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The Configuration of Spatial Cultures in the neighbourhoods of Post-Socialist Tirana

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Abstract

Between 1989 and 2016 Albanian society underwent what is sometimes called a 'post-socialist' transformation from the command economy of the communist era to a radically unregulated form of laissez-faire capitalism. This socio-economic change had far-reaching consequences for the built environment of Albanian cities as new patterns of buildings and land use emerged as urban life adapted to the changed circumstances. This paper investigates land use patterns and urban life in Tirana, Albania, during 1989 and 2016, employing updated spatial data and ArcGIS shape files. Through fine-grain mapping and analysis of non-domestic land use density within selected neighbourhoods, the study explores the impact of post-socialist development and informal processes on Tirana's urban landscape. In each of three case-study areas up to 10 urban blocks are examined. The research highlights the bottom-up transformation of land use, emphasizing the influence of local demand on urban amenities. The analysis identifies 1,798 non-domestic land use activities, categorized into various types. Spatial relationships between the movement and land-use distribution are explored using the theory and methods of space syntax. The study explores the multiplier effect of the 'movement economy', illustrating how changes in street connectivity attracts commercial activities, leading to a chain reaction of new land uses. Kernel density analysis aids in identifying areas with the densest or least dense non-domestic land use. Overall, the study contributes to understanding the relationship between spatial accessibility, movement, and land use transformation in Tirana in the immediate post-socialist period. Limitations of two-dimensional analysis are acknowledged.

Keywords

Tirana, post-socialist, South West Balkans, land use, space syntax, spatial culture

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Introduction

Following the fall of the Berlin Wall in November 1989 and the implosion of the Soviet Union in 1991 the countries of Central and Eastern Europe entered what is commonly regarded as the 'post-socialist' period (Hamilton, 2005). During this time states in emerged rapidly from the command economy of the Soviet era into a world of newly unregulated economies that their systems of law, governance and politics were not prepared for (Hirt, 2012). In no area was this change more tangible than in the rapid transformation of the urban built environment driven by unpoliced land-markets, unrestricted urban migration, the devaluing or disappearance of state subsidised industries and access to global markets in consumer products (Hirt, 2013; Tosic, 2005). Cities were in many ways the clearest manifestation of the post-socialist transformation. However, while the disintegration of 'top-down' economies was a largely shared experience in the post-socialist era, it did not mean the same thing in the different countries and regions affected (Stanilov, 2007, Tsenkova et al, 2009; Szelényi, 1996). Inevitably perhaps, scholarly attention has been drawn to those states that were part of the European family before Soviet domination: Poland, Hungary, the former Czechoslovakia and East Germany, for example. But Albania, tucked away in the South-West Balkans has its own distinctive post-socialist experience as a country that was never straightforwardly under Soviet domination but which developed its own brand of communist ideology largely in isolation, under the leadership of Enver Hoxha 1941-1985. It is important, therefore, to approach the transformation of Albania's capital city Tirana, not simply as a generic example of 'post-socialist transformation' but with sensitivity to the particular history and circumstances of Albania that can help to explain the particular form its transformation took

In this spirit this paper focuses on detailed mapping, analyses and studying of the land use patterns and urban life across three study areas (as illustrated on Figure 1) in Tirana, Albania. Each case study comprises an area made up of a maximum 10 urban blocks. It explores the density of non-domestic land use within the neighbourhoods, identifying areas which have a higher or lower distribution of activity and comparing performance of non-domestic land use by activity type. The study analyses performance of these different non- domestic activity located in areas with varying ease of access or building type. Criteria have been set regarding location within the urban grid, building type and activity type. Non-domestic activities are then compared across different variables coming from network analysis. Land use data has been combined with space syntax theory parameters in ArcGIS and has been interpreted through mean local (neighbourhood level) and global (city scale level) statistical analysis.

This paper's aim is to grasp land use density, variety and distribution in the context of post-socialist development in Albania - where top-down planning had been the case for decades. The study of land

use is of interest in a context where there was no planning application to be submitted nor any kind of development plans at hand at the time of development. The process of land use transformation has been entirely a bottom-up process which was initiated from local demand for retail and services. Through this bottom-up led development, Tirana became a vibrant city with busy streets and active amenities. Businesses arose overnight, many times without any business plan in place.

Methodology: Identifying post-socialist urban processes

Tirana's built form during the socialist and post-socialist periods have been analysed and assessed in various earlier publications by the authors. Different aspects of post socialist urban growth impact such as growth and changes in the axial map, built form density and morphology of the built form, syntax analyses and social life changes can be found in Dino et al (2015; 2016; 2017) and Dino and Griffiths (2024). Urban socio-economic informality within the Albanian context has been discussed in Dino (2024). In this paper we seek to explore the relationship between patterns of movement and land use as involving recalibration of Tirana's 'spatial culture', that is the relationship between the city's built environment and its socio-economic life.

The choice of case studies for this paper is geared towards capturing various aspects of post-socialist development in Tirana and reflecting on how informal socio-economic processes have shaped urban life in Tirana. The case studies were chosen to represent different aspects of urban life, allowing for a thorough understanding of how these *urban* processes account for Tirana's urban situation. By selecting areas that have been part of Tirana's urban fabric during both study periods (1989 and 2016), it becomes possible to gather morphological data that spans across these periods. This approach allows for a detailed comparative examination of the changes in Tirana's urban landscape over time, with a focus on how informal processes have played a role in shaping the city's development.

After the case study areas were identified, a research agenda with specific components and steps was created for each one of them. Before the author initiated the data collection a detailed framework was created for and relevant timescales it would take to accomplish each task established. The questions that raised during this process include:

a. What information will be mapped?
b. How many parts each case study can be split into, so it is manageable within a single day of surveying?
c. How many sheets should be used for each part for recording the data?

d. Will information be collected only for ground floor level –or should upper floors and basement data be added too?
e. In case of any mismatch between on ground inspection and the previously mapped data where should these differences be recorded?
f. Should land uses be grouped into categories straight away, or should they be grouped into sensible categories after the field work?

The collected data was subsequently digitised on ArcGIS platform. Initially, the land use types were entered by specific category (boutique, café, betting, hair dresser etc) –not by land use categories (retail, industry, third spaces, service sector, community services, other). After the digital data was created, the non-domestic land use types were sorted in five main categories: Community Services (119 entries); Industry (14 entries); Third Spaces (423 entries); Retail (576 entries); Service Sector (466 entries); Other (200 entries).

Across the three case study areas there was a total of 1,798 non-domestic land use activities recorded. Finally, considering that GIS still does not deal with three-dimensional data, the data that was mapped was only for those situated on the basement or the ground floor, as both situations are accessible from the street level.

