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***Research paper***



# Managing Landed Capital: Methodology and Procedure of Absolute Rent Calculation

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**Abstract**

The methodological principles of land relations and land assessment institutionalization have been substantiated and presented in this article. The authors have also gave grounds for the ways of solving the problems of objective definition of the absolute rent assessment mechanism taking into account the peculiarities of modern land use.
There have been considered various options of assessing the possible receipt of the absolute rental value, which took into account cereal crops and where there were selected the most important crop plants in the crop structure of Poltava region.
The article defines two basic methods of calculating the normative monetary evaluation of land, which are legally constituted and are in force today. But the problem is that they duplicate each other without specifying the mechanism for establishing absolute rental income on agricultural lands.
In the article there have been considered different variants of assessing the possible receipt of the absolute rental value and organization of ecologically and economically efficient changes in sowing. The authors have also introduced the formation model of the social value of establishing prices for agricultural products.
As a result, the received absolute rent reflects the formation mechanism of the surplus value above the rate of profit.

***Keywords***: *absolute rent; aggregate rent; institutionalization of land relations; institutionalization of land assessment; rental income; the agricultural product price; production cost*

## 1. Introduction

The receipt of aggregate rent that the owners (landlords) withdraw from agricultural lands is not complete, unless the amount of absolute rent (AR) is taken into account. This kind of rent definitely must be reconsidered under modern conditions of farm management. While defining absolute rent, we give preference to the methodology and approach that will most fully reveal the evaluation mechanism. The value of AR has been sized according to the economic appraisal of land, which was carried out in the Ukrainian Soviet Socialistic Republic in 1988 based on the results of the economic activities of collective farms and state owned farms for 1981-1987. The problem is obvious. But the question at issue is not only the amount of obsolete materials of economic evaluation, at which Ukrainian scientific workers point all the time.
The underlying reason affects the essence of absolute rent, with respect to replacement in the form of an indicator of absolute rental income. Therefore, the matter, by which method it is necessary to determine the amount of absolute rent is still an open question.
Scientific research of the problems of institutional support for the land relations development in the agricultural sector of Ukraine, effective forms of rent relations implementation, institutionalization of land relations and of land assessment, preservation of earth potential, and the taxation mechanism of natural rent under market relations is relevant to national science in modern times.

Theoretic and applied aspects of institutional support for the land relations development in the agricultural sector of Ukraine, ecological and economic use of agricultural lands, land relations reforming and sustainable land-use development, pricing of land resources in the context of world integration, classification of land rent have been researched in the scientific works of famous scientists O.F. Andriiko, A.I. Berlach, I.K. Bystriakov, Z.F. Bryndzia, V.M. Budziak, V.M. Harashchuk, A.S. Hordiichuk, B.M. Danylyshyn, D.S. Dobriak, O.I. Drebot, E.A. Zin, P.I. Koreniuk, V.S. Kravtsiv, O.O. Kucher, I.I. Lukinov, Ye.V. Mishenin, T.S. Nikolaienko, V.I. Sapich, V.K. Sivak, A.Ya. Sokhnych, M.H. Stupen, V.V. Tarasova, V.M. Trehobchuk, A.M. Tretiak, O.I. Furdychko, M.A. Khvesyk, H.I. Sharii, V.K. Shkarupa, and others [1,2,5,6,9].
The problem of objective definition of the mechanism of absolute rent evaluation has not been solved yet. Absolute rent in the institutional dimension has no forms of commercialization, which would be adequate to its essence. As a result, there is no systemic balance in society as for income distribution in the agricultural sector. The problem of institutionalization of land assessment is directly related to this issue.
It is crucial to determine objectively the mechanism of absolute rent evaluation by reference to specific features of modern land use (the change of main crop plants), including natural and climatic factors, mobility of boundaries of natural and artificial fecundity (fertility). It is also very important to define the mechanism of

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absolute rent redistribution for the benefit of public interests in the form of land tax.

The object of the article is to determine objectively the mechanism of absolute rent evaluation by reference to specific features of modern land use (the change of main crop plants), including natural and climatic factors, mobility of boundaries of natural and artificial fecundity (fertility) and redistribution of absolute rent – henceforward – AR for the benefit of public interests in the form of land tax.

