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Socio-spatial vulnerability and dilapidated abandoned buildings (DABs) through the lens of spatial liminality: A case study in Iran

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Abstract
This article explores the association between socio-spatial vulnerability and dilapidated-abandoned buildings (DABs) through the lens of spatial liminality in historic Iranian cities. It deliberates how DABs are accompanied by several deleterious effects, created as a result of modern socio-spatial transformation. An interdisciplinary approach was employed in this study, which recognises liminality as a condition of socio-spatial vulnerability applicable to historic cities. In this case, spatial liminality in historic cities has become associated with the influx of non-local disadvantaged residents who compete for cheaper housing options while remaining in a state of limbo. The study is quantitative in nature and consists of a questionnaire survey and on-site observation. The investigation was conducted in twelve urban blocks, located in two significant historic cities: Yazd and Kashan. Results demonstrate a significant association between the extent of DABs, the overall distribution of liminal refugees and the proportion of refugee settlements, almost in all sample blocks. Such spatial liminality accompanied by the accumulation of refugees, indicating DABs as liminal urban fabrics that need to be re-utilised while maintaining their heritage value. This study allows practitioners, policymakers and academicians to comprehend the revitalisation of historic cities through the lens of spatial liminality and this, in turn, opens up discussion on how urban regeneration methods can inform socio-spatial governing context to move historic cities, out of spatial liminality.

1. Introduction

Today, Iranian cities have become subject to an unprecedented phenomenon, initially occurred at the beginning of the 20th century when for the first time modernity was introduced in the Middle East. In this sense, the old city walls were demolished, and this development dramatically changed the physical-spatial configurations of historic cities (Pakzad, 2015). It is essentially acknowledged that from the 1920s to 1960s (and during the period spanning the Pahlavi Kingdom, 1925--1979) exogenous socio-spatial movements reshaped historic cities. Ever since, traditional cities have been carved out and transformed under capitalism and modernity to accommodate vehicular access and modern infrastructure (Habibi, 2005). Therefore, historic cores in Iranian cities have mainly been subject to gradual decay, with an exodus of population and abandonment of buildings for more than half a century (Ehlers & Floor, 1993). In this sense, a direct correlation between the urban transformation process and lack of urban identity can be identified in historic cities (Gür & Heidari, 2019)

As a result of unprecedented contemporary urban transformation, today large areas of historic fabrics can be considered as dilapidated-abandoned buildings (DABs), while some disused areas have existed for few decades (Faghih, 1976; Güler & Kâhya, 2019). Mirmiran (2011), for example, suggested that in Kashan 12.7% of all historic areas are made up of DABs. In Yazd, Behzadfar (2012) also indicated that about 15% of all historic fabrics are surveyed as DABs, which can attract antisocial behaviour, poor communities and generate a perceived or actual lack of safety (Figure 1).

Today, due to a vast proportion of DABs, historic Iranian cities have been transformed into disaggregated and fragmentary fabrics, which have remained unattended for decades or have been filled by new developments that have inharmonious relationships with surrounding environs. Thus, DABs and relevant redevelopment regulations pertaining to them are conceptually challenging and have

Figure 1. *Today, the formation of DABs (mainly generated as a result of new road developments) has become a major socio-spatial problem in historic Iranian cities, such as in Kashan (right) and Yazd (left), (Source: the lead author).*

been largely neglected within the socio-spatial planning context of historic cities (Masoud & Beigzadeh, 2012).

Inside Iranian cities, socio-spatial marginality is clearly evident and relevant to the cluster of low-income disadvantaged communities; these mainly comprise an extremely poor urban social stratum, encompassing families whose household incomes position them as marginally above or below the official poverty line (Curtis & Hooglund, 2008). Such disadvantaged communities may be attracted to settle in cheaper urban areas such as historic fabrics, and because of their poor financial situation can not maintain their houses and/or properties (Behzadfar, 2012).

Today, it is estimated that about one and a half to two million undocumented Afghani refugees are present in Iran (Lomax, 2018), of which 98% are living in cities (Naseh et al., 2018). Inside Iranian cities, there are meaningful grounds on which to believe that poor nonlocal residents, ethnic minorities and refugees are gradually occupying heritage fabrics while original residents are leaving these areas (Tavassoli, 1987b).

For example, from 1996 to 2006 in Yazd, the local (Yazd-born) population declined from 54,287 to 42,868, of which about 14% were identified as refugees living inside the old city of Yazd (Behzadfar, 2012). Such an influx of refugees could be considered as a phenomenon which is strongly linked to the accumulation of cheaper housing opportunities inside such urban areas (Tavassoli, 1987 a). For those whose lives are unstable in the diaspora, it is best to seek sanctuary within historic

Figure 2. *Refugee settlements within dilapidated-abandoned buildings can represent socio-spatial vulnerability inside historic Kashan (left) and Yazd (right), (Source: lead author 2018).*

zones with minimal living facilities, which could be quite tolerable to them, either due to their original life in villages or severe poverty and homelessness (Mirmiran, 2011), (Figure 2).

1.1. Research context

As argued earlier, the simultaneous growth of DABs and mass immigration of exogenous disadvantaged communities to historic areas today can be respectively interpreted as a state of socio-spatial vulnerability (Tavassoli, 1987 b). Such transitory situations can form a deleterious, circular phenomenon, through which inefficient planning models can diminish the value of land, that in turn encourages emigration of original residents and facilitates the immigration of non-Iranian disadvantaged communities to historic cities (Behzadfar, 2012).

Therefore, DABs become a tangible-dependent variable suspended between past and present, which arguably accelerates the formation of socio-spatial vulnerability (Mirmiran, 2011). Such undesirable socio-spatial conditions have been suspended between traditional and contemporary urban contexts for some time, and this has created physical dilapidation, uncertainty, stigmatisation, racism, marginality, dissatisfaction on the part of residents, crime, and so forth. Thus, DABs can attract even larger clusters of refugees and disadvantaged communities into historic cities (Behzadfar, 2012).