Simply observing the mapped data reveals how distinct patterns emerge in the distribution and location of various land uses. Certain land use types tend to cluster along specific categories of streets, influenced by factors such as visibility from main roads and the flow of pedestrian and vehicular traffic. Others are more dependent on the type of building they occupy. To illuminate these distribution patterns network analysis of Tirana’s street network is employed. The space syntax theory of natural movement, as proposed by Hillier et al. (1993), proposes that movement is generated predictably by the configuration of the urban grid. This theory directs urban research towards understanding generic movement patterns, rather than culturally specific ones that give 'natural' movement its social significance. This study explores the implications of generic natural movement within the historical context of Tirana's post-socialist environment, which has been profoundly shaped by bottom-up development and loose regulations in recent decades. Koch (2014) argues that the street-building interface evolves over time in culturally specific ways, influenced by the continuous interplay between the private and public realms, changing building roles, and evolving public practices.

Figure 1 Mapped land uses by main categories for the three Case Study areas.

Kernel density analysis of non-domestic land uses

Kernel density is a type of analysis run in ArcGIS which is used throughout the case study areas to compare density of units per defined area. This type of density calculator will help identify streets or areas within the case studies that have the densest or least dense non-domestic land use aggregated. In ArcGIS density analysis take known quantities of some phenomenon and spreads them across the data area based on quantity that is measured at each location and the spatial relationship of the locations of the measured quantities. Whereas, kernel density specifically, calculates a magnitude-per-unit area from point or polyline features using a kernel function to fit a smoothly tapered surface to each point or polyline (ArcGIS, 2018). This ArcGIS tool calculates the density of features in a neighbourhood around those features. It can be calculated for both point and line features (ArcGIS, 2018). This type of spatial analysis can be possibly used for finding density of houses, crime reports or roads. In this research the kernel density was calculated for point data. Point data consisted of all access points for non- domestic land use for each case study area, which was analysed to show spatially and statistically where the densest areas are.

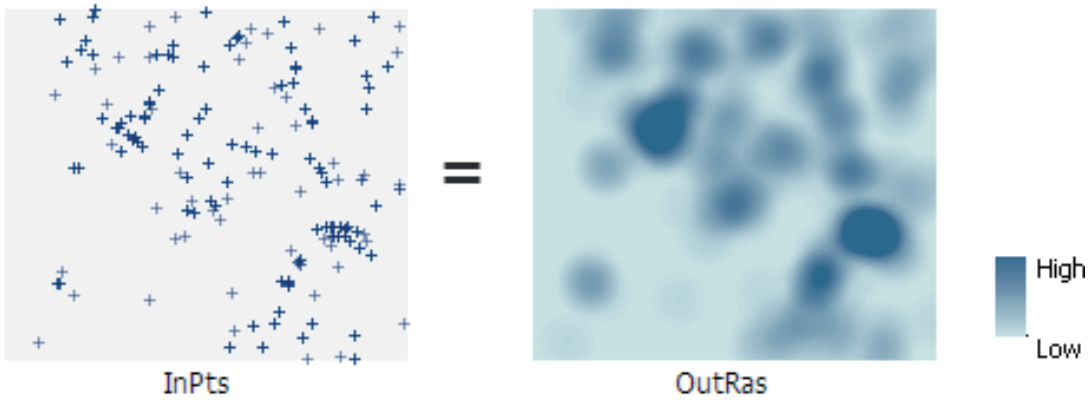


Figure 2 Illustration of how the Kernel Density tool calculates point data (ArcGIS, 2018).

Kernel Density for point features

Kernel Density calculates the density of point features around each output raster cell. The program conceptually fits a smoothly curved surface over each data point. The surface value gets the highest at the location of the point and starts diminishing with increasing distance from the point, reaching 0 at the search radius distance from the point. For the case study the search radius was set at 81 metres, as this was the value for the distance threshold radius coming from the spatial autocorrelation global Moran's I (the spatial autocorrelation was run by the author, Dino 2020) . In case of kernel density point analysis only a circular neighbourhood is possible, where the volume under the surface equals the Population field value for the point data, or 1 if none is specified. The density at each output raster cell is calculated by adding the values of all the kernel surfaces where they overlay the raster cell centre (ArcGIS, 2018). The kernel function is based on the quartic kernel function described in Silverman (1986:76, equation 4.5). To visualise the outcome for kernel density, the data classification was chosen to be classed by natural breaks. From the possible data classification methods in ArcGIS, natural breaks was the most suitable for this kind of data set -the classification is based on natural groupings inherent in the data. In principle, class breaks are identified as the 'best group similar values and that maximise the differences between classes' (ArcGIS, 2018). These features are then divided into classes whose boundaries are where at the points where there are greater differences in the data values. Kernel density analysis has been used as a tool to graphically express densities of non-domestic land use for each study area. No statistical conclusions were drawn from the results of the analysis but they have been useful just to illustrate how the dynamics of non-domestic land use concentration vary: a) among study areas, and b) within study areas.

Case Study 1- 'Lagjja nr 7': Land use transformation

The study area name reflects the neighbourhood level location within where the study area lays. Exact administrative or neighbourhood boundaries within the Albanian context are hard to set as official data is vague and boundaries also tend to change quite often. The first presented case study lays in the heart of Tirana and it is composed of multiple historic layers of built form. The oldest parts date back to the 1930s whilst the most recent buildings are part of the most recent development of the capital.

An important reason for choosing this area as a case study was not only due to its vibrant built form character but also given the fact that during the socialist period, 'Lagjja 7' was intensively built up with characteristic architecture of the period, consisting of five to six storey blocks of flats. These were either in form of a) free standing blocks or b) continuously built (terraced) block of flats with multiple access points along their façade. The area was an active part of Tirana's social and urban life, with residential areas composed of pre-socialist family houses and period apartment blocks, school and public institutions, a few commercial units and several public spaces which laid within residential blocks. The amount of retail or services was very low -about a handful- and all were all run by the government.

Figure 3 Extension and land use on the ground floor of a socialist block of flats. The flats of the building can be accessed via the main entrance which is within the floor space of the bar amenities.

In modern Tirana, there is a contrasting environment compared to its socialist counterpart regarding the frequency of non-domestic land use along roads, streets and alleys. The number of privately held businesses outruns by far what would be expected within similar scale of population or dwelling density. Land use change in the area has happened in particular along the northern part, along the southern border and across the whole western part. The patterns of distribution depend also on other secondary factors such as, where the area is located, what major activities happen in the area, real estate market value, historically what non- domestic land use has been present in the area.