## 2. Main part

The procedure for calculating the normative monetary evaluation of land has been guaranteed institutionally, in legally constituted methods. There are two methods, which are legally constituted and are in force today, de facto, they duplicate each other without specifying the mechanism for establishing absolute rental income on agricultural lands. The last of them appears as the legislative imperative, without explanations and references to the methodology that would reveal the mechanism of its calculation in cash or in specie.

The regulatory (normative) documents again have no explanation as to the procedure of its calculation and the methodical ware is not mentioned at all. And the size of the absolute rental income in this normative act is attached in paragraph 1.5, which states that on relatively worse lands, where no differentiated rental income is generated, the normative monetary evaluation of lands is determined by the value of absolute rental income – 1.6 centner of grain / hectare. It is our belief that in the "Land Appraisal Act of Ukraine", it was necessary to formalize in legislation the methodology for conducting normative monetary evaluation. The latter is different from the expert estimated monetary value of lands, where the provisions on methodological approaches were specified in Article 19 of the law.

Our understanding is that it is essential not to reveal conflicts of laws and dualities in institutional documents, but it is necessary to establish a clear mechanism for carrying out rental income evaluation (Author's note - since this mechanism is one of the most complex and the most disputable and controversial in economic terms), which must compulsorily take into account the absolute rental value, which is not mentioned at all in the "Land Appraisal Act of Ukraine". But there is another aspect that refers to an expert monetary evaluation of land. Rental income from land (rental esplees) does not stipulate for the absolute rental income, which appears from Art. 3 paragraph 7 of the Resolution of the Cabinet of Ministers of Ukraine "On expert estimated monetary value of land plots", and the income is calculated as the difference between the expected income (expected sales proceeds) from the output, received on a land plot, and productive costs and the producer's surplus. Considering the fact that rental income is the basis for monetary evaluation of land, and the normative monetary evaluation of land is one of the types of estimated money values, which is based on economic appraisal, it is necessary to aline the "Land Appraisal Act of Ukraine" and other normative acts on the issues of introduction and differentiation of methodological approaches and itemization and refinement of definitions. Rental income should make allowance for the amount of absolute rental income or the equivalent for absolute rent, which must necessarily be adopted on grounds of the common, unified methodological approach.

We have considered various options of assessing the possible receipt of the absolute rental value, which took into account cereal crops and where there were selected the most important crop plants in the crop structure of Poltava region. We have also paid due consideration to agronomical role in the organization of ecologically and economically efficient changes in sowing [1,3,4].

Under otherwise equal conditions, the absolute rent does not depend on the amount of crop plants or on agrotechnical, technological, organizational, managerial factors and should be the reflection of the single equivalent to the value generated on lands under worse business conditions. This statement is correct (valid) with due regard for the difference between agricultural industry and other branches of national economy in terms of organic composition of capital. This approach allows us to conduct single assessment based upon cereal crops or other set of crop plants that are easy to calculate in grain units.

Other than the previous approach is the approach that takes into account the cost parameter conception. This conception allows for a certain object – the commodity, by which the assessment is made. The disadvantage of this approach is significant complicacy of determining cost parameters of the commodity. Speculatively, the commodity value should not have big differences, inasmuch as there will certainly emerge a situation when they will have different absolute rental value.

Taking into account the theory of land rent and the formation of its part - absolute rent, yet under the classical economic theory (especially developed based on K. Marx's theories), we have used the above-mentioned approaches as for the formation of AR. The general assessment was conducted for cereal crops and for five crop plants. Besides, we have also used experimental data (statistical arrays) in Poltava region [1,7,8,9].

The starting point was the theoretical and methodological substantiation of land rent formation, which rests on the cost (value) concept of goods, that was grounded in more details by V.Ya. Iokhin. He considers the calculation of absolute rent as the difference between the individual value and the price of total output production. Since the value of production is created in virtue of incurred socially necessary labor costs on the lands of lower quality, which eventually will be the determining criterion when forming prices for farm products (Author's note – prices for products are determined by the working conditions not on the best or average lands, but on the worst ones), then the individual value will coincide with the social value of production. But this rule will hold good only under the conditions of manufacturing on bottom-quality lands. Consequently, in order to calculate the absolute rent, it is necessary to have two price parameters, namely the social value and the individual price of production.

