# Land and Building Values

**Development Cycles of the Built Environment**

**Hans Thor Andersen & Sten Engelstoft**

Hans Thor Andersen & Sten Engelstoft: University of Copenhagen, Institute of Geography, Øster Voldgade 10, DK-1350 Copenhagen K., Denmark.

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*The present paper examines the relationship between developments within the built environment and the land (sites) on which they are situated. It has four parts: Firstly, problems related to an urban concept as well as the concept of a "built environment" are examined. Physical as well as economic lifetime of urban structures are considered in relation to urban land, and problems related to the urban land market are discussed. It is concluded that - as urban land is socially produced and has a fixed location which is inseparable from the buildings located on it - specific problems arise when the buildings decay. Secondly, problems with respect to industrial restructuring and the built environment, particularly in the Copenhagen area, are reviewed. Thirdly, an idealized model of the development cycles of the built environment is presented and a number of individual empirical examples are examined in relation to the model. Finally, it is concluded that the changing relations between property value and building value add important aspects comprehending the dynamics of the built environment. External relations, however, such as planning status, development within public services, economic megatrends etc. must necessarily be included in an analysis in order to get the full picture.*

Key words: *Land rent, built environment, life-cycles.*

### Dynamics of the Built Environment

The built environment constitutes an important part of material conditions for human activities. Though it does influence social processes, the built environment itself is produced, used and changed by the very same process. Modern cities consist of great numbers of physical structures - houses, roads, pipelines, docks, factories, schools, hospitals, offices etc - which all are produced, sometimes even planned, in order to serve as infrastructure for production and consumption. Understanding the creation and "life-cycle" of each of these physical elements requires their incorporation in a broader social context. The most convincing attempts to do this so far have been by Harvey (1978): Production and exchange of surplus value depend on increasing productivity, which in turn relies on the labourforce and its organization (including the division of labour) as well as the available fixed capital (machinery, factories etc). Harvey describes the circulation capital within the framework of three different but interrelated circuits:

The first, or primary circuit of capital, consists of elements involved in the processes of production. These elements consist of labour power and fixed capital (machinery). As a result capital is forced to turn to more profitable - but also more uncertain - areas of investment, often intermediated by state or financial institutions. Changes of capital from one circuit to another, due to temporary over-accumulation (crisis) within a circuit, create economic depressions, respectively booms in the built environment.

The secondary (built environment) and tertiary circuits (social investments and expenses) of capital constitute such areas of profitable investment. In an urban context, investments in the built environment are of interest.

Capital invested in buildings circulates slowly, and ventures are thus uncertain; i.e. future conditions for profitability might change or even not occur at all. While capital in the first circuit is manifested as either equipment for the production process or as labour and raw materials, capital in the second circuit materializes as the built environment (fixed capital). As an area of investment the built environment includes several peculiarities: produced within the normal course as a commodity, but used as an aid both to production and consumption. A further peculiarity of the built environment is its immobility; once produced it is (economically) impossible to relocate it.

Contrary to the first circuit, the fixed capital of second circuit is not productive in the sense of immediately increasing surplus. Nevertheless it is necessary to produce an infrastructure in order to facilitate the production of commodities and services. Due to the large scale of necessary investments and the uncertainty of profitability, individual capitalits tend to under-invest in the built environment.

### Devaluation of the Built Environment

Investments in the built environment may be regarded as fixed capital that enhances labour productivity. These investments, however, are "caught" in a particular form: If the exchange value enclosed in a building is to be regained (i.e. converted back to exchange value or capital), the physical structure must keep its use value fully employed during the expected lifetime. This is, however, not always the case.

Devaluation of a building takes place in two different ways: In the first place, exchange value declines due to diminishing use value, i.e. decay, wear and tear, gradually destroy the qualities of the physical structure. Hence, use value cannot be converted to exchange value, and the invested fixed capital is lost. This sort of devaluation may be termed absolute (or physical) obsolescence. Absolute obsolescence is manifested by unused and often decayed infrastructures. However, a decline of the exchange value embedded in the built environment does not necessarily have to be a result of destroyed use value. If the use value does not ensure capital a socially average rate of profit, its exchange value is devaluated. This relative (or economic) obsolescence is typically the result of innovations, where a new and more efficient infrastructure replaces the older one.

From the present paper's point of view the relationship between land, land rent and structures on that land is the primary concern which must be included in any attempt to understand the changing morphology of cities.

**Building Rent versus Land Rent**

In order to consider the relationship between land and buildings further, it is worth while to consider the assumptions made by Scott & Roweis (1976). Their basic (and obvious) postulate is that commodity-production "does not occur in a wonderland of no dimensions (......) It takes place on land". Consequently, social processes are articulated in a geographical space. Scott and Roweis supplement the basic contradiction of capitalism by adding a third class: landowners. Private ownership of urban land gives the owners a "near monopoly" position. The users of land, firms or households, must pay for the use of this land.

Land rent is paid out of firms' profit or workers' wages; land rent thus represents a reduction either in profits or in standards of living. For the landowner, land rent is a compensation for the (temporary) quitting of the land; thus, the very existence of private landownership enables the landowner to achieve a rent. Land rents are then "the observable results of that central socio-political conflict over the distribution of the social surplus" (Scott & Roweis, 1976).

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The nature of urban land contains three main points, a) urban land is a social product, produced by both public and private planning and development; hence, the distribution of the benefits is a central political question in most developed countries. b) the very existence of private land- ownership constitutes an important contradiction between the individual owner and the socially optimal use of land. Though urban land is socially produced on non-market terms, the built environment - inseparably tied to it - is produced, exchanged and used, under normal market conditions.