Based on the network analysis results, within the area the land use category that performed the highest average values throughout the scales of NAIN and NACH was retails and it was tightly followed by the service sector. Retail and services have a good mix in regarding individual types within each category, for retails most popular types include: clothing, shoes and accessories, specialist home furbishing retail; whereas for the service sector the most popular categories include: hairdressers, shoe repair service, tailors and alterations, appliance repair service. Lowest figures for through and to-movement potential resulted for community services which, which in particular for NACH values reached a 0.2 difference from the one before the last land use category, whilst from the top performing land use category there is a 0.3 difference.

Figure 4 Extension and land use on the ground floor of a socialist block of flats (left) and post- socialist block of flats (right). Café's outdoor spaces extend on former public open space that was part of the residential developments.

Looking at Figure 5, it seems like community services lay along main streets, however, which is true to a point. Nevertheless, the road that aligns to the eastern edge of the area -to where the green building face to- there is controlled vehicular access and free pedestrian access. This as the institutions laying along the eastern edge are embassies. It was already mentioned in the introduction that data is not available on land use records during any time of the socialist rule, therefore a comparison between the two periods could not be achieved. Nevertheless, in the previous chapter a small sample of façade activity was illustrated to understand the ratio of difference between the two periods). Figure 6 shows the densest areas with non-domestic activity. The diagram reflects a very high concentration of businesses as a big chunk of the study area presents maximum values. In particular there is almost a spine like corridor along the centre of the study boundary running from north to south, which forms the densest population of non-domestic activities.

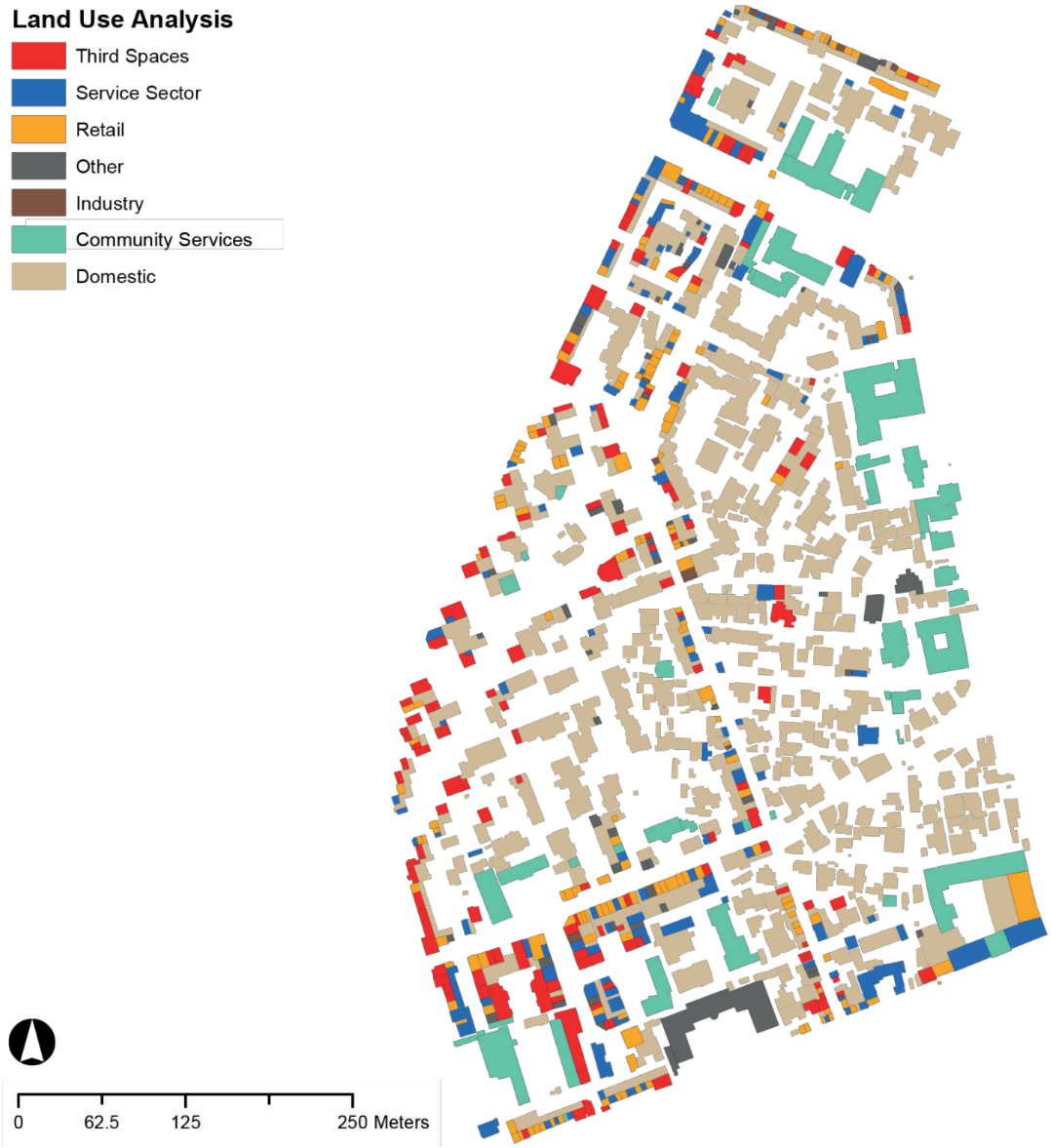
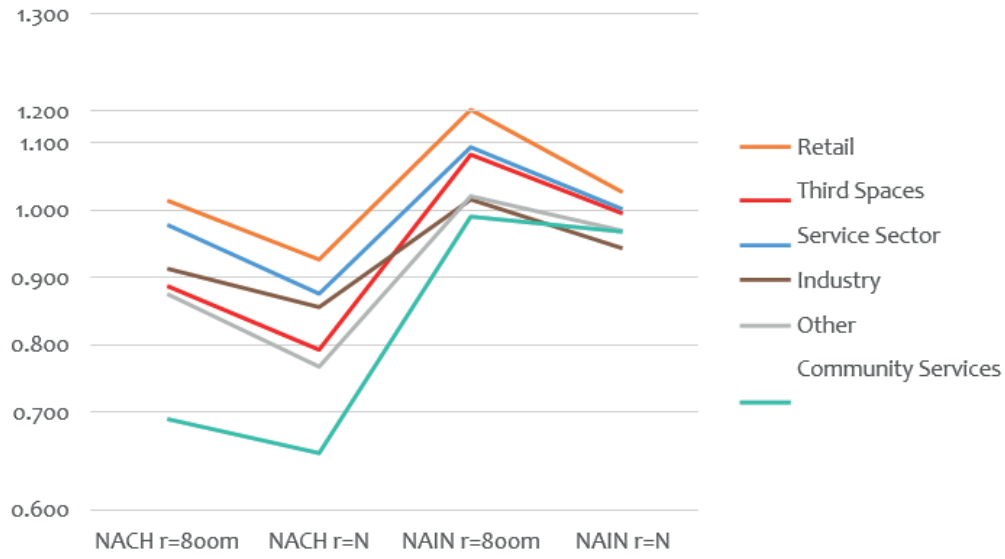


Figure 5 Land use analysis for Case study 1.



