utilized here are extracted from the aforementioned ones and explicated after surveying SME owners. Fig. 3 demonstrates the categorization for this study.

The indices were extracted by a systematic review of documents through searching in Scopus and Google Scholar databases. The searched keywords included terms such as spatial theories, location selection, SMEs, spatial preferences of enterprises, business environment, commercial space, the competitiveness of enterprises, and the like. About 150–160 studies were analyzed and 38 sources were selected for further examination based on the study objectives. The indices were divided into two groups: macro competitiveness and SME location selection. Using the PESTEL approach,⁴ macro competitiveness indicators were classified for SMEs' location selection, split into micro and business environment indicators.

In an ever-evolving business environment, the utilization of PESTEL analysis is crucial for organizations seeking to stay competitive and thrive. By comprehensively assessing the political, economic, socio-cultural, technological, environmental, and legal factors, businesses gain a deeper understanding of their external environment. The benefits of employing PESTEL analysis include informed decision-making, identification of opportunities and threats, and effective risk management (Siddiqui, 2021). Embracing PESTEL analysis empowers businesses to navigate the complexities of the business landscape and optimize their strategic planning for long-term success. It is worth noting that there may be several other indicators related to competitiveness and environmental suitability for SMEs. However, this research focuses only on the most significant indicators, as determined through an exploration of relevant documentaries.

⁴ A PESTEL analysis is a strategic framework commonly used to evaluate the business environment in which a firm operates. Traditionally, the framework was referred to as a PEST analysis, which was an acronym for Political, Economic, Social, and Technological; in more recent history, the framework was extended to include Environmental and Legal factors as well.

Table 2

Indices affecting the selection of SMEs location taken from different documentary sources.

Theoretical indices that influence the selection of sites by small and medium-sized enterprises (SMEs)									
Macro indices for competitiveness						Indices for selecting the SMEs location			
political	economical	Social	Technological	Environmental	Legal	Business environment indices		micro indices (roughly derived from the SMEs' plots and the characteristics of their owners)	
Institutions and organizations (Global Competitiveness Index or GCI, Lengyel (2004), Van Noort and Reijmer (1999))	employment rate (Martin and Simmie (2008), Dönmez and Atalan (2019), Lengyel (2004), Begg (1999), Jurevicius (2021))	Education (Martin and Simmie (2008), Martyniuk et al (2017), Dönmez and Atalan (2019), GCIs, Jervisius (2021), Kwon, Kim, and Oh (2012), Ochoa et al. (2017))	Technological development and research (Martyniuk et al (2017), Jervisius (2021)), Lengyel (2004), Martin and Simmie (2008))	Environmental pollution laws (Begg (1999); Lengyel (2004))	Copyright law (Jervisius (2021))	Proximity to markets (Martyniuk et al. (2017))	labor Costs (Martyniuk et al. (2017), Flieger (2013), Jervisius (2021), Van Noort and Reijmer (1999))	parking (Al-Salamin and Al-Baqshi (2015), Van Noort and Reijmer (1999))	providing space (Van Noort and Reijmer (1999), Martyniuk et al (2017))
Lack of corruption (see, e.g., Estrin et al., 2009; Stenholm et al., 2013; Hechavarria & Reynolds, 2009)	Market size (GCI, Dönmez and Atalan (2019))	high-quality workforce (Kwon et al. (2012), Lengyel (2004), Moon et al. (1998, 1998), GCI, Ochoa et al. (2017). Martin and Simmie (2008))	Creativity and innovation (GCI, Begg (1999), Jervisius (2021), Lengyel (2004), Martin and Simmie (2008), Kwon et al. (2012))	Products based on ecology and healthy environment (Jervisius (2021))	protection of property rights (see, e.g., Estrin et al., 2009; Stenholm et al., 2013; Hechavarria & Reynolds, 2009)	Proximity to suppliers and business partners (cluster formation) (Porter (1990), Flieger (2013), Van Noort and Reijmer (1999), Moon et al. (1998))	Infrastructures (GCI, Jervisius (2021), Lengyel (2004), Vaillant et al (2012), Al-Salamin and Al-Baqshi (2015), Kwon et al. (2012), Martyniuk et al. (2017), Ron Martin et al.)	Owners' personal issues (family relations, family-owned businesses, etc.) (Maskell and Malmberg (1999))	Unique features of SMEs (Begg (1999), Mazzarol and Choo (2003), Kwon et al. (2012))
Political stability	Production efficiency (GCI, Dönmez and Atalan (2019))	Health (GCI, Jervisius (2021), Dönmez and Atalan (2019))	technical readiness (GCI)	Limitations in products (environmental concerns)	Stability of legislations	Accessibility (Martyniuk et al. (2017), Van Noort and Reijmer (1999))	proximity to the city center	street width (Al-Salamin and Al-Baqshi (2015))	Accessibility to customers (Martyniuk et al. (2017))
Quality and flexibility of administration ((Martyniuk et al (2017))	Demand (Porter (1990), Moon et al. (1998), Martyniuk et al. (2017))	Quality and standard of life (Martyniuk et al. (2017), Begg (1999); Martin and Simmie (2008))	Production technology (Martyniuk et al. (2017), Jervisius (2021), Begg (1999))	Ecological permissions	Fiscal freedom (e.g., Estrin et al., 2009; Hechavarria & Reynolds, 2009; Stenholm et al., 2013)	Regional taxes (Jervisius (2021))	public transportation (Martyniuk et al. (2017), Van Noort and Reijmer (1999), Dönmez and Atalan (2019))	rental rate (Moore et al. (1991); Al-Salamin and Al-Baqshi (2015))	Qualified workforce (Kwon et al. (2012), Lengyel (2004), Moon et al. (1998), GCI, Jervisius (2021), Ochoa et al. (2017); Martin and Simmie (2008))
socio-spatial justice (Hadjimichalis (2011))	Access to external finance (Lengyel (2004); Kapitsinis (2018))	Population growth rate (Jervisius (2021))	Knowledge-based economy (Martin and Simmie (2008))		Environmental laws (Jervisius (2021))	Subsidy policies for SMEs in different regions	Amount of production in the area (Martin and Simmie (2008))	Plot area (Van Noort and Reijmer (1999), Al-Salamin	Land price (Martyniuk et al. (2017))

(continued on next page)

Table 2 (continued)

Theoretical indices that influence the selection of sites by small and medium-sized enterprises (SMEs)								
Macro indices for competitiveness						Indices for selecting the SMEs location		
political	economical	Social	Technological	Environmental	Legal	Business environment indices	micro indices (roughly derived from the SMEs' plots and the characteristics of their owners)	
							and Al-Baqshi (2015))	
Sectorial and macro policies	GDP per capita (Lengyel (2004))	Social trust (Maskell and Malmberg (1999))				Social atmosphere (Martyniuk et al. (2017))	Floor (Al-Salamin and Al-Baqshi (2015))	Local market opportunities (Flieger (2013))
	Market stability (Kapitsinis (2018))					Population size (Al-Salamin and Al-Baqshi (2015))	Internet (Al-Salamin and Al-Baqshi (2015))	
	Tax rate					Transportation costs (Kapitsinis (2018))		

2. Methodology and conceptual model

This research employs a quasi-experimental research design to address two main research questions; The first question aims to investigate the key determinants for the selection of a business location among competitive SME owners. The second question focuses on assessing the status of business environmental support in Tehran's new established business area based on these indicators. To provide insights into these questions, a comprehensive social survey method was employed, utilizing both interviews and questionnaires. This approach allows for the collection of quantitative and qualitative data, enabling a thorough exploration of the factors influencing business location decisions and the assessment of the business environment in the target area. A comprehensive explanation of each stage of the research is provided below.