The inseparability of urban land and the buildings situated on it have several consequences: First, that the existence of private ownership under market conditions implies owner control of land use, and thus also the requirement that a certain level of rent has to be paid. Second, that land and properties are fixed in space (immobile), but their values are changing. While prices of buildings depend on size, age, quality, the possible uses etc., land prices reflect localization of a specific site. Thus, while building qualities are determined by the individual owner, the advantages of a certain location cannot be controlled by a single landlord no matter what size of investment made: location in space is fixed. Third, despite the longevity of the built environment it does not last for ever (as land does). Over the years the physical (and economic) decay of buildings accelerates and forces the owner to maintain or redevelop his property in order to prevent falling rents. Thus the relation between building rent and capitalized land value changes (decreases). This may be seen as a direct consequence of absolute obsolescence.

**The Economic Life of Buildings**

Properties and particularly buildings developed for specialised kinds of economic activities loses their value as new types of economic activities replace old ones. In an urban context the attainable rate of return on capital in property will (primarily) depend on the building rent. Theoretically this makes the lifetime of a building equal to the time building rent exceeds the rent of the cleared site. The economic life of the building may be prolonged by improvements or on the other hand the life may be diminished by an increasing land (site) value (Balchain & Kieve, 1985).

Even if repair keeps pace with wear and tear, and if building rent is sufficiently high to pay an over-average interest on the invested capital, the possibility of an alternative (more economic) use will result in relative obsolescence. Relative obsolescence expresses the existence of a potential increase of building rent by redevelopment: The greater the tension (rent gap) between return on property in its current use and its potential use, the more likely is a redevelopment (Smith, 1979).

A further development of Smiths' concept of a rent gap is presented in studies by Clark (1985 & 1987). Based on the assumption of economic rationality i.e. to obtain the "highest and best utility", Clark outlines a model within property development of a growing city where the start of a new cycle of development is triggered by increasing rent gap associated with changes in land use. The idea of a rent gap indeed brings the relation between building value and land value in focus and the question really is: Do building values only reflect construction costs or do they include location, design and other external qualities? This is a question which can only be answered by confronting the theoretical approach with empirical observations.

**Internal and External Forces on the Changing Urban Morphology**

During periods of industrial restructuring, like the deindustrialization from the early 1970s, locational preferences change fast. Most major western cities experienced first a relative and later an absolute decline of industrial investments in the inner cities. Suburbanization and decentralization of economic activity and political power jointly exposed the inner cities. However, at least in certain cities, this has changed significantly in the 1980s. A new industrial structure, a growing sector of private high-tech services and decreasing employment within manufacturing has started a boom in demand for office space. This boom has strongly extended the pressure on current planning status of old derelict sites (often former or existing manufacturing land) in the inner cities. In many cases, derelict areas are the result of the cycle of investments into built environment. Consequently, a fringe belt is apparent in the urban fabric (Whitehand, 1987).

The change of planning-status has in many cases been successful (e.g. London Docklands, the old industrial areas of Copenhagen); local authorities have been easy to convince that the most favourable reply to increasing unemployment and industrial restructuring was to meet the demands from the growing service sector. The ability to resist the "attacks" in order to defend coherent and balanced development according to existing town plans has not been convincing, especially in cities with no strategy for their future development. Within many cities, legal planning status has been changed from an extensive use (e.g. warehousing & manufacturing) to intensive use (typically offices).

Changing legal status, or even the mere expectation of it, has within a few years multiplied land prices and strongly increased investments in redevelopment. Thus, altered legal status itself strongly increases the potential land rent and thereby the rent gap: As current land use often offers a low return compared to the potential exploitation, the probability of redevelopment is further amplified. The changed planning status could then become an example of a planning gain, i.e. economic benefits due to altered town plans that reinforce obsolescence (physical and economic) of existing built environments.

To summarize, studies concerned with economic relations of the built environment cover only a (minor) part of the link between the social and geographical spheres. Though major parts of the research on this question have concentrated on land values, planning, markets, speculation etc., only a small part has been extended to encompass the relationship between land and the buildings on it.

The changing urban morphology can only be explained by incorporating political, economic and social relations in the analysis of the built environment. An adequate analysis must thus consider both internal and external incentives for urban restructuring.

In this paper the internal incentive is, grossly simplified, constrained to the economic interests of the property owner (i.e. the return on property). The external incentive stems from industrial restructuring, relocation of population and capital, changing geographical centres of gravity of public services and infrastructure, and finally planning initiatives. In practice the two are inseparable; a study for future alterations of the built environment must consider the relation between return from the property in current use and return from the "highest and best utility".

The relationship between current and potential return, the rent gap, expresses the possibility for redevelopment. In principle, a growing rent gap emerges as: a) the difference between returns from current use and potential use increases due to alterations of legal status (planning gain). b) wear

