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MARXIAN ABSOLUTE RENT IN THE PARADIGM OF SUSTAINABLE AGRICULTURE – HAS HISTORY COME FULL CIRCLE[1] ?

Introduction

An economic rent means that additional revenue is received by a production factor over the income needed to induce that factor to serve its services[2]. Thus, an economic rent appears in the situation of permanent assets rarity, or if there is no possibility of evaluating the resources and including that *ex ante* into the accounts. If an asset is evaluated in the market mechanism and its supply can increase, an economic rent will disappear, becoming a sort of cost.

We should observe that the land factor fulfils the first of the conditions – it is characterised by permanent rarity. This feature was noticed by economists at the beginning of the XVIII century in the physiocrats' school, who regarded land rent as the only kind of pure product manufactured by farmers and consumed by landlords in the shape of a lease rent. In the physiocrats' theory there exists the assumption of the zero accumulation of a "barren class" – nowadays of industry, in which average incomes were reduced to zero by competition and rents did not exist. The physiocrats' school confined itself to stating the fact of land rent creation in farming, but did not take on explaining what the source of land rent is. And the challenges faced by agriculture have changed.

Nowadays, entities oriented towards profit maximisation show a strong tendency to externalise environmental costs, which cannot always be expressed in monetary categories[3]. Thus, the central dilemma of the new agrarian economy

[1] The article was written by the project funded by the National Science Centre allocated on the basis of the decision: OPUS 6 UMO-2013/11/B/HS4/00572.
[2] D. Begg, S. Fischer, R. Dornbusch, *Ekonomia* [Economics], Vol. 1, PWE, Warszawa 1993.
[3] T. Tietenberg, *Environmental natural resource economics*, 7th edition, Pearson Education, Inc., New York, London 2006; H. Daly, *Ecological Economics and Sustainable Development, Selected Essays of*

concerns the necessary relative limitation of the production efficiency of the industrial model of development[4] in favour of improving quality of life as part of a socially and environmentally sustainable paradigm[5]. It requires the full recognition of the social and environmental costs of production, and the rejection of the rules which lead to the degradation and decline of natural resources. The problem with the new paradigm of agricultural economy lies in the fact that it assigns intrinsic value to natural capital, going beyond the classical understanding of land rent[6]. In the agricultural economics it is no longer sufficient to view processes only from the perspective of capital and labour[7]. The assumption of the inexhaustibility of natural resources and the unlimitedness of the global ecosystem, which today is seen to be counterfactual, can no longer be accepted. A land factor determines a number of public goods and services which are essential to human existence.

The aim of the following paper is, firstly to describe the evolution of land rent theory from the XVIII century to the present day. Secondly, an attempt was made to deduce a land rent theory which is adequate in the above described conditions, and thirdly to test it empirically in selected EU countries. The hypothesis is formulated that capital productivity in agriculture is higher than in other sectors of agribusiness, but not for the reason of exploiting labour (as was the case in Marxian theory), but thanks to the occurrence of intrinsic land utilities which are valorised (by market or government) and create an economic surplus.

From differential to neoclassical land rent

In the literature of mainstream economy, David Ricardo is considered the author of land rent theory – **differential rent**. Among precursors we can find A. Smith and T. Malthus who differentiated four forms of land rent – fertility

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Herman Daly, Edward Elgar, Cheltenham, UK, Northampton, 2007; R. M. Solow, *The economics of resources or the resources of economics*, "American Economic Review", 1974, 40:1-14.

[4]A. Wojtyna, *Współczesna ekonomia – kontynuacja czy poszukiwanie nowego paradygmatu* [Contemporary economics – continuation or looking for a new paradigm], „Ekonomista", 2008, 1:9-30.

[5]A. De Janvry, *Agriculture for development: new paradigm and options for success*, "Agricultural Economics", 2010, 41(1): 17–36; J. S. Zegar, *Współczesne wyzwania rolnictwa* [Contemporary challenges for agriculture], PWN, Warszawa 2012.

[6]B. Czyżewski, *Renty ekonomiczne w gospodarce żywnościowej w Polsce* [Economic rents in agribusiness in Poland], PWE, Warszawa 2013, pp. 25-54, 90.

[7]A. Woś, *Tworzenie i podział dochodów rolniczych. Dochody transferowe* [Creation and distribution of farmers incomes. Transfer incomes], IERiGŻ, Warsaw, 2000; A Woś, J.S. Zegar, Rolnictwo społecznie zrównoważone [Sustainable agriculture], IERiGŻ, Warszawa 2002

differences, location, extra capital expenditures and general rent[8]. In "The wealth of nations" A. Smith, from the very beginning, pays attention to the different sources of the origin of land rents. Firstly, it is the farmers' labour, secondly the land factor reward, thirdly the "monopoly price" paid for using the land[9]. T. Malthus similarly searches for the sources of land rent in land scarcity, though he does not consider it as a monopoly prize, stating that a quantity actually produced is sold on the indispensable price (covering production costs), contrary to A. Smith, who thought that farming products, when it is being sold, always reach the monopoly price[10]. From the above we can conclude that at the very beginning of defining rent, discrepancies appeared.

