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THE ROLE OF SPACE IN THE EVOLUTION OF LOCAL COMMERCIAL INTERACTION AND OBSOLESCENCE PROCESSES:

The case of Cuauhtémoc neighbourhood, Mexico City

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ABSTRACT

Endogenous transformations of urban areas often have to do with spatial factors. This might be the case of spatial redistribution of economic activities. Economic units, and especially local commercial units, often evolve relatively fast in time developing interactions as to complement, compete, or even cancel each other. This, again, depends upon a number of factors some of which are spatial, such as locational advantage and proximity, framed by socio-economic like changes in consuming patterns, or a combination of both.

This paper presents the case of the Cuauhtémoc neighbourhood and its patterns of location and interaction of local commercial activities. The area gives an important example of the dynamics taking place in a leading financial centrality of the City, an area with country-wide relevance. Given its key location, next to the City Centre and in the middle of some of the most important thoroughfares, including Paseo de la Reforma, probably the most prominent location for national and transnational corporate buildings as well as for governmental offices, it has experienced several stages of evolution in terms of its land uses in the last decades.

Here we examine such changes through a detailed study of land uses at the micro level. We explore patterns of proximity between related uses, namely offices and their complementary uses, then spatial aspects are explored using space syntax. The information is then analysed statistically and compared. Findings suggest that there is a complex mix of factors, always conditioned or enabled by proximity, behind these changes. A cycle of functional obsolescence is observed where interventions in the most spatially important avenues, particularly in Paseo de la Reforma, act as "triggering events" for further transformations and interactions. Such events then generate the three kinds of interactions described above: cooperation, competition and conflict. This paper focuses on the first of this type of interactions, that of cooperation. The study fits within a broader project aiming at establishing a new model to explain economic cycles within the Mexican land use market. It is implied that understanding of the dynamics that underlie these processes is key to adequate rehabilitation of traditional neighbourhoods such as the one studied.

KEYWORDS

Urban transformation, land use, economic units, location, proximity.

1. INTRODUCTION AND CONCEPTUAL FRAMEWORK

The conventional model in terms of urban reuse of space directly associates time and obsolescence as a simple linear function (Lichfield, 1989). It is a fact that owners' income, in Mexico at least, often diminishes after the age of 60. This could be a cause for owners to prefer selling their property within any opportunity or signal from the market rather than covering maintenance expenses. However, the main thesis of this paper and the research that supports it is that this vision is only partially valid as space itself, through locational advantage and proximity, as well as the 'struggle' between defence of local traditions and acceptance of economic opportunities are also key factors in the dynamics of change of urban space.

Changes in an urban area are produced mainly, though not exclusively, by economic cycles. Each of these generate activities with specific spatial needs that start processes that can modify the territory. These processes are selective in space as they look for those locational circumstances that favour them to achieve the best performance of a particular activity (Camagni, 2005).

As it is well known, location requirements produce competition for specific areas or situations in a city. As a consequence, these particular places are revaluated within the city as a whole, boosted by the agents and activities that lead the new cycle. In terms of the city's transformation, this takes us back to the idea of urban life cycle (Lichfield, 1989) associated to urban form where economic transformations or cycles are expressed. The latter shown through investment cycles for urban transformation or adaptation of plots (Bon, 1998) and returns or favourable conditions that are produced by location of certain activities in specific urban areas that are being transformed.

As an area becomes more attractive and demanded for, it generates more competition for it, which in turn, pushes expectations for higher returns in that location. These detonate a new process where a new investment cycle is needed for the location advantages to become effective. New expectations become a kind of game between developers, investors, owners, residents and authorities, i.e. the market, where some owners will be interested in selling their property in order to capitalise or capture the advantages that the location of their plot offers to new or growing activities.

Since the process implies time of 'assemblage' of the real estate business that may vary depending on the specifics of each case and the conditions of the general economic environment, a condition of unsatisfied new expectations for the owner can appear where he becomes uninterested by the returns generated by the current use of his land. Therefore, the investment required for maintenance is seen as unnecessary and even opposed to his own good because it extends the life span of the existing use and so is at odds with the realisation of the new expectations or capitalisation. We call this process of estate decay caused by market investment, *locational obsolescence*.¹ It is suggested that, although the process is dependent on macroeconomic variables (interest rates, access to credit, economic growth, etc.), it starts when owners perceive the benefit derived from ownership of a property as unrealised capital. This is to say that the perception of benefit from it moves from the satisfaction of a need to obtaining of a specific, higher level of return. This can happen through transformation or physical adaptation of the property, or what we call *functional obsolescence*. When adaptation or transformation does not happen but this perception persists, maintenance often diminishes or stops, generating what we have called physical obsolescence.