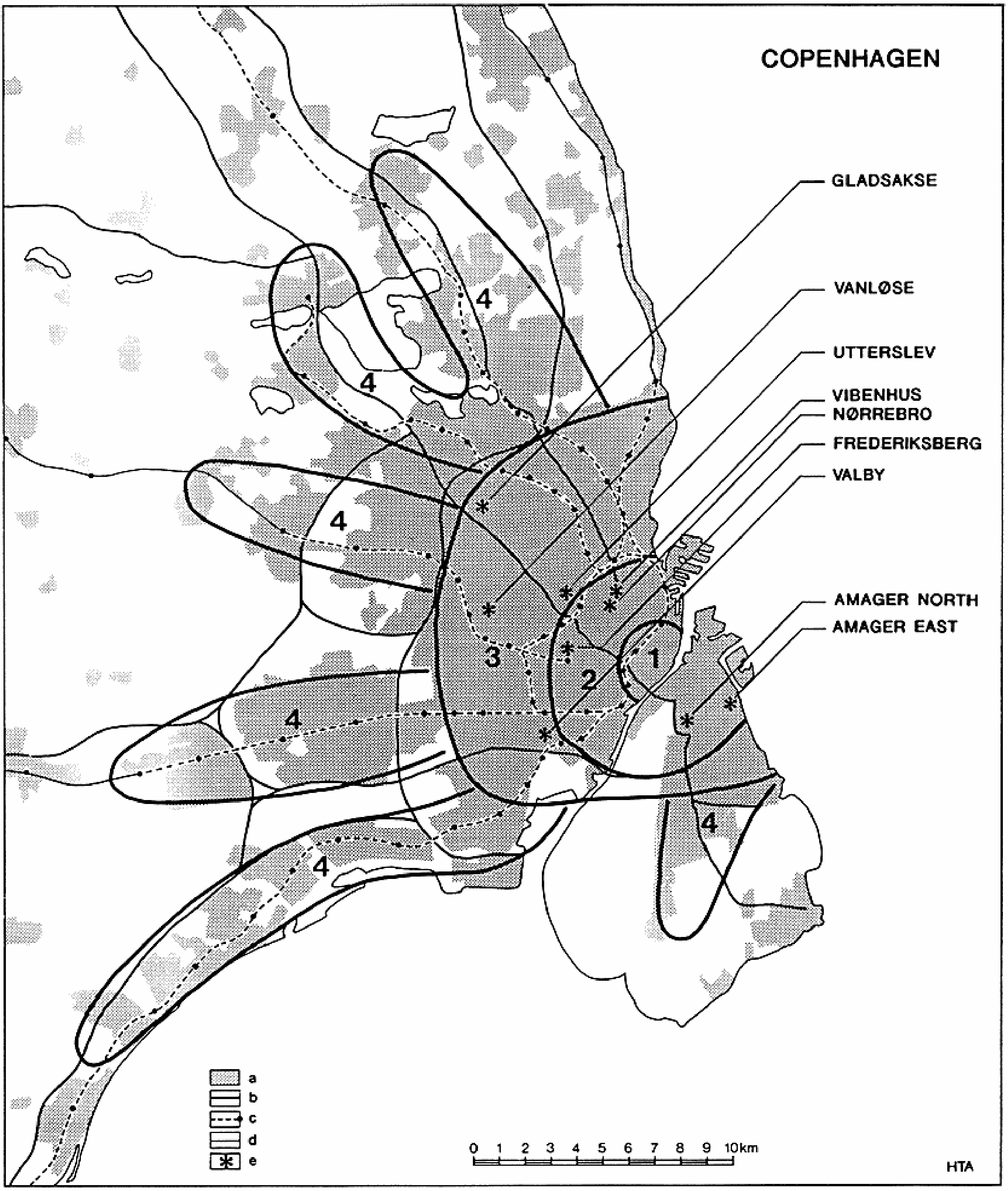


*Figure 1: Structural outline of the Greater Copenhagen region, a: build up areas, b: primary roads, c: commuting railways, d: regional railways, e: areas investigated; (for further explanation see text).*

and tear diminish building values, while land value remains constant. c) increasing land values and declining building values are due to changing demands, e.g. as a result of industrial restructuring.

However, the opposite development, a declining rent gap does occur; e.g. in case of lack of demand (cf land for manufacturing purposes in inner cities), planning loss (typically marginal edges of the cities) and if existing legislation implies a reduction of building density.

## Restructuring the Built Environment

### The Case of Copenhagen

The relationship between the built environment and social development is very pronounced within cities, and Copenhagen is no exception. Fig 1 provides a brief outline of Greater Copenhagen, its built-up areas and urban structure. The CBD is the original medieval and renaissance town, originally surrounded and restricted by the fortification (area marked 1). After the abolition of the fortifications in 1852, a rapid development of high density mixed areas, containing working class housing and manufacturing industry took place; a development, primarily within the limits of what could be called a "pedestrian city" (area marked 2). The introduction of the first really efficient collective transport took place at the turn of the century. At that time, built-up areas had reached approximately 5 kilometres from the city centre, all within the boundaries of the "tram city" (area marked 3), where a number of large industrial areas had been established. From 1938 physical planning of industrial areas took place on the basis of The Urban Planning Act of 1938. After the Second World War, growth changed from a massive urban structure to a planned suburban growth. A growth along the (since 1934) developing commuter railways, according to the so called "Finger plan" and its successors (area marked 4): the "commuter city".

Two distinctly different periods of functional and geographical changes may be identified within Greater Copenhagen in the post-war period. The first took place in the 1950s and 1960s. It was a period characterized by economic expansion, a large growth of consumption, an increasing public sector and an increase in the export orientation of manufacturing industries. The city was marked by increasing geographical and functional differentiation and a growing demographic and social segregation, amplified by

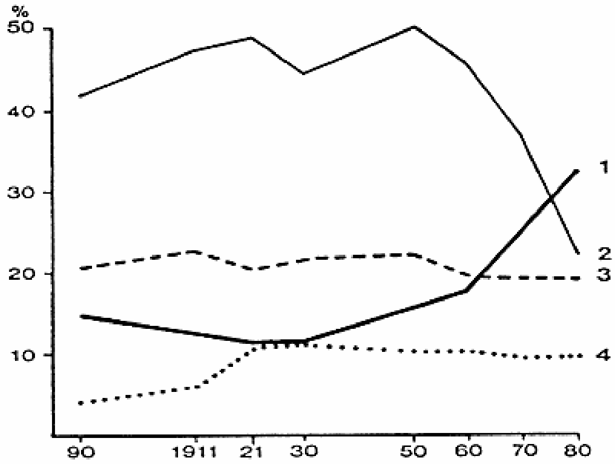


*Figure 2: Distribution of employment in Copenhagen 1890-1980 - 1: Services, 2: Manufacturing, 3: Retail & wholesale, 4: Transport & communication (due to incomparability of data absolute figures are not available).*

a simultaneous re-localization of the population to the suburbs (sub- urbanisation). After a period of recession in the late 70s Copenhagen is again experiencing a period of rapid restructuring.