Extracting measurement framework including initial indicators by literature review: In order to create a conceptual-operational model and ascertain the factors and indicators that impact the selection of business locations, a systematic review of documents was conducted in the first stage. This involved collecting and organizing numerous sources based on the research objectives and questions, resulting in the selection of the most relevant indicators.

Initial Classification of indicators: to provide a more comprehensive understanding and clarity regarding the indicators, they have been categorized into two groups: first, macro indicators at the country level, classified using the PESTEL approach, and second, indicators that influence the selection of enterprise locations in specific regions and within the business environment's first layers. This categorization aims to enhance the understanding of the overall indicators and their impact on location selection for enterprises. (Table 2).

First stage of the survey and interview: During this stage, the objective was to identify the indicators that are commonly shared among entrepreneurs and to narrow down the list to those that are more relevant to the context. This process was carried out through the use of survey instruments, including face-to-face and online questionnaires, as well as in-depth semi-structured interviews with SME owners in Tehran's main new business area, which is known for hosting knowledge-based companies, according to the findings of a prior study conducted by Nedae Sharifzadegan & Nedae Tousi, 2014, 2023). In order to achieve a more accurate analysis, the enterprises were categorized into two groups based on their activities, objectives, and defined responsibilities. These groups included knowledge-based enterprises, such as those in the fields of technical and engineering, design, language and skill training schools, and others, as well as non-knowledge-based enterprises, such as those involved in retail, wholesale, repairs, and similar industries. Initially, the comprehensive list of indicators extracted from various documentary sources was presented to SME owners. In order to streamline and refine this list, consultations were conducted and face to face and telephone interviews were carried out with the owners. The refined list was included in the questionnaires, enabling entrepreneurs to select relevant indicators or propose additional ones through open-ended questions if needed, in case any indicators were inadvertently omitted. Using Cochran's model and taking into account the unknown volume of the population, 121 questionnaires were completed by SME owners to achieve a 5% error percentage and 95% confidence level. The participants were chosen through a non-purposive sampling approach and provided their responses to the questions through both face-to-face and online questionnaires (Table 3).

Finalize the conceptual model: Following an analysis of the key indices pertaining to the Iranian context, a distinct categorization of research indicators was introduced, serving as the foundation for the conceptual model. (Fig. 3).

Assessing the area based on the final indicators: For each indicator, a set of metrics was utilized to evaluate the case study, enabling a comprehensive assessment of the chosen location. These metrics were used to generate corresponding maps, providing visual representations of the evaluation results. (Fig. 7).

Second stage of the survey: During this phase, the business owners were responsible for assessing the significance of each index, focusing only on the 15 indicators extracted in the previous survey stage. They assigned appropriate scores ranging from 1 to 5 to each index. The collected data was subsequently summarized using SPSS software, and the results were utilized to assign weights to each index during the aggregation process, ultimately leading to the generation of the final map. (Fig. 8).

Final map of environmental appropriateness for SMEs: The resultant map, illustrating the appropriateness of the environment for the specific area, was generated using ArcGIS software by considering the collective interaction of all the indicators (Fig. 10).

Zoning the area: In order to enhance clarity and facilitate a more thorough analysis of the distinctions between favorable and unfavorable environments, the area was subdivided into four distinct zones based on the appropriateness of the environment SMEs. (Fig. 10).

Presenting SWOT map for each zone: During this phase, an assessment was conducted to identify the strengths and weaknesses of each zone in the area, taking into account the research indicators. (Fig. 11).

Strategies for improving the area's competitiveness: Ultimately, drawing upon the analysis of the SWOT map, several strategies have been recommended to enhance the environmental suitability for SMEs. (Table 5).

A detailed breakdown of the research process can be found in Fig. 2. This figure outlines the steps taken by researchers in conducting the research, from identifying relevant indices to creating a final map of the area. It provides a comprehensive overview of the methods used to determine the suitability of the environment for business ventures.

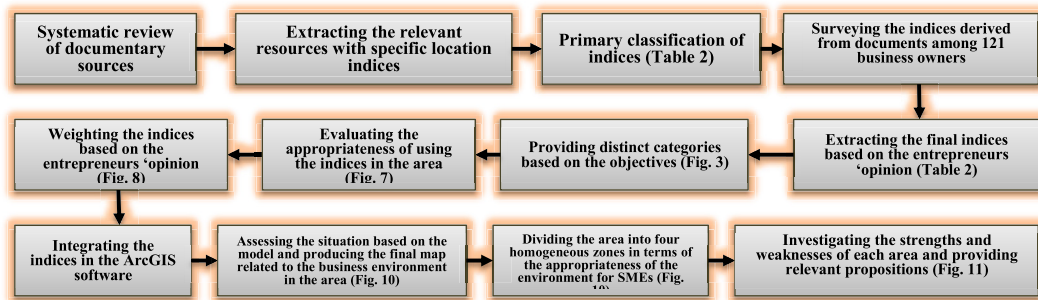
Given the variations in spatial preferences among SMEs in different contexts, it was necessary to develop a conceptual framework that is specifically tailored to the Iranian context. Thus, the model was derived and refined after the completion of the initial survey stage. In total, 78 indicators were identified during this stage, including those obtained from documentary sources and additional indicators proposed by SME owners in response to open-ended questions. The top 15 indices, representing the highest proportion of selection, are presented in Table 3 based on the findings of the current stage.

It is evident that there exist disparities in the key indicators prioritized by knowledge-based and non-knowledge-based enterprises. But surprisingly, the 15 most selected indicators were identical for both types of businesses, albeit with varying ratings. For instance,

Table 3

Indices considered by business owners to select the location for the current business with the highest percentage of selection, respectively.

Knowledge-based enterprises			Non-knowledge-based-enterprises		
Rank	Index	Selection percentage	Rank	Index	Selection percentage
1	Proximity to the parking lot	61.8	1	Accessibility	59.8
2	Accessibility	58.8	2	Income of area residents	56.3
3	Income of area residents	52.9	2	land price	56.3
3	Neighborhood permeability and street width	52.9	4	Proximity to the entrepreneur's residence	46
5	land price	50	4	Neighborhood permeability and street width	46
6	Proximity to the audience of the related services or commodities	47.1	6	Proximity to the parking lot	42.5
6	Proximity to the entrepreneur's residence	47.1	7	Area	37.9
6	Access to skilled and high-quality workforce	47.1	8	Proximity to the audience of the related services or commodities	33.3
9	Area	44.1	9	Distance from the congestion charge zone	26.4
10	Population in the area	42.6	10	Population in the area	25.1
11	Distance from the congestion charge zone	41.2	11	Ease and speed of Internet access	24.1
12	Ease and speed of Internet access	35.3	12	Floor	19.5
13	Floor	29.4	12	Skilled and high-quality workforce	19.5
14	Proximity to business partners and the creation of a value chain	23.5	14	Proximity to business partners and creation of value chain	8
15	Proximity to government agencies	19.3	15	Proximity to government agencies	6.5

**Fig. 2.** Stages of the study and its method.

accessibility to parking was ranked as the top indicator for knowledge-based enterprises, whereas it ranked sixth for non-knowledge-based businesses. Furthermore, additional indicators were incorporated into the study that were not initially included in the documentary-based collection. These indicators were suggested by the entrepreneurs themselves and encompass factors such as proximity to government organizations and being located outside of the congestion charge zone. Finally, upon identifying the key indicators for site selection through a combination of entrepreneurs' perspectives and indicators derived from a systematic review, these indicators were categorized into four distinct groups, as illustrated in Fig. 3. The resulting indicators added to the theoretical model were deemed suitable for developing countries with centralized planning systems.