This urban scale process is a result of a complex play that happens in specific plots and develops from the intensity of interests and values. The overall organisation of the city defines the advantageous locations for specific activities. The process then originates, on the one hand, from individual or group attitudes, which support or oppose an area's transformation. Such

¹ For Lichfield, *locational obsolescence* refers to the progressive dysfunctionality between the original use of the building (activity) and changes in the neighbouring uses that promote changes in that given plot. It is a plot/building centred approach. For us, such pressure for adaptive changes, together with those associated with technological and lifestyle changes, fall in the category of functional obsolescence. We use locational obsolescence to pinpoint the pressures of change in a given neighbourhood or urban area imposed by the dynamics of the city as a whole. It is an area centred approach.

attitudes, we suggest, are directly related to the social position of these groups or individuals (Bourdieu, 1988) and will define their degree of sympathy or affinity for the anticipated changes. On the other hand, it comes from the functional relations of attraction or tension that are established between different uses in proximity that prompt complementary, competing or completely neutralising uses.

This paper presents preliminary findings on the role of space in influencing the definition of what we have called dominant uses and the influence of these in functionally related uses, together with other manifestations of change such as different types of obsolescence. These are described through one of our case studies: the Cuauhtémoc neighbourhood, focusing on office land use and its complementary uses.

2. THE CASE STUDY

It was during the Porfirian era (1876-1910) that a number of French-styled bourgeois neighbourhoods began to develop around the, also French-styled, boulevard (Paseo de la) Reforma ². These neighbourhoods or *colonias* were called Roma, Juárez and Cuauhtémoc (Luiselli, 2003, p. 130-133). They were built with lower population density and good infrastructure by specialised companies and they expanded particularly between 1900 and 1910 (Garza, 2000, p. 120). The latter of these is introduced in this section as the case study for this paper.

The Cuauhtémoc neighbourhood takes its name from the Monument to Cuauhtémoc, last emperor of the Aztec Empire, that lies in one of its corners, in the crossing of Reforma and Insurgentes (Delegacion_Cuauhtemoc, 2011). These two avenues became the most important business corridors from the 50's when saturation of the Centre caused it to overflow, particularly east and west (Lopez Rangel & Segre, 1986). Figure 1 confirms this predominance with service concentration running west and south of the Historical Centre and moving towards Reforma and Insurgentes respectively. Cuauhtémoc and its immediate southeast neighbour, *colonia* Juárez, represent the largest concentration of corporate employment in Mexico City.

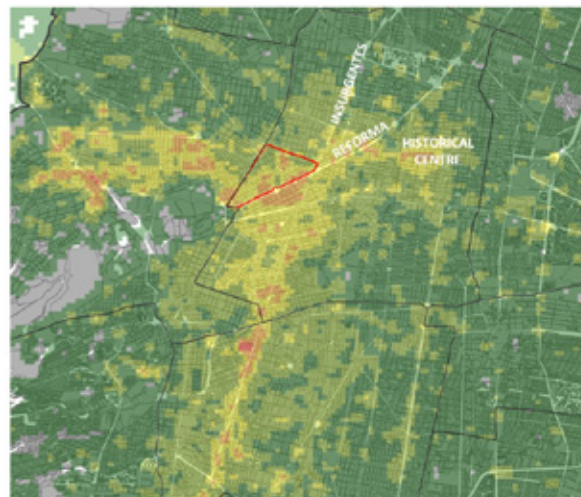


Figure 1 - Service concentration in the Metropolitan Area of Mexico City. There is clear concentration from the Historical Centre running southwest towards Reforma and south to Insurgentes. Cuauhtémoc neighbourhood outlined in red in the crossing of these two avenues.

Source: Own elaboration based on DENUE 2014.

- 2 Paseo de la Reforma is still one of the most important avenues of the city. It was built on the orders of Maximilian of Habsburg (installed as 'Emperor of Mexico' by Napoleon III after a French invasion) in the fashion of Champs Elysees, connecting the city centre with the Palace of Chapultepec in a straight line. It runs north to southwest cutting diagonally the orthogonal layout left by the Spanish (Ortiz Chao, forthcoming, chapter 4)

With its key location, next to the Historical Centre and Chapultepec Park, Cuauhtémoc is at the midfield of market forces pressing for constant urban transformation. It faces Reforma on its widest side recognised as the main corridor of highly specialised services of Mexico City and where many governmental offices and some of the main national and transnational headquarters are located (Delegación_Cuauhtémoc, 2011) (top photo in Figure 2). It is also in the middle of a number of other main roads: Insurgentes Avenue, another main thoroughfare with high service and employment concentration, and Circuito Interior, the first ring road of the city, a main road for high speed vehicular movement but a physical barrier in terms of pedestrian movement (bottom photo in Figure 2).