While the structural changes of the late 50s and the 60s were dominated by consumption and public services, the structural changes of the 80s have been concentrated within production and the private sector. It has been a restructuring involving new demands for qualifications within the labour force, and has consequently led to considerable structural unemployment. During the later period employment within the manufacturing industry has declined rapidly, and at the same time the number of jobs within services has been growing. Thus, while the size of the economically active population has been relatively stable, the employment figures reveal significant structural changes (cf. fig 2). The loss of jobs within manufacturing industry has primarily taken place in the parts of the city built before this century (area 2), even though job losses within manufacturing are found all over the region.

Old industrial areas, established at the turn of the century, are characterized by their high density and polluting industries, an inexpedient mixture of housing and manufacturing, insufficient infrastructure and to some extent empty and deteriorating buildings. These areas constitute "industrial slums" and are an important spatial reserve for urban development.

Obsolescence of the old industrial areas is partly physical and partly economic. It is related to a geographical- as well as a temporal perspective on the formation of capital. Investments in individual areas have been constrained within specific periods and areas, and time-related phenomena have been the result. Each individual area is marked by the rationality of a certain epoch. Because of a misfit between, on the one hand the longevity and "fixity" (immobility and immutability) of the built environment and on the other, the rapid social restructuring of production, the two kinds of decay mentioned earlier in this paper are found. Contrary to physical (or absolute) decay, economic (or relative) decay is not directly observable. Sometimes of course, it is quite obvious that a certain economic activity is economically "inefficient". However, a study of the economic relations between the potential possibilities of a given site and the value of the actual buildings on it should give a more precise answer.

**Development Cycles of the Built Environment, a Model**

Fig 3 attempts to incorporate the general ideas described in the previous parts of this paper in a simple model: The cost of any urban property is comprised by the sum of land (site) and building values. These values and the relationship between them may change in time. The two hypothetical examples of the figure attempt to illustrate this: Line A indicates the land value (lv), line B the building value (bv) and line C the property value (pv) i.e. the sum of land and building values (left y-axis). Finally the line D (right y-axis) indicates the building value as a percentage of the total property value (bv / pv * 100 = $bv_p$). In urban use it is assumed that it is the building(s) on a site that provides the source of income, and bvp is thus particularly interesting as the value signifies quality of the building(s). This indicates to what extent the capital invested in the property as such can provide an acceptable rate of return. For instance, if the buildings on a specific site are deteriorating (physical decay), their value will decrease and so will their share of the total property value. On the other hand if the building value is constant but the land value is increasing, $bv_p$ will likewise decrease (economic decay). This will happen not only if the building value is constant but also if it is increasing at a lesser rate than the land value.

Example A (fig 3) anticipates a constant land value and a gradual decrease in building value throughout the lifespan of the building. In this case the decrease of $bv_p$ will accelerate until the building is unable to ensure the necessary rate of return of the invested capital (pv) and the building will eventually be replaced. Example B assumes similar conditions concerning the building (bv), but furthermore it is presumed that land value is increasing; this might for instance happen because of increased accessibility due to infrastructure investments. In this case two important points have to be made: (1) The economic decay arising due to the increase in land value accelerates the decrease of $bv_p$ i.e. the decay of the building is economic as well as physical. (2) The new building required to achieve a rate of return similar to the original (as expressed through bvp) is much more costly than the old one. This might for instance be a multi-storey office building replacing old industrial structures.

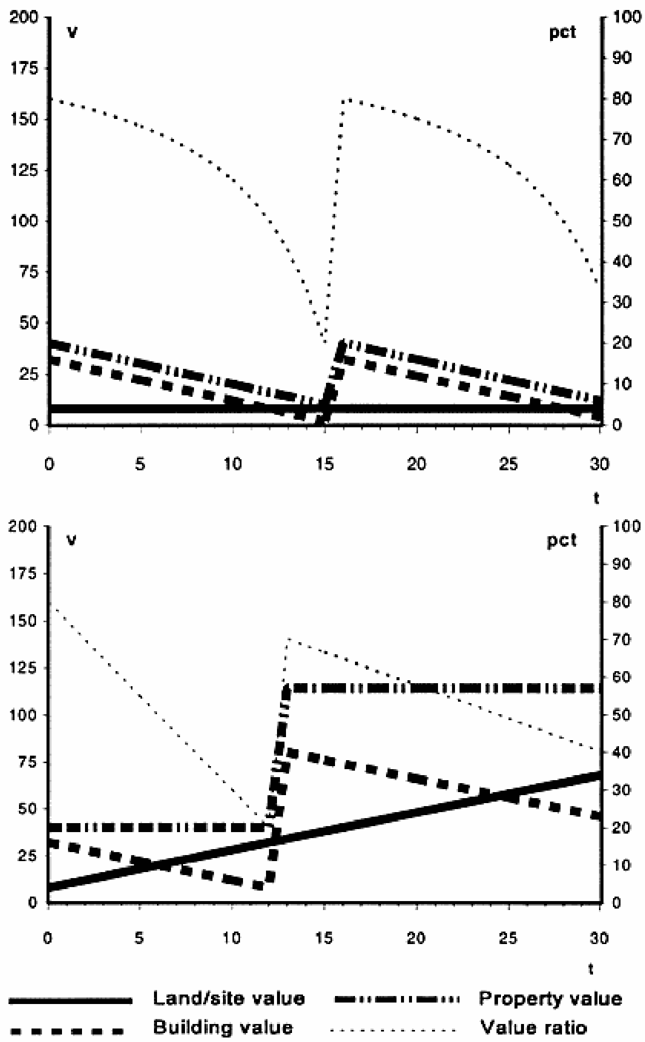


*Figure 3: Value ratio, property- and land-values. A model. For further explanation cf. text.*

**Data Collection**

To implement the above concepts in an empirical analysis of possible changes within the built environment, it is necessary to understand the Danish property taxation system (Andersen 1987). Taxation of property involves land (site) taxation as well as property taxation (i.e. a taxation of value of site and buildings). Up to 1981 the valuation was carried out every fourth year. Since then each year valuation is automatically computed as a "cash value", based on actual sales prices within the area in question.