3. Results

This study focuses on the first three categories of business indicators due to the scale of the "Business space and institutional factors". Institutional indicators have a uniform impact on all businesses in the range. Local and micro factors impact small companies more, while macro factors affect large companies. Future research should consider these findings, especially for SMEs that require access to densely populated areas to reach their desired consumer base. As a result, it can be concluded that the larger the company, the greater its impact on the site and business space, while its impressibility from the environment may decrease.(Fig. 4)

Nedae Sharifzadegan & Nedae Tousi, 2014, 2023) found that competitive units in Tehran tend to cluster, regarding their type of interaction and innovation source. This clustering is evident in Districts 3, 6, and 7, located around Abbasabad lands and between the Modarres and Ustad Hasan Banna axes from the west and east. The reasons for this phenomenon include the central location and convenient access of these areas, their distance from the congestion charge zone, the reputation of areas such as Sohrvardi and Shahid Beheshti as locations for large, long-established, and high-quality enterprises and offices, their proximity to organizational and institutional centers, and the presence of Mosalla as the current exhibition center in Tehran.(see Fig. 5).

The case study under consideration highlights the geographical location of the Sohrvardi and Abbasabad neighborhoods, which are situated in District 7 of Tehran municipality (see Fig. 5) adapted from (Nedae Tousi, 2023). As illustrated in Fig. 6, these areas are primarily utilized for administrative and commercial purposes and are strategically located close to major thoroughfares such as Shahid

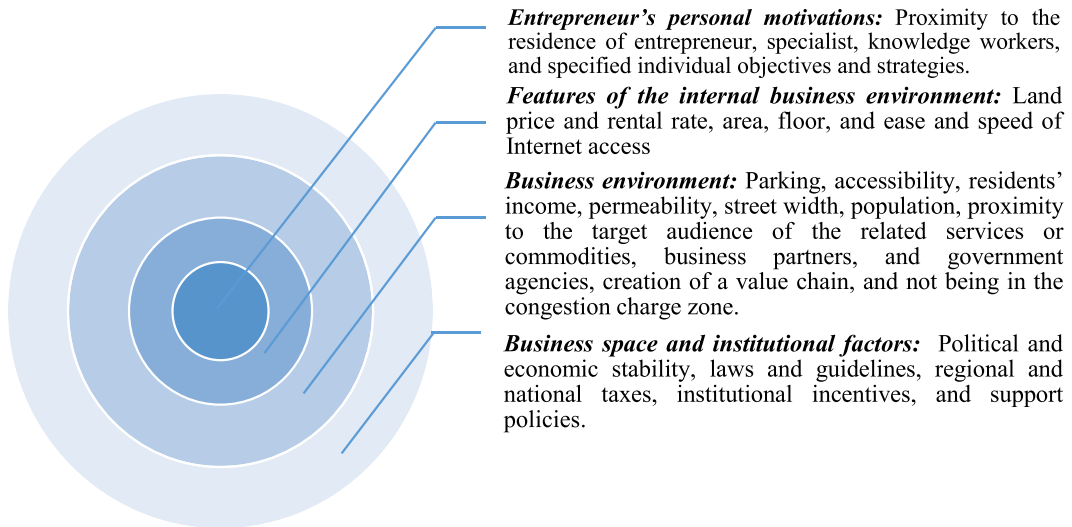


Fig. 3. Classifying the indices related to location selection.

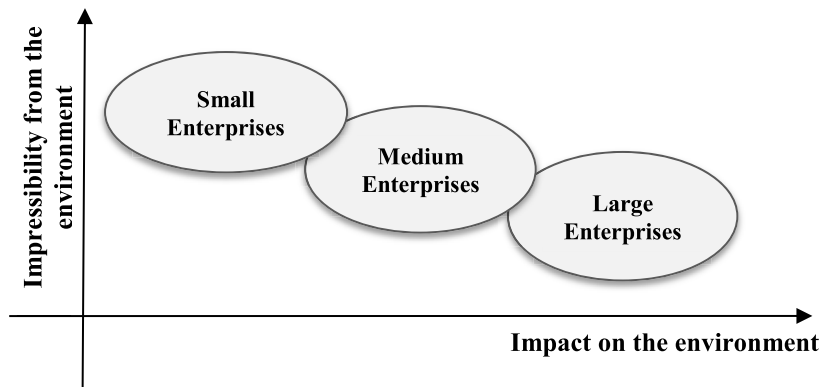


Fig. 4. Comparing the impact and impressibility of enterprises based on their size.

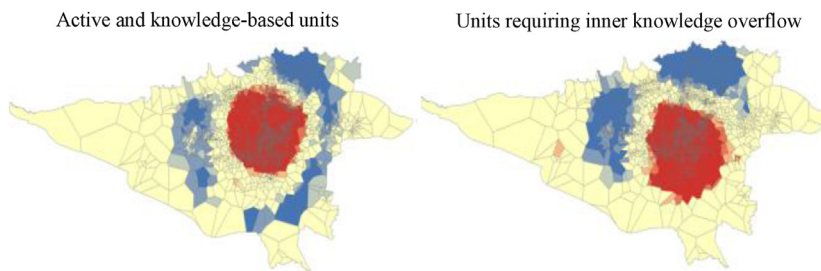


Fig. 5. Spatial pattern related to location selection and establishment of competitive units based on the knowledge regarding Tehran.

Motahhari and Shahid Beheshti. The location of these neighborhoods in the heart of Tehran makes them an ideal choice for businesses looking to establish a presence in the city. The proximity to major roads and highways provides easy access to other parts of the city, which is particularly important for companies that rely on transportation for their operations. Furthermore, the administrative and commercial nature of Sohrvardi and Abbasabad makes them ideal for businesses looking to set up offices, retail outlets, or service centers.

In addition to it, these neighborhoods are home to a significant number of knowledge-based enterprises that contribute to the economic growth of the region. These enterprises are involved in research and development activities, which are crucial for innovation and technological advancement. By fostering an environment that encourages innovation and creativity, Sohrvardi and Abbasabad provide a platform for knowledge-based enterprises to thrive. To assess the appropriateness of the environment for SMEs in the study

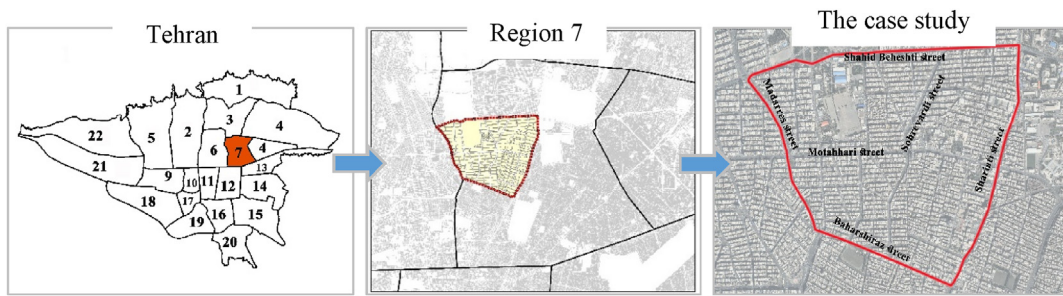


Fig. 6. Area under study.

area, the factors classified in Fig. 3 were converted into measurable parameters. These parameters were then utilized in conjunction with ArcGIS software to conduct a thorough investigation and analysis, as outlined in Table 4. The use of ArcGIS software was particularly valuable in this investigation, as it allowed for the creation of detailed maps that illustrated the various factors affecting SMEs in the study area. These maps provided a visual representation of the data collected, making it easier to identify patterns and trends.

