

# Planning or Warfare: On Urban Allocation of Land

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This study reviewed the subject of the urban allocation of land, and mainly drew from two major works: Vernon (1960) and Vreeker, de Groot, and Verhoef (2007). The two major works were analyzed along with other relevant issues such as urban multifunctional land use, clustering of firms, and empirical implications. Recommendations regarding the urban allocation of land were then presented.

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This study is basically a review of the subject of the urban allocation of land and mainly draws from two major works: (1) Vernon (1960) as reproduced in Edel's *Planning, Market or Warfare* (1976); and (2) Vreeker, de Groot, and Verhoef (2007); in which the authors present empirical evidence to provide some support for the quantitative relevance of return to diversity. Since Von Thünen, Christaller, and Losch developed the central place theory of spatial location, the subject of treating space as an independent variable in planning has become common. Growth poles concept and the dispersal of activities around the periphery of the core of the city have been extensively researched. In this study, I simply analyze the two major works mentioned above, along with other relevant issues.

Urban formation is a complex subject and does not easily lend itself to conventional market analysis. Cities abound in externalities which make for innumerable market failures every day, not only in the domain of land allocation, but also in a plethora of activities which are typically metropolitan and urban. City governments in all large metropolises

are stretched beyond their capacity to cope with these externalities and activities everywhere. The creation of many new urban organizations and authorities to deal with growing and specialized functions has not solved the fundamental problems of land allocation in particular.

There is a continuing debate on the appropriateness of national urban development strategies in the Asia-Pacific region. Two policies extensively adopted have been (1) urban growth control, and (2) urban diffusion/deconcentration. They can neither be called flawed nor successful policies. Rather, they were reactive responses to new urban phenomena.

The urban growth witnessed in the Asia-Pacific region in recent years has been autonomous, neither induced nor planned. Metropolises grew in the past (i.e., the late 19<sup>th</sup> and 20<sup>th</sup> centuries) to meet the requirements of colonizers; and their subsequent growth could not simply be controlled, given the huge rural-urban migration in the newly independent countries of the region and the pull factors of the cities. It is difficult, if not altogether impossible, to change the morphology or character of a city. Cities

like Kolkata, Shanghai, Tokyo, Seoul, or Hong Kong will continue to pose the most daunting of urban land management challenges in the decades to come; and unless some planned responses are debated now, things may get completely out of control in a globalized, market-driven context. It is against this backdrop that the present review has been initiated.

## VERNON'S THESIS

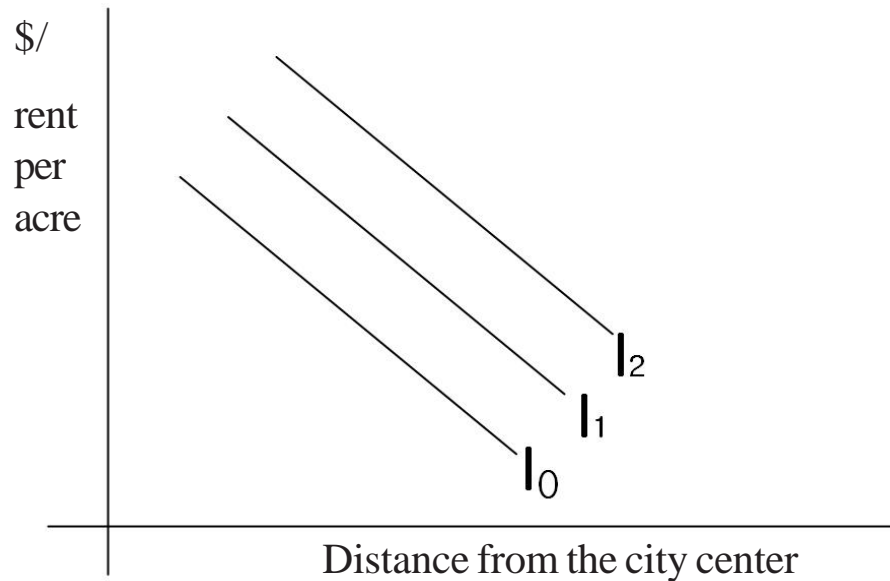
The allocation of urban land has been as much a source of conflict as it has been a series of voluntary exchanges leaving the parties to the transactions happy and satisfied. The market for land in large urban formations with diverse types of governments can at best be described as highly-controlled. Land use planning in any comprehensive sense really does not exist. What does exist is something much like a complex game of chess among localities in urban habitats, with each attempting to palm off the undesired applicants for urban space upon their neighboring communities. This, according to Vernon (1960), is warfare, not planning. Vernon maintained that activities are spatially separated according to the stage in the life cycle of the product concerned. If activities benefit from Marshallian economies, they will be located in clusters. If a product and the production process concerned are standardized, and no longer rely on agglomeration economies such as knowledge spillovers, these activities will be located in more peripheral areas, with lower labor costs (Vreeker et al., 2007).

