

SUSTAINABLE DEVELOPMENT IN BETWEEN A STAGE SET OF INDUSTRIAL HERITAGE

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Summary

Utility is presented as a new viewpoint regarding industrial fallows, the land rent being recognized as a quantitative expression of utility. The paper examines the value structure of a real asset's utility: an analogous one is assigned to a land rent; basics of a method to evaluate the utility structure components, which have been identified as inherent production factors, are developed consequently. Appropriating the findings of the Rent Gap theory to uneven development of built-up localities in general and to the industrial heritage in particular, the paper introduces the evaluated inherent production factors which mirror the fundamental structural values of a built-up environment entity as core indicators of a locality condition and its tendencies in terms of sustainable development.

Keywords: utility, land rent, evaluation, industrial heritage, inherent production factors

1 Utility Viewpoint: Inherent Production Factors

The heritage of industrial era suffers from lack of evaluation and objective comparison both in economic and built-up environment context at the same time. A viewpoint of utility is missing both in recent references and practical approaches regarding industrial fallows.

Showing what we are used to call industrial heritage – or a brownfield respectively, Fig. 2 provides an image of total loss of utility – despite the fact that there are millions of tons of lead, zinc and silver lying underground in the Trepca mining complex in Kosovo. It is clear that the reasons for the total loss of utility and for the abandonment of the grounds are neither economic nor technological. Utility is a social-cultural category, an economic one more narrowly, and a subjective one inherently: it derives from wants and needs of economic subjects that are inevitably individual. A functional market smoothens individual deviations as well as deviations given by a situation: ultimately, equal or similar price is assigned to two goods perceived as capable of providing mutually interchangeable utilities at the same time and place.

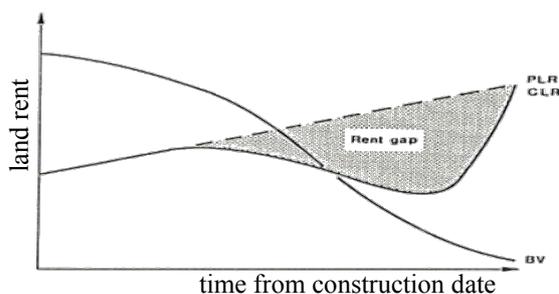


Fig. 1 CLARK, E.: Rent gap cycle



Fig. 2 Trepca brownfield

Within the environment created or affected by human activities, land rent expresses – or reflects – utility. Land rent – as a price of limited goods – is declared to be driven by offer (in contrary to the by demand driven costs of buildings): according to this theory land rent – as well as use of land – depends on the distance from a city center. However, the Bid Rent theory turns out to be schematic, ignoring the processes of uneven development of localities within metropolitan scale. The actual land rent deviates from potential one – the by the Bid Rent theory expected – mirroring rise, decline and recovery of a spot. Derived from studies in deteriorated neighborhoods gentrification, the Rent Gap theory is apparently adjacent to industrial fallows – and to built-up localities in general; see Fig. 1.

Needs and wants of economic subjects have been identified as the starting point of a utility: they must correspond with the values creating the goods, which provide the utility. In an economic context, the values can be regarded as production factors – inherent ones. It is their action that creates goods, which provide a utility – or have stopped to provide it in case of decline of a locality. The value structure is the same for all cases of goods, and it consists of both material production factor, cultural component in the civilizational sense, and finally the social production factor; see Fig. 3.

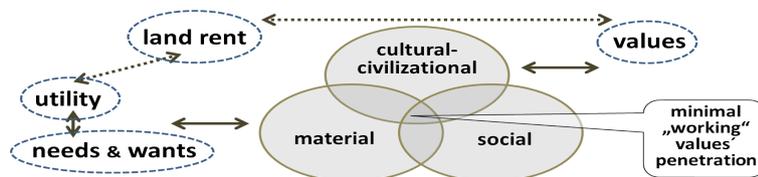


Fig. 3 Land rent – utility – IPF-values

Material values together constitute material environment – both natural and “artificial” – created by man; its components are all primary raw materials, too. Cultural-civilizational values include knowledge, shared experience and intellectual achievements of the society, its value system and behavior patterns. All this is apparently involved in the creation and fates of structures, which we refer to as industrial heritage, and it is present in them – albeit in a latent or hidden form – and it influences the perspectives of their preservation, regeneration – or extinction. Finally, social values are a projection of relations in society and its attitudes.