Graph 1 Average local and global values for NACH and NAIN by land use sub-category in Lagjja 7.

Land use Category	NACH r=800m	NACH r=N	NAIN r=800m	NAIN r=N
Retail	1.014	0.927	1.149	1.027
Third Spaces	0.887	0.793	1.083	0.995
Service Sector	0.978	0.876	1.094	1.002
Industry	0.913	0.856	1.016	0.943
Other	0.876	0.767	1.021	0.969
Community Services	0.690	0.639	0.990	0.968
Total	0.932	0.840	1.090	1.000

Table 1 Average local and global values for NACH and NAIN by land use sub-category in Lagjja 7.

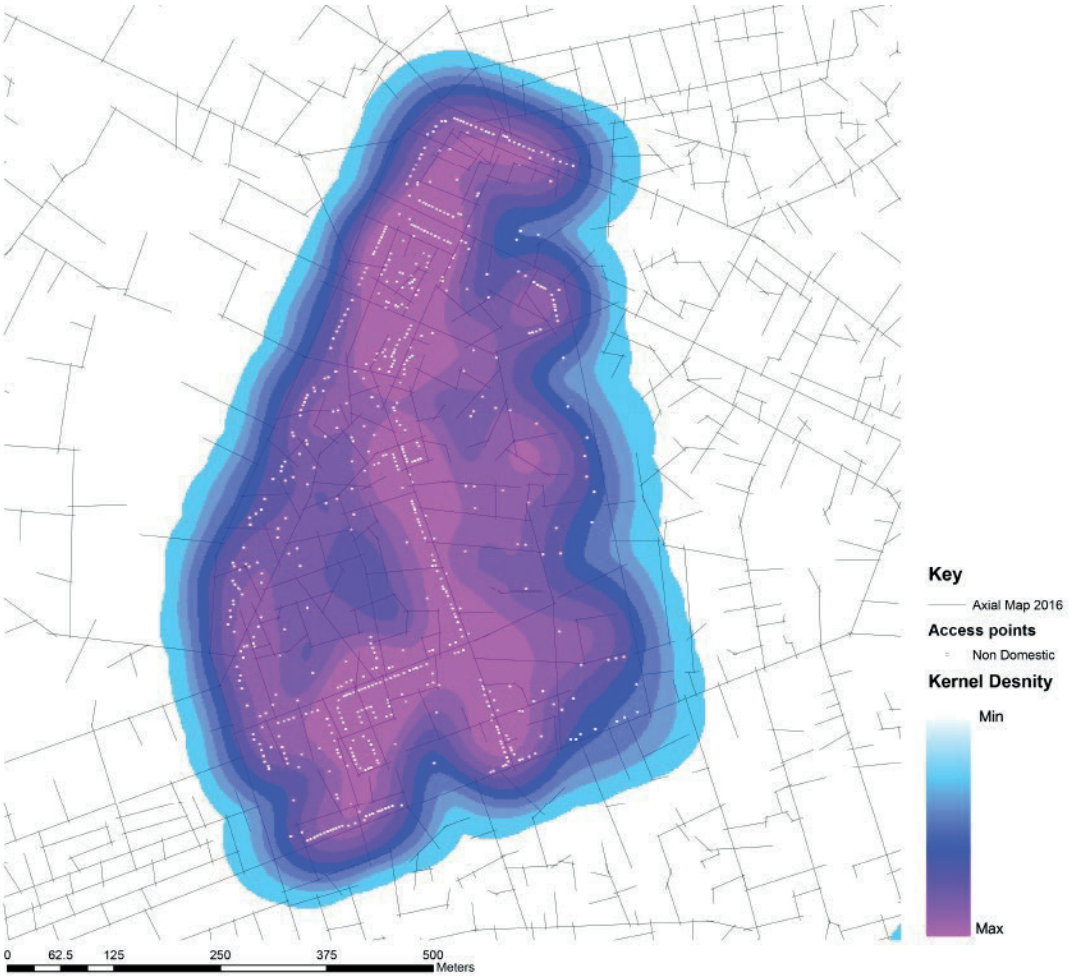


Figure 6 Kernel density of non-domestic land use in Lagjja 7.

In terms of density distribution within the study area, Figure 6 reveals that it is quite dense in non-domestic activity, not only along roads, but densely populated areas of commerce and services spread occasionally into more inner parts of the block or less integrated areas like the area on the left of the spine. Yet another thing the diagram reinforces is that higher density of non-domestic activity is on areas or streets that have mixed-used buildings or socialist period built block of flats. These types of buildings within this area create a continuous façade or perimeter along the edges of the block, maximising count and opportunity for continues active interface of businesses. Whereas, along the eastern parts of the study area the majority of the built form morphology consists of detached family buildings which vary between one to three storey. In this scenario the density of non-domestic land use decreases, shown in different shades of blue and paler fuchsia colour in Figure 6. The urban grid in this part is rather fragmented with a good amount of dead end roads and areas parts that are not easily accessible. Finally, the density of the roads and population is lower compared to those of other areas.

Public spaces

Land use has undergone significant transformation in Tirana, particularly impacting public spaces, which have witnessed notable changes and shrinkage during the post-socialist period. In the socialist era, public spaces were crucial parts of the city where frequent interactions and social encounters occurred. These spaces were typically vast open areas located within the perimeters of residential units, accessible to all buildings. So, the highest activity and chance of quick encounter used to happen along the edges of these public spaces. Whereas the long-term social interactions had higher chances of happening in the central parts of the spaces which usually were equipped with benches and sit out areas. Figure 7 reflects on the case where the external parts of the block have been taken up by extensions or private business. The image illustrates a socialist period block of flats, that was partially extended (red brick building part on the left) and also that along the ground floor the land use was converted to non-domestic. In this case the land use is that of a café' which has and extended outdoor sit out area for its customers. Before the regime change, the area in front of the building was just public space available to residents.