At the time of the valuation the value of each individual property is estimated as the capitalized value of the land, lv (land value or grundværdi) as well as the total property pv (property value or ejendomsværdi) i.e. including the buildings. The difference between the two is thus an expression of the value of the buildings presently situated on the land in question, i.e. pv-lv=bv (building value). Within the valuations this value is termed the differential value (forskelsværdi), as the value of buildings as such is not evaluated.

The property value is estimated on the basis of assessed sales prices on an open market at the time of the valuation. The property value thus seeks to account for all conditions relevant not to the present, but to a probable future use of the property. This, of course, includes legal restrictions, including possible planning decisions. If, for instance, for obvious economic reasons, it would be expected that a future owner would develop the property into several individual properties, this will influence the sale price and hence the property value. Similar principles appear in the valuation of the land itself, however, with the important modification that the site value for non-residential purposes (not including agriculture and forestry), depends on the actual type of use (e.g. offices, warehouses or manufacturing). Site value is consequently assessed as the probable "cash" price of the land on an open market, even if the economical best use might be demolition of the present buildings, this is not taken into account at the time of the valuation.

As a consequence of these principles for the valuation of land (site) and property, the changing relationship over time between the differential value and the site value should provide the answer to the question of economic decay on a specific property. If the relationship (percentage) is high,it might be assumed that the buildings on the site are able to pay the value of the property i.e. no economic decay is found, on the contrary, if the relationship is low, an inefficient use is present and economic decay is likely. The relationship might even be negative, a fact which is often found when buildings are totally worn out (but not necessarily out of use!); it thus indicates that the building is an economic burden to redevelopment as the site has to be cleared first.

The data to be presented in the following originates from a study carried out for the (now abolished) Greater Copenhagen Council. The primary aim of the project was to evaluate the potential spatial capacity within existing build-up areas in an attempt to build selected scenarios for the future industrial development within the city (Andersen & Engelstoft 1987 & 1989).

Nine selected areas were examined (the location of the areas in question appears in fig 1). A total amount of approximately 4.5 mio. m2 taxable land (close to 2000 properties) containing 4.4 mio. $m^2$ floor space has been investigated. The average plot ratio of the areas is 98%, varying between 160-200% (in the old mixed areas from the end of the former century), to 50% (in an industrial area from the 1930s.) The actual value-ratio between buildings and property ($bv_p$) in the old industrial areas is often as low as 30-50% (in one of the areas, $bv_p$ was less than 0% in 33% of the properties). The newer area typically has a $bv_p$ of 60-90%, indicating a comparatively efficient land use.

Within the total 2000 properties, almost 400 have been analyzed further; i.e. a time series of the development of site and property values have been investigated and building (differential) values and bvp have been computed according to the model described earlier. Furthermore building registers have been examined in order to establish actual physical changes in the building stock that have taken place on each property. All values and sales prices have been deflated according to an index of consumer prices.

In the following paragraph six selected examples of individual properties are examined in relation to the model. This is done in order to illustrate some typical stages of development during the lifetime of fixed capital "trapped" in the built environment. Finally the validity of $bv_p$ as indicator of potential changes within the built environment is discussed.

**Development Cycles, Empirical Evidence**

With few exceptions, all properties investigated show a remarkably similar pattern: During the postwar period both building and site values increased until the late 1960s. Thereafter building values generally declined (80 % of all properties), while the remaining properties experienced a growing building value mostly as a consequence of investments in the built environment (improvement and redevelopment). The six properties described in the following are, with the exception of one, located in the inner city. In this connection it is worth noting that all premises with growing site values in the 1980s are located in the inner cities. They represent various examples of build-up properties which are in different stages of development. Related to the building cycles, two type groups appear: those where buildings have passed through a single development phase and those where several building cycles can be identified (due to data problems, only the period after 1900 is considered here).

(1) The area of Nørrebro is a typical example of a mixed urban area from the end of the former century. Fig 4 illustrates a typical example. The first buildings on the property were originally developed in 1896 when the bread factory "Schulstad & Ludvigsen" made a "two-storey workshop". During the next 50 years numerous additions were made: "extension of stables" (1924), a "two-storey production building" (1926), "grain-silo, garages and storage-facilities" (1934), "two-storey addition to the bakery, tree storey store-room, boiler and transformer station" (1935), "garages and four- storey production building" (1936) and "four-storey office-building" (1940). Further additions to the storage and production facilities were made during the 50s and 60s. After the closure of the factory in the late 60s the property was in use for auto repair and storage for several years. It was finally demolished in the early 1980s and the site is now in use for a modern cooperative housing scheme. During the lifetime of the factory, the continuous investments in the buildings made building value (bv) keep up with increasing land values until the mid 60s ($bv_p$ is almost constant at approximately 80%). Finally, however, the increasing land values have forced an economic decay on the property ($bv_p$ decreased to 20% in 1973 and later - as physical decay accelerates the obsolescence - $bv_p$ reached 0% in 1981). Since the closing down of the original economic activities and until the demolishment of the buildings (1983), the economic lifetime of the building has been ended. This is indicated by the fact that land value exceeded building value (lv>bv).(2) Fig 5 exemplifies an inner city property located in a predominantly industrial area at Utterslev. It has a total floor space after redevelopment (1986/87) of approximately 21300 m$^2$ on 18640 m2 land. The property was originally developed at the turn of the century for "housing" and a "dye works". Few years later, the building density was raised by construction of a "five storey tenement house". In 1911 two new industrial