When the structure of values of urban or industrial wasteland is known and when we know that the economic expression of the value aggregate is land rent, the question arises whether it is possible to structure the rent in an analogous way, too, or whether it is possible to assign corresponding proportion of the rent to a component of the value structure. At the same time the development of land rent in time is an important indicator of the “fitness” of an enclave of urban structure.

2 Hypotheses

The industrial heritage provides particularly suitable scenery for a study making its aspects exceptionally distinct and suffering from a deficit of evaluation more than other building stock at the same time; the following hypotheses are induced thus:

The size and quality of utility provided by an entity of synthetic environment correlate with the structure of its values – both material, cultural-civilizational and social. Within an economic context, it is appropriate to label the values as inherent production factors.

The land rent is an economic-financial function of utility provided by the structure of inherent production factors. The total land rent can be structured according to the structure of

inherent production factors: in the processes of birth, growth, deterioration and regeneration of an entity of synthetic environment, it is possible to compare production factors to each other in a quantitative sense thus – it is possible to evaluate their shares on the total value of an entity as well as development of a share in time.

3 Liscina Case Study

The former mining settlement in Ostrava (Moravian-Silesian region, CZ) is a socially-excluded locality today, for which the term “social brownfield” is used. In 2009–2012, Liscina was a subject to regeneration attempt led by the landlord in close cooperation with an NGO providing field social support there. I took the Liscina regeneration project to examine preliminary the relationship between fitness of the spot, or its value structure on one hand and the land rent on the other. A socially-excluded locality has been chosen due to good accessibility of continuous data, the findings achieved can be generalized to all cases of unequal development in metropolitan scale – industrial heritage in particular. Another positive attribute of the chosen case has proven in the course of study: immediacy, continuity and objectiveness of both spot’s fitness development processes and their relation with the regeneration interventions: unlike many other industrial heritage regeneration cases no individual and subjective actions like marketing or advertising are involved.

The calculation table fragment in Fig. 4 together with captions in the enclosed diagram explains both principles of the newly defined items – inherent production factors – and the calculation methods. Houses’ construction and maintenance costs on one hand and rent incomes on the other are the base to derive actual land rent (the potential one being derived from the plots’ prices map) and figures of inherent production factors (IPF of material environment being composite of the houses’ value and the value of the adjacent public space and infrastructure). A value unit [eq.T.CZK] (= value equivalent of thousands of units of local currency) quantifies IPFs: matter-of-fact quantification of IPF – not a declaration that “the cost of social values of the entity is ... the figure” – is the object.

The study revealed that what was missing in Liscina – and should be added/activated – were primarily “soft” – socio-cultural values/IPFs. Though consuming significant costs, the improved physical condition of houses, apartments and public spaces mirrored only faintly in the level of the locality’s material values – in the values of the IPF of material environment respectively. The socio-cultural effect of material improvements appeared to be significant: to the effect the consistently applied self-help principle of repairs and modernizations was directed, indeed: the convincing figures of year-to-year increments of socio-cultural IPFs confirm the accuracy of the focus that was contributed by the expenses on social- and community field works, too. Eventually, growth of the actual land rent confirms the utility’s recovery by upgrading the deficient IPF in Liscina locality.