On the other side, Figure 8 portrays the scenario when to a detached socialist block of flats there where added multiple extension bits a) the four storey part which is rendered and painted in yellow and b) the five storey part which has mostly not been rendered and the façade has three different materials: two types of exposed bricks and white paint render along the ground floor. Furthermore, the building that is on the left (light pink rendering) is completely new built on former public space. This image on itself reflects how much open space is left around the buildings, the small green surface in the centre of the picture. These examples make a truthful reflection to the existing condition of former public spaces. Current public spaces are just a quarter of a size if not less to what they used to be before.

Figure 7 Extensions to the socialist apartment blocks and land use transformation on the ground floor.

Figure 8 Extensions to the socialist apartment blocks and land use transformation on the ground floor.

Case Study 2- 'Shallvaret and Bllok': Land use transformation

The study area name reflects the two main neighbourhoods that can be found within the boundaries of the case study. Shallvaret lays on the north, whereas Bllok lays to the south from the gap between the blocks as seen if Figure 9. Exact administrative or neighbourhood boundaries within the Albanian context are hard to set as official data is vague and boundaries also tend to change quite often. Also, for reducing the length of the name for this case study from this point when referring to this study area in the analysis it will be referred simply as Bllok.

A compared land use map of the socialist and post-socialist period reflects the overhaul of the land use distribution in modern Tirana. There is no exception to this phenomenon in this study area either, where the land use has been converted almost entirely to non-domestic on the ground floors. However, there are some patterns of distribution that could be observed in the study area. Pattern distribution that somehow relates to what kind of street the building is located on, the levels of visibility it has from a better integrated street than the one on which the building aligns to and the nature of land use itself.

A particularity of this area is that it compromises two of the most sought after neighbourhoods of Tirana. Both Shallvaret and Bllok, are sought after locations both for living and owning or renting a business. Besides the fact that the area is very dense in terms of residential density there also are located many institutions, office spaces, commercial activity and an overwhelming number of bars and cafe's. Renting prices both for residential and commerce in these two neighbourhoods are among the highest in the country and rarely there is anything laying vacant. Locally, it is well understood that in case you want to have a successful business regardless of the type of service or commerce, the highest chances of good performance are to be achieved if your premises will be located within these two neighbourhoods.

Figure 9 illustrates the distribution of land uses across the two neighbourhood along the ground floor and basement (the ones that are accessed from the street level). The most frequent color 'red' represents all the third spaces which within this study area are mainly café's and bars (actually in Albanian they are called 'bar kafe' which translate to bar café'). As the diagram shows third space have a great trend of being located along the most accessible streets and parts of the blocks. They tend to sit along the perimeter of the blocks having great visibility and chance of attracting by passers. Likewise, retail (in orange) tends to distribute along streets with similar levels of accessibility as café's, having better chances of attracting customers as a matter of their location.

Land uses that locate facing less accessible streets or that are situated within the perimeter of blocks are mainly community services. In this study area community services are mainly primary schools and kindergartens. However, certain community services such as police station or NGO's do locate along more accessible streets. Services is the third most popular non-domestic land use in this study area. Most popular services in this area include banks, consulting studios, phone providers, opticians and hotels. Figure 9 does justice to the network analysis values, as in through the diagram it can be noticed what kind of distribution the service sector premises have. On a 50/50 proportion these kind of businesses can be found both along accessible streets and in this case they are mainly banks, money exchange, printing and copy services, or phone providers, whilst those land uses who tend to sit more in the inner part of the block hence, with less through-movement potential include hotels, tailors or IT service.

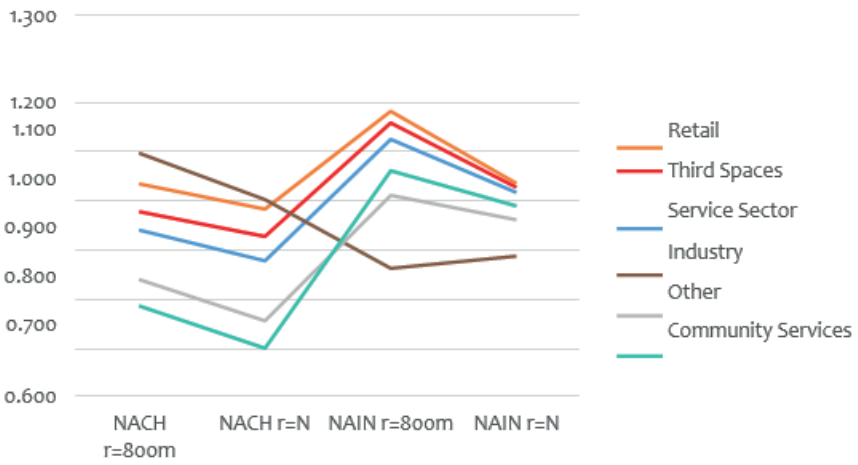
The study area has a good proportion of socialist buildings to post-socialist buildings. The main difference is that of the floor space that is used by commerce. In newly built mixed-use buildings, the commerce units are purpose built, having bigger shop space and also having storage space. Often, they have glass façades (or window walls) easing visibility through their activity space and attracting more customer to their premises. However, from on field observations the only land use that is in particular related to new built buildings is that of supermarkets. Other land uses are not particularly confined by building type (purpose or not purpose built), nevertheless once a particular type of business needs bigger floor space to operate, they are likely to move to new premises which mostly are within post-socialist built mixed-use buildings that have purpose built shop floors.

Figure 9 Land use analysis for Case study 2.

Figure 10 Café built on former public space, Shallvaret area.

Figure 11 Ground floor flat conversion to café's still keeping some level of front public green, in Shallvaret area.

Withal, as a matter of lack of data this type of information is something that cannot be worked out at a statistical level. Relying on case study area observation, nonetheless it gives a good understanding of how the market demand makes businesses move around. Sometimes in need of a more accessible location and other time just in need of more spacious premises to run their business as they have outgrown their existing place. Whereas, on the socialist built buildings almost entirely the shops have been converted to such land use from residential. Often adding extra bits to the stores by ensuring an extension towards the former public realm.



Graph 2 Average local and global values for NACH and NAIN by land use category in Bllok.

Business category	NACH r=800m	NACH r=N	NAIN r=800m	NAIN r=N
Retail	1.036	0.984	1.182	1.036
Third Spaces	0.979	0.929	1.159	1.028
Service Sector	0.942	0.880	1.126	1.018
Industry	1.098	1.004	0.865	0.889
Other	0.842	0.758	1.012	0.963
Community Services	0.789	0.703	1.062	0.991
Total	0.974	0.916	1.143	1.022

Table 2 Average local and global values for NACH and NAIN by land use category in Bllok.