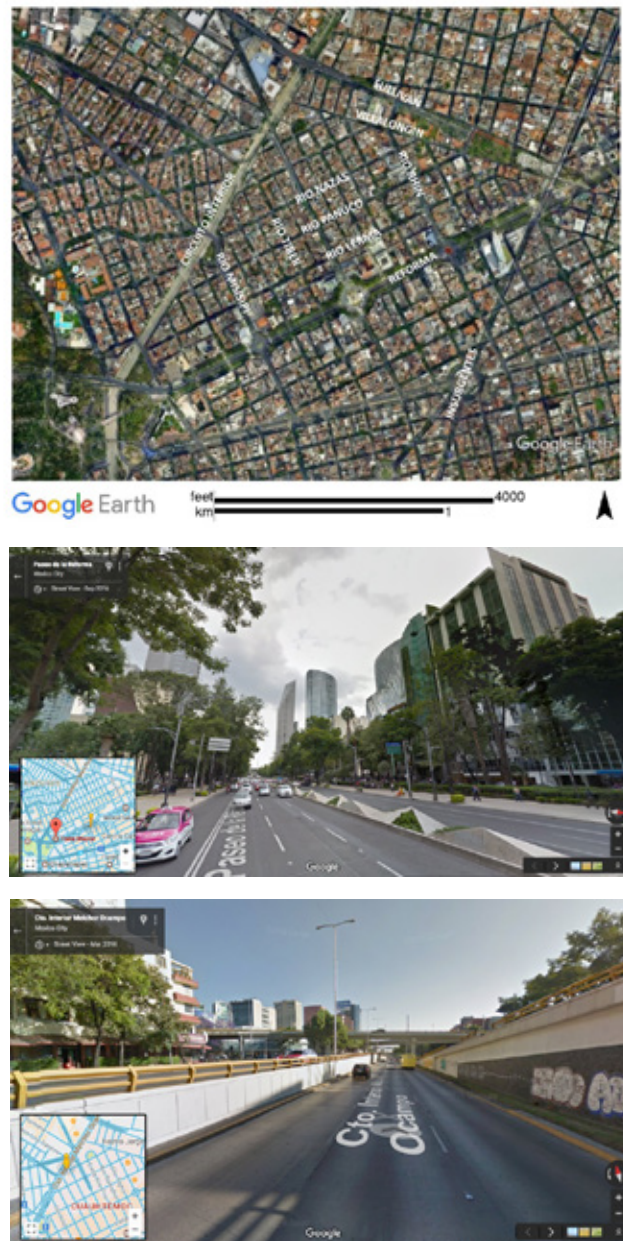


Figure 2 - Map of Cuauhtémoc neighbourhood showing main roads. Top photo shows Reforma Avenue. Bottom photo shows first ring road, Circuito Interior.

Source: Google Earth and Google Streetview.

The maps in Figure 3 show plot accessibility ³ within the first ring of Mexico City. Again, Cuauhtémoc's situation near the Historical Centre and among a number of main thoroughfares seems to give it its most important advantage spatially in spite of being located in the edge of the first ring road, Circuito Interior, a barrier for transversal movement.

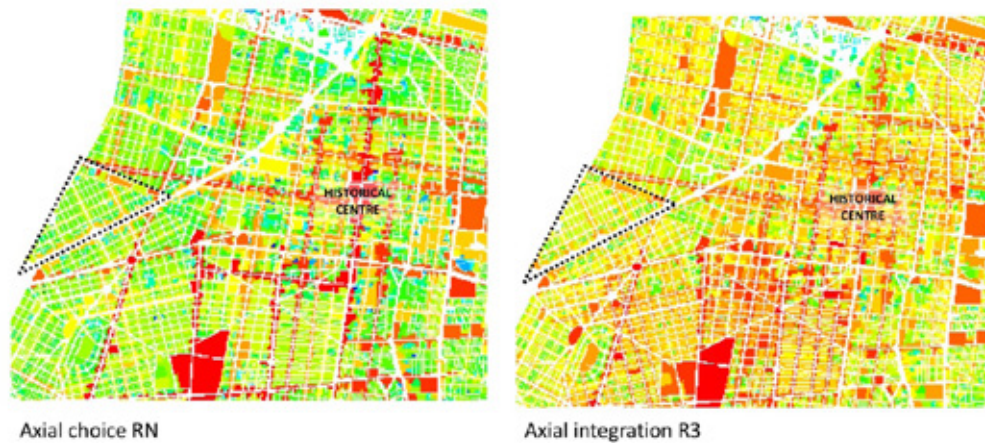


Figure 3. Plot accessibility maps of first ring road of Mexico City showing axial choice (through-movement) RN and axial integration (to-movement) R3. Cuauhtémoc neighbourhood is shown in dotted lines.

Source: Ortiz Chao, 2008.