The overview of Vernon on the allocation of urban land was one of harmony. He saw the expansion of the "city" enabling lower income groups to move into better dwellings. To him, the trend was not retrogressive. But reality is something else everywhere – as can be seen in New York, Shanghai, Tokyo, Mumbai, Sao Paulo, and Seoul, to name a few of the largest cities of the world. In the U.S., as the cities grew, the only ones dissatisfied were members of the rich and intellectual elite classes. They had lots of interest

in the inner cities or central business districts; their cultural institutions, workplaces, and recreation facilities were located there. But as the city grew they had to absorb or incur higher commuting costs, in terms of money and time, to satisfy their preference for space. The trade-off between commuting costs and more space was something they did not relish. They wanted more space and lower commuting costs which were not possible, given the new arrangements in large cities. To Vernon, the few burdens created by the expansion of the city were equitably distributed, in that they fell on those who were best suited and able to carry them.

Vernon's model is comparable with the equilibrium models of land use of Alonso (1964). They tend to show how people's preferences for a living space, for easy access to jobs, markets, recreation centers, clubs, etc., are converted into a market demand for urban real estate. Many of these models describe a situation in which the rich prefer spacious living to residences near the city centre; whereas the poor are forced to choose convenient access over space, which is a luxury they cannot afford. Hence the poor will live in the city center, and the rich in the suburbs, if the assumptions of these models hold (i.e., the rich prefer more space and the poor, lower commuting costs). More technically, the job markets tend to be centered downtown. Given the high income elasticity of demand for space and its low price elasticity at high levels of income, an allocation of land is determined in which per acre values decrease with distance from the core of the city center.

In Alonso's analysis, each family in an economy has a map of bid prices (bid rent functions); each giving the price it would pay per acre of land at each distance from the city center to maintain a given level of welfare. For each family, each curve represents a constant level of utility. As the gradients (slopes) are negatively sloped and roughly parallel, the one closest to the origin represents the highest welfare or utility level ( $I_0$  in Figure 1). The group with the steepest bid price curve captures lands closest to the city center. The price



**Figure 1**  
**Bid rent functions**

per acre paid by members of the group is given, at each location, by effective bid price curves, i.e., the lowest of its family of bid price curves at which the members can bid enough dwelling space to maintain the level of satisfaction given by that curve. The effective bid price curve is tangent to a curve representing market rents (at equilibrium).

The bid price/rent curve of the lowest income category or class is the effective bid price curve because, to the poor, the commuting costs are more onerous than higher rent close to the city center where they live and work ( $I_0$  in Figure 1). This, of course, does not mean that the poor outcompete or outbid the rich for space close to the city center. It simply means that the rich prefer the suburbs where there is more space, less noise, less congestion and less pollution; and for this they prefer the less comfortable choice of higher commuting costs and medium to long distance travels to go to their work places. Vernon's model has been empirically verified to be valid. The pattern of urban living in large cities (with the possible exception of Seoul) tends to confirm this. This is an area where more empirical research should be carried out to more accurately depict reality.

## URBAN MULTIFUNCTIONAL LAND USE

In recent years, more sophisticated works on urban land have stressed the feature of urban multifunctional land use, developed by Vreeker and his coauthors De Groot and Verhoef in 2007. Urban multifunctional land use can be defined as the combination of different socio-economic functions in the same space or area. The goal of multifunctional land use, just like smart growth and compact city concepts, is to conserve scarce urban space by intensifying the use of that space. Why various activities cluster in space and what type of synergy might arise from such clustering can be interesting subjects of study.