The key issue when assessing the sources of land rents is adapting the adequate theory of value. In this direction the following analysis develops in post-classical trends of land rents. Two attitudes arise – the supporters of the value theory based on labour, and subjective value theories. In the view of the value theory based on labour, the issue of land rents is the most widely elaborated by D. Ricardo and Marxist economics[11].

The Ricardian trend was the first to develop, after A. Smith assumed only the existence of differential rents and negated the existence of absolute rent. In his opinion: "the reason then, why raw produce rises in comparative value, is because more labour is employed in the production of the last portion obtained, and not because a rent is paid to the landlord. The value of corn is regulated by the quantity of labour bestowed on its production on that quality of land, or with that portion of capital, which pays no rent. Corn is no high because a rent is paid, but a rent is paid because corn is high; and it has been justly observed, that no reduction would take place in the price of corn, although landlords should forego the whole of their rent. Such a measure would only enable some farmers to live like gentlemen, but would not diminish the quantity of labour necessary to raise raw produce on the least productive land in cultivation "[12]. It means that the price is always defined by the

[8]A. Smith, *Bogactwo narodów* [The wealth of nations], Warszawa, 1954, pp. 190-191, 212-213.

[9]A. Smith, *Bogactwo narodów* [The wealth of nations], Warszawa, 1954, pp. 190-191, 212-213; M. Mieszczankowski, *Teoria renty absolutnej* [Theory of absolute rent], Warszawa, 1964, s.18, 23-31 oraz 58-59.

[10]D. Ricardo, *On the principles of political economy and taxation*, third edition, 1821 http://socserv.mcmaster.ca/econ/ugcm/3ll3/ricardo/Principles.pdf (dostęp: 18-10-2015).

[11]B. Czyżewski, *The evolution of land rent theory and its significance for the EU agriculture*, Conference proceedings: Economic Science for Rural Development, Jelgava, Latvia University of Agriculture, 2009, pp. 83-90.

[12]D. Ricardo, *On the principles of political economy and taxation*, third edition, 1821 http://socserv.mcmaster.ca/econ/ugcm/3ll3/ricardo/Principles.pdf (dostęp: 18-10-2015).

income gained from the last part of capital which does not pay any rent. Thus, marginal plots (and marginal portions of capital) simultaneously define the value and market price of cereal, and if the value stated this way is higher than the costs borne plus ordinary income, then rent appears – but it is always the differential rent[13].

Then, K. Rodbertus introduced the mechanism of creating a land rent – **the absolute rent**, due to so-called "organic capital composition" which in farming was to be immanently lower than in industry[14]. We should remember that the organic composition of capital meant a ratio of constant capital, i.e. fixed assets and materials (C) to variable capital, i.e. wages (V), which, in agriculture, was characterised by a relatively smaller participation of constant capital (C). Let us present this ratio as C/(C+V). Thus, assuming after Marx that the rate of revenue on constant capital (CP) balance out in the whole national economy (i.e. it is constant), the CP in agriculture has to be higher than in other sectors. Thus:

if

$C_a/(C_a+V_a) > C_i/(C_i+V_i)$ and $CP = r/(a+c)=const$, $r_a/(a_a + c_a + w_a) > r_i/(a_i + c_i + w_i)$ 1)

where:

CP – rate of revenue on constant capital (i.e. capital productivity), equals r/(a+c) or r/C

C_a, C_i – Marxian constant capital (fixed assets and materials) in agriculture and in industry

V_a, V_i - wages in agriculture and in industry

r_a, r_i – revenues in agriculture and in industry

a_a, a_i- fixed capital consumption (amortisation) in agriculture and in industry

c_a, c_i- intermediate costs in agriculture and in industry

w_a, w_i – compensation of employees in agriculture and in industry

(a + c) – compensation of constant capital (C)

If this is true, a surplus CP in agriculture justifies an occurrence of absolute land rent, while labour is exploited. **This means that the Marxian absolute rent derives from the unpaid part of labour in agriculture rather than from intrinsic land productivity. This conception is significant because it belonged to the key categories in the analysis of value added which was created by K. Marx**. For, as was mentioned, it is Marxian economics that took on the widest analysis of absolute rent within the concept based on labour. *De facto*, it was a polemic with D. Ricardo,

[13]M. Blaug, *Teoria ekonomii. Ujęcie retrospektywne* [Economics in retrospective], Wydawnictwo Naukowe PWN, Warszawa, 2000, s. 96.