3. METHODOLOGY

A detailed survey was carried out in the study area, the Cuauhtémoc neighbourhood. The following characteristics were recorded:

- a) Land use that according to the usual categorisation considers: residential, retail, services, facilities and industry.
- b) Specific activities, that is, the specific function or service happening in each property and its scale of influence (explained below). For example, local retail for this case study included small grocers', stationers', chemists', paint shops, costume shops, gift shops, movie rental shop, butcher's, poulterer, grocery store.
- c) Building levels, starting from ground level and on, in order to determine the distribution of building intensity in space.
- d) Level of physical obsolescence⁴, referring to the degree of decay resulting from the combination of exposure to natural elements and upkeep of the building, categorised according to the material conditions of each property as: no deterioration (1), paint detachment (2), loss of façade materials (3), structural damage (4), and in ruins (5).

³ This is a variation of the traditional space syntax model where plots become nodes attached to street nodes before calculating measures of accessibility (Ortiz Chao, 2008; Figueiredo & Ortiz Chao, 2015). It is used in this section to give a visually detailed picture of the study area within a broader context. However, axial lines are adopted for the spatial analysis section as the interest of the study is in the relation between streets and land uses (plots and buildings).

⁴ The term and the notion are taken from Lichfield (1989). The scale is an adapted and synthesised version of the methodology designed by the Escuela de Arquitectura Técnica de la Universidad Politécnica de Catalunya (2006) used for risk evaluation of building conditions.

- e) Level of functional obsolescence⁵, related to physical changes and adaptation to new uses within the original structure, and classified as: original use (1), partial adaptation, same use (2), new use (3), total remodelling (4), abandonment (5).
- f) Market profile, which registered any properties that were on lease or sale.

All the information from the surveys was entered into a MapInfo database that allowed the creation of various thematic maps to start a territorial analysis of the Cuauhtémoc neighbourhood. These allowed us, first, to determine the dominant uses for the area as well as the subareas leading the process of change.

Taking Modis (2003) approach about market differentiation as a basis, we supposed that characteristics of agglomeration are given out of the nature of activities and the spatial-economical relation that links them together. A spatial categorisation was conducted to classify specific activities as regional or local according to their scale of influence. Local scale activities refer to those related to the reproduction of everyday family life; users usually have direct access to them, often by foot for a good number of residential units, hence, it generates scarce or null parking demand. Regional scale refers to higher-level activities that not only satisfy neighbourhood residents but attract people from other parts of the city, producing important movements and flows within the area. This categorisation also allowed us to establish functional relations of proximity between activities, whether these were of cooperation, competition or rejection. Here we focus on the relation of cooperation between the dominant use of offices and their complementary uses.

Then, we use axial map analysis to explore the syntactic characteristics behind the locational advantages of predominant uses.

4. DOMINANCE AND FUNCTIONAL RELATIONS

Figure 4 shows the land use map of the study area according to traditional categorisation (see section 3). It is clear that the predominant uses are residential (yellow) with 877 buildings (54%) and services (dark blue) with a total 335 buildings (20%). These are frequently located on blocks close to Reforma. When height is taken into account, the map shows an even higher intensity of service concentration next to Reforma with nearly every building in the top rank (15 to 46 levels) facing this avenue (figure 5). Mixed residential and service buildings can also be found across the area (light blue). They account for 12% with 189 properties. Other uses represent less than 5% of plots each.

As it can also be observed in figure 6, most of the service uses correspond to offices (blue). In fact, the latter account for more than 70% of properties with service activity in the neighbourhood. We can start to ascertain some sense of socio-economical predominance determined by location on Reforma that fades with distance from it. If we now place a boundary between Reforma and the parallel street of Rio Panuco that is just around 200m and a couple of blocks away, we notice that 67% of office buildings are located within this boundary.

On the other hand, a map illustrating functional obsolescence (figure 7) shows that Cuauhtémoc is in the midst of an important process of change even when it remains a generally conservative neighbourhood with: 74% of properties with their original use (residential and offices), 12% have experienced partial adaptation but kept the same use, 7% have changed use completely, only 1% have been remodelled, and 6% suffer abandonment. Change is concentrated on the area between Reforma and Rio Panuco and on the two main thoroughfares running on the perpendicular direction to these (NW-SE), Rio Tiber and Rio Rhin.

⁵ Although the term is the same as Lichfield's (1989) the actual content for the sake of our study goes beyond his definition in so far it defines a limit for the purpose of creating a scale to measure adaptive changes. (Flores Peña, forthcoming)



Figure 4 - Land use map of Cuauhtémoc neighbourhood. Predominant uses are residential (yellow) and services (dark blue); mixed residential and service buildings are also common (light blue).

Source: Own elaboration based on site survey.



Figure 5 - Number of building levels in Cuauhtémoc neighbourhood ranging from 0 (empty plots) to 46 (facing Reforma). Darker colour implies more levels.

Source: Own elaboration based on site survey.