As a result, the correlation between the extent of DABs, and the formation of such detrimental conditions, need to be considered as a deleterious phenomenon that reflects real-life vulnerability in historic Iranian cities. Therefore, the broad aim in this paper is to provide an innovative method for understanding socio-spatial vulnerability associated with DABs that can facilitate strategies for revitalising historic cities. Thus, the research investigates the correlation between the extent of DABs versus transitory residents across several case studies.

The scope of the work in this study is limited to collecting and analysing several socio-spatial datasets in twelve urban blocks in two historic Iranian cities. A case study selection procedure is specified by studying the maximum variation of DABs on sample blocks. Two methods of data collection are implemented in this research including street surveys and field observation. Data analysis has utilised ArcGIS, SPSS, presented in spatial and demographic strata.

1.2. Socio-spatial rehabilitation of historic cities

Since the 18th century, several global movements have reiterated a need for revitalisation of heritage sites and cultural properties (Murray, 2008). Today, methods of urban revitalisation in historic cities may include several approaches, from mere preservation to physical intervention or a combination of both (Doratli, 2005). Levels of intervention for the revitalisation of historic cities should be directed by cultural heritage value, and any intervention which would lessen or compromise cultural heritage value is objectionable and should not occur (ICOMOS, 1993).

In Iranian cities, three major government agencies are in charge of regulating and managing heritage districts[1]. Revitalisation programs in historic cities have aimed to document historic contexts, provide building regulations, and define heritage buffer zones. Programs also have concentrated on pedestrianisation, place-making, façade restoration, repaving and regeneration of cultural-historic axes (Habibi, 2010). Programs also focus on developing infrastructure, adaptive reuse of historic buildings, and have facilitated infill residential-mixed use buildings, identity generation and promotion of tourism activities (Hanachi & Fadaei Nezhad, 2019).

Today, the rehabilitation of historic cities in Iran is not seen as a priority among relevant government agencies

(Pakseresht, 2017). Such oversight can happen either because of the obsolete image of historic areas among the public or lack of technical and/or institutional capability (and capacity) to come to grips with such a complex mix of physical and social problems (Balbo, 2012). Whether the issue is wholesale demolition or widespread neglect of DABs, the common problem is that most decision-makers identify with a development process that is alien to cultural traditions of their societies. In this sense, the decision-makers are rarely provided with technical approaches and institutional tools which could demonstrate the viability of alternative, more appropriate models of intervention (Bianca, 2000).

Historic urban cores in Iranian cities have been undermined by various moves for redevelopment. There has been an underlying emphasis on physical-linear regeneration (e.g. by implementing urban design methodologies adapted from Kevin Lynch's environmental psychology, which emphasises urban imageability amongst space users) and delivery of flagship projects as a prevalent approach, mainly employed by the central government (Masoud & Beigzadeh, 2012).

Such urban revitalisation projects inside historic cores principally remain freestanding, bounded within physical structures and organisational political perspectives. Thus, despite great efforts, such an inharmonious state of affairs has further segregated historic cores and underutilised heritage urban fabrics (Andalib, 2010). Furthermore, current preventative building controls have discouraged building investments in historic areas and this has led to further devaluation of land, which may in turn yield more deteriorated fabrics (Izadi, 2008), (Figure 3).

2. A theoretical framework for revitaling historic Iranian cities

From the early 19th century to the Amsterdam Charter (1975), it took about seven decades for regeneration programs to evolve from single building restoration to holistic and sustainable agendas for revitalising historic cities (Behzadfar, 2012). Such progressive development brought awareness of

Figure 3. *Current revitalization programs in Iranian historic cities, such as in Yazd (right) and Kashan (left) mainly have focused on enhancing physical structures rather than considering the grassroots of socio-spatial matters in neighbourhoods.*

the impossibility of separating historic centres (either in analytical or in planning terms) from their municipal, territorial and social contexts, which are linked by mutual, deep relationships (Lazzarotti, 2011; Zain & Andi, 2020).

In that regard, urban transformation in historic cities of Europe began with the Renaissance in the 14th century and continued with the Enlightenment, culminating in the late 18th, 19th and 20th century Industrial Revolution (Voegelin, 1982). Therefore, the whole process of urban transformation, including the adoption of economic, political and cultural aspects of modernity by Western cities, had materialised in about five centuries, which has allowed a reasonable amount of time for socio-spatial integration of historic cities with their surrounding modern built environments.

In contrast, the whole process of modernisation in Middle-Eastern cities, launched since the beginning of the 20th century, radically transformed traditional structures in just a few decades (Bianca, 2000). The rapid and unfiltered adaptation of modernity entailed the progressive demolition of historic fabrics as a result of demographic changes, migration, breakdown of traditional tribal structures, the introduction of mechanized transport, destruction of city walls and so on; and devalued land and properties, which generated massive socio-spatial degradation and assisted rural immigration in old urban contexts (Mahdy, 2017).

The dynamic of socio-spatial change produced by the Industrial Age found its physical expression in the radical transformation of historic urban fabrics in Iranian cities, despite the fact that during previous centuries changes

in architectural fabric had always occurred as a result of the natural/organic evolutionary process (Faghih, 1976). Such socio-spatial disruption generated an ever-widening chasm between past and future, which pulled present historic cities apart, emptying them of many essential qualities; and therefore, historic urban areas can be assumed to be entities suspended in-between pre-modern and contemporary epochs (Bianca, 2000), (Table 1). This uncertainty represents transitionality, not unlike the concept that Szakolczai (2017) describes as a state of permanent suspension. Besides, the challenging presence of refugees in such informal refugee camps is clearly evident in the concept of in-between-ness (Manjikian, 2010).

Here, such limbo can create vulnerability, where societies everywhere acknowledge transition in the social status of people, by symbolically noting their separation from a previous state in the social structure, and subsequent incorporation of a new social state (Van Gennep, 1960). Therefore, historic zones in heritage cities can be seen as transitional entities, because they accommodate uncertain conditions in life and settlement fabrics (Mozaffari, 2016). In anthropology, liminality is used as a measure for understanding

vulnerability of being limbo among human beings (Szakolczai, 2015). Thus, this research suggests liminality as a proper tool for understanding socio-spatial vulnerability in the context of urban regeneration in historic Iranian cities.