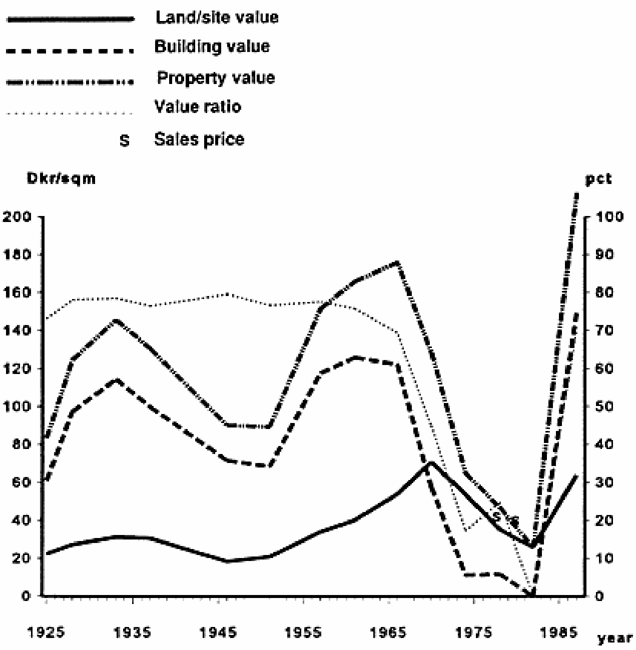


*Figure 4: Matr. n ° 2454 Nørrebro (Matrikel = cadastre). Building value computed as the difference between property and land value. Value ratio computed as building value in relation to property value (scale to the right).*

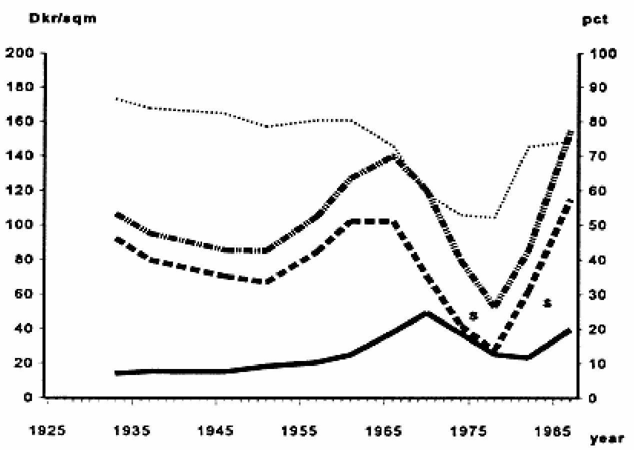


*Figure 5: Matr. n ° 6kz, 6kt, 5ap & 5i, Utterslev (legend: cf fig 4)*

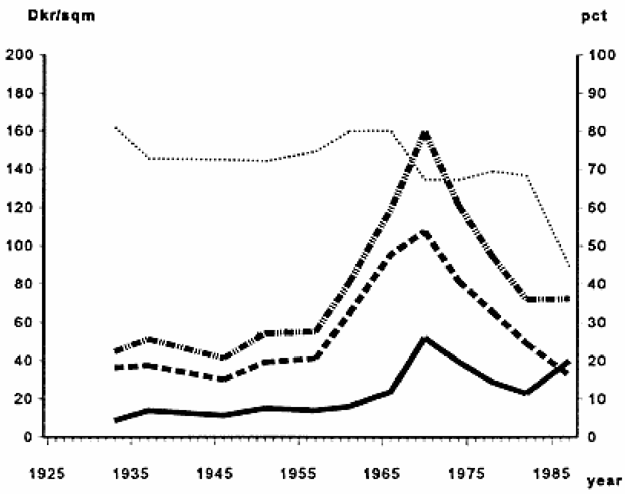


*Figure 6: Matr.n ° 183, Utterslev (legend: cf fig 4)*

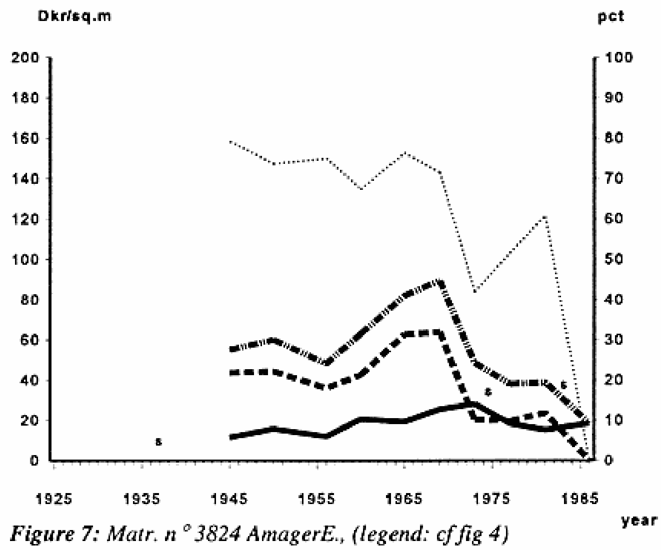


*Figure 7: Matr. n ° 3824 AmagerE., (legend: cf fig 4)*

buildings were erected, followed by expansion of existing buildings in 1918, 1919 and 1921. During the 1920s a number of new buildings were constructed for manufacturing purposes (soap and cosmetics). In 1966 the last expansion of building took place; during the 1970s some buildings were demolished. First after the buildings were totally devalued, the property was sold at a price just below property value (but above site value). The site was finally cleared in 1983/84 and redeveloped in 1986/87 for professional services and car sales.