[14]K. Rodbertus, *Pisma ekonomiczne* [Economic papers], Warszawa,1959, s.347.

identifying the absolute and differential rent on the basis of theorem of decreasing marginal efficiency of resources[15]. Following the reasoning of K. Marx, absolute rent constitutes crop prices, because in conditions of growing demand prices must increase to a level which allows the worst land to be cultivated, which means that it will pay rent to its owner. In other cases, it will not be assigned to production purposes. Hence, the rent of marginal grounds is not a consequence of crop price growth but, on the contrary: this circumstance, that the worst soil should bring the rent to let it be cultivated would be the reason for the crop price growth to a level where this condition can be fulfilled[16].

In the view of the value theory based on K. Marx's paper, absolute rent is defined as the product value surplus over its production price, which appears for two reasons:

- monopoly of land ownership,
- lower "organic capital composition" in agriculture from the social average, i.e. a lower relation of capital to the labour factor (on the condition that profit rates balance out in the whole economy).

Marx did not prove the basic assumption of the presented theory of absolute rent – that there exists a mechanism which brings the agricultural profit rate up to the average. His contemporaries reproached the lack of free competition in the agricultural sector which prevents it. The mechanism seems most faulty when this sector is in bad economic condition. Does the assent to a profit rate lower than the average question the existence of an absolute rent? Not necessarily – the acceptance of a lower profit rate in agriculture in times of recession theoretically should keep the realisation of land rents on the previous level[17].

An American economist - H. George, defined the land factor much more widely than D. Ricardo and K. Marx, as a resource which is neither capital nor labour. He introduced the notion of **scarcity rent.** This is a residual interpretation which in practice covers a much wider range of natural resources than traditionally considered land. In this approach land was separated from ground, and thus the difference in comparison to other resources is that it cannot be withdrawn from production like labour or capital (no matter if its products are useful in an economic

[15]M. Mieszczankowski, *Teoria renty absolutnej* [Theory of absolute rent], Warszawa, 1964, s.18, 23-31 oraz 58-59.
[16]K. Marx, *Kapitał* [Capital], Vol. III, part. II, Warszawa, 1959, s.329.
[17]M. Mieszczankowski, *Teoria renty absolutnej* [Theory of absolute rent], Warszawa, 1964, s.18, 23-31 oraz 58-59.

sense). It can only be appropriated or got rid of, with ownership passing to another entity[18].

Land rents are a part of the product which goes to the landlords or owners of other natural resources due to ownership. The above definition partly covers other concepts formed in the XIX century. Nevertheless, H. George specified that in an economic sense rents are only payment for using land, excluding any efforts to improve it. In other words the land rent concerns "virginal" land, and it should not be mistaken with capital and labour revenues involved in manufacturing processes.

The land resource as a residual resource covers numerous values of an inflexible supply. In its primary definition it mostly covers resources, natural powers and the opportunities provided by nature such as: arable land, unpolluted air, water supplies, natural resources, mountain chains, seas and oceans, lakes, rivers, icebergs, forests etc. – in this group we can include all land of tourist and recreational interest. Nowadays, to this list we can also add: radio waves and access to various frequencies, air-routes, communication and telecommunication infrastructure, including internet access, political balance in the world, regarded as the control of main resources, national cultures whose heritage is permanently connected with land, time as an element of transaction costs, sovereignty of nations and inviolability of land, sea and air borders[19].

All the resources mentioned above are determined by a widely implied location factor. Their market value results most of all from their scarcity and is determined exclusively by the demand on specific services. For this reason, rents connected with location are particularly prone to speculation, and in moments where they exceed acceptable bounds they can lead to a global crisis. The current financial crisis, which started in the USA real estate market, is certainly of such a basis.

Thus, land rents become a negative stimulus of the development of an economy. Hence, H. George in his conception of a single tax, postulated a take-over of the entire land rent by the State in the sense of taxation of land itself without existing improvements. "This, then, is the remedy for the unjust and unequal distribution of wealth apparent in modern civilisation, and for all the evils which flow from it; we must make land common property"[20].

[18] H. George, *Progress and Poverty*, New York, Schalkenbach Foundation, (1981) [1879], p. 328.

[19] J.G. Backhaus, *Henry George's Ingenious Tax*: a Contemporary Restatement – Special Issue: Commemorating the 100th Anniversary of the Death of Henry George, "American Journal of Economics and Sociology", 1997, 4: 4-7.

[20] H. George, *Progress and Poverty*, New York, Schalkenbach Foundation, (1981) [1879], p. 328.

Many mainstream economists protested against H. George's concept many times since it was created, but it is also easy to find voices in favour[21], as well as attempts at its adaptation in modern economies – *de facto*, the solutions based on it function in practice also in Poland (a land tax in Poland is an example). Despite the common belief, eminent representatives of a marginal economy mostly supported the interventional theses of H. George within the nationalisation of land rents[22].