Accordingly, this article presents an approach for studying vulnerability in historic Iranian cities, whereby DABs can meaningfully reflect the liminal qualities of life. Here, a gap in the relevant scholarship is the relationship between the extent of DABs and the formation of socio-spatial vulnerability, while such an examination can be undertaken specifically through the lens of spatial liminality. In response to the proposed research project, this paper proffers two significant questions for investigating aspects of socio-spatial vulnerability in historic cities. Firstly, "to what extent could liminality be identified and documented against the formation of DABs in historic Iranian cities?" and secondly, "to what extent can liminality, as an analytical tool, inform revitalisation projects and processes in historic urban fabrics?".

3. Application of liminality in urban studies

Van Gennep first coined liminality in Les Rites de Passage (1909), translated into English as The Rites of Passage (1960) (cited by Thomassen, 2014). He distinguished rites that marked the passage of an individual or social group from one status to another (e.g. childhood to manhood), from those which mark transitions in the passage of time, for instance, harvesting time and New Year (cited in Thomassen, 2012).

Emphasising the importance of transitions in any society, Van Gennep (1960) singled out 'rites of passage' as a special category, consisting of three sub-categories, namely 'rites of separation', 'transition rites' and 'rites of incorporation' (Szakolczai, 2015, p.141). He called the middle stage a liminal period. He referred to transition rites as 'liminal rites', and the rites of incorporation 'post-liminal rites' (Thomassen, 2012, p.23). By analysing rites of passage, Van Gennep introduced a new approach: instead of utilising priori categories as units of his taxonomy, he

Table 1. *Timeline comparing socio-spatial transition in Iranian and European cities.*

Epoch	Time period	Socio-spatial transition in European cities	Socio-spatial transition in Iranian cities
Premodern	Renaissance	The ongoing adoption of economic, political and cultural aspects of modernity by Western cities made cities sensitive to/aware of exogenous/global movements	Changes in architectural fabric had always occurred as a result of the natural/organic and endogenous-evolutionary process
	Enlightenment		
	Industrial revolution		
	The 19th century	Single building restoration along with the generation of surrounding modern structures in the city	
Modern and contemporary	The 20th century	New approaches merged the planning of historic cores with the larger built environment	Radical transformation of traditional structures generated socio-spatial disruption, DABs and immigration of disadvantaged communities to historic areas
	The 21st century	Holistic and sustainable agendas for revitalising historic cities	Historic urban cores are suspended in-between pre-modern and contemporary epochs in a transitory limbo for several decades that can create socio-spatial vulnerability

abstracted these units from the structure of ceremonies themselves (Darity, 2008).

Van Gennep was impressed with the prominence of transitional or liminal phases within a ceremony. He noticed, within tribal rituals, that when individuals or groups are in a state of suspension (separated from their previous condition and not yet incorporated into a new one), they constitute a threat to themselves and the entire group. As such, they are outside the sphere of normal control and must be reintegrated to avoid becoming disruptive (Van Gennep, 1960) (Figure 4).

3.1. Place as the third dimension of liminality

By coining spatial liminality, Thomassen (2014) indicates the third dimension of liminality as Place, moving beyond Van Gennep's dichotomy of Time and Event as the very foundations of liminality. Thomassen notes Van Gennep's specification that liminality is essentially a spatial concept; and perhaps the physical passage of a threshold somehow preceded the rites that demarcate a symbolic or spiritual passage. In his original book, Van Gennep introduced his analysis of ritual transition by devoting a complete chapter to the territorial passage, and by asserting that 'a rite of spatial passage has become a right of spiritual passage'. In this sense, the study of 'spatial liminality' represents an opening for 'theorising space' (Thomassen, 2014, p.91).

A concrete manifestation of such liminal-spatial passage is the case of refugee camps, where Mortland (1987, p.379) argues that the characteristics of liminality are applicable to asylum seekers confined to refugee camps. She indicates that the loss and confusion experienced by refugees after separation from their homeland, unfamiliarity and strangeness of the refugee camps and uncertainty about the future create a social atmosphere of enigma, anxiety and timelessness for refugees, which cannot be overcome as long as they remain in the camps. In this case, refugees exist in a state of suspension where they have lost their former status as members of a community, but have also not been able to join mem-
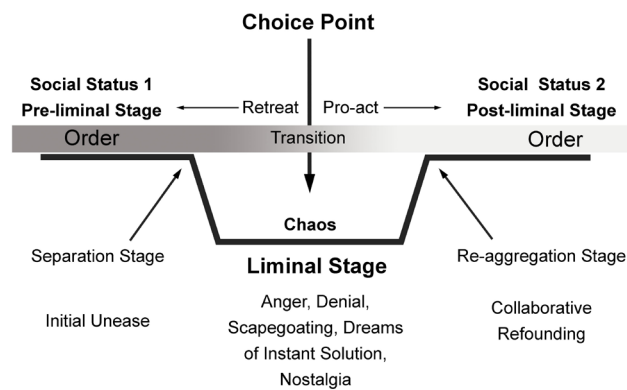

Figure 4. The three phases of liminality as described by Van Gennep (1960).

bers in the surrounding society in their new location. In this respect, 'one form of the refugee camp prototype takes the conditions of transition existing in refugee camps and attempts the transformation of refugees into new beings' (Mortland, 1987, p. 380).

Nevertheless, an accumulation of refugees and disadvantaged non-local residents is a widespread phenomenon experienced in many historic cities today (Balbo, 2012). Thus, referring to Van Gennep, Thomassen and Mortland, it is argued here that spatial liminality, in both historic areas and refugee camps, could be acknowledged as sharing several similarities. In each case, the situation of non-local disadvantaged communities can be described as liminal for at least six reasons:

Firstly, people who have been involved in both types of spatial liminality have inevitably turned out to be refugees or non-local migrants. Secondly, both types of refugees are living inside a segregated zone, generated by physical boundaries. For instance, at the present time, residents in core historic areas in Iranian cities can be seen to be semi-restricted and vulnerable, due to lack of vehicular accessibility (Tavassoli, 1987a), which is indeed comparable to physical barriers in refugee camps. Thirdly, in terms of physical qualities, both types of refugees are exposed to poor housing, marginality and segregation. Fourthly, these people could participate in real-life events, including compulsory and indefinitely deferred transition. In this sense, refugees in both cases will continue to remain suspended between their previous social status and becoming a citizen of the

new land. Fifthly, these two types of spatial liminality more or less occur on a similar scale, whether it be a real-life refugee encampment or several interconnected refugee settlements (e.g. clusters of houses) in historic fabrics. Finally, within a real-life liminality context, previous achievements, skills and statuses of exogenous communities, either living in a refugee camp or inside historic fabrics, no longer apply, while both are suspended. Thus, the formation of spatial liminality can fittingly become evident inside many historic cities.