Physical obsolescence, on the other hand, shows that owners in Cuauhtémoc are willing to invest in their properties' maintenance so the neighbourhood keeps an overall good state (figure 8) with: 70% of properties showing no damage, 22% with only paint detachment, 5% present loss of façade materials, 1% with structural damage, and only 2% in ruin conditions. It is important to note that all plots on Reforma in this last category are under construction referring an advanced stage in the process of change. The area concentrating the most physical damage is on the west between Rio Panuco, Rio Tiber and Circuito Interior. Even when this area is the newest one (the neighbourhood was populated from east to west side), it holds a lot of old buildings and the original uses remain for the most (figure 7).



Figure 6 - Map of Cuauhtémoc neighbourhood showing offices (blue) and hotels (yellow).

Source: Own elaboration based on site survey.

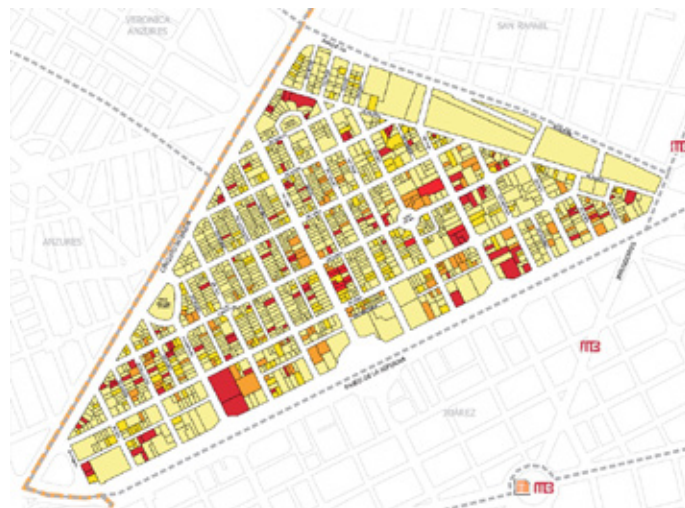


Figure 7 - Functional obsolescence map of Cuauhtémoc neighbourhood. Darker colour denotes higher obsolescence: original use, partial adaptation same use, new use, total remodelling, abandonment.

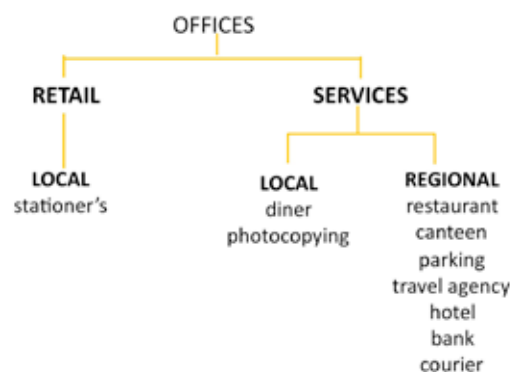
Source: Own elaboration based on site survey.



Figure 8 - Physical obsolescence map of Cuauhtémoc neighbourhood. Darker colour denotes higher obsolescence: no deterioration, paint detachment, loss of façade materials, structural damage, and in ruins.

Source: Own elaboration based on site survey.

Cuauhtémoc is a very mixed neighbourhood in terms of functions. Spatial categorisation of activities included local and regional retail (10 and 20 categories respectively), local and regional services (32 and 23 categories) as well as local industry (3 categories). This then resulted in a complex matrix of functional relations between activities where every specific activity has interaction with at least another one being 3 the average number of interactions with other activities. This paper will focus on offices (service, regional) that as we have seen are the predominant use (along with residential) and their complementary uses. The relations were established as follows:



Each of these activities holds a relation of cooperation with office sites and was, therefore, visually and statistically analysed in a separate map. The most pervasive relations are shown in this paper. The first of these was presented in figure 6 showing office locations in the study area. We could establish 3 kinds of 'leading' office areas. First, there is the corporate headquarters along Reforma. Then, we find a high concentration on the blocks of the southwest end of Rio Panuco that include the Federal Electricity Company (CFE). Finally, there are the large office estates along Villalongin on the east end that house Telmex, the largest telephone company in Mexico. The rest of the office sites offer complementary services to leading offices and

headquarters. This explains their location inside rather than on the edges of the neighbourhood and next to the main offices. We had mentioned before that 67% of office buildings are located within zoom of Reforma, up to the street of Rio Panuco, pinpointing the locational advantages of this area.

Figure 6 also shows hotels, another characteristic use of the area although not as predominant (less than 5% of services), in yellow. The functional relation between these two activities is obvious: hotels take advantage of the conditions described above to accommodate for the needs of national and international corporate headquarters. 88% of them are located within the zoom-boundary of proximity we set between Reforma and Rio Panuco. Another interesting point to make is that Reforma houses 5-star hotels whereas hotels inside the neighbourhood area 4-star or lower category.