It is possible to find confirmation of the absolute rent calculation in education guidances on economic theory, in which it is calculated from a certain value of social cost. K. Marx points out that, accordingly, the difference between the value and the price of production is equal to "d" (Author's note – this is the mathematical symbol, which stands for the absolute difference in its argumentation), the value added surplus, generated by this capital over the added value that befalls on its lot in accordance with the general rate of profit. The difference "d", as defined by K. Marx, is the absolute rental value. In Ricardian theory of added value the author argued that the absolute rent equals to the surplus value of the agricultural production over the price of production. The key component in the formation of absolute rent founds on the social value of national crop.

Calculations according to I.I. Lukinov's methodology (1964), which were performed for the grain economy, together with the absence of absolute rent in them (Author's note - for obvious reasons), also left out the rent for the remoteness of lands to market outlets. From this perspective, the question of calculating absolute rent requires a comprehensive study. The latter is due to the fact that determined in this approach net income for worse lands, within existence conditions of private land ownership, will contain a surplus value above the average rate of return.

The decisive criterion is that selling prices for marketing of farming output will reflect the interaction of demand and supply for production because of the market mechanism, as opposed to state-mandated (government-set) procurement prices, that intrinsically monopolized them in one center or in the hands of a single person – "the state".

The question arises as to how to take into account the part of expenses, incurred due to different spacing (placement) of land to market outlets and whether they have been taken into complete

account when calculating the AR. As is well known, differential rent is an additional income of landowners or tenant farmers, connected with the use of lands, which are the best and average by land capacity (fecundity/fertility), and the use of lands according to their spacing (placement) to market outlets. Other definitions are very similar, and most importantly, they omit the key factor related to the spacing (placement) of lands to the market outlets. The answer is not hard to plumb. The overall calculation of differential rent requires ascertainment of costs, depending on their various spacing (placement), and they should be part of producers' general (common) costs in agriculture. However, sales costs are an independent category and they should not have an impact on the differential rent calculation under the condition of natural land fertility.

Taking into account additional costs associated with product delivery to market outlets, they generate incremental yield above producers' average rate of return (profitability rate) and at the same time by holding back the amount of differential rent for land fertility (soil quality), as a result of which it will be appropriated (assigned) by them in the form of differential rent according to the manufacturers' spacing (allocation) to the market outlets. The indicated costs can be considered not as additionally incurred expenses, but as those that reduce the amount of the earned incremental yield on the lands, which are most of all distant from the market outlets compared with the average and closer spacing (placement) to the markets.

If we do not take into account the value of withdrawn rent for spacing (placing) worse in quality or in ground or climatic conditions lands to market outlets, it will increase absolute rental value (rent income). However, it is necessary to exclude not all the differential rent for the spacing (placement) of worse in quality lands to market outlets, but that part that has been revealed on lands with worse location to market outlets. As comparison base, it is advisable to choose not all the land with worse quality and ground or climatic conditions, but that land, which, among investigated worse lands (land lots) would have worse conditions (possibilities) for the withdrawal of differential rent for the placement of lands to market outlets. The selected base tract of ground (tract of land) may have a surplus revenue due to the nearest placement to the market outlet, therefore, while calculating the absolute rent (rental income), it is necessary to consider the amount of this surplus. For the producer of national crop, the differential rent (in classical definition), is not the same as productive costs (as other production factors), within the framework of social relations. The rent can be appropriated (assigned) or distributed between landowners and tenant entrepreneurs due to the established level (size) of prices for production, and in consequence of sales. P. Samuelson leaves open the possibility of including land rent in the prime cost of manufacturing for the immediate commodity producers, explaining this by the fact that the inability of farmers to pay will lead to bankruptcy and will compel them to quit agrarian business.

For immediate producers of agricultural products (national crop), it is clear that rent must be included into manufacturing cost, so we subscribe to the opinion of leading academic economists in this matter, and we also share the opinion of P. Samuelson - the first Nobel Prize winner in Economics. The scientist assumes that socially rent may not be included into spendings (as it is part of the national income). This opinion is very important, because we have to deal not with general rent, but with its part - the absolute rent, which should be separated by itself.

AR in monetary form is limited to the social value of national crop. Scientists offer an explanation of the mechanism of absolute rent formation, stating that the difference or a part contains the AR, and is determined by the ratio of demand and supply, and does not refer to the sources of absolute rent. When substantiating the absolute rent formation, there appear new elements - demand and supply.