3.2. Spatial liminality as a framework for understanding historic cities

Thus far, this paper has identified spatial liminality as a deleterious condition of socio-spatial vulnerability, where non-Iranian disadvantaged communities tend to immigrate to historic cities, to obtain affordable housing opportunities in order to survive. This quality was elaborated earlier intertwined with DABs that can create disorganisation, imbalance, a decline in socio-spatial characteristics and poverty (Faghih, 1976). As a result, the argument here suggests spatial liminality as a theoretical basis for investigating the vulnerability associated with DABs in historic cities. Since liminality is largely a social-spatial phenomenon, the system of inquiry, as proposed here, is required to conduct an independent survey for understanding liminality in historic cities. Accordingly, survey items may be thought of as falling into three general content categories: demographic, factual and attitudinal (Edwards, 1997).

Factual liminality can question spatial realities via a spatial inquiry, and can be relevant in identifying current conditions of land use, by focusing on the current extent of DABs and refugee settlements, which in turn reliably measures the extent of spatial liminality. Demographic liminality can provide descriptive information about the respondents, commonly including inquiries regarding their ethnicity, which can measure spatial liminality as a condition of vulnerability amongst non-Iranian disadvantaged residents in historic cities. Nevertheless, attitudinal aspects of spatial liminality among subjected groups remain outside the scope of this research, because of the unreliability of answers that may be received from liminal residents.

4. Methodology

The current research aims to analyse specific issues within the boundaries of historic urban areas. It contains an exploratory-interpretive case study that investigates a distinct phenomenon characterised by a lack of detailed preliminary research. For measuring spatial liminality associated with DABs, three quantifiable tools are proposed in this inquiry, indicating the number of refugees per urban block and the extent of refugee settlements and DABs within case studies.

4.1. Case study selection

The case study selection procedure and objectives in this research aim to cover a wide range of urban population densities in historic Iranian cities. Kashan and Yazd were selected as larger case studies that accommodate lower and mid-range populations respectively, while possessing the largest areas of urban heritage fabrics. In this case, the results of the research cannot be generalized on a country basis. The selection procedure at the next level aims to capture the maximum variation of DABs in historic cities, thus singling out urban tissues with higher, medium and lower percentages of DABs in Yazd and Kashan. As a result, Darb-i-Isfahan, Mohtasham and Posht-i-Mashhad-i-paeen are selected as urban tissues that respectively developed higher (27%), medium (15%) and lower (4%) percentages of DABs in Kashan as measured by Behzadfar (2012). Godal-i-Mosalla, Dolat-Abad and Gonbad-i-Sabz were selected as urban tissues that respectively developed higher (25%), medium (17%) and lower (10%) percentages of DABs in Yazd as calculated by Mirmiran (2011).

After selecting a variety of urban tissues (that characterise a broad range of DABs effects), smaller urban elements that can be systematically investigated as actual case studies are selected. In Middle-Eastern historic cities, an

urban block could be conceived as a group of several dwellings including semi-private and in-between spaces (Mortada, 2003). Such clusters thus best represent the smallest identifiable urban component that forms traditional neighbourhoods, known as urban blocks (Hakim, 1986).

Consequently, two urban blocks were nominated in each selected urban tissue, which should have developed a higher and lower percentage of DABs per block, to capture the maximum variation of disused areas. The selection criteria were based on two logical phases: (1) reliable size of urban blocks (should have areas between 15,000 to 60,000 m2), and (2) intact quality of roads and physical structures, which can indicate public segregation, as a result of lack of vehicular accessibility. Based on this procedure, twelve sample blocks were chosen for further investigation. Among all selected cases, six blocks are positioned in Kashan (B-1 and B-2 in Darb-i-Isfahan urban tissue, B-15 and B-16 in Mohtasham urban tissue, B-3 and B-5 Posht-i-Mashhad-i-paeen urban tissue), as calculated by Mirmiran (2011). Another six blocks are located in Yazd including Godal-i-Mosalla (B-30 and B-43), Dolat-Abad (B-9 and B-28) and Gonbad-i-sabz (B-8 and B-47) urban tissues as measured by Behzadfar (2012).

4.2. Data collection and analysis

Two primary methods of data collection were implemented in Yazd and Kashan (March--May 2018) by the researchers, included street surveys and field observations. As a result, two categories of data were gathered, namely spatial (factual) and demographic. Spatial data was collected via field studies along with the observation of non-participant behaviours, conducted simultaneously during street surveys (see Appendices). The field observations aimed to explore spatial adjacencies between DABs and refugee settlements[2], measure the proportion of DABs and examine areas accommodated by refugees in selected blocks (Appendix A1).