The conceptual framework has been transformed into sub-indices and metrics for each dimension and index to enhance clarity and facilitate evaluation using spatial analysis in ArcGIS software. Certain metrics may be utilized in multiple sub-indices, such as the map of street width, which serves as both a sub-index and an index in itself and is also incorporated as a metric within the private transportation sub-index. Similarly, the accessibility to parking lots can function as an index on its own or contribute as a metric in the formation of various sub-indices. It should be noted that certain metrics may not fully encapsulate the desired index and merely indicate a singular aspect of it. As the primary objective of the present study is to scrutinize the spatial preferences of SMEs at a micro level with precision, all data must be assessed at the urban block level, which is achieved with certain complications and limitations. In order to better visualize the various metrics outlined in Table 4, they have been transformed into maps using the ArcGIS software.

The resulting maps provide a clear and comprehensive representation of the data, allowing for a more detailed analysis of the information presented. Several of these maps are presented in Fig. 7, which serves to illustrate the breadth and depth of the data collected. To enhance clarity, an attempt has been made to utilize a consistent color spectrum across all maps, whenever feasible. It is important to mention that certain indices were only evaluated for commercial plots, while others were assessed for all blocks. For instance, metrics related to residents' income and the population of the area were evaluated at the block level, whereas indicators such as street width were specifically considered for plots. In the case of street width, scores were assigned to each block based on the average value derived from the commercial plots within that block.

Fig. 7 illustrates the metrics through various maps, revealing that the north-western part of the area exhibits a more favorable situation compared to others, particularly in terms of accessibility indicators such as distance from metro stations and public parking. However, it is important to note that certain indicators, like internet, or the distance from city center do not show significant variation across different blocks in terms of environmental suitability for SMEs. Therefore, presenting a map for such indicators would not provide meaningful insights as they remain consistent across the entire study area. Furthermore, there are some indicators that have not been evaluated at the block level, and their data needs to be derived from the interaction of multiple metrics or, in some cases, omitted from the analysis altogether.

Individual layers of factors affecting the appropriateness of environment for SMEs were integrated based on the conceptual model of the study and their metrics (Table 4). The resulting map was generated through the interaction of all indicators using the Raster calculator in ArcGIS software. However, it is essential to acknowledge that not all indicators hold equal significance when integrated. For instance, proximity to government organizations and accessibility indicators may not contribute equally to the final status of business assistance. To determine the relative importance of each indicator, the research team sought input from business owners by requesting them to score each indicator on a scale of 1–5. Subsequently, the average score was calculated and used to determine the weight of each index. Figs. 9 and 10 allow for the comparison of the importance of each indicator with regard to the separation of knowledge-based and non-knowledge-based companies, in addition to providing information on the average scores and weight determination of the indicators. According to the survey mentioned earlier, public transportation received the highest score for both knowledge-based and non-knowledge-based groups. The summary of indicators based on the indexes in the conceptual model reveals that for knowledge-based enterprises, the environment and the characteristics of the internal environment of the businesses are of utmost importance. On the other hand, for non-knowledge-based enterprises, entrepreneurs' personal motivations hold greater significance compared to knowledge-based enterprises.

As observed, knowledge-based businesses primarily focus on business environment indicators when selecting a site, whereas for other businesses, the personal motivations of the owner have the most significant influence. Additionally, in the scoring process, the income of residents indicator receives the highest score among non-knowledge-based enterprises, whereas it is ranked 11th for knowledge-based businesses.

Next, the scores of the indices were combined by applying the weights assigned by business owners in the area. Following the integration of the intended indices and compilation of the reviewed maps, the studied area was divided into four homogeneous zones (1–4) based on the appropriateness and attractiveness of the environment for business. Ultimately, the northwest zone was identified as

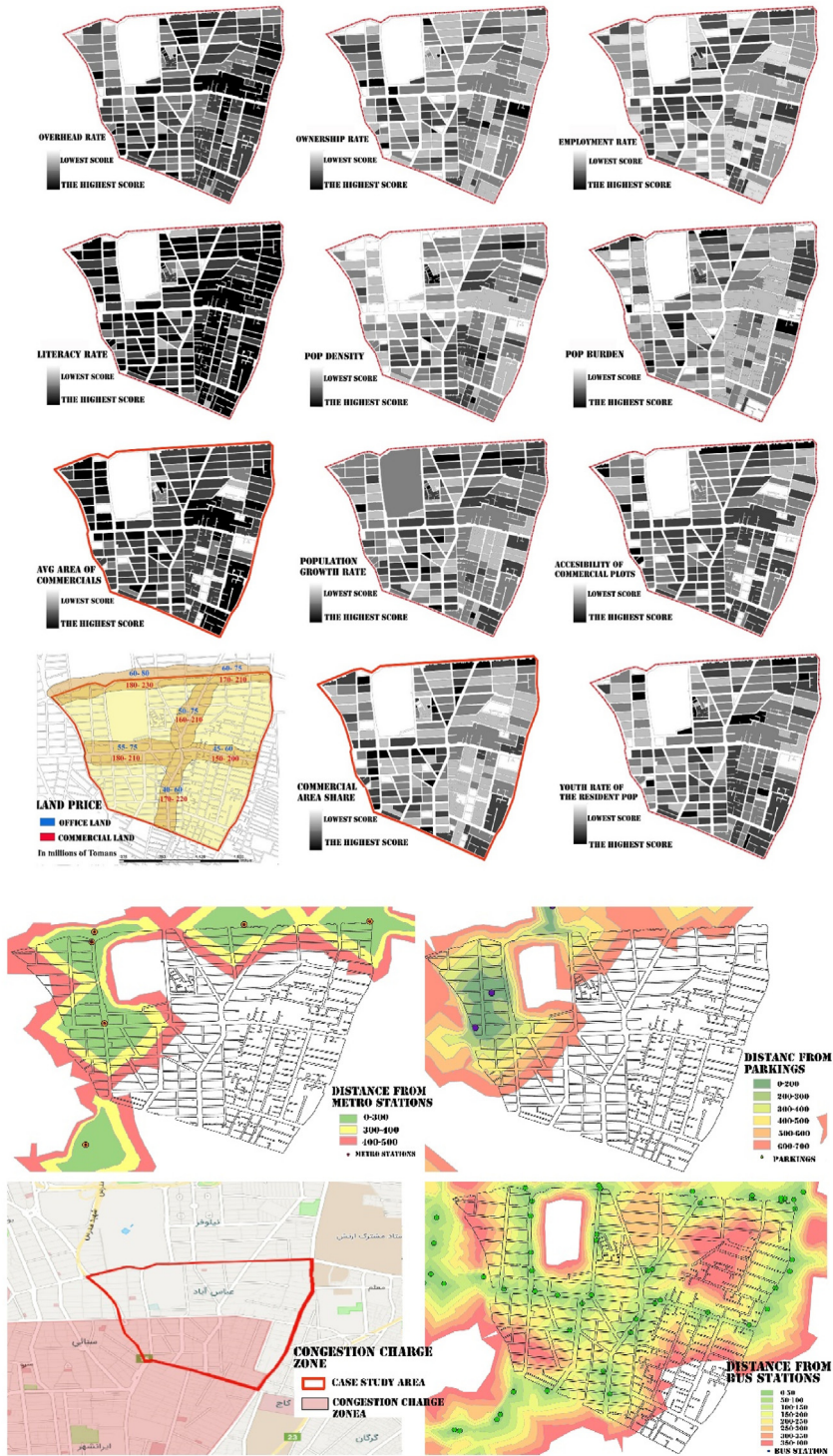


Fig. 7. Spatial analysis related to the intended indices in the studied area.

the most appropriate area based on objective indices and the opinions of business owners. Appropriateness of the environment refers to the availability of favorable conditions for the progress and development of enterprises, in comparison to other areas in Tehran and worldwide. The high level of accessibility, thanks to two metro stations, several bus stations, and two public parking lots, was among the key reasons why zone 1 was deemed the most favorable. This was coupled with good communication networks and being outside the