Figure 9 - Maps of Cuauhtémoc neighbourhood showing office (blue) - diner (yellow) uses, and office (blue) – stationers (red) uses.

Source: Own elaboration based on site survey.

A similar functional relation of complementarity or cooperation happens between offices and diners (figure 9 top) and offices and stationers (figure 9 bottom). The latter are dependent on employees of the former. Nevertheless, a lack of places to eat would certainly affect office workers of the area. Though there are only 9, 7 of them are within the zoom stripe, that is 78%. The situation with canteens is alike with 67% (4 out of 6) located between Reforma and Rio Panuco. Stationers are equally complementary with 6 out of 8 (75%) located within the proposed boundary.



Figure 10 - Map of Cuauhtémoc neighbourhood showing offices (blue) and banks (red).

Source: Own elaboration based on site survey.

To certain extent, banks and restaurants follow a similar logic with 72% and 74% within the zoom boundary respectively. These services do complement offices. However, they take further advantage of the privileged (both spatially and socially/symbolically) location of the area as they also attract lots of 'floating' users, i.e. coming from outside the neighbourhood for business, leisure or other personal reasons such as visitors, tourists or passers-by. In particular, banks locate themselves in the main thoroughfares: Rio Lerma, Villalongin and, mainly, Paseo de la Reforma (figure 10).

Conversely, photocopying and courier services functional relation is with complementary rather than leading offices. This is supported by the fact that while 4 out of 6 (67%) photocopying outlets are situated within the Reforma-Panuco stripe, 3 of these serve the Public Registry of Property offices on the east corner of Cuauhtémoc leaving 75% of the remaining 67% located further inside the neighbourhood (figure 10). Courier services follow a related trend with only 1 out of 5 (20%) within the zoom boundary and 80% further inside.



Figure 11 - Map of Cuauhtémoc neighbourhood showing office (blue) - photocopying (orange) services on top, and office (blue) – courier (orange) services on bottom.

Source: Own elaboration based on site survey.

5. LOCATIONAL ADVANTAGES

Figure 12 shows local integration R_3 of the area within the first ring road of the city, Circuito Interior (top) and global integration on an axial map of the study area (bottom). Table 1 shows the integration values for the most accessible streets within the study area on an axial analysis. Reforma has the highest integration values. It is a main thoroughfare of higher hierarchy than the rest of the roads in Cuauhtémoc. It runs northeast-southwest (NE-SW). Circuito Interior also shows high integration values, specially globally, but it is not considered in the table as it is a high-speed motorway which acts as a barrier (see Figure 2).

When compared with percentiles of plots with office use, the leading land use of the area, and its



Figure 12 - Plot accessibility of Cuauhtémoc neighbourhood, shown in dotted lines, within first ring road of Mexico City, axial integration R3 (top). Axial map of study area showing global integration (bottom).

Source: Ortiz Chao, 2008.

	axial int R2	axial int RN
Reforma (NE-SW)	6.358	2.958
Río Tiber (NW-SE)	5.672	3.002
Río Lerma (NE-SW)	5.457	2.240
Río Panuco (NE-SW)	5.396	2.571
Río Rhin (NW-SE)	5.204	2.432

Table 1 - Axial integration of most integrated streets in study area.

complementary services, it seems that spatial characteristics do confer an important locational advantage as the most integrated streets, Reforma and Rio Tiber, have a predominant presence of offices over complementary services (Table 2). Rio Rhin has a slightly higher percentage of complementary services than offices (less than 2%). This could be due to the nature of the northeast part of the study area with much bigger blocks that house major, mostly public, facilities. In fact, given this peculiarity, Villalongin was excluded from Table 2. Northeast-southwest streets show higher presence of complementary over office services: Rio Panuco, Rio Lerma.

	axial int R2	% office plots	% compl plots
Reforma (NE-SW)	6.358	37.7	33.9
Rio Tiber (NW-SE)	5.672	16.2	8.7
Rio Lerma (NE-SW)	5.457	14.5	25.4
Rio Panuco (NE-SW)	5.396	8.5	16.9
Rio Rhin (NW-SE)	5.204	20.3	22.2

Table 2 - Most integrated streets and percentile of offices and complementary services.

Percentiles of functional obsolescence (Table 3) in the most integrated streets denote that areas immerse in the most intense process of change are Rio Tiber (22.5% of plots), Rio Panuco (18.9%) and Rio Lerma (16.9%). Physical obsolescence, however, seems more significant if we look at it as the area defined between Rio Panuco, Rio Tiber and Circuito Interior. This area is the most homogeneous in geometry. It also concentrates the most residential uses and is the most conservative as it presents the highest degree of physical obsolescence, the most original uses and the oldest buildings (figures 4 and 7).

	axial int R2	% functional obsolescence	% physical obsolescence
Reforma (NE-SW)	6.358	15.1	13.2
Rio Tiber (NW-SE)	5.672	22.5	6.2
Rio Lerma (NE-SW)	5.457	16.9	4.2
Rio Panuco (NE-SW)	5.396	18.9	10.4
Rio Rhin (NW-SE)	5.204	16.6	9.2

Table 3 - Most integrated streets and percentile of plots with functional and physical obsolescence (categories 3 to 5).