Demographic data was collected via street surveys conducted in selected blocks, while residents in properties
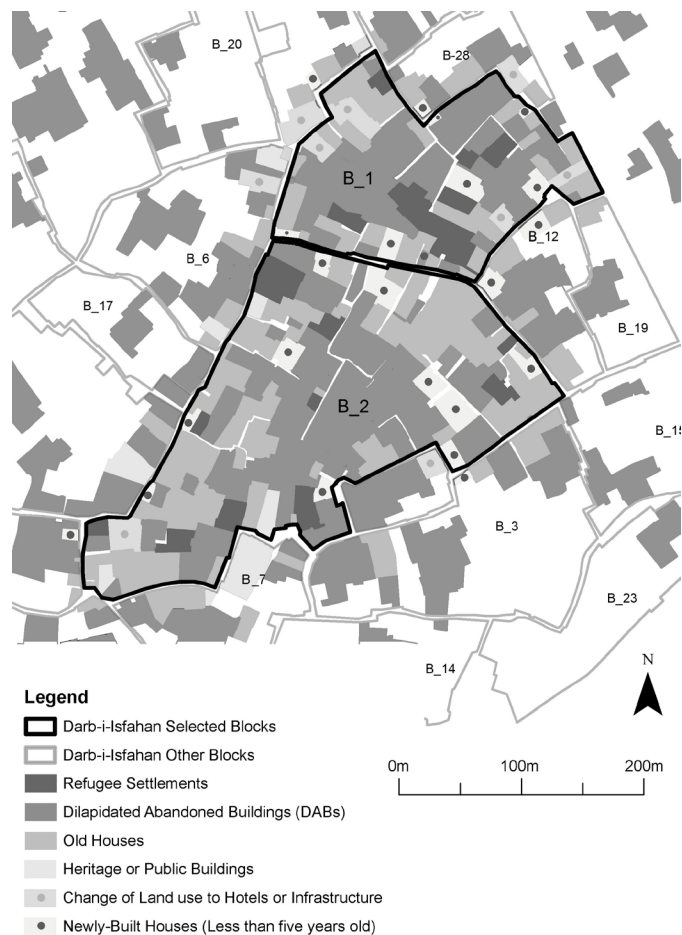

Figure 5. *Mapping spatial liminality in Darb-i-Isfahan urban tissue, Kashan, 2018 (Appendix A1) (source: lead author).*

randomly were asked to answer the question of "what is your ethnicity?" (Appendix A2). Based on a method adapted from Mortland (1987), the survey directly disclosed the number of refugees or disadvantaged non-Iranian immigrants, as an indicator of the liminal population in historic areas. Since the average number of properties (i.e. statistical subject matter in this research) in each sample block can reach about 100, the overall statistical target population reached about 1200, wherein street surveys also needed to be conducted. In a statistical target setting with a population of about 1200, the optimal sample size of about 120 properties (10% of the overall statistical population) seems reliable (Edwards, 1997). Thus, street surveys were conducted with residents of 141 properties including 60 residences in Kashan and 81 residences in Yazd.

In this research, spatial analysis examines possible relationships between the percentage of DABs per block ver-

Figure 6. Mapping spatial liminality in Gonbad-i-sabz urban tissue, Yazd 2018 (Appendix A1) (source: lead author).

sus the extent of refugee settlements in 2018. Spatial analysis also discloses physical adjacencies between DABs and refugee settlements in 2018. Demographic analysis examines possible relationships between the extent of DABs in 2018 versus the overall distribution of refugees per block amongst 141 participating residents.[3] At this level, data clustering and segmentation techniques are utilised to extrapolate outcomes.

5. Results

In all sample blocks in historic Kashan, a close association was apparent between the formation of refugee settlements and the extent of DABs. The nature of such a correlation can be identified here as a type of coexistence, in which refugee settlement fabrics in almost all cases abut boundaries of DABs (Figure 5). Such spatial adjacencies may contain a partial, or complete association. It is demonstrated that in many cases refugee settlements may bridge the gap between DABs, and generate informal access (such as pedestrian shortcuts) between some thoroughfares, establishing socio-spatial interconnections between clusters of refugee settlements. In this case, as a result of the complex interplay between the characteristics of such residents and the effects of the broader social and environmental context, such associations between non-Iranian dis-

advantaged communities are outside the scope of this research.

Not unlike historic Kashan, inside surveyed sample blocks in Yazd in five cases (B-8, B-9, B-43, B-47 and B-30) a clear coexistence between the extent of refugee settlements and DABs was identifiable. During street surveys it became evident that, since 2015, refugees had been forced to move out of the urban block B-28, thus no refugee settlements were apparent (Appendices A1 and A2). In the centre of B-47, several refugee settlements were observed to be non-adjacent to DABs (Figure 6). However, it should be noted that the whole western half of the block formerly comprised DABs, which have recently been re-utilised as indoor and outdoor public playgrounds.

5.1. DABs and the proportion of refugee settlements

In Kashan, a strong relationship was observable between the extent of DABs and the average proportion of refugee settlements. In urban blocks with the highest percentage of DABs (B-1 and B-15) about 7% of all land areas were refugee settlements, while in urban blocks with a medium (B-2 and B-3) and lower (B-16 and B-5) percentage of DABs this proportion respectively reached 5% and 2% (Table 2). In Yazd, there was a correlation between the higher extent of DABs in one-third of urban blocks (B-43 and B-8) and a greater extent of refugee settlements per block (17%). The result suggests that DABs can engender a liminal condition, which is meaningfully related to the size of refugee settlements in historic cities.

5.2. DABs and overall distribution of refugees

In Kashan, about half of liminal residents are accumulated in one-third of urban blocks with the highest percentages of DABs (45% and 44%), while the remainder have settled in two-thirds of urban blocks with smaller proportions of DABs (Table 2). In Yazd, a stronger association between the distribution of refugees and the percentage of DABs can be reconfirmed, where 72% of all refugees have gathered in one-third of urban blocks with the largest areas of

DABs (B-43 and B-8), and the remainder live in two-thirds of urban blocks with smaller percentages of DABs. This quality demonstrated the relevance of the formation of spatial liminality to the proportion of DABs in case studies.

5.3. Inferential analysis

A Pearson correlation test was run to verify the association between the percentage of DABs and factual aspects of spatial liminality (i.e. the extent of refugee settlements) in sample blocks, corresponding to street surveys in two historic cities (Appendix A3). In Kashan, a positive-strong association (r= 0.666, N=61, p < .01, R^2=0.443) was observed between the percentage of DABs and the proportion of areas in which non-Iranian disadvantaged residents have been accommodated. This correlation also remains strong and positive in Yazd (r= 0.546, N=80, p < 0.01, R^2=0.298).

6. Discussion

This article has offered a methodology for understanding socio-spatial vulnerability, by proffering a specific focus on the correlation between DABs and spatial liminality in two historic Iranian cities, where it is concluded that space can exceed time and event and generate spatial liminality, indicating real-life transitions among residents. Spatial liminality elaborated how current revitalisation policies and methods (yet to be implemented in historic areas) have predominantly engaged with visual-physical aspects of cities, rather than cultural and liminal aspects.