Graph 2 and Table 2, provide mean values of local and global integration and choice by land use category in case study 2 area. Considering total entries for Industry the graph might not be as representative as for the other categories. For instance, retail and third spaces are not only the most popular land use category but also have the highest average values both for to and through-movement potential. As already observed based on their location through Figure 9, community services seem to sit along the land uses that need the lowest through- movement potential. Also, other land use category is consistently located along streets that have lower accessibility when compared to other land use types. Vacant and garages seem to be part of the background network of this study area. Figure 12 on the following page, shows densest areas with non-domestic activity. The diagram reflects a very high concentration of businesses as a big chunk of the study area presents maximum values. In particular the areas that have the highest density of non-domestic activities include the north-eastern, central and south-western areas.

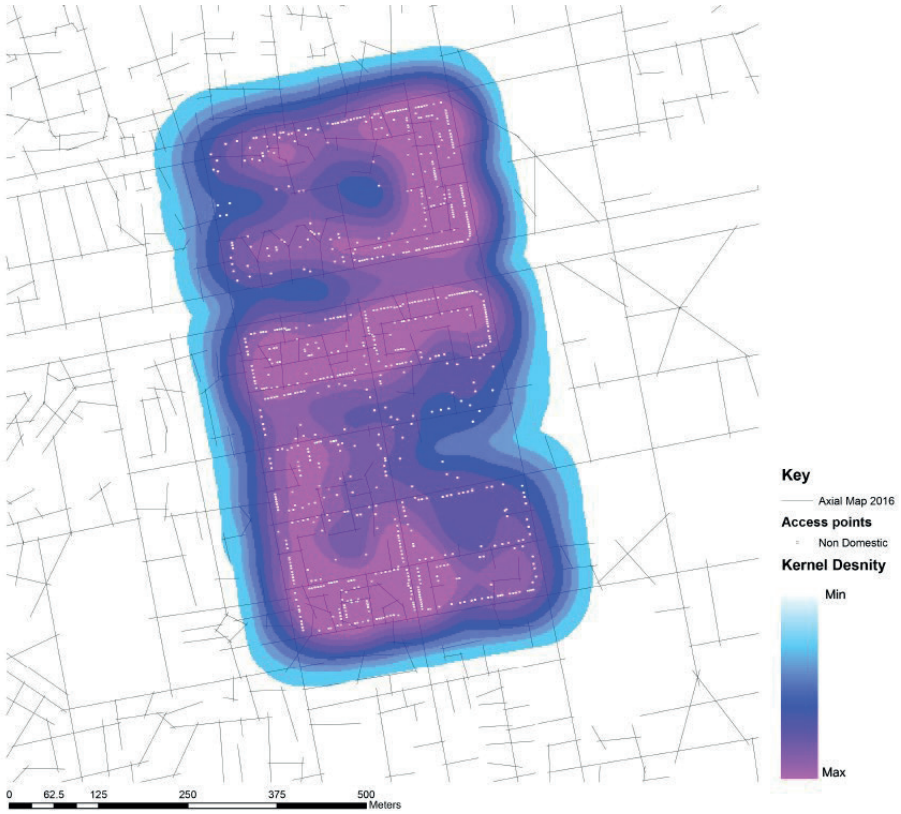


Figure 12 Kernel density of non-domestic land use in Bllok.

In terms of density distribution within the study area, the diagram of Figure 12 reveals that it is quite dense in non-domestic activity, not only along roads, but densely populated areas of commerce and services spread also into more inner parts of the block or less integrated areas. Yet, the diagram reinforces that higher density of non-domestic activity is on areas or streets that have mixed-used buildings or socialist period built block of flats. These types of buildings create a continuous façade or perimeter along the edges of the block, maximising count and opportunity for businesses. Whereas, in case where the area is populated more with detached buildings (once used to be family homes now they are converted into businesses) the density of non-domestic land use decreases, shown in different shades of blue colour in Figure 12.

Public spaces

Likewise, land use has had impactful transformation public spaces have testified impressive change and shrinkage during the post-socialist period. As it has been presented, during the socialist period, public space where a very important part of the city where interaction and social encounter happened with levels of frequencies. These spaces, where distributed as vast open spaces, usually inside the perimeter of the residential units, from where all the buildings where accessible from. So, the highest activity and chance of quick encounter used to happen along the edges of these public

spaces. Whereas the long-term social interactions had higher chances of happening in the central parts of the spaces which usually were equipped with benches and sit out areas.

Considering the very high market values of property in this area, public space maximisation has been at the greatest proportions from all the case studies. Situations like the ones presented in Figure 13 and 14, where the inner part of the block is somewhat left unbuilt is rather rare. Nonetheless, not built up spaces in the inside of the blocks do not bear any characteristic or function of a public space, instead they serve as dense parking spaces for the residents. Circulation within these spaces for the residents is quite hard to manage especially, when the place is fully used up and there are no places left even to walk by with a buggy or carrying shopping along. Whilst other kind of public realm, such as footways or sidewalks have been narrowed up to the tightest possible. Referring to Figure 15, the extension toward the public realm of the retail units has left a side walk less than half a metre wide.

Figure 13 Former public spaces turned into public parking for the residents and extensions to the socialist apartment blocks, Bllok area.

Figure 14 Former public spaces turned into public parking for the residents and extensions to the socialist apartment blocks, Bllok area.

Figure 15 Land use transformation and extensions to the socialist apartment blocks in Bllok area.

Case Study 3- 'Kombinat': Land use transformation

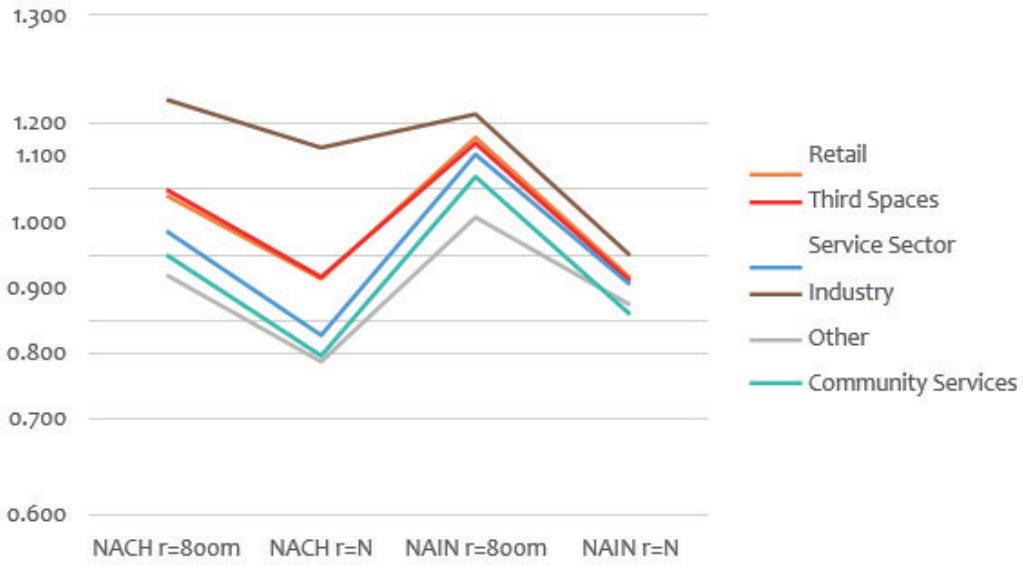
A compared land use map of the socialist and post-socialist period reflects the overhaul of the land use distribution in modern Tirana. This can also be observed in 'Kombinat' area where the land use has been converted almost entirely to non-domestic land use on the ground floors. However, there could be observed some patterns of distribution different to those in the previous case studies. Patterns of distribution that somehow relate to what kind of street the building is located on, the levels of visibility it has from a better integrated street than the one on which the building aligns to and the nature of land use itself.