(3) The property illustrated in fig 6 is also located in Utterslev. It belongs to the dairy "Enigheden", comprising some 23800 m$^2$ with 13560 m$^2$of floor space. The first part of the factory was constructed in 1888, extended in 1911 ("new stables, housing and buildings for production purposes"). The floor space was further enlarged in 1922, 1923, 1925, 1926, 1929 and a number of times in the 1930s in order to serve as the major dairy for the northern inner city. A few improvements during the 1940s and 1950s enabled the firm to keep pace with obsolescence. However, from the late 1960s the only changes on the property have been the demolition of derelict buildings. Hence, bv has declined during the 1970s; the decline has accelerated rapidly in the 1980s. Today the bv is even lower than the site value (lv), i.e. the economic life of the building is over and redevelopment in the near future is likely to happen.

(4) The property which is illustrated in fig 7 is located in the industrial area of Amager East. The property was originally acquired as a vacant site by a bread factory (1938). The first buildings were completed in 1940 and several additions were made in the years to come: A "one-storey laboratory building" (1951), "garages" (1953), a "one-storey extension" (1954), a "two-storey factory building" (1960) and "diesel-tanks" (1973). Through several additions, changes and improvements the buildings increased their value and thus the value of the property. Until 1970 bvp did not show any sign of decline, however, in the following period lack of maintenance dramatically reduced the value of the buildings. By the mid 70s the value of the buildings more or less equalled the land value and by early 80s bv was virtually reduced to 0. The property is now ripe for redevelopment. Several sales (1976, 1980 & 1983) demonstrate the potential interest in a possible planning gain by developers.

(5) The property in Valby fig 8 was in use as a cooperage until 1962 after which it was developed for a suspension factory. During the latter period, several production and storage buildings were erected. The relative extensive use and lack of flexibility of use, has, however, made the building value decline rapidly and by 1977 it reached 0. Since then the buildings have been in use for various auto repair and storage activities. The property has been sold four times since 1983 at continuously increasing prices. This trade is an example of the speculative transactions that may take place in order to capitalise a possible planning gain as the area is proposed for office development.(6) Fig 9 shows a smaller suburban property in the suburban area of Gladsakse. The property includes a total 806 m$^2$ floor space on 1661 m$^2$ land, which has passed

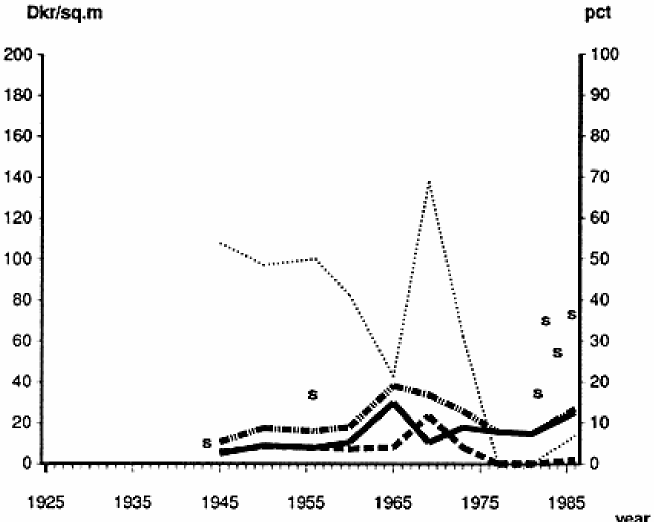


*Figure 8: Matr. n ° 1986, Valby, (legend: cf fig 4)*

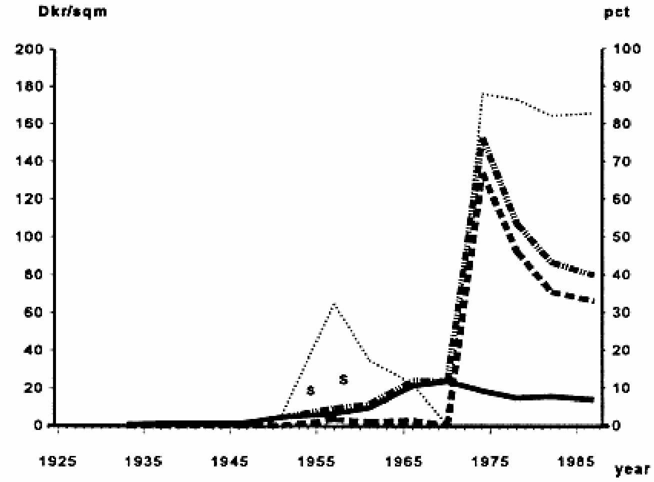


*Figure 9: Matr. n ° 13ax, Gladsakse (legend: cf fig 4)*

through two development cycles. The property was originally - in the late 1940s - used for weekend recreation, but this was altered in 1950 by the construction of a warehouse. The misfit between the urban development (increasing lv) and declining bv, led to a demolition of the warehouse (1967). In 1971 a new production building was constructed. Since then, physical decay has gone on and slightly reduced the building value and the production building has been used for retail sales by the same firm (an intensification of its use).