Along with spatial liminality, the research has verified DABs as a phenomenon which has exacerbated socio-spatial vulnerability. By measuring the rate of proliferation of DABs in historic cities (an average of 14% from 2008 to 2018), the research revealed the unsuccessful aftermath of contemporary revitalisation projects and processes in two historic cities in Iran (Appendix A1).

Here, spatial liminality discloses the reality of historic cities through a method that Szakolckzai (1998, p.211) has described as 'empirical, lived reality', and pronounced influx of refugees to historic urban areas. In such circum-

Table 2. Analysing the correlation between DABs, the average extent of refugee settlement fabrics and the overall distribution of refugees per urban block in historic Kashan and Yazd (Appendices A1 and A2).

Historic Kashan			
Variables ⟍ Levels of DABs	The average extent of refugee settlement per block	The overall distribution of refugees in the historic city	Surveyed Blocks
High: 44%<DABs	7% (High)	50% (High)	(B-1 and B-15)
Medium: 21%<DABs<44%	5% (Medium)	33% (Medium)	(B-2 and B-3)
Low: DABs<21%	2% (Low)	17% (Low)	(B-16 and B-5)
Historic Yazd			
Variables ⟍ Levels of DABs	The average extent of refugee settlement per block	The overall distribution of refugees in the historic city	Surveyed Blocks
High: 39%<DABs	17% (High)	72% (High)	(B-43 and B-8)
Medium: 32%<DABs<39%	2% (Low)	11% (Medium)	(B-30 and B-28)
Low: DABs<32%	4% (Low)	17% (Medium)	(B-9 and B-47)

stances, refugees are suspended between their past and future and merely want to survive, while they have no idea about cultural values in historic contexts. Liminal-vulnerable settlers, along with impoverished local owners, cannot afford to repair their homes in historic urban areas, and this exacerbates the process of deterioration-dilapidation of buildings.

We have suggested that historic Iranian cities can be considered as liminal places because they accommodate liminal residents or refugees in semi-restricted areas, who are isolated through the lack of vehicular access and adequate public transport. As argued above, these socio-spatial conditions can be reasonably compared to liminal communities constrained in actual refugee camps. In both cases, subject communities are forced to live in ghettos or camps, and have entered into a suspended state of liminality in their attempted passage between their previous social status and an unknown future, seeking to become citizens of the new land.

Through the discourse of liminality, Victor Turner (1974) and Arnold Van Gennep (1960) both suggested that during liminal rites of passage, masters of the ceremony (principally elders of the community), whether implicitly or explicitly, must teach rules and supervise neophytes. Thus, it becomes a notable point that contrary to refugee

camps, where processing centres act as masters of ceremony, inside historic urban fabrics, ritual rules and instructions regarding rites of passage – here interpreted as "rules of the game" – are unknown to neophyte refugees, who have been removed from their elders.

This lack of supervision among refugees in historic cities concurs with Szakolczai's (2015) argument, that in the absence of masters of ceremony liminality will not be restricted to a temporary crisis followed by a return to normality, but can be perpetuated endlessly. In a parallel context, inside historic urban areas, it can also be claimed that if place initiates spatial liminality, upcoming socio-spatial events are arguably impulsive, dangerous or even criminal with respect to drug lords or ghetto owners.

Thus, the notion of permanent liminality, as described by Szakolczai (2017), becomes not dissimilar to high levels of socio-spatial vulnerability, deprivation, residents' dissatisfaction, poverty and crime in historic areas, which has been documented by many Iranian scholars since the beginning of the 20th century (Tavassoli, 1987a). Szakolczai (2017) argues that permanent liminality can be initiated within the three phases of rites of passage if any of these (separation, liminality and re-aggregation) becomes frozen, as if a film stopped at a particular frame, that can occur both with individuals undergoing initiation rites, and with groups participating in a collective ritual.

This condition of spatial liminality in refugee settlements in Iranian cities poses a threat to both refugees and original residents, and in the way that Szakolczai (2017) suggests, it could become permanent liminality due to the absence of masters of ceremony, mutually respected community leaders and family patriarchs and matriarchs who are possibly absent in refugee ghettos/camps (Nowak, 1984).

Thomassen (2012) also warns that without proper re-integration liminality is pure danger. In this sense, how to end such liminality or to leave it as permanent liminality becomes crucial (Szakolczai, 2017). Thus, if stakeholders within the realm of building, construction, architecture, planning and policy-making understand the need to end such permanent spatial liminality, the definition of spatial liminality moves beyond its early initiation in anthropology and arguably becomes a guideline in urban planning and design of historic cities, and can be seen as a driver of social welfare policies, informed by sociological research.

Given the criticality of spatial liminality as a guideline, DABs thus need to be re-utilised as active land resources to prevent liminal effects. In this sense, morphologically informed design methods need to be developed in historic areas, specifically where there is a lack of reasonable economic stimulation for re-utilising DABs. The transformation of DABs into active urban land resources may conceivably lead to a considerable reduction in crime and socio-social problems, and effectively diminish the ratio of urban sprawl in historic cities.

By studying the current implication of DABs through the lens of spatial liminality, the paper has identified the re-utilisation of DABs as a suitable method for regenerating historic cities. However, this argument may raise the objection that the article is advocating gentrification and the replacement of refugee settlements with financially profitable precincts. In this sense, further research needs to suggest tactics through which the redevelopment of DABs might encourage the overcoming of their liminal state which needs to provide fair opportunities for both non-Iranian and local Iranian residents in historic urban areas.

7. Conclusions

This article identified a gap in the knowledge in which the argument, approach and methodology that until now have been presented by contemporary urban design and planning perspectives should be enhanced and fine-tuned, before being applied to the revitalisation of historic Iranian cities. The research has emphasised the need for new epistemological tools in urban studies, suggesting that liminality can be a useful analytical tool for understanding and treating historic cities.

The paper has elaborated spatial liminality as a contextually ground-

ed theory. The correlation of spatial liminality and formation of DABs, as identified in this study, is argued to be a significant finding that adds to the current body of research and architectural theory. The discussion and findings allow practitioners, academics and policymakers to understand socio-spatial equations in historic cities in a real-life context. In this case, spatial liminality is associated with the influx of refugees and non-local disadvantaged residents in historic cores, not unlike refugees living in a state of limbo in refugee camps.