Correlations between the predominant use, office, and space syntax integration were examined to understand the influence of configuration in the locational advantages pointed out. In order to capture this more accurately wherever office was the predominant use it was multiplied times the number of floors in the plot to create a measure of use intensity. This also seems to better reflect market forces and, therefore, the way economic cycles operate. Figure 13 shows the first of this correlations with local and global integration (left and right, respectively). Even though the data seems to follow a positive trend, the correlation coefficients are slightly low: 0.55 for local integration and 0.39 for global integration. The measure of choice was tried too, giving weaker correlations that are hence not included in this paper. Once the number of levels is taken into account, Reforma's prevalence concentrating office uses is evident with 395.

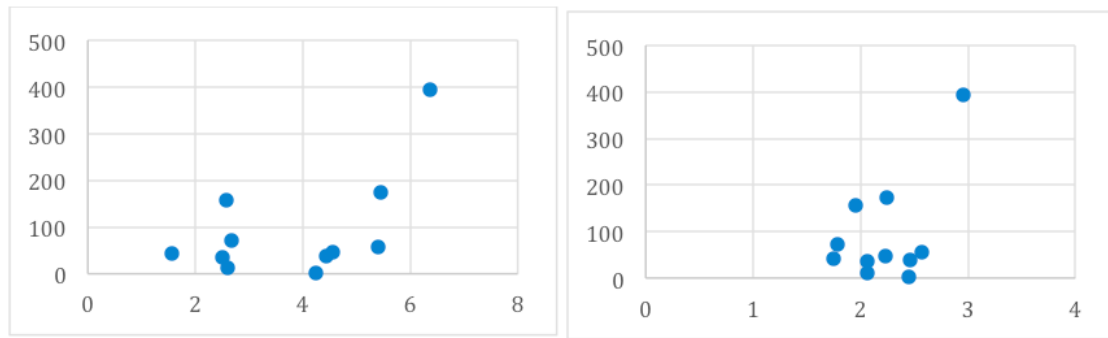


Figure 13 - Correlations of integration R2-office use intensity (office use plots * number of floors) (left, $r^2=0.55$) and integration RN-office use intensity (right, $r^2=0.39$) in axial lines of Cuauhtémoc neighbourhood.

Source: Own elaboration.

Since there is a strong geometric pattern in the area, the data was then divided according to the street orientation, particularly NE-SW or parallel to Reforma, and NW-SE or perpendicular to Reforma. Figures 13 and 14 show these correlations and their coefficients. While these somehow improve the correlations and thus the spatial characteristics help to better explain the locational advantages, the influence of Reforma does not seem to be captured by them. The NW-SE direction does not have a street that concentrates offices as much as Reforma on the NE-SW direction (Figure 14). The highest number of office use occurrences is Rio Tiber with 77.

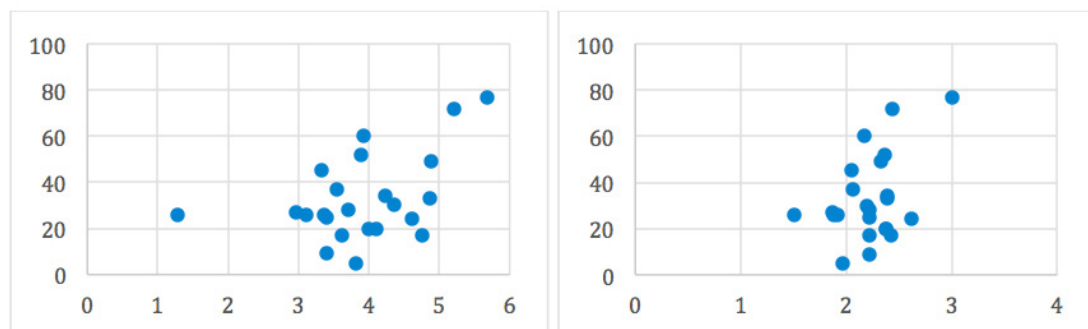


Figure 14 - Correlations of integration R2-office use intensity (office use plots * number of floors) (left, $r^2=0.45$) and integration RN-office use intensity (right, $r^2=0.42$) in axial lines of Cuauhtémoc neighbourhood running NW-SE or perpendicular to Reforma.

Source: Own elaboration.