First, what Figure 16 shows that there is a balanced proportion of retail, services and third spaces; and that there is a difference in regarding proportions when compared to the other two case studies areas where services compared to retail and third spaces where outnumbered by far. Yet, what is also different to the previous cases is what Graph 3and Table 3 show that there is not much difference in between the location's services choose to set compared to retail or third spaces. Likewise, in the retail and third spaces, services in Kombinat tend to locate on highly accessible streets obtaining high chances of to and through- movement. Considering the network analysis outcome for the average NACH and NAIN values, the biggest difference is seen for global choice values where the gap in average figures is almost 0.1 whereas, on the other compared measures the difference is on average 0.02. This surely is contributed to the fact that a great number of services is located along more accessible streets, and only a few of them like tailors for instance are located in less connected and less visible places. As this type of service, (tailors) is very small scale and relies in income from rather local customers.

Another difference, between Kombinat and the two previous case study areas is the location of vacant premises. Kombinat has the highest number of vacant shops and also proportionally they make up the highest amount when compared to the other case studies (including Qyteti Studenti which is the following case study). Graph 3 and Table 3 reflect on this difference in terms overall location of the vacant units. As seen, they have the lowest of all mean to and through-movement potential at all scales. Usually, vacant units in Kombinat are small shops which are no bigger than a bedroom.

What the network analysis highlight might be a hint in regarding the vacant shops and their success of being able to run a successful activity. However, this assumption is only based on network analysis and their possible prediction on potential performance base on location – which in this case predicts

lower accessibility and lower chances of footfall when compared to averages of all other non-domestic land use categories looked at.



Graph 3 Average local and global values for NACH and NAIN by land use sub-category in Kombinat.

Land use Category	NACH r=800m	NACH r=N	NAIN r=800m	NAIN r=N
Retail	1.090	0.964	1.179	0.965
Third Spaces	1.100	0.966	1.170	0.960
Service Sector	1.037	0.878	1.153	0.955
Industry	1.237	1.164	1.215	1.000
Other	0.970	0.838	1.057	0.924
Community Services	1.000	0.847	1.119	0.910
Total	1.060	0.922	1.151	0.953

Table 3 Average local and global values for NACH and NAIN by land use sub-category in Kombinat.

Community services in this area include nurseries, kindergartens and schools. Different, to the previous case studies, community services in this area are located along the perimeter of the blocks. This way, facing the streets and having a better accessibility for kids and pupils.

Figure 16 Land use analysis for Case study 3.

Figure 17 shows densest areas with non-domestic activity. The diagram reflects a very high concentration of businesses in the heart of area and proportionally when compared to the two previous study areas the maximum density aggregations are far less.

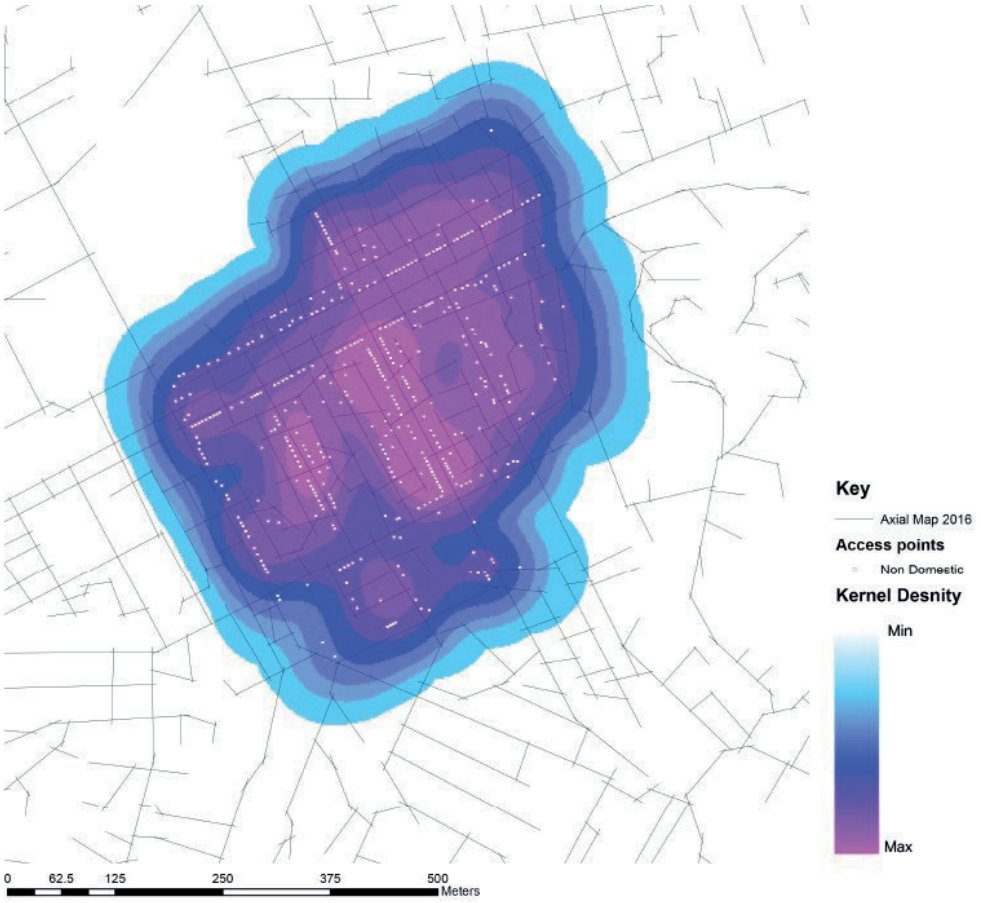


Figure 17 Kernel density of non-domestic land use in Kombinat.