Multifunctional land use is addressed as an empirical phenomenon rather than as a concept of planning. It encompasses more than clustering of economic and social activities. For example, the allocation of land use claims made by housing, transport, water, entertainment, and nature can also be included. Vreeker et al. (2007) have focused on agglomeration economies (externalities), in general, and returns to diversity, in particular. By means of a simple spatial economic model, they show that spatial equilibrium injects the existence

of multifunctional land use. Their model investigates market failures and addresses the question of whether private monopolistic development of multifunctional land sites bypasses such market failures.

Cities abound in externalities and it is natural for many types of market failures to surface in them. In the context of such market failures, Vreeker et al. (2007) articulate multifunctional land use as: (1) a planning concept; (2) agglomeration economies; and (3) empirical studies regarding agglomeration economies. I will reconstruct his views on the agglomeration economies in particular since they represent typical city scenarios in general. In Vreeker's paper, there is a good review of past works on the subject of urban location, and they are worth mentioning here.

Johann H. Von Thünen (1826), the founding father of regional economics, formulated a theory on transport cost differentials across locations. Von Thünen showed that the existence of a central market is sufficient for a competitive land market. This location is exogenously determined. According to his model, in equilibrium, activities would be distributed around a market place in concentric rings, each ring representing a different activity or crop. Differences in optimal locations are explained in this model by the transport cost differences. Von Thünen's model simultaneously explained the location of economic activities, productivity of land and land rent.

The market town in the Von Thünen model is interpreted by William Alonso (1964) as the city center to which households must commute in order to work. A novelty in Alonso's model is the

introduction of factor substitution. Alonso assumed that the price of non-land inputs stays constant and is not influenced by the distance of the central business district. As a consequence, the price of land falls relative to the price of non-land inputs, as the distance to the central business district increases, and firms substitute in production in favor of land and away from non-land inputs. The inclusion of factor substitution possibilities brings Alonso's model closer to that of Von Thünen.

Alfred Marshall (1890) was among the first to establish the links between location and factor productivity, which is influenced by proximity to other agents. Marshall asserted that firms tend to collocate to benefit from scale economies and other spillover effects. He mentioned four types of externalities/agglomeration economies: (1) scale economies at the firm level; (2) local non-traded inputs; (3) local skilled labor pool; and (4) information spillovers. It is really amazing that he could think of information at that time when most of the neoclassical economists assumed information as given or constant, and available for free.

Gunnar Myrdal's (1957) thesis of core-periphery is representative of spatial concentration of economic growth. The tendency for growth to concentrate is explained by the tendency of capital and labor to move to the area where their returns are likely to be the highest. Bangkok, Seoul, Mumbai, Shanghai, Manila, and Tokyo are prime examples of large Asian cities that have witnessed this. We can summarize, after Vreeker, spatial economic theory and the relevance of multifunctional land use in Table 1.

**Table 1**  
**Summary of Spatial Economic Theory and the Relevance of Multifunctional Land Use**

Theory	Findings	Relevance to MLU
Von Thünen (1826)	Allocation based on transportation costs	Monofunctional land use
Alonso (1964)	Allocation based on factor substitution	Intensification of land use
Marshall (1890)	Focus on agglomeration economies	Identification of synergy effects of MLU
Myrdal (1957)	Core-periphery model; concentric economic growth	Undefined

A *la* new economic geography (NEG), the findings are demand linkages, which are important for concentrated locations of activities. NEG seeks to probe the role of linkages in clustering. This field of economics tries to model the centrifugal and centripetal forces of agglomeration, welfare effects of product variety, the productivity of firms, and transportation costs following the iceberg approach of Samuelson (1952). One of the most important models of the NEG is the core-periphery model, which shows how a two-region economy can become differentiated in an industrialized core and an agricultural periphery (Samuelson, 1952). The former state of Pakistan was a classic example of this, where the eastern region (present day Bangladesh) became the marginalized agrarian periphery. The differentiation reached such extreme proportions that eventually the eastern region broke away from the federal state of Pakistan by fighting a war of national liberation.

Economies of scale are internal to the firms in the NEG. Fixed costs of production, as explained by Vreeker et al. (2007), means that firms prefer to be in a single location to serve its clients; and the transport costs imply that they prefer to be near large central market places of hexagonal shape. NEG investigates the role of product diversity and forms an interesting perspective for the analysis of multifunctional land use.