Mainstream economics developed the land rent interpretation of A. Marshall, focusing on market factors, i.e. the supply and demand mechanism. It was **rent of the inflexible supply of land.** In this concept, only land supply flexibility decides the existence of rent. The rent of an income surplus of a particular factor over its supply price is reached only by those factors which are characterised by an inflexible supply. Otherwise the rent will drop to zero if the supply of such factor grows. This reasoning also concerns land – each cultivated hectare reaches a so-called transfer price which is established on the basis of land demand, plus the differential rent when the income from this factor exceeds the transfer price[23]. A similar reasoning, but even more simplified, was presented by P. Samuelson – the level of land rent indicates the intersection point of the totally inflexible curve of land supply with the demand curve[24]. So, land rent exists and varies due to the changes in the demand function. In these conditions, arable land brings a rent which is included in production costs, constituting the price. The rent must be paid in the case of leased land – otherwise the leaseholder resigns from cultivation. A producer who is simultaneously the land owner must obtain a rent – otherwise it is more profitable to sell the land. Only the state can take a part of the rent in the form of taxes[25].

The above reasoning is presented in many contemporary economic text-books. So, according to the approach originating from neoclassical economy, it is the supply limitation which creates absolute rent due to scarcity, while land of different quality creates differential rents.

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[21]F.E. Foldvary, *The Marginalists who Confronted Land*, "American Journal of Economics and Sociology", 2008, *67 (January*): 89–117.

[22]C. Menger, *Principles of Economics, Trans*. James Dingwall and Bert Hoselitz, New York University Press, New York, (1976) [1871], p. 139; L. Walras, *Etudes d'economie sociale*, "Economica", Paris, (1990) [1896] p.324, 422-426 ;V. Pareto, *Cours d'economie politique*, Geneva; Librairie Droz., (1964) [1896] ,p.391-397 ; F. Quesnay, *Pisma wybrane* (Chosen papers), translated by B. J. Pietkiewiczówna, Wydawnictwo Gebethner i Wolff, Warszawa 1928.

[23]J. Robinson, *The Economics of Imperfect Competition*, London, 1948, pp. 102-107.

[24]Samuelson P.A., *Economics*, New York, 1958, pp.525-528.

[25]F.E. Foldvary, *The Marginalists who Confronted Land*, "American Journal of Economics and Sociology", 2008, 67 (*January*), pp. 89–117.

In the authors' judgement it is a large simplification to reduce the sources of land rent to low flexibility of land supply. The single fact of resource immobility does not create any additional value and constitutes only a source of market failure. This leads to the above mentioned interpretation of H. George, in which land rent is considered a destabiliser of a market economy. It seems arguable to put this feature down to arable land, which in familly agriculture rarely becomes the object of speculation. The neoclassical theory of land rent does not explain the above mentioned problems, therefore there are premises to develop it into a wider theorem, holistically encompassing the process of land rent creation and its realization[26].

A modern land rent concept

The development of the market economy may be linked to different levels of land rent valuation. At a certain stage of economic development, which is linked to the evolution of social awareness, market and/or institutions established to this end come to value those intrinsic land utilities which are public goods, and offer them a financial dimension. **As part of the sustainable agriculture paradigm, reasons for the occurrence of land rent are therefore intrinsic utilities of land, which in the money-goods economy result in higher expected productivity of the capital in agriculture than is the case in its market environment. Above thesis has been discussed in the different authors' paper**[27].

The new concept is an alternative to the classical theories presented above, and it is justified under contemporary institutional economics (in the public choice theory). In general, economists agree that the market system does not lead to optimum allocation of public goods and common resources. Market conditions inevitably lead to their shortage or excessive usage. The free market offers private goods to all purchasers, in various quantities and at the same balance price. Public goods, on the other hand, are provided to everyone in the same amount, but with different shares in their creation. A diversification of the tax burden depending on this share is therefore postulated (the Pigouvian tax serves as an example). Economic models show that it is possible to develop a mechanism similar to a market one, which leads to the determination of a socially optimal level of a public good together with tax prices compliant with individual preferences. In the process of achieving balance, however, it is essential for market participants to disclose "sincerely" their demand for a public good. This assumption is rather unlikely at an

[26]B. Czyżewski, *The land rent category in mainstream Economics and its contemporary applications*, „Journal of Agribusiness and Rural Development", 2009, 1(11): 27-37.
[27]B. Czyżewski, A. Matuszczak, *A new land rent theory for sustainable agriculture*, "Land Use Policy", 2016, 55**,** pp. 222-229.

individual level, although specific institutional solutions may be more effective. The CAP mechanisms may be considered an attempt at disclosing the demand for public goods related to the welfare of rural areas[28]. Due to subsidies, agriculture, which provides public goods (and has a lower net consumption of them), pays lower net taxes. The mechanism is not, however, resistant to strategic manipulation of valuations by individual entities, such as those farmers who collect subsidies but do not generate the desired public goods.