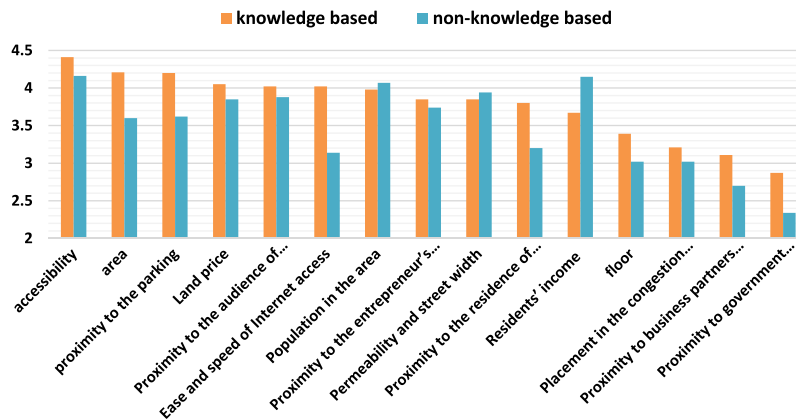


Fig. 8. Scoring location selection indices by SMEs owners in terms of being knowledge-based.

Table 4
Indices and metrics.

Dimension	Index	Sub index	Metric
Entrepreneur's personal motivations	Proximity to the entrepreneur's residence	Proximity to the entrepreneur's residence	Map related to the residences of business owners in the area
	Proximity to the residence of skilled and high-quality workforce	Literacy rate	Map related to the literacy rate of the population in the area
		Working age population	Population youth rate Population overhead rate
Features related to the internal environment of the business	Objectives and strategy	Area of activity	Classifying businesses based on knowledge
	Land price	Price of office land Price of commercial land	Land price map including office and commercial use
	Area	Area of commercial and office plots	The average area of the office and commercial plots in each block The contribution of commercial and office use area to the total area of the block
	Density	Floor	Map related to the number of floors
Business environment	Ease and speed of Internet access	Access to appropriate and high-speed Internet	Equality of Internet status at the level of the area according to the information of the Telecommunications Department
	Proximity to the parking lot	Proximity to the parking lot	Map of public parking access
		Private transportation	Map of public parking access Map of street width
	Accessibility		Map of congestion charge zone
			Public transportation
	Residents' income	Residents' income	Map of employment rate in the area Map of the population burden in the area
	Permeability and street width	Street width	Map of street width
	Proximity to the audience of related services and commodities	Proximity to the audience of related services and commodities	Map of identifying activity clusters
		Customer Questionnaire	Map related to the potential customers of the clusters
		Interview with business owners	
Population and demand volume	Population in the area	Population growth rate Population density in each block Map of identifying activity clusters	
Proximity to business partners and creation of value chain	Proximity to business partners and creation of value chain		
Proximity to government agencies	Proximity to government agencies	Map of government organizations in the area	
Placement in the congestion charge zone	Placement in the congestion charge zone	Map of the congestion charge zone in the area	

congestion charge zone. In contrast, Zone 4 had the lowest scores and was considered the least favorable area. An examination of the area's current situation indicates that knowledge-based clusters and innovative enterprises tend to be established in the preferred area.

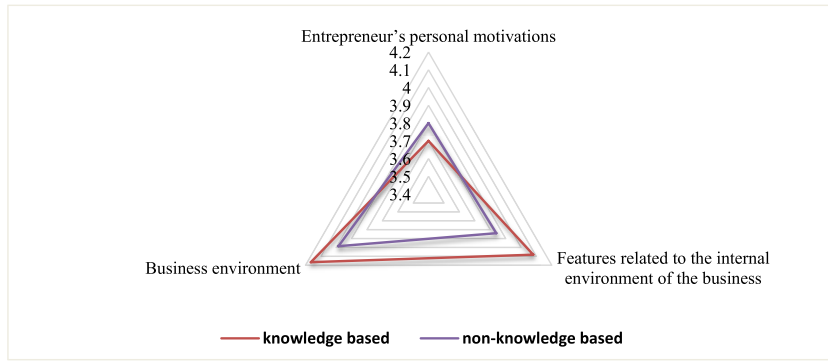


Fig. 9. Spatial preferences of activities to separate knowledge- and non-knowledge-based enterprises.

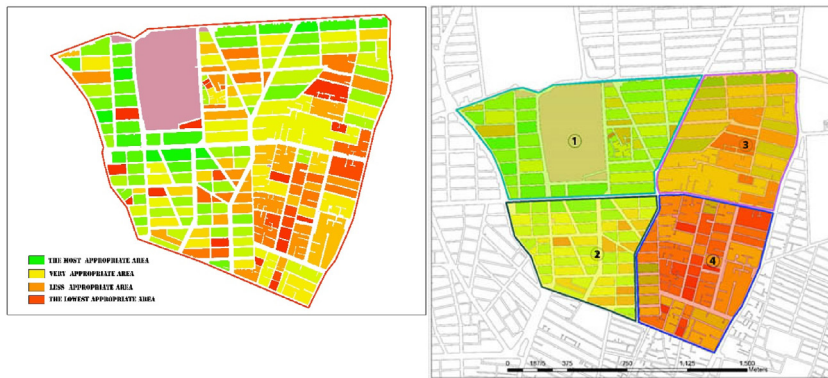


Fig. 10. Final zoning map related to the appropriateness of environment for SMEs in the studied area.

4. Discussion

The issue of location selection and its appropriateness for establishing and attracting SMEs is regarded as a highly complex and extensive matter, contrary to the beliefs of many urban planners and decision-makers. Each of the managers and business owners considers different indices for selecting the location of enterprises. The diversity and abundance of indices that differ based on the nature and performance of the business, being knowledge-based, and a source of knowledge acquisition makes the issue more difficult for researchers. Moreover, this issue can be completely different in various countries and places. For instance, a large number of knowledge-based enterprises in Iran select a factor such as proximity to government organizations as one of the critical indices for selecting a location. Such issues appear more visible in developing countries with centralized political and economic systems. In addition, the rules of commuting with personal transportation were established as one of the 15 significant indices for selecting a location by enterprises due to the existence of the above-mentioned concentration in the capital of Iran. Thus, up to a hundred indices can be named in any space and field, all of which may be considered as critical for some business owners. Even two entrepreneurs may not share any common indicators out of the ten mentioned. The people's attitudes, objectives, interests, and desires affect the selection of these indices significantly, especially in small enterprises.

The objective of the current investigation was to identify a limited and specific set of trustworthy indicators from the perspective of business owners by selecting an area in Tehran as the new business zone. Through the use of specialized resources, surveys, and interviews, various indicators were examined. Upon completion of the preliminary stage of the survey, the desired indicators of the entrepreneurs were examined and divided into four distinct categories. These categories consist of the following: 1) Entrepreneur's personal motivations, 2) Features of the internal business environment, 3) Business environment, and 4) Business space and institutional factors. Based on the results of the second stage of the survey, accessibility was selected as the most critical index with the highest score for both knowledge and non-knowledge-based enterprises. For knowledge-based enterprises, the next five significant indicators were identified as area, parking space, land price, proximity to specific audiences of commodities and services, and ease and speed of internet access. Meanwhile, the highest scores after accessibility for non-knowledge-based enterprises were assigned to residents' income, population, street permeability, proximity to customers, and land price, respectively.