The discourse in this paper provides empirical evidence wherein interrelations between spatial liminality and the extent of DABs in historic cities have become crucial, and can inform future revitalisation initiatives. This correlation creates a new perspective for policymakers and practitioners to consider DABs as liminal urban fabrics in historic Iranian cities and similar urban contexts in other countries, and can lead to the provision of a new generation of regulatory models that specifically focus on re-utilising DABs. However, further research about DABs should be conducted in relation to socio-spatial effects and how they can inform and enrich such anticipated regulations and programs.

Throughout the paper, spatial liminality has proven to be an amorphous socio-spatial phenomenon that applies to historic urban areas alongside physical transformations. Thus, several inevitabilities point to re-examination of the current discussion by conducting further studies. The results, analysis and discussion pertaining to the limited urban samples discussed here will need to be reassessed in relation to other historic cities, and conducted amongst a larger cohort of participants. In this case, the demographic and spatial evaluations are incomplete to generalize the results of the research on a country basis.

The research, for the first time, identified spatial liminality accompanied by DABs in historic cities, while exceptionally contributing to contemporary urban studies. This, in turn, would enhance current urban public policies, by

highlighting unnoticed socio-cultural aspects of historic cities. In line with spatial liminality of DABs, other cultural, social and financial implications of disused buildings need to be further scrutinised to improve the theory of spatial liminality in conjunction with spatial-cultural affairs. For instance, questions such as "where do the migrants go from DABs?", "how can morphological studies be combined with liminality studies to hypothesise culturally informed approaches?" and "how can populations in a state of suspended liminality transition into a more physically and socially integrated population?" become critical. These types of questions are related to larger political-spatial arrangements pertaining to the implementation of socially suitable architecture, appropriate change in land use and adaptive reuse of existing structures, as well as generating affordable housing and employment opportunities for both local and non-local disadvantaged communities in historic cities.

The study of spatial liminality as an analytical tool offers great potential for redeveloping DABs in historic cities, and specifies other cultural--financial dynamics that need to be investigated and regulated. Further questions could be: "who are the owners of DABs?", "in whose interest is it for new buildings to be developed inside DABs?", "who should pay for it?", "why should public-private developers be interested in new projects unless current undesirable populations are removed?", "are DABs an opportunity for implementing required infrastructure, or a new form of affordable housing?" and so forth. Such questions raise several political, economic and multicultural aspects, while the entire situation can be seen as an unforeseen outcome of incomplete processes of modernity in historic cities of Iran and the Middle East.

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Endnotes
[1] These include the Iranian Cultural Heritage, Handicrafts and Tourism Organization (ICHHTO), local municipalities and the Department for Roads and Urban Development.

[2] In this research residents are classified into two major groups: (a) refugees or non-Iranian disadvantaged communities, and (b) local Iranian residents. To avoid complications, the first group then is recognised to be the subject of spatial liminality in historic cities, although in many circumstances Iranian residents could also be liminal.

[3] This research includes interaction by the researcher with human participants; thus, ethics approval for human subjects was sought, indicated no more than low risk for research participants by Office of Research Ethics, Compliance and Intergrity, The University of Adelaide, on 9 March 2018.

Appendices

A1. Conditions of land use in six sample blocks in historic cities						
Six urban blocks (Kashan) (m2)	**B_1**	**B_2**	**B_15**	**B-16**	**B-3**	**B_5**
All block area (m2)	28770	55180	46559	34047	56303	22365
Dilapidation abandonment per block by 2008	12834	12400	9513	4515	7252	2349
New dilapidation by 2018	4291	14515	12105	4140	12153	3115
Reinstated dilapidation by 2018	8700	8804	8515	2960	6230	1064
Dilapidation abandonment per block by 2018	12991	23319	20620	7100	18383	4179
Active urban areas per block 2018 (accommodated by local Iranian residents)	12218	27882	24780	26380	35926	17780
Areas accommodating old housings per block by 2018	6693	18582	14989	17821	20916	9439
Areas accommodating foreign refugees or illegal migrants by 2018	3561	3979	1159	567	1994	406
Areas accommodating single elderly or died per block by 2018	658	470	425	693	0	417
Change of land use to hoteling per block by 2018	1379	695	0	1683	755	0
Change of land use to storage or irrelevant uses per block by 2018	0	0	0	0	0	0
Change of land use to infrastructure per block by 2018	356	0	0	0	1872	0
Change of land use to carpark per block by 2018	0	0	0		0	0
Local mosque or religious centre per block by 2018	0	757	0	745	1282	521
Listed heritage building per block by 2018	0	263	674	422	0	0
Newly built housing per block by 2018	1648	3666	5783	3003	6476	6029
Roads and urban spaces	1484	3449	2909	2013	4625	1374
Six urban blocks (Kashan) %	**B_1**	**B_2**	**B_15**	**B-16**	**B-3**	**B_5**
All block area (%)	100%	100%	100%	100%	100%	100%
Dilapidation abandonment per block by 2008	45%	22%	20%	13%	13%	11%
New dilapidation by 2018	15%	26%	26%	12%	22%	14%
Reinstated dilapidation by 2018	30%	16%	18%	9%	11%	5%
Dilapidation abandonment per block by 2018	45%	42%	44%	21%	33%	19%
Active urban areas per block 2018	42%	51%	53%	77%	64%	79%
Areas accommodating old housings per block by 2018	23%	34%	32%	52%	37%	42%
Areas accommodating foreign refugees or illegal migrants by 2018	12%	7%	2%	2%	4%	2%
Areas accommodating single elderly or died per block by 2018	2%	1%	1%	2%	0%	2%
Change of land use to hoteling per block by 2018	5%	1%	0%	5%	1%	0%
Change of land use to storage or irrelevant uses per block by 2018	0%	0%	0%	0%	0%	0%
Change of land use to infrastructure per block by 2018	1%	0%	0%	0%	3%	0%
Change of land use to carpark per block by 2018	0%	0%	0%	0%	0%	0%
Local mosque or religious centre per block by 2018	0%	1%	0%	2%	2%	2%
Listed heritage building per block by 2018	0%	0%	1%	1%	0%	0%
Newly built housing per block by 2018	6%	7%	12%	9%	12%	27%
Roads and urban spaces	5%	6%	6%	6%	8%	6%