However the thesis that "the value of land rent is determined by a positive difference between the expected productivity of capital in agriculture and in its market environment (i.e. in the food processing industry, and production of means of agricultural production)" is only seemingly similar to the above presented Marxian absolute rent theory (which assumes that the source of a rent is differences in "organic composition of capital" in agriculture and in other sectors). The question of the "composition of capital" understood this way does not exist in the presented land rent concept. Admittedly, a premise of lower capital intensity occurs, although its grounds are entirely different. Higher capital productivity is demonstrated not by the unpaid part of the worker's labour but by the occurrence of intrinsic land utilities under the conditions of sustainable development which are valorised and create an additional financial product. Moreover, by applying the category of "expected productivity", the presented land rent concept translates to the modern mechanisms of price development based on the expected rate of return. Therefore, the mechanism for creating land rents becomes a part of the main economic trend, and assimilates with the theory of rational expectations.

To sum up, the modern land rent concept underlines the existence of three different production factors – labour, land, and capital (and not only capital and labour as in the neoclassical approach). The basis for the empirical verification of the above formulated hypothesis will be a sectoral input-output analysis. The point is to confirm that the expected productivity of capital are higher in agriculture in relation to other spheres of agribusiness. Theoretically, this results from the fact that the market mechanism, which determines the equilibrium prices with regards to marginal costs and incomes, fails to valuate public goods, and a farmer's family labour. These are the utilities mentioned before, such as environmental, ecological, recreational, food safety, social and cultural utilities. In the process of agricultural

[28]A.J. Villanueva, J.A. Gómez-Limón, M. Arriaza, O. Nekhay, "*Analysing the provision of agricultural public goods: The case of irrigated olive groves in Southern Spain*", Land Use Policy,2014, 38, pp.300–313.

production, they are complementary to the capital. Thus, theoretically, they allow for obtaining a better ratio of revenues to outlays. Therefore, the productivity of capital grows.

Evidence for the modern land rent concept

1. **Methodological notes**

Firstly, it has been assumed that sectoral means will be an approximation of the expected values, on the basis of which two types of indexes have been estimated, according to Marxian reasoning (cf. formula 1):

Capital productivity index excluding area subsidies for producers (1) and with subsidies (1a):

CP in euro/1 euro input =

$$\frac{\text{global production (revenues)}}{\text{intermediate consumption} + \text{compensation of employes} + \text{fixed assets consumption}} \quad (1)$$

CP in euro/1 euro input =

$$\frac{\text{global production (revenues)}}{\text{intermediate consumption} + \text{compensation of employes} + \text{fixed assets consumption} + \text{net taxes from producers*}} \quad (1a)$$

*Such a presentation of subsidies results from the methodology of constructing input-output matrices used by Eurostat. Net taxes from producers = taxes from producers – subsidies for producers, therefore versions 1 and 2 present agriculture without the support of the CAP due to direct subsidies, although it covers the Rural Development Programme support, which is included in the global production. In variants 1a and 2a, the values of indexes are higher if subsidies exceed taxes, which is the case in the agricultural sector.

Capital productivity index has been counted for section A1 acc. NACE Rev.2 (i.e. "agriculture and hunting") by comparing them with sections C10-C12 and C20 together (i.e. "Processing industry, production of beverages and tobacco products" and "Chemical industry") as the share of these sectors in the input-output flows in agriculture is the biggest. The data comes from the "National Accounts" acc. Eurostat ("Tables of use of goods and services") .

As for the objective scope (sectors) and time scope (years) of the research, availability and comparability of statistical data was a significant limitation. For this reason, only data from 2008, 2009 and 2010 have been presented here, for the chosen countries, although calculations were conducted elsewhere for more than 10-

year sequences and they also confirm the formulated conclusions[29]. In 2008, the classification "NACE rev.2" was introduced. Its comparability with the previous NACE rev.1" raises concerns.

2. Research results and their interpretation

The countries were arranged in tables according to the value of the difference between capital productivity in agriculture and in its sectoral environment (in decreasing order), in the first year of the analysis – the fourth column in tables 1-2. The most important conclusion that arises on the basis of the data from table 1 is the fact that, even without area payments, capital productivity in agriculture higher than in its environment **is a common phenomenon in the EU. This is a confirmation of the thesis concerning the sources of land rent both in Marxian and modern land rent theory.**

Table 1. Comparison of average capital productivity in agriculture and in its sectoral environment, without taking into account area payments (section A1 vs. C10-12, C20 acc. NACE Rev. 2) – total output in EUR per 1 EUR of spent capital[1]
Tabela 1. Porównanie przeciętnej produktywności kapitału w rolnictwie i w jego sektorowym otoczeniu, bez subsydiów dla producentów (dział A1 vs. działy C10-12, C20 wg NACE Rev. 2)