It is important to note that the analysis of the SME sector cannot be conducted in isolation from macroeconomic issues and other sectors of the economy. Therefore, the recovery in the business environment and urban areas depends on the improvement in the macro economy and its economic stability, along with the security of investment in the country which include predictability of the economy, lack of corruption, comprehensive guarantee of property rights, strengthening of flexibility, and reduction of time-consuming and non-

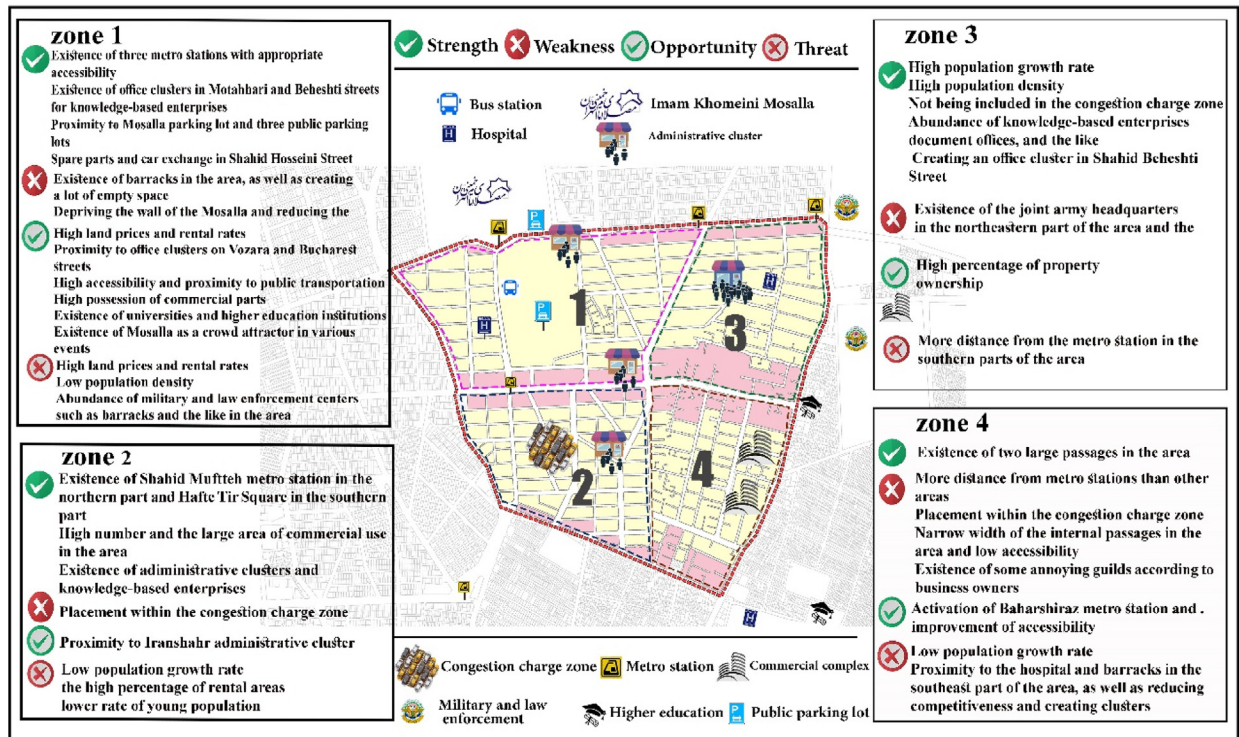


Fig. 11. Environmental assessment of four zones using strengths, weaknesses, opportunities, and threats.

transparent administrative bureaucracies. It is difficult for SMEs to flourish in an uncertain economy without investment stability and security. However, addressing the issues related to such enterprises can be considered a stimulus for the macro economy, highlighting the cyclical nature of its relationship and dialectic. In order to create the most appropriate business environment and space in urban areas, it is important to take into account the unique indices associated with these enterprises. As an illustration, placement in a congestion charge zone is among the most prominent issues cited by SME owners in Iran, which acts as an access restriction for both business owners and their clients, leading to their downfall reduction. The proximity to government organizations is also a crucial factor to consider, owing to the significant number of knowledge-based companies that have dialectical relationships with such entities. For instance, urban planning consulting companies often receive a substantial portion of their assignments from government organizations, and to advocate for these plans, they need to maintain frequent meetings with these entities.

The research findings reveal that for owners of non-knowledge-based companies, the income level of the surrounding area plays a crucial role, despite not being among the top 10 indicators with the highest score for knowledge-based enterprises. Indicators such as access to public transportation, availability of parking, and the site area are considered the most significant factors for both knowledge-based and non-knowledge-based enterprises. This is consistent with the research of Al-Salamin and Al-Baqshi (2015). While Marty-niuk-Pęczek et al. (2017) suggest that personal factors are the most important consideration for SMEs when selecting a location. Van Noort and Reijmer (1999) also identified four key factors for location selection, namely accessibility, space availability, quality of place, and human capital. Thus, it can be concluded that accessibility, encompassing both public and private transportation, is a common factor among most research studies in this field.

To analyze the disparities among various areas and ascertain their individual strengths and weaknesses concerning environmental suitability for SMEs, the research indicators were utilized to create a SWOT map, as illustrated in Fig. 11. This comprehensive mapping enables a deeper comprehension of the contributing factors that have zone 1 to emerge as the optimal area for SMEs to establish their businesses, particularly for knowledge-based enterprises. By examining the SWOT map, it becomes possible to discern the specific factors and conditions that have facilitated the superior standing of zone 1, shedding light on the key elements that have positioned it as the most favorable and advantageous location for SMEs seeking to thrive and prosper.

Upon comparing the indicators of interest for business owners in Iran and other countries, it becomes evident that due to the macroeconomic structure of Iran and the ongoing involvement of the government and its institutions in the economy, proximity to government organizations is considered an important factor for businesses, even for knowledge-based companies. This is recognized as one of the 15 indicators for selecting the location of businesses, albeit with a relatively low score. In addition, unlike international researches, not being located within the area of the congestion charge zone has emerged as a significant indicator among small and medium-sized business owners in this study. Furthermore, certain indicators such as labor cost were only mentioned by four out of the 121 participating entrepreneurs in the survey. This could be attributed to the similarity of conditions across different regions in Tehran.

Table 5
Propositions presented and their relationship with dimensions of site selection for SMEs.

Dimension	Proposition
Business space and institutional factors	Iranian BID Facilitating business establishment processes and providing licenses within the area Institution building for the participation of business owners and non-governmental organizations and even people as users of services and the first customer of such enterprises
Business environment	Facilitating access to public transportation in the area, especially zone 3 and 4 Creating a system for enterprises, especially knowledge-based ones to communicate with each other or with activities along each other Creating a value chain in knowledge- and non-knowledge-based enterprises Providing support services to create attraction for building more enterprises and facilitating the value chain
Features related to the internal environment of the business	Installing more public parking lots for visitors and employees of the enterprises
Entrepreneur's personal motivations	Adopting incentive strategies for establishing knowledge-based enterprises and turning the area into a zone with a cumulative advantage for such enterprises and their entrepreneurs Creating green space, as well as science and technology parks to increase the attractiveness of the neighborhood

As a result, there is an abundant availability of labor force, and the differences in labor costs are not substantial. Nevertheless, it is important to acknowledge that certain skills and abilities of the labor force may vary, and it has been identified as a significant indicator in the study. In essence, if an indicator does not exhibit substantial variation and remains consistent throughout the city or even the country, it is not given priority in the site selection process.