The number of office uses from Reforma as starting point was also included (Figure 15). It is clear that frequency of offices, the predominant use in the study area, falls with distance (streets or blocks away, parallel) from this important thoroughfare. A similar graph was plotted for the NE-SW streets (Figure 16), from the southwest end, Leibnitz, to the northeast corner, Rio Tamesis. Apparently, the main peaks from the number of offices decays are Rio Tiber (77 office uses) and, in second place, Rio Rhin (72 office uses), both main roads crossing the neighbourhood, both enhanced with monuments in their crossings with Reforma.

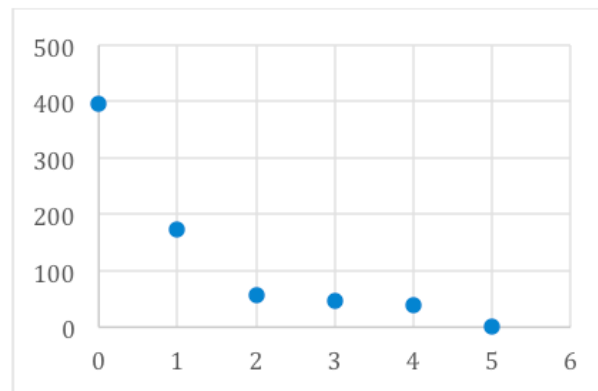


Figure 15. Office use intensity (office use plots * number of floors) as a function of distance decay (streets, parallel) from Reforma in axial lines of Cuauhtémoc neighbourhood.

Source: Own elaboration.

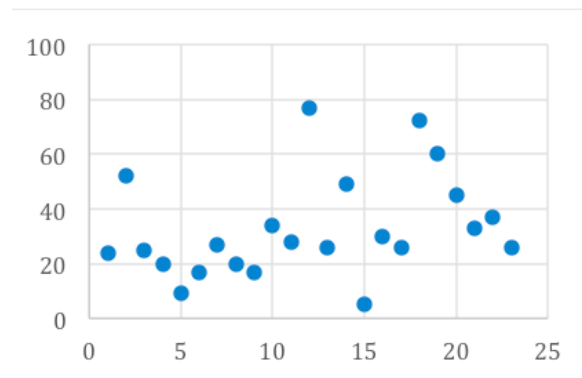


Figure 16 - Office use intensity (office use plots * number of floors) as a function of distance decay (streets, parallel) from Leibnitz (southwest end of study area) in axial lines of Cuauhtémoc neighbourhood.

Source: Own elaboration.

6. DISCUSSION AND CONCLUSIONS.

It is clear that, even though time is obviously an important factor in the processes of obsolescence and urban transformation, space also plays a key role at different scales. First, it is space, through configuration, that determines the most advantageous locations in terms of economic activity and, therefore, the overall locational hierarchy in a city (Hillier, 1996; Hillier, Penn, Hanson, Grajewski, & Xu, 1993). This, of course, has social implications, both implicit and explicit. The former have to do with the socio-cultural information embedded in any urban configuration (Hillier & Hanson, 1984) whereas the latter refers to the identity and symbolic meaning associated to a place given its layers of historical background and evolution. This last aspect is being investigated at the moment.

Speaking of this case study, it is known that Reforma, besides being in a privileged and accessible location, is the most prestigious avenue in the City and, hence, the most profitable for the leading headquarters to locate themselves. Then there is the functional relations between activities that are also realised in and through space. In this example, there are other, smaller,

yet important, services, such as complementary offices, that locate themselves “on the back streets” of Reforma (they obviously cannot afford to be on or on the next street to this avenue). By being on these locations they can complement predominant offices while at the same time capture some regional costumers. Then, there are smaller service providers like photocopying and courier outlets that complement, for example, these “back offices” while still capturing some regional costumers, even when it is an even smaller proportion. All activities enjoy some locational advantages even when they do in different, proportional scales. At the same time, each one of these levels of economic activity is constantly competing for space and market with other providers in the same level.

While these activities attract and cooperate with each other, we notice that this influence also weakens or fades after a certain distance. We proposed a boundary from Reforma up to Rio Panuco, a couple of blocks and zoom away, where predominant uses, economic activity and building intensity seemed to concentrate which allowed us to observe functional relations in greater detail and determine levels and types of relations like the ones explained above. It could seem that centrifugal and centripetal forces’ present in the dynamics of agglomeration economies (Anas, Arnott, & Small, 1997) respond to spatial configuration, in the first case, and metric distance in the second.

The case study presented is work-in-progress done in one of four neighbourhoods of different socio-demographic characteristics so the ideas need to be developed further. However, it gives valuable answers that support the hypothesis of the importance of space in the economic differentiation and process of change in urban neighbourhoods of Mexico City. Next steps include examination of the social component that is being developed at the moment using surveys and demographic data and comparison across the four case studies. We hope to be able to develop generalising conclusions that lead us to important data that can help decision-makers understand the dynamics beneath urban transformation processes in the Central City of Mexico and other comparable metropolises.

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