Selected EU countries Wybrane kraje UE	Sections acc. NACE Rev. 2 Działy wg NACE Rev. 2	2008		2009		2010	
Slovenia - Słowenia	A1 C10-12,C20	1,38 1,03	**0,35**[2]	no data brak danych	no data	1,36 1,04	0,32
France - Francja[3]	A1 C10-12,C20	1,39 1,10	**0,29**	1,33 1,11	0,22	1.44 1.09	0,35
Slovakia - Słowacja	A1 C10-12,C20	1,34 1,06	**0,28**	no data	no data	1,23 1,06	0,17
Greece - Grecja	A1 C10-12,C20	1,39 1,12	**0,27**	1,39 1,25	0,14	1,33 1,25	0,08
Romania - Rumunia[3]	A1 C10-12,C20	1,50 1,26	**0,24**	1,47 1,35	0,12	1,34 1,42	-0.07
Poland - Polska	A1 C10-12,C20	1,30 1,07	**0,23**	1,32 1,11	0,21	no data	no data
Hungary - Węgry	A1 C10-12,C20	1,22 1,04	**0,18**	1,15 1,03	0,11	1,17 1,04	0,13

[29]B. Czyżewski, *Renty ekonomiczne w gospodarce żywnościowej w Polsce* (Economic rents in agribusiness in Poland), PWE, Warszawa 2013, s.101-123.

Cont. table1(ciąg dalszy tabeli 1)

Belgium - Belgia	A1 C10-12,C20	1,17 1,03	**0,14**	no data	no data	1,20 1,04	0,16
Portugal - Portugalia	A1 C10-12,C20	1,18 1,04	**0,14**	1,18 1,05	0,13	1,17 1,05	0,11
Austria - Austria	A1 C10-12,C20	1,23 1,10	**0,13**	1,10 1,12	-0,02	1,15 1,11	0,04
Italy - Włochy	A1 C10-12,C20	1,14 1,03	**0,11**	no data	no data	1,06 1,03	0,02
Lithuania - Litwa	A1 C10-12,C20	1,18 1,11	**0,08**	1,03 1,12	-0,09	1,10 1,14	-0,04
Czech Republic - Czechy	A1 C10-12,C20	1,09 1,08	0,01	1,02 1,10	-0,07	0,95 1,09	-0,13
United Kingdom – Wielka Brytania	A1 C10-12,C20	1,03 1,06	**-0,04**	0,91 1,04	-0,13	0,96 1,05	-0,08
Ireland - Irlandia	A1 C10-12,C20	1,16 1,27	**-0,11**	no data	no data	1,14 1,25	-0,12
Denmark - Dania	A1 C10-12,C20	0,87 1,01	**-0,14**	0,86 1,01	-0,15	no data	no data
Germany - Niemcy	A1 C10-12,C20	no data	**no data**	no data	no data	1,05 1,08	-0,03
Netherlands - Holandia	A1 C10-12,C20	no data	**no data**	no data	no data	1,13 1,11	0,02

[1]calculated on the basis of the following formula (1): global production / (intermediate consumption+ employment costs +consumption of fixed capital)
[2]Difference of productivity indexes from column 3
[3]Estimated without fixed capital consumption due to a lack of data
[1] Wyliczono na podstawie następującego wzoru (1a): produkcja / (zużycie pośrednie + koszty zatrudnienia + amortyzacja)
[2] Różnice współczynników produktywności z kolumny 3
[3] Obliczono bez uwzględniania amortyzacji z uwagi na brak danych
Source: own calculations on the basis of Eurostat data
Źródło: własne obliczenia na podstawie danych Eurostatu

Table 2. Comparison of the average capital productivity in agriculture and in its sectoral environment, taking into account area payments (section A1 vs. C10-12,C20 acc. NACE Rev. 2) – total output in EUR per 1 EUR of spent capital[1]

Tabela 2. Porównanie przeciętnej produktywności kapitału w rolnictwie i w jego sektorowym otoczeniu, uwzględniając subsydia dla producentów (dział A1 vs. działy C10-12, C20 wg NACE Rev. 2)