To improve the appropriateness of the environment for SMEs, some propositions were presented at the level of the studied area separately based on subjective and objective analyses one of the most significant propositions is the utilization of the business improvement districts (BID) strategy. Sharifzadegan and Malekpour Asl (2015) In a publication adapted the aforementioned approach to the cultural and institutional contexts of Iran, and referred to it as the "Iranian BID." BID is among the effective methods in revitalizing urban centers with an economic approach, which seeks to provide services to the surrounding residential and commercial areas through economic growth in an area and calculating taxes. BID revives urban centers by reforming the economic structure. The BID aims to provide more services to businesses apart from municipal ones voluntarily with the participation of business owners. Table 5 presents other propositions in addition to creating a BID in the area.

As previously mentioned, the selection of a location by enterprises involves numerous potential indicators, but due to the scope of this research, it was not feasible to examine all of them. Instead, the study focused on 15 indicators that were deemed to be the most significant. In future research endeavors, it is advisable to expand the scope and consider a broader range of indicators. Furthermore, this study concentrated on a specific area within Tehran, which serves as a destination for many of these SMEs, particularly those who recognized as knowledge-based enterprises. It is worthwhile to conduct similar studies encompassing the entire city of Tehran or even different cities across various countries, comparing and contrasting the findings. Additionally, the indicators can be tailored to other clusters of activity, apart from knowledge-based companies, in order to highlight the variations in perspectives and requirements among different sectors. It is important to note that this research was conducted over an extended period, during which data collection, questionnaires, and interviews took place amidst the challenges and limitations imposed by the COVID-19 pandemic. Furthermore, this study solely considered micro-level indicators of the business environment, leaving room for future research to explore macro-level indicators of competitiveness, thereby providing a more comprehensive understanding of the subject matter.

5. Conclusion

This research introduces a distinctive and impactful contribution to the realm of business location selection, with a specific focus on the Iranian context. In contrast to prior studies predominantly centered on global or Western scenarios, this investigation delves deep into the intricacies of the Iranian landscape, encapsulating its distinct economic, political, and social dynamics. By conducting an exhaustive exploration of site selection factors for SMEs within Tehran's emerging business district, this study provides insights deeply rooted in local circumstances, thereby enriching our comprehension of how regional subtleties influence business decisions. Notably, this research addresses a crucial void in the literature, offering insights that accrue benefits both for regional stakeholders and the wider global community.

A compelling revelation from the study pertains to the significant clustering of knowledge-based enterprises within specific Tehran localities, a consistent trend over time. What's intriguing is the alignment of perspectives among owners of knowledge-based businesses, in stark contrast to the varying viewpoints within non-knowledge-based entities. This divergence can be attributed to Iran's centralized system and the extensive initiatives undertaken by its government. Knowledge-based enterprises strategically pursue proximity to governmental institutions, fostering collaborative synergies that enable them access to invaluable resources, funding, expertise, and networks propelling their achievements. Conversely, non-knowledge-based entities often overlook such dynamics in their site selection deliberations. Furthermore, the research's meticulous categorization of influential factors, the incorporation of innovative indicators, and the methodological precision contribute to the creation of a replicable model with the potential for global relevance, marking it as a pioneering addition to the field.

This research not only advances the understanding of business location selection in the Iranian context but also contributes to the broader landscape of knowledge concerning SME decision-making. By pinpointing the pivotal determinants influencing site selection for

both knowledge-based and non-knowledge-based enterprises, this study offers insights that transcend Iran's geographical boundaries. The in-depth analysis of specific indicators, including proximity to governmental bodies and positioning within congestion charge zones, introduces novel perspectives to the existing body of literature. Further, the employed methodology, characterized by meticulous survey techniques and the integration of geographic information systems, presents a model that can be replicated across similar studies on a global scale. Bridging the chasm between theory and practice, this research offers pragmatic implications for entrepreneurs, policymakers, and urban planners striving to optimize business locations. The synthesis of context-specific insights and universally applicable methodologies firmly establishes this study as an invaluable resource within the realm of business location research.

Data availability

The data is available upon reasonable request for the academic purposes from the corresponding authors.

Declaration of competing interest

The undersigned, we declare that this manuscript is original, has not been published before, and is not currently being considered for publication elsewhere. We would like to draw the editor's attention to the following publications of one or more of us that refer to aspects of the manuscript presently being submitted, where relevant copies of such publications are attached. We wish to confirm that there are no known conflicts of interest associated with this publication, and there has been no significant financial support for this work that could have influenced its outcome. We confirm that the manuscript has been read and approved by all named authors and that there are no other persons who satisfied the criteria for authorship but are not listed. We further confirm that all have approved the order of authors listed in the manuscript of us. We confirm that we have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property. In so doing, we confirm that we have followed the regulations of our institutions concerning intellectual property. We further confirm that any aspect of the work covered in this manuscript that has involved either experimental animals or human patients has been conducted with the ethical approval of all relevant bodies and that such approvals are acknowledged within the manuscript. We understand that the Corresponding Author is the sole contact for the Editorial process. Dr. Sahar Nedae Tousi and Dr. Amirhosein Mosavi are responsible for communicating with the other authors about progress, submissions of revisions and final approval of proofs. We confirm that we have provided a current, correct email address accessible by the Corresponding Author and configured it to accept email from S_tousi@sbu.ac.ir and amir.mosavi@uni-obuda.hu.

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References

- Al-Salamin, H., & Al-Baqshi, J. (2015). Micro-factors influencing site selection for small and medium enterprises (Smes) in Saudi Arabia: Alhassa area using analytical hierarchy process (ahp) analysis. *European Scientific Journal, ESJ*, 11(28). Retrieved from <https://eujournal.org/index.php/esj/article/view/6378>.
- Begg, I. (1999). Cities and competitiveness. *Urban Studies*, 36(5–6), 795–809. <https://doi.org/10.1080/0042098993222>
- Bruinsma, F., & Rietveld, P. (1998). The accessibility of European cities: Theoretical framework and comparison of approaches. *Environment and Planning A*, 30(3), 499–521. <https://doi.org/10.1068/a300499>.
- Dicken, P., & Lloyd, P. E. (1990). *Location in space: Theoretical perspectives in economic geography*. New York: Harper & Row.
- Domański, B. (2003). Industrial change and foreign direct investment in the postsocialist economy: The case of Poland. *European Urban and Regional Studies*, 10(2), 99–118.
- Dönmez, C.Ç., & Atalan, A. (2019). Developing Statistical optimization models for urban competitiveness index: Under the boundaries of econophysics approach. *Complexity*, 2019, 1–11. <https://doi.org/10.1155/2019/4053970>
- Estrin, S., Korosteleva, J., & Mickiewicz, T. (2009). *Better means more: Property rights and high-growth aspiration entrepreneurship*. IZA Discussion. Paper No. 4396.
- Flieger, M. (2013). *The criteria and barriers to location of business in the process of stimulating the development of the municipalities – empirical results* (Vol. 284, pp. 27–215). Research Papers of the Wrocław University of Economics.
- Hadjimichalis, C. (2011). Uneven geographical development and socio-spatial justice and solidarity: European regions after the 2009 financial crisis. *European Urban and Regional Studies*, 18(3), 254–274. <https://doi.org/10.1177/0969776411404873>
- Hechavarría, D., & Reynolds, P. (2009). Cultural norms and business start-ups: The impact of national values on opportunity and necessity entrepreneurs. *The International Entrepreneurship and Management Journal*, 5, 417–437.
- Hoover, E. M. (1948). *The location of economic activity*. New York: McGraw-Hill.
- Hudson, R. (2001). *Producing places*. London: Guildford.
- Hudson, R. (2002). Changing industrial production systems and regional development in the new Europe. *Transactions of the Institute of British Geographers*, 27, 262–281.
- Isard, W. (1956). *Location and space-economy*. New York: J. Wiley, and Sons.
- Jurevicius, O. (2021). Value Chain Analysis_ The Ultimate Guide - SM Insight. *Strategic Management Insite*. Retrieved from.
- Kapitsinis, N. (2017). Firm relocation in times of economic crisis: Evidence from Greek small and medium enterprises' movement to Bulgaria, 2007-2014. *European Planning Studies*, 25(4), 703–725.
- Kapitsinis, N. (2018). Interpreting business mobility through the socio-economic differentiation. Greek firm relocation to Bulgaria before and after the 2007 global economic crisis. *Geoforum*, 96, 119–128.
- Karimi, F., & Kiasar, A. (2017). *A look at the situation of small and medium enterprises (SMEs) in OECD member countries*, Tehran Chamber of Commerce, Industries, Mines and Agriculture (ICCIMA), economic research department.