A single convincing explanation of the examples shown does not exist; each property must be carefully studied in order to understand its specific development and present status. However, the examples do show some general patterns: First, most property values increased until mid/late 1960s and hereafter declined, though in the 1980s property values in the inner city increased. Second, two of the selected cases show clear examples of planning gain. Third, an important difference in building cycles is identified; buildings of the inner cities are devalued due to physical decay, while in the suburbs this is due to economic decline (absolute versus relative decline). Fourth, most properties seem to be sensitive to owner and user shift: As long as the existing use of the property is profitable, the ability to keep pace with physical decay is good. Fifth, an important - but unfortunately yet uninvestigated factor - is the interaction of rent gap (potential return compared with current return), planning gain and speculation.

| *building value: (1965)* | *$bv_p$ <0%* | | *$bv_p$ 0-40%* | | *$bv_p$ 40-80%* | | *$bv_p$ >80%* | |
|---|---|---|---|---|---|---|---|---|
| | (n) | (%) | (n) | (%) | (n) | (%) | (n) | (%) |
| Demolished | 10 | 37 | 3 | 10 | 19 | 9 | 2 | 5 |
| Redeveloped | 12 | 45 | 7 | 23 | 4 | 2 | 1 | 2 |
| No changes | 6 | 22 | 20 | 66 | 196 | 89 | 39 | 93 |
| No information | (5) | - | (9) | - | (33) | - | (12) | - |
| Total | 33 | 100 | 39 | 99 | 252 | 100 | 54 | 100 |

***Table 1:** Demolishments and Redevelopments (1965-86) distributed according to building (differential) values ($bv_p$); 378 investigated properties.*

A further illustration of some general trends is provided in the table below and in fig 10: In the table the total number of 378 properties has been grouped according to the size of $bv_p$ in 1965; by studying the building registers actual demolishments and redevelopments during the period 1965-1986 a relationship between $bv_p$ and changes in the built environment has been established.

Several conclusions may be drawn from the analysis of the building registers:

It seems obvious that a distinct relationship between the relative value of a building and the property to which it belongs can be established, i.e. the smaller $bv_p$ the larger tendency to demolition and renewal (cf. fig 10). But this relationship is of course not necessary in nature; other factors will influence the dynamics of buildings. Nevertheless, the figures clearly demonstrate that

- More than 1/3 of all properties with a building value of less than 40% of the property value in 1965 ($bv_p$ <40%) had been either demolished or redeveloped by 1986
- More than 4/5 off all properties with a building value of less than 0% of the property value in 1965 ($bv_p$ <0%) had been either demolished or redeveloped by 1986

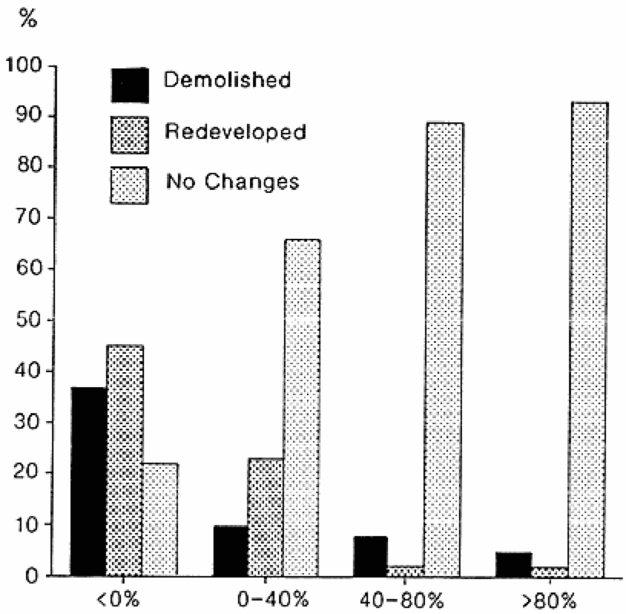


*Figure 10: Changes in the built environment related to the size of $bv_p$ 1965- 1986 (ref. text).*

- More than half of the demolished buildings have been redeveloped within the period in question
- The relative decrease in building value for buildings with a value of less than 40% of the property value in 1965 ($bv_p$ <40%) may be estimated to 2-2.5% /year where the value of buildings with a value higher than 80% ($bv_p$ >80%) only decreases approximately 1% /year; i.e. once the deterioration has commenced it seems to accelerate

**Concluding Remarks**

The physical changes in our cities reflect a soical- geographical restructuring of society. However, the cities and their material expression, the built environment, are more than just a reflection. The built environment is an essential part of society as it both structures and facilitates socio-economic relations and processes. The development and use of the built environment thus has widespread social and economic consequences - and therefore constitutes an important political question. The built environment, as a physical manifestation of fixed capital, has, however, a number of peculiarities: First, the built environment is often used jointly for production and consumption. Second, the built environment contains inertia due to its immobility and longevity; once produced it exists for a relatively long period. Third, as necessary infrastructure requires large-scale investments, it is partly used collectively, and its profitability is uncertain, the development of infrastructure is difficult without state-intervention. Fourth, the very existence of private ownership of land gives rise to a special class (landlords) and hence a contradiction between the social optimal land use and the interests of individual landlords. Fifth, it is necessary to distinguish between land and the physical structures on that land. While land is collectively produced on non-market terms, building space is produced on usual capitalist terms. Sixth, while land values, in real terms, are relatively constant over time, building values are not. Physical structures decline either due to wear and tear or to the appearance of new and better infrastructure. The first type of decay is physical obsolescence leading to absolute decline, while the second is relative obsolescence leading to economic decline. Seventh, while the individual owners of buildings are able to keep pace with physical decay, they are unable to prevent economic decline (which is due to urban and social development).

The dynamics of the built environment thus consists of the tension between current and potential return on properties. The extent of this tension depends on both internal and external incentives. The first mostly on the intentions of the property owner, the second on social relations such as industrial restructuring and alterations of planning status.

The future changes of already developed urban areas are thus an extremely complicated matter. An understanding of urban dynamics must include major parts of social, economic and political processes and relations. The economic approach used in this paper is therefore an over simplification. Studies of the interaction between internal and external incentives, especially government land and planning policy, are needed.

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