4 Conclusions

Mirroring the fundamental structural values of a built-up environment entity, the inherent production factors – of material environment, cultural-civilizational and social – quantified by the actual land rent are proving to be the core indicators of a locality condition and its tendencies in terms of sustainable development. Lack of a single IPF has been identified as the core of a locality’s decline – and vice versa: only a full structure of utility, showing at least minimal “working” levels of each of the IPFs is a precondition both for successful

urban or industrial fallow regeneration and the sustainability of a building project. Lastly, practices that offer the presented findings of the study turn into priceless basis of a building project task in both site and urban or landscape scale, concerning regeneration projects as well as green-field ones: research of the existing values of particular IPFs of a locality provides a project starting-point that can address not only the project design and implementation but – due to the societal and public-goods nature of the cultural and social IPF – the public- and government-driven regulation- and support framework, too.

costs in T.CZK, values / IPF in eq.T.CZK		year	2009	2010	2011	2012	2013	2014	2015
maintenance & repairs = "materialized depreciation" of the original building value			1060	1046	979	1028	919	538	593
self-help maintenance works contribution			257	900	616	865	880	920	840
construction investment			0	5267	8520	0			
M_C	total (material) costs to eliminate wear or to upgrade the quality of housing investment depreciation incl.		1317	2789	3426	3724	3630	3289	3264
RI_H	houses rental income - immediate	[^M C] + mngmt. 2,5 to 5% + profit 4% (see Ricardo, D.: a house = available goods)	1442	3053	3751	4014	3912	3544	3482
	- average / period		2706						
	- smoothed		2285	2822	3055	3142	3108	2986	2965
RI_H = f(^MC) (= ^{IPF}ME_H = value of IPF of material environment represented by houses)									
TRI	total rent income		3751	3681	4002	4880	5974	6592	6660
ALR	actual land rent - subtracting [RI _H]	ALR + RI_H = TRI	1466	859	948	1737	2866	3607	3695
^{IPF}ME_S	value of IPF of material environment represented by public space & infrastructure = 20 to 30% [^{IPF} ME _H]		541	563	585	606	628	650	671
^{IPF}ME	value of IPF of material environment - total		2826	3385	3639	3748	3736	3635	3636
^{IPF}CC + ^{IPF}SOC	cultural-civilizational & social IPF value	^{IPF}CC + ^{IPF}SOC = TRI - ^{IPF}ME	925	296	363	1131	2238	2957	3023
"soft" values' increment y/y: Δ (^{IPF} CC + ^{IPF} SOC)			-	-	67	768	1107	719	66
proportion of material and "soft" values: $\frac{\text{IPFME}}{\text{(IPFCC + IPFSOC)}}$			306%	>1T%	>1T%	331%	167%	123%	120%
<i>social- & community street works' costs</i>			3237	3707	3000	2200	1900	1600	1100

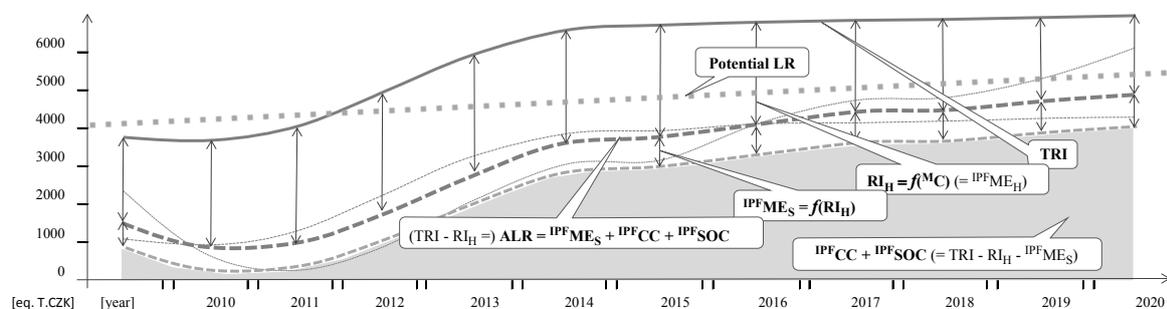


Fig. 4 Liscina case study: development of actual land rent and inherent production factors

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