- Kimelberg, S. M., & Williams, E. (2013). Evaluating the importance of business location factors: The influence of facility type. *Growth and Change*, 44(1), 92–117. <https://doi.org/10.1111/grow.12003>
- Kinkel, S. (2012). Trends in production relocation and backshoring activities. Changing patterns in the course of the global economic crisis. *International Journal of Operations & Production Management*, 32, 696–720.
- Koster, S., & Kapitsinis, N. (2015). Analysing the geography of high-impact entrepreneurship. In C. Karlsson, M. Andersson, & T. Norman (Eds.), *Handbook of research methods and applications in economic geography* (pp. 597–613). Cheltenham: Edward Elgar.
- Kwon, S., Kim, J., & Oh, D. (2012). Measurement of urban competitiveness based on innovation indicators in Six metropolitan cities in Korea. *World Technopolis Review*, 1(3), 177–185. <https://doi.org/10.7165/wtr2012.1.3.177>
- Lambooy, J. G. (1995). *Regionale economische dynamiek, inleiding in de economische geografie*. Coutinho: Bussum.
- Latifi. (2009). Gh. In , 20. *An overview of some spatial theories in regional planning* (pp. 104–109). The month's book of social science publications.
- Lengyel, I. (2004). The pyramid model: Enhancing regional competitiveness in Hungary. *Acta Oeconomica*, 54(3), 323–342. <https://doi.org/10.1556/aoecon.54.2004.3.3>
- Lösch, A. (1940). *Die räumliche Ordnung der Wirtschaft*. Jena: Gustav Fischer.
- Martin, R., & Simmie, J. (2008). The theoretical bases of urban competitiveness : Does proximity matter. *Revue d'Économie Régionale et Urbaine*, (3), 333–351. <https://doi.org/10.3917/reru.083.0333>. octobre.
- Martyniuk-Peczek, J., Martyniuk, O., Gierusz, A., & Peczek, G. (2017). Determinants of SME location in a suburban area: Evidence from the Gdańsk–Gdynia–Sopot metropolitan area. *Urbani Izziv*, 28(1), 122–134. Retrieved December 17, 2021, from <http://www.jstor.org/stable/24996594>.
- Maskell, P., & Malmberg, A. (1999). The competitiveness of firms and regions: 'Ubiquitification' and the importance of localized learning. *European Urban and Regional Studies*, 6(1), 9–25.
- Mazzarol, T., & Choo, S. (2003). A study of the factors influencing the operating location decisions of small firms. *Property Management*, 21(2), 190–208. <https://doi.org/10.1108/02637470310478918>
- Moon, H. C., Rugman, A. M., & Verbeke, A. L. (1998). A generalized double diamond approach to the global competitiveness of Korea and Singapore. *International Business Review*, 7(2), 135–150. [https://doi.org/10.1016/s0969-5931\(98\)00002-x](https://doi.org/10.1016/s0969-5931(98)00002-x)
- Moore, B. D., Tyler, P. C., & Elliott, D. W. (1991). The influence of regional development incentives and infrastructure on the location of small and medium-sized companies in Europe. *Urban Studies*, 28(6), 1001–1026. <https://doi.org/10.1080/00420989120081171>
- Nedea Tousi, S. (2023). Clustering policy for urban competitiveness: One-Size-Fits-All? Evidence from Tehran. *Regional Science, Policy and Practice*. <https://doi.org/10.1111/RSP3.12699>
- Ni, P. (2012). *Global urban competitiveness report-2012*. Cheltenham/Northampton: Edward Elgar Publishing.
- Ochoa, J. B., De Dios León Lara, J., & De La Parra, J. P. N. (2017). Proposal of a model to measure competitiveness through factor analysis. *Contaduría y Administración*, 62(3), 792–809. <https://doi.org/10.1016/j.cya.2017.05.002>
- OECD. (2016). *Korea economic surveys*. Available at: www.oecd.org/eco/surveys/economic-surveykorea.htm.
- Palander, T. (1935). *Beiträge zur Standortstheorie*. Uppsala: Almqvist & Wiksell.
- Porter, M. (1990). The competitive advantage of nations. *Harvard Business Review*, 68(2), 73–93.
- Porter, M. E. (2000). Location, competition, and economic development: Local clusters in a global economy. *Economic Development Quarterly*, 14(1), 15–34. <https://doi.org/10.1177/089124240001400105>
- Pred, A. R. (1967). Behaviour and location: Foundations for a geographic dynamic location theory. In *Part 1. Studies in geography, series B*. (Vol. 27). Lund: University Lund.
- Predöhl, A. (1928). The theory of location in its relation to general economics. *Journal of Political Economy*, 36(3), 371–390. <https://doi.org/10.1086/253950>
- Sharifzadegan, M. H., & Malekpour Asl, B. (2015). *Business improvement districts (BID), as a means of urban economic improvement in Iran*. Tehran: Tehran University Publications.
- Sharifzadegan, M. H., & Nedae Tousi, Sahar (2014). Optimized socio-spatial development framework for yielding competitiveness at the level of Tehran metropolitan area (TMA). *Environmental Sciences*, 12(3).
- Siddiqui, A. A. (2021). The use of pestel analysis tool of quality management in the health care business and its advantages. *American Journal of Biomedical Science & Research*, 14(6), 507–512. <https://doi.org/10.34297/ajbr.2021.14.002046>
- Stenholm, P., ecs, Z., & Wuebker, R. (2013). Exploring country-level institutional arrangements on the rate and type of entrepreneurial activity. *Journal of Business Venturing*, 28(1), 176–193.
- Tabari, M., Kaboli, A., Aryanezhad, M., Shahanaghi, K., & Siadat, A. (2008). A new method for location selection: A hybrid analysis. *Applied Mathematics and Computation*, 598–606.
- Vaillant, Y., Lafuente, E., & Serarols, C. (2012). Location decisions of new 'knowledge intensive service activity' firms: The rural–urban divide. *Service Industries Journal*, 32(16), 2543–2563. <https://doi.org/10.1080/02642069.2011.594880>
- Van Dijk, J., & Pellenberg, P. (2000). Firm relocation decisions in The Netherlands: An ordered logit approach. *Regional Science*, 79(2), 191–219. <https://doi.org/10.1007/s101100050043>
- Van Noort, E. A., & Reijmer, I. A. (1999). Location choice of SMEs: The most important determinants. *Zoetermeer: EIM Small Business Research and Consultancy*.
- Vlachou, C., & Iakovidou, O. (2015). The evolution of studies on business location factors. *Journal of Developmental Entrepreneurship*, 20(4), 1–23. <https://doi.org/10.1142/S1084946715500235>
- Von Thünen, J. H. (1875). Der isolierte Staat in Beziehung auf Land-wirtschaft und Nationalökonomie. *Wiegand, Hempel & Pary, I*. <https://doi.org/10.5962/bhl.title.24798>
- Weber, A. (1929). *Theory of the location of industries*. Transl. C. J. Friedrich. Chicago: University of Chicago Press. Available at: <https://archive.org/details/alfredwebertheo00webe>.