## CLUSTERING OF FIRMS

Von Thünen and Alonso's models were monocentric and fitted the classical setting. Vreeker et al. (2007) introduced a multifunctional cluster in an Alonso setting with two different situations: one relating to clustering of activities within an industry; and the other, of firms belonging to different industries.

In the first setting they include agriculture, manufacturing, housing, and offices. These all export their goods and/or services. They define rent as follows:

$$R = OR - NLIC - TC$$

where:

R = Rent,

OR = Output revenue,

NLIC = Non-land input cost, and

TC = Transport cost.

In this model, transport cost per unit of a product mile has been assumed to be constant and factor substitution possibilities have been ruled out. It has further been assumed that location economies are internal to the group or cluster, but external to each firm forming that cluster. According to Vreeker et al.'s (2007) findings, the office sector can pay the highest rent because of its increased profitability due to declining non-land input costs and other benefits of collocation. Thus, it can outbid the manufacturing and the other sectors (agriculture and housing) in the cluster and occupy a large space in the core.

Here, localization economies include: (1) knowledge spillovers, (2) increased factor productivity, and (3) better overall performance of labor. All these enable the office sector to pay a higher rent than it could afford in the absence of these tangible benefits.

In the second case, of two firms belonging to different industries, Vreeker et al. make the following assumptions:

- Constant transport cost (as in the first case);
- No factor substitutions;
- Both exporters in competitive world market;
- All exports take place via the central export node;
- The clustering effects are reflected in higher productivity.

The increased factor productivity and resultant higher profits allow the firm to bid for higher rents. Both firms will bid for that until their bid rent curves intersect, after which the bid rent functions become linear.

Vreeker et al. (2007) then refer to the following outcome: If one firm ("A") benefits more from



clustering, the area that firm (“A”) occupies would expand at the expense of the other firm (“B”) from whose proximity it (“A”) benefits. What happens to the other firm (“B”) is not very clear from the analysis.

Because of externalities generated by the location, urbanization, and learning-by-doing effects of the participating agents (firms in two industries in this case), the total rent generated in the city would be higher than in a situational context where there are no agglomeration economies or externalities. As we know, cities abound in externalities (which is the same thing as saying, they abound in market failures) and the importance of externalities in the clustering process is quite high. “The presence of externalities results in an equilibrium outcome that generally differs from the social optimum” (Vreeker et al., 2007, p. 299). But then, this is true of all externalities, which are regarded as incompatible with optimum solutions in any type of economic activity; and, therefore, this finding is not very original or startling, and would be quite compatible with the original Alonso model.

## EMPIRICAL IMPLICATIONS

According to Vreeker et al. (2007), the literature’s focus on increasing returns to scale and diversity in respect of spatial location and externalities is clear. “Empirical researchers therefore have to rely on indirect measures such as wages, employment, output and growth to investigate them” (p. 300). It is a well accepted fact that wages and rents are higher in urban areas. While analyzing the location decisions of new firms, researchers have found that these firms are likely to choose a city or node where their industry’s employment is large. Foreign investment, for example, is higher in China, Japan, and India than it is in smaller countries. Larger markets, larger concentration of foreign firms, higher quality of management, better property rights enforcement, higher sanctity of contracts, better economic, physical and social infrastructures, etc. – all these

factors attract other firms to collocate in cities or countries which are foreign investment-intensive. Gains in factor productivity can also be high in such cases. According to Henderson (1986), larger cities are more productive because they have larger concentrations of specific industries, not because they are large (urbanization economies).

There are certain factors or variables that remain constant through time in certain areas; and these also attract foreign firms because of the stability element that the investor views as positive when it comes to making decisions on expansion and diversification.

Henderson (1986) mentions that for new industries, employment growth is directly correlated with diversity in a city; but for mature industries, employment growth is positively correlated with initial own employment in the city. According to the lifecycle theory approach, following from this analysis, benefits of externalities are linked with the stage of development of the industry concerned. Empirical findings also confirm that what Vreeker et al. (2007) term as spatial variation in wages and rents contains “important information about the benefits of agglomeration that accrue to firms and households” (p. 302).