K. Marx asserts: "Capital investments must bring rent to the landowner. He rents out only on condition that he will be paid out rental fee. Accordingly, the market price should rise above the price of production, so that it would be possible to pay rent to the landowner". The author draws parallels between basic categories and determines the place of the market price in absolute rent formation, where he states that only due to the monopoly on landownership, the surplus of cost of agricultural products over the price of production may become the factor determining the total market price.

Market prices are an important parameter in allocating AR. The authors point out one of the potential problems - unemployment in a certain area, allowing for its elimination on condition that the demand for products manufactured in this area will exceed production, and accordingly higher market prices will ensure the receipt of economic profit, which will take the form of absolute rent. S.V. Mochernyi compared social value (price equation) and prices for agricultural products, which are determined depending on manufacturing environment on worse lands or lads, which are distant from the market. Our understanding is that under the existence of land monopoly, the limitedness of resources in terms of quality, fertility, spacing (placement), etc., as well as under the competitive climate, social value of edible products is predominantly determined by the movement of market prices. The latter, under all equal conditions, under the influence of the market mechanism are close to the social value and fully comply with its law.

In the absence of precise data on the advanced capital of the manufacturers, who use bottom-quality lands and lands in worse natural climatic conditions, it is critical to use the price index for products obtained on the entire investigated area, which includes lands of different quality, since they correspond not only to socially necessary labor costs (Author's note – with reference to the theory of value), but also to normal working conditions of economic entities on worse lands or the ones, close to them in quality. If society acknowledges farm production expenses on worse lands, supplying the need of food stuff, then the market price of the products will inevitably increase so as to provide working conditions. The product value is not able to replace social value to the full extent. First, the product value emerges from the value law and, eventually, it is connected with it by the economic category, which corresponds to the objective effect of this special value law. Secondly, agricultural product prices gravitate not toward production on better or average in quality lands, but are determined on worse lands. The use of actual prices can simplify routine and, most importantly, not yet fully elaborated, calculations of social value of agricultural products. The confirmation is the well-known definition of price, as a monetary value of cost, which is proper for a simple commodity form of production. It is necessary to take into account the expanded commodity form of production (capitalistic one) which is characterized by the transformation of individual values into a single social value or market value (owing to intraindustry competition), and by transformation of this market value into the price of production (due to interindustry competition). In this regard, it must be borne in mind that pricing of agricultural products takes place in a specific way, which is distinct from industry.

The social value of agricultural products is determined not by the average cost of production, as in industry, but by individual production costs in worse plots of land. It confirms the verity of the chosen variant with the price, opposed to the social value of agricultural products, since individual production costs are equal to social costs for the lowest yielding capacity when it comes to the owner of a worse land lot. The price of the manufactured product will always be at the level of manufacturing cost on the poorest (the worst) in lands in terms of land capacity.

We have considered the formation model of the social value of establishing prices for agricultural products. It is necessary to turn attention not only to the conditions of price regulation for crop production, but also to the conditions of establishing price levels. After all, the regulatory norm here is the price of production on worse lands (land parcels), but it does not mean that the regulatory price of production will be the highest individual price of produc-

tion. Furthermore, the latter is formed in response to business struggle on worse lands (land parcels), and sets individual prices on worse lands equal to the average price of production on these lands, which is based on the expenses, typical for this group of land parcels. The size of absolute rent withdrawal is influenced simultaneously both by the price factor and by the natural land capacity (land fertility) for worse quality and worse soil-climatic conditions of production. The price factor is relative, as opposed to the absolute impact of natural land capacity (fertility) of lands with worse quality. The growth of natural fertility of lands, which correspond to the boundary potential of implicating into direct productive land-use (farmery), ultimately regulates the size of withdrawal and appropriation of absolute rent by ground landlords. Irrespective of the dominance of such an important indicator as the value of agricultural production, the absolute rent depends on the fertility of lands, which are included in the cultivation in the last turn, that is, the least nutrient-rich lands. The higher natural fertility of the newly attracted lands is compared to those that are already being processed, the higher the absolute rental level is.