A2: Comparing the cluster of refugees in historic Kashan and Yazd (2018)		
Crosstab (ethnicity of residents, Kashan)		
Count (local Iranian residents)		
	Types of residents	Total
	Local Iranian residents	
Areas of DABs 2018	45% (B-1) 6	6
	44% (B-15) 7	7
	42% (B-2) 10	10
	33% (B-3) 7	7
	21% (B-16) 10	10
	19% (B-5) 9	9
Total	49	49
Count (refugees)		
	Types of residents	Total
	Foreign refugees or illegal immigrants	
Areas of DABs 2018	45% (B-1) 3	3
	44% (B-15) 3	3
	42% (B-2) 1	1
	33% (B-3) 3	3
	21% (B-16) 1	1
	19% (B-5) 1	1
Total	12	12
Crosstab (ethnicity of residents, Yazd)		
Count (Local Iranian residents)		
	Types of residents	Total
	Local Iranian residents	
Areas of DABs 2018	44% (B-43) 8	8
	39% (B-8) 11	11
	36% (B-30) 10	10
	36% (B-28) 13	13
	32% (B-9) 13	13
	13% (B-47) 7	7
Total	62	62
Count (Refugees)		
	Types of residents	Total
	Foreign refugees or illegal immigrants	
Areas of DABs 2018	44% (B-43) 6	6
	39% (B-8) 7	7
	36% (B-30) 2	2
	36% (B-28) 0	0
	32% (B-9) 1	1
	13% (B-47) 2	2
Total	18	18

Six urban blocks of Yazd (m2)	B-30	B-43	B-9	B-28	B-8	B-47
All block area (m2)	36058	35979	24066	16954	20838	28394
Dilapidation abandonment per block by 2008	14351	9658	6183	2559	4889	798
New dilapidation by 2018	3034	7809	5058	3910	3649	3585
Reinstated DABs by 2018	9980	8057	2573	2266	4452	0
Dilapidation abandonment per block by 2018	13014	15866	7631	6176	8101	3585
Active urban areas per block 2018	21588	15153	15967	10778	8643	23127
Areas accommodating old housings per block by 2018	12052	10420	9020	7929	3917	7784
Areas accommodating foreign refugees or illegal migrants by 2018	1456	4960	468	0	4094	1682
Areas accommodating single elderly or died per block by 2018	2143	81	749	901	485	677
Change of land use to hoteling per block by 2018	2994	2204	0	382	421	0
Change of land use to storage or irrelevant uses per block by 2018	1227	0	0	0	0	0
Change of land use to infrastructure per block by 2018	0	0	133	0	0	12421
Change of land use to carpark per block by 2018	560	1169	131	0	0	0
Local mosque or religious centre per block by 2018	0	0	0	0	0	0
Listed Heritage building per block by 2018	0	622	0	0	0	0
Newly built houses per block by 2018	869	0	5166	785	2330	1645
Roads and in-between spaces	1743	657	768	781	1490	600
Six urban blocks (Yazd) %	**B-30**	**B-43**	**B-9**	**B-28**	**B-8**	**B-47**
All block area (%)	100%	100%	100%	100%	100%	100%
Dilapidation abandonment per block by 2008	40%	27%	26%	15%	23%	3%
New dilapidation by 2018	8%	22%	21%	23%	18%	13%
Reinstated DABs by 2018	28%	22%	11%	13%	21%	0%
Dilapidation abandonment per block by 2018	36%	44%	32%	36%	39%	13%
Active urban areas per block 2018	60%	42%	66%	64%	41%	81%
Areas accommodating old housings per block by 2018	33%	29%	37%	47%	19%	27%
Areas accommodating foreign refugees or illegal migrants by 2018	4%	14%	2%	0%	20%	6%
Areas accommodating single elderly or died per block by 2018	6%	0%	3%	5%	2%	2%
Change of land use to hoteling per block by 2018	8%	6%	0%	2%	2%	0%
Change of land use to storage or irrelevant uses per block by 2018	3%	0%	0%	0%	0%	0%
Change of land use to infrastructure per block by 2018	0%	0%	1%	0%	0%	44%
Change of land use to carpark per block by 2018	2%	3%	1%	0%	0%	0%
Local mosque or religious centre per block by 2018	0%	0%	0%	0%	0%	0%
Listed heritage building per block by 2018	0%	2%	0%	0%	0%	0%
Newly built houses per block by 2018	2%	0%	21%	5%	11%	6%
Roads and in-between spaces	5%	2%	3%	5%	7%	2%

Distribution of refugees in six sample blocks in historic cities%		
Kashan	Local Iranian residents	Foreign refugees or illegal migrants
DABs=45%	14%	25%
DABs=44%	16%	25%
DABs=42%	23%	8%
DABs=33%	16%	25%
DABs=21%	23%	8%
DABs=19%	21%	8%
Overall	100%	100%
Yazd	Local Iranian residents	Foreign refugees or illegal migrants
DABs=44%	13%	33%
DABs=39%	18%	39%
DABs=36%	16%	11%
DABs=36%	21%	0%
DABs=32%	21%	6%
DABs=13%	11%	11%
Overall	100%	100%

Appendix A3: Pearson Correlation

Table E-1: Correlation between factual aspects of spatial liminality (i.e. the extent of refugee settlements) and the percentage of DABs per sample block in Kashan and Yazd, based on six categorical results amongst 141 participating residents

Kashan		Area of DABs 2018	Area accommodated by all refugees
Area of DABs 2018	Pearson Correlation	1	.666[*]
	Sig. (1-tailed)		.000
	N	61	61
Yazd		Area of DABs 2018	Area accommodated by all refugees
Area of DABs 2018	Pearson Correlation	1	.634[*]
	Sig. (1-tailed)		.000
	N	80	80
* Correlation is significant at 0.05 level (1-tailed)			