Selected EU countries Wybrane kraje UE	Sections acc. NACE Rev. 2 Działy wg NACE Rev. 2	2008		2009		2010	
Greece - Grecja	A1 C10-12,C20	2,14 1,12	**1,02**[1]	2,33 1,25	1,08	1,98 1,25	0,72
Austria - Austria	A1 C10-12,C20	1,71 1,10	**0,61**	1,55 1,11	0,43	1,58 1,11	0,48
Slovakia - Słowacja	A1 C10-12,C20	1,59 1,06	**0,53**	no data brak danych	no data	1,44 1,05	0,38
Slovenia - Słowenia	A1 C10-12,C20	1,54 1,03	**0,51**	no data	no data	1,48 1,04	0,44
France - Francja[3]	A1 C10-12,C20	1.58 1.08	**0,49**	1.50 1.09	0.41	1.69 1.07	0.62
Hungary - Węgry	A1 C10-12,C20	1,44 1,03	**0,40**	1,37 1,03	0,34	1,44 1,03	0,41
Poland - Polska	A1 C10-12,C20	1,43 1,06	**0,37**	1,41 1,11	0,30	no data	no data
Romania - Rumunia[3]	A1 C10-12,C20	1.60 1.25	**0,35**	1.64 1.34	0.30	1.43 1.41	0.02
Portugal - Portugalia	A1 C10-12,C20	1,38 1,04	**0,34**	1,33 1,05	0,28	1,35 1,05	0,30
Belgium - Belgia	A1 C10-12,C20	1,27 1,03	**0,23**	no data	no data	1,28 1,04	0,24
Czech Republic - Czechy	A1 C10-12,C20	1,29 1,08	**0,21**	1,34 1,10	0,24	1,17 1,09	0,08
Ireland - Irlandia	A1 C10-12,C20	1,45 1,25	**0,20**	no data	no data	1,43 1,25	0,18
Italy - Włochy	A1 C10-12,C20	1,22 1,02	**0,20**	no data	no data	1,15 1,03	0,12
United Kingdom – Wielka Brytania	A1 C10-12,C20	1,19 1,06	**0,13**	1,08 1,04	0,04	1,10 1,04	0,05
Lithuania - Litwa	A1 C10-12,C20	1,21 1,11	**0,10**	1,07 1,12	-0,05	1,13 1,14	-0,01

Cont. table 2(ciąg dalszy tabeli 2)

Denmark - Dania	A1 C10-12,C20	0,96 1,01	**-0,05**	0,97 1,02	-0,05	no data	no data
Germany - Niemcy	A1 C10-12,C20	no data	**no data**	no data	no data	1,23 1,08	0,15
Netherlands - Holandia	A1 C10-12,C20	no data	**no data**	no data	no data	1,14 1,11	0,03

[1]Calculated on the basis of the following formula (1a): global production / (intermediate consumption + employment costs + net taxes from producers + consumption of fixed capital)
[2] Difference of productivity indexes from column 3
[3]Estimated without fixed capital consumption due to a lack of data
[1] Wyliczono na podstawie następującego wzoru (1a): produkcja / (zużycie pośrednie + koszty zatrudnienia + podatki netto od producentów + amortyzacja)
[2] Różnice współczynników produktywności z kolumny 3
[3] Obliczono bez uwzględniania amortyzacji z uwagi na brak danych
Source: own calculations on the basis of Eurostat data
Źródło: własne obliczenia na podstawie danych Eurostatu

Therefore, it may be assumed that the marginal productivity of capital is higher than zero and differs positively from the level shaped in the sectoral environment of agriculture. However, I argue that, nowadays, land rather has specific utilities complementary to capital, than the exploitation of labour plays significant role[30]. Thus, the higher productivity of capital is a common point of the

Marxian and modern land rent theory, but the reasons for these situations are different. In table 1, revenues are boosted by Rural Development Programs (i.e. output subsidies), because the total output value includes a sum of subsidies from that source. In table 2, operating capital (the denominator of the formula 2a) is additionally reduced by the producer subsidies (area payments). We can observe that surplus capital productivity in agriculture (the difference of productivity indexes) rise simultaneously. As long as the societies of the EU are willing to pay for the provision of public goods by agriculture, there exist conditions for absolute rents. And they do so through higher food prices in the EU, as well as via the CAP. However, these rents are not permanent in nature, because the tendencies encouraging the increase in capital absorption and intensity of rural production

[30] B. Czyżewski, K. Smędzik- Ambroży, *The Regional Structure of Cap Subsidies and Factor Productivity in Agriculture in The Eu28 – A Spatial Analysis*, "Agricultural Economics" (AGRIECON), in press 2016.

gradually reduce the intrinsic utility of land to zero. Then, it stops being complementary to capital and it becomes fully dependent on it.

It is worth observing which countries display the biggest advantage of capital productivity, with all subsidies (cf. table 2). In this respect, Greece, Austria, Slovakia, Slovenia, Hungary and Poland stand out (cf. table 2). Although a detailed analysis of agricultural structures in these countries goes beyond this article, they have a number of common features:

- relatively small share of 'capital intensive' farms in the use of cultivated land,
- advantage of land-absorption profiles of production in creating the global production of agriculture,
- relatively considerable importance of the Rural Development Programme[31].

As shown above, these characteristics create conditions for production growth through capital-absorption intensification (since marginal capital productivity is relatively high)[32]. However, this does not mean that this direction of development is desirable, because it may lead to the gradual disappearance of absolute rents. Therefore, it is not a sustainable development path.