Definition of the absolute rental value (rental income) has been conducted on the basis of the cost conception, which, first of all, requires determination of lands with relatively poor quality, or some conditional area, which in this case was subject to the evaluation, which has been carried out according to a set of factors, associated with the least favorable soil-climatic conditions of production in location zone of these investigated lands (land parcels) in the districts of Poltava region (1):

$$AR_i = YC_i^{WC} \cdot (\overline{P}_i - P_i^{WC}) \quad (1)$$

where $AR_i$ – the absolute rental value (rental income) of received (withdrawn) rent for the *i* –variant of assessment, UAH/ha;

$YC_i^{WC}$ – is the standardized value of yielding capacity (productive efficiency) under the influence of cumulative soil-climatic conditions for the *i* – variant of assessment, which corresponds to the worst working conditions, dt/ha;

$\overline{P}_i$ – average social value of 1 dt/ha of agricultural products (or their groups) taken depending on *i* – variant of assessment in the region in general, UAH;

$P_i^{WC}$ – the (individual) price of production of 1 dt/ha of agricultural products or their corresponding groups for the *i* – variant of assessment on the lands (land parcels) located in the worst conditions of their production, UAH.

The calculation of the absolute rental value (rental income) in physical units is carried out by the following approach (2):

$$AR_i^{Ph} = \frac{AR_i}{\overline{P}_i} \quad (2)$$

where $AR_i^{Ph}$ – the absolute rental value (rental income) in physical units, obtained (withdrawn) for the *i* – variant of assessment, dt/ha.

Another very important question is the determination of the production cost level (an individual component), which is formed on the lands of lower quality, or under worse soil-climatic conditions of economic management, depending on the spatial location. But in this case it is necessary to determine the regulatory level of profitability at which production activity takes place and we propose to set it at the level of 0.35. It is possible to use in calculations the average value of the actual level of profitability for the 5 or 7-year period. But it is important that, in the calculation, the production costs (individual price of production) remain as productive costs, which should be comparable and determined for those lands that are of worse natural quality or are under worse soil-climatic conditions, under which economic use (turnover) is carried out.

The cost price of agricultural products (their groups) on the lands of lower quality, which have been assessed according to the cumulative impact of soil-climatic conditions, can be determined on the basis of the following formula (3):

$$P_i^{WC} = NME_{ij}^{WC} \cdot C_{p.r} \quad (3)$$

$NME_{ij}^{WC}$ – normalized manufacturing expenses, incurred during the cultivation of crops under the least favorable (the worst) conditions of production for the *i* - variant of assessment in some *j* - district area of the region (the whole area of croplands (ploughlands) is estimated), UAH/ha;

$C_{p.r}$ – the coefficient of the profitability rate, adopted not for individual agricultural production, but, in general, for their group, which is included in the assessment basis (1.35), %.

The proposed methodological approach to determination of the absolute rental value (or rental income) may reveal that this methodology does not take into account the full range of expenditures, which can reduce the existing basis for assessment. After all, productive costs are an important criterion in calculation of the differential rent for land fertility (productivity). The cultivated lands are capable of generating differential rent, and therefore for its generation it is necessary to incur costs in order to obtain agricultural commodity, different in natural fertility. However, productive costs refer only to the formation mechanism of the differential rent for land fertility (productivity). From the perspective of the first component, the whole process of cost formation, and, consequently, of the average profit margin for agricultural producers, meets the requirements of the theory of rent.

## 3. Conclusions

The cost conception, which is the ”cornerstone” of research, provides for such a standpoint towards the cost value, since this characteristic is related not to a certain enterprise, but to the enterprises (producers), which carry out their economic activity on the lands with lower qualitative characteristics and on the lands, which are more distant from market outlets. They form social value for the manufacturing of agricultural products.

When calculating the absolute rental value, basic production costs are standardized costs that should be calculated from the actual income, earned on lands of different quality degrees or with various soil-climatic properties, where there has been calculated net income, which contains not only the differential rent and profit, but the absolute rent as well. Due to the part of withdrawn income, rent will be appropriated (assigned) by landowners, and AR – by people through the land tax. This interpretation corresponds to the general value approach to the formation of absolute rent, since eventually, we receive the sequence of cost relations for agricultural production for each type of rent.

The absolute rent, received in such a way, reflects the formation mechanism of the surplus value above the average profit margin or its rate of profit for the manufacturer, as opposed to the components of the net profit (mixed income) by origin, since it assumes its absence at all.

When calculating the absolute rent (rental income) we did not take into account the costs for the manufacturers, which were incurred by direct producers in the implementation of economic activity in the amount of differential rent of type I for land quality, as well as other forms of rent. The starting point in the calculation of the average rate of return for all commodity producers were standardized production costs.

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