On the question of testing new hypotheses on urban location, city size, agglomeration economies, and general spatial variables that affect the evaluation of agglomeration benefits, Rosenthal and Strange (2004) have suggested the following clusters: (1) factor productivity; (2) innovation and education; (3) location decisions; (4) market linkages; (5) regional growth; (6) trade policy; (7) urban primacy; and (8) rents and wages.

Obviously the domain indicated above is vast; and there is an enormous amount of pioneering work needed so as to reach new frontiers of knowledge on the subject. Several hypotheses could be formulated and tested on each of the clusters. It may be mentioned here that they are all empirical issues and questions and not theoretical postulates.

As the French would like to say: *On n’arrete pas le progres*. There is a continuing debate on the appropriateness of research priorities in Asia.

But most agree that urbanization is an inevitable and irreversible process induced by a combination of political, economic, social, cultural, and environmental determinants in an interactive, simultaneous process that is not easy to disentangle. The question of land use and agglomeration economies remains central to this process.

## CONCLUDING REMARKS

Since the market for urban land tends to be a quasi-state monopoly in most cities, the distortions in allocation, rents, supply of housing units, zonings, unequal distribution of land, and other failures tend to be normal. Rulers tend to treat land as their personal wealth and as a prime source of largesse to be distributed to their supporters and cronies. They are like political plums, entirely controlled in some cases by the political authority of the state. The sheer welfare loss of such distortions needs to be calculated precisely for large and better known urban formations. Whether or not freeing the market for land will bring in the desired results is far from clear. But it should nonetheless be tried in phases.

An independent regulatory commission should be set up to ensure that all parties to the transactions play by the rules of the game, which should be defined clearly and unambiguously. The state or municipal government should withdraw from land allocation business altogether; but instead leave it to the market whose functioning should be facilitated by these authorities with all possible technical and information-related assistance. It is time that the market for urban land gets opened up in this era of globalization and high mobility of all factors of production. Since land has no mobility, its optimum use in space should be ensured in order that capital, technology, and institutions can be attracted for higher income- and employment-generating activities. The issue of urban land has been historically one of the most contentious for foreign direct investment (FDI). Countries with better functioning land markets have

attracted more FDI. The same holds true for domestic investment.

Externalities cause divergence between social and private marginal benefits, and costs of activities; and this leads to market failures. The divergence offers the classical case or *raison d'être* of government intervention. The mode and manner of such intervention would depend on the extent of market failure observed and how that contributed to the social optimum, as mentioned by Vreeker et al. (2007).

Urban problems have many of the public goods characteristics which make them obvious candidates for market failures. State interventions can become routine in such cases of recurrent market failures. The development of the capacity to intervene in order to correct the failures is important.

The future land use pattern that emerges in major cities can minimize the costs of past mistakes if this capacity of effective intervention becomes adequate and universal. Of course some cities would do better than others. But there must be an acceptable average standard of regulatory intervention in urban land allocation.

Three interlinked issues are relevant: (1) land use, housing, slum dwellings, and squatter habitats; (2) employment and income-generating activities for the unemployed; and (3) spatial policy to determine what is an optimum city size and then to direct that policy to regulate urban relocations (as in China and Vietnam). This policy should include measures for controlling congestion, pollution, and other urban agglomeration problems (economic bads). Each of these would require one distinct mode of intervention which has to be selected with optimum precision with regard to timing and coverage.

Once appropriate responses to these questions are in place, a network of strategies, policies, and programs can be created to improve existing performance standards. In each area (strategy, policy, program), counseling and other types of technical assistance can be provided endogenously and exogenously. We have to remember that firms are attracted to their own industry magnet;

localization economies can be large; growth can be promoted by diversity; innovation and knowledge centers are spatially clustered; higher education raises rents and wages; regional demand linkages contribute to agglomeration economies. Hence, before state intervention, the optimum policy would be for firms to try and internalize all externalities they can so as to have a higher probability of compensating them for the high costs of multifunctional land use projects *a la* Vreeker et al. (2007).

Urban land needs to be unshackled. The market for urban land must be created and made transparent; it must be allowed to allocate land to its best valued uses from the perspective of total social welfare. The patronage distribution elements that now so overwhelmingly dominate urban land allocation must be wiped out from the minds of the new generation of political rulers. Governments as well as all stakeholders would benefit as a consequence. This is one final observation of the review.

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