Conclusions

There is evidence for the occurrence of Marxian absolute rents in the new agriculture paradigm. However the mechanism of its creation is completely different. It is not about exploiting labour, but the intrinsic land utility stimulates capital productivity in agriculture, being perceived as a public good and remunerated through public subsidies. Of course, the reasons for the higher capital productivity are various, and this problem requires further detailed analyses. To sum up, they include such factors as:

- diverse costs of agricultural land use and legislation barriers concerning its purchase and sales,
- institutional and natural limitations of production intensity growth,
- supplying public goods by agriculture, and their valorisation (by the market or institutions),
- political rents resulting from lobbying,

[31] B. Czyżewski, A. Brelik, *Political rents in the European Union's agriculture*, "Management", 2014, 2,191-203.

[32] P. Bórawski, A. Lewczuk, *Zróżnicowanie wyników ekonomicznych indywidualnych gospodarstw rolnych w zależności od potencjału konkurencyjnego a zwłaszcza ziemi* (Economic Results Differentiation of Individual Farms According to Competetive Potential of Land), „Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu" 2008, 10/3, 47-51

- diverse own labour costs in agriculture and hidden unemployment.

These factors occur in individual countries with varying intensity. However, their significance will grow as the premises of sustainable agriculture are realised. From that point of view, the concept presented here of creating land rent seems valid. The following mechanism arises from it: the relatively low intensity of agricultural production (in terms of the relation between production means and land resources) contributes to a relatively high capital productivity. Under these conditions, the cost of land use should increase. However, due to various aspects this process is slow, and as a result, land utilities become input-free, complementary to capital inputs. In this sense, land is intrinsically productive. It results in relatively high marginal capital productivity in agriculture in relation to the purchasing power of incomes in a given country. Moreover, absolute land rents appear. They may last as long as the absorbing capabilities of the natural environment are not used (therefore, surely longer in the new member states of the EU12). However, with time, conditions favourable to growing input absorption decapitalise the value of the land and threaten the sustainability of this resource.

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MARKSOWSKA RENTA ABSOLUTNA W PARADYGMACIE ROLNICTWA ZRÓWNOWAŻONEGO – CZY HISTORIA ZATOCZYŁA KOŁO ?

Summary

The economic globalisation process makes economic factors rotate faster. There arises the crucial question of whether the land factor is still capable of generating economic rents ? On one hand, D. Ricardo's land rents are vanishing, on the other, the land factor is gaining new, environmental applications. It provides public goods, which are a crucial element of the new paradigm of agricultural development. In conditions of irreversible accumulation of capital in the anthropogenic environment, new land utilities may appear without any additional input of capital or labour, and, as public goods, they are mostly financed from subsidies for agriculture under the Common Agricultural Policy (CAP). This paper aims to present the evolution of land rents theory and to answer the question of what is the nature of contemporary land rent ? The author attempts to test the modern theory of land rent using input-output matrices for different sectors of agribusiness and chosen EU countries. He demonstrates the hypothesis that capital productivity in agriculture is higher than in other sectors of agribusiness, but not for the reason of exploiting labour (as was the case in Marxian theory) but thanks to the occurrence of intrinsic land utilities which are valorised.

Key words: land rent theory, absolute rent, agriculture, sustainable growth

Streszczenie

Globalizacja ekonomiczna przyspiesza obieg czynników produkcji w gospodarce. Nasuwa się pytanie, czy czynnik ziemi nadal tych warunkach tworzy renty ekonomiczne? Ricardiańskie renty różniczkowe zanikają, ale z drugiej strony ziemia zyskuje nowe użyteczności środowiskowe. Zgodnie z nowym paradygmatem rozwojowym rolnictwa dostarcza ona dobra publiczne. W warunkach daleko idącej akumulacji kapitału, która sprawia, że obszary wiejskie są środowiskiem antropogenicznym, nowe użyteczności czynnika ziemi mogą pojawić się paradoksalnie bez dodatkowych nakładów kapitału i pracy, a nawet dzięki ich zmniejszeniu. Jako dobra publiczne są one finansowane z subsydiów wspólnej polityki rolnej (WPR) UE. Celem artykułu jest przedstawienie ewolucji teorii renty gruntowej wraz z próba odpowiedzi na pytanie jaki charakter ma współczesna renta gruntowa? Autorzy testują nową koncepcję renty gruntowej, wykorzystując macierze przepływów międzygałęziowych między różnymi działami gospodarki wg NACE tworzącymi system agrobiznesu w wybranych krajach UE. Wyniki wskazują na prawdziwość tezy, że oczekiwana produktywność kapitału w rolnictwie właściwym jest wyższa niż w pozostałych sektorach agrobiznesu, choć nie z powodu eksploatacji czynnika pracy (jak to było w przypadku teorii marksowskiej), ale dzięki waloryzacji nowych użyteczności czynnika ziemi.

Słowa kluczowe: teoria renty gruntowej, renta absolutna, rolnictwo zrównoważone, zrównoważony rozwój

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