In terms of density distribution within the study area, Figure 17 reveals that it is mid-level dense in non-domestic activity. The densest areas in the centre of the study area where businesses are located along converted socialist period block of flats. The difference between them and those located along the main street that runs west to east, along the heart of the study area the inner courtyard was wide enough to accommodate another row of block of flats which also do have activity along their façade. Also, another difference between those two areas is that, the distance between opposite side of the road buildings is far greater than of those that lay along the densest bits (road running north to south in the central part). Hence, there is a highly dense congregation of non-domestic activity in this particular point as there are two rows that are very close to one and other and have both active façades running along them.

Areas to the far north of the study boundary are almost entirely residential and there is only one non-domestic activity running, a local grocery. Hence, the diagram shows a combination of light fuchsia and blue shades which represent low densities of non-domestic activity. Whereas the second low-density area on the southern edge of the study boundary. In this case, different to the northern part, there is a certain amount of activity however, the number of non-domestic land use is way lower when compared to the central parts of the study area.

Public spaces

Similarly, land use has undergone significant transformation, and public spaces have borne witness to remarkable changes and shrinkage during the post-socialist period. As illustrated, public spaces were a vital component of the city during the socialist era, serving as hubs for interaction and social encounters at varying frequencies. These spaces were typically distributed as expansive open areas, often within the perimeters of residential units, granting accessibility to all buildings. Consequently, the highest levels of activity and the likelihood of spontaneous encounters occurred along the edges of these public spaces. Meanwhile, the central parts of these spaces, usually furnished with benches and seating areas, were conducive to longer-term social interactions.

Despite the significant urban development in Tirana, Kombinat retains a considerable amount of open space that remains unbuilt. These areas are well maintained and frequented by locals of various age groups throughout the day and across different seasons. However, the available data and information don't provide a conclusive reason for the preservation of open space in Kombinat. One possible explanation is that compared to other case study areas like Lagja 7 or Bllok, property values in Kombinat are significantly lower. Additionally, population growth in Kombinat has been slower and less substantial than in the aforementioned areas. Consequently, the demand for residential and commercial properties in Kombinat is lower. This combination of factors may contribute to the preservation of open spaces in Kombinat, as there is less pressure for development due to lower property values and slower population growth.

Figure 18 Public space along the main street of Kombinati acting like a buffer between the first line on buildings and the main street (national road), with well-kept green and sit out pockets.

Figure 19 Local cafés have extended their activity onto the public space, by creating outdoor space on what is meant to be of public use.

Conclusion: Land use transformation in Tirana's neighbourhoods

Hillier argues that the distribution of land use patterns is closely tied to movement within the urban grid. Variations in street connectivity suggest that changes tend to attract commercial activity or other uses dependent on pedestrian traffic, leading to a multiplier effect in density of both uses and movement. This 'multiplier effect,' as described by Jacobs (1970), generates jobs and activities, a concept referred to by Hillier (1996b) as the 'movement economy'. Similarly, Batty and Xie (1999) suggest that the addition or relocation of activities in cities triggers a chain reaction, influencing other activities to move accordingly. Finally, such activities readjust their locations to the changed circumstances; this is supported also by this research in both case studies where the post-1992 developments have served as generators to new land uses which subsequently raised new activities.

Whole blocks, before 1992 had single land use -that of residential. However, the research has shown that post-1992, a new pattern on land use was initiated –especially on the ground floor of the residential units. These changes led to the transformation of these buildings' land use, which simultaneously raised the need of these buildings to adapt to be accessible from the streets. Multiple entrances were added to buildings which previously only had one access point, enhancing the number of connections of buildings with streets. To facilitate these new entries, new alleyways were added along the other façades of the buildings. These changes and transformations have not been made through formally planned routes, which means that all these interventions were initiated as part of a bottom-up self-regulating process. These changes have substantially increased footfall across these locations. The effects of movement on the street network have a strong track of

research in syntax studies (Hillier and Penn,1996; Hillier and Vaughan, 2007; Penn, 2003; Hillier and Iida, 2005).

In space syntax theory, two main components account for spatial accessibility within the configuration of space: to-movement (integration) and through-movement (choice). Typically, pedestrians are more likely to pass through a main street connecting to a back street rather than through the back streets themselves. This preference is due to the main street being more accessible. However, back streets also have the potential for generating through-movement, albeit to a lesser degree (Hillier and Vaughan, 2007). Both components of movement are crucial when considering the effects of land use on movement. For every trip, we choose a destination and a series of spaces to pass through to reach that destination. The destination represents the to-movement potential, while the spaces we pass through represent the through-movement potential. If a chosen location is close to all other locations within a certain radius, it will have a greater potential to be a destination simply because it is more easily accessible. For example, if we want to establish a commercial activity, it is advisable to choose a highly accessible location. Similarly, if there are routes that are more likely to be passed through, it's sensible to set up the business in one of those locations. In addition to the accessibility of a particular location, Hillier and Iida (2005) argue that movement in urban spaces is shaped by how people cognitively understand the built form. They identified that visibility plays a major role in enabling ease of reaching a particular location.

Space syntax theory interprets location through description of the street network where each street is related to all other streets. Hillier and Penn (1996) found that commercial land use tends to be distributed in higher integrated streets with easier accessibility. In this scenario, the shops act as attractors of movement which are further supported by the amount of visibility, they have due to their location. On the other hand, in a less integrated street (i.e. back streets) this phenomenon would be less likely to be expected as a matter of less integrated position within the urban network. Segregation does not exclusively imply a negative connotation; there are certain types of uses that is preferred to be set in quieter streets. Typically, these are identified to be dwellings. Despite this global trend identified through various syntax research (Hillier and Penn, 1996; Hillier and Vaughan, 2007), where commercial land use is set in integrated or accessible areas, this study has shown that not in all cases this trend is true. There are numerous cases where shops are set in back streets that are not highly integrated, and often are set within dead end routes. Movement therefore is the generator in urban areas, Hillier and Penn (1996) outlines that the by-product of movement is maximised by integration so that to maximise the multiplier effect which are the essence of life of cities.

All the presented analyses have been restricted to the two dimensions of the map. *De facto*, one of the major limitations of urban analysis has been the reluctance to embrace the third dimension, for it is very clear that by restricting our analysis to two dimensions, information about the city is over simplified (Batty et al. 2004). This is particularly the case in dense urban areas such as city centres, such as Tirana, where multiple land uses are organized into the third dimension. Due to the limitation in ArcGIS and *Depthmap* any land use transformation on upper floors has not been possible to be analysed with the methodology used here.

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