

CONSIDERATIONS ON A LAND INTRINSIC PRODUCTIVITY AND ITS DETERMINANTS IN A SUSTAINABLE AGRICULTURE

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Abstract. The paper reviews the concept of sustainable development, indicating its various dimensions. Natural environment in developed countries became almost entirely anthropogenic. Under such conditions, the way of using natural resources has to change as well. It is forced by the new needs and priorities described above, i.e. a demand for an assurance concerning renewability of natural resources as well as pro-social and pro-environmental criteria of the resources allocation. The fundamental objective of the paper is an attempt at elaboration of the new land rent concept and find the answer to the question: Does a land need capital stimulus to be productive in a sustainable development? Authors formulated the hypothesis: the reason for the land rent to occur are intrinsic land utilities which in the commodity money economy cause the expected productivity of capital factor in agriculture to be higher than in its market environment. Therefore, the value of land rent is determined by a positive difference between the expected productivity of capital in agriculture and in its market environment.

Key words: sustainable development, new land rent concept, agriculture land

INTRODUCTION

Since the beginning of human civilization, the land has been creating certain utilities which satisfy human needs. They are created without the participation of other production factors and thus are an undeniable gift of nature. In the encyclical “Caritas in Veritate”, His Holiness Pope Benedict XVI describes them as “a miraculous fruit which a man can

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use responsibly to satisfy his legitimate needs – material and non-material – respecting internal balance”.

In tribal (natural) economies, when agricultural land in modern meaning did not exist, examples of the above utilities were forest fruits, hunted animals, access to water or firewood. The creative role of the land factor in providing them was dominant over labour and capital resources [Czyżewski, Matuszczak 2012]. Therefore, we can state that a major part of land utilities came into existence spontaneously. With the beginning of land cultivation and domestication of animals, the part attributed to nature diminished insignificantly in favour of the causal force of a man. However, still the increases of plants and animals mass, building materials or living area were mostly acquired without the participation of outlays. In the feudal system, we may recognize so-called servitudes, as a kind of legitimization of intrinsic utilities of land, if we treat them as the right to use the natural utilities of the master's land (in the form of brushwood, fruit, clay or fish).

With the development of the commodity-money economy this part of the land factor utility which came into existence without the participation of capital and labour, transformed into “intrinsic productivity” (from the money perspective). It is expressed e.g. in the 19th-century concept of the pure product presented by the physiocrats. According to the theory, a financial surplus over incurred outlays (capital and labour) can only remain in agriculture – precisely as a result of the causal force of nature. Therefore, the pure product in F. Quesnay's “economic table” is the first attempt at valorizing the intrinsic productivity of land. According to physiocrats, the pure product could not come into existence in any other branch of economy since all the remaining production factors (apart from land) “demanded” remuneration, which in the conditions of market competence was equal to the value of their product. However, the pure product was intercepted in total by the land owners as the lease fee which conveys the nature of the land rent.

Thus in the peasant economy, a part of the utility attributed to the exclusive effect of the forces of nature was relatively big and partially expressed in the financial productivity of a farm (since it created a part of the product without the participation of outlays). Its significance started to decrease under the conditions of industrialization of agriculture and activation of the law of diminishing marginal utility. In the industrial agriculture, the intrinsic participation of land in the creation of utilities decreased in favour of capital and hired labour. Moreover, the intrinsic financial productivity of land declined to a considerable degree. With time, however, productive functions of agricultural land, subject to the microeconomic optimization and its obligation to satisfy existential needs, became competitive towards each other. It gave rise to a need to search for a new concept of economic development, i.e. the sustainable development paradigm.

METHOD OF RESEARCH

The aim of the article is to answer the question: Does a land need capital stimulus to be productive in a sustainable development? Authors formulated the following hypothesis: the reason for the land rent to occur are intrinsic land utilities which in the commodity money economy cause the expected productivity of capital factor in agriculture to be higher than in its market environment. Therefore, the value of land rent is determined

by a positive difference between the expected productivity of capital in agriculture and in its market environment. The following research methods were employed in the present research: the monographic and descriptive methods, analysis and synthesis, induction and deduction.

RESULTS OF RESEARCH

The idea of sustainable development

The concept “sustainable development” is defined as “...development that meets the needs of the present without compromising the ability of future generations to meet their own needs” [The Brundtland Commission 1987]. The sustainable development is a chance for the society to see a long-term vision. The activities that are directed to satisfy present needs may be provided for a short-term, but they should include a long-term perspective as an addition [Brelík 2009]. The sustainable development is an integrated concept that includes all people activities to the local level and promotes the following actions: try to improve the quality of life for existing generation and next generations by protecting and preserving the Earth power to ensure life in all its diversity at the same time:

- to repose on democracy, rule of law, and respect;
- to human rights and freedom, including equal possibilities and culture diversity;
- to promote high level of employment formation;
- in economies whose force is based on education, innovations, social and economic cohesion, and protection of human health and environment [Haite 2010].

According to Rogall [2010], the economics of sustainable development should base on 10 key theses, namely:

- strong sustainability – economy as a sub-system of nature and most natural resources do not subject to substitution;
- pluralistic approach – recognition of certain achievements of traditional economics and environmental economics;
- further development of traditional and ecological economics toward the sustainable development;
- change in paradigm, growth rate versus exploitation rate of resources, intra- and inter-generation justice etc.;
- ethical principles based on individual responsibility;
- transdisciplinary approach;
- necessary changes in framework conditions with the use of political and legal instruments, sustainable production and consumption, price standards and specific approach to substantive goods;
- sustainable (social and ecological) market economy;
- global responsibility.

Sustainable development should serve to improve living standards of people who should manage ecosystems in a matter which will not exceed the capacity and survival ability of determined ecosystems [Czyżewski, Brelík 2014]. The important fact is that capacity of the environment and its survival ability are different and may be modified

by technological changes. Therefore, notions of so-called weak and strong sustainability appear. The first indicates that the natural environmental capital may be potentially, at least to a certain degree replaced by the man-made capital, the other states that the environmental capital and man-made capital cannot be substituted so they cannot replace each other. It seems that when no empirical proofs exist to justify either of the two approaches, support for any of them results only from the recognized values [Bryden, Shucksmith 2000, Marks-Bielska 2011]. The sustainable development is the only possibility of solving problems of today's world. It has been treated as a concept so far but nowadays it is a new paradigm of economics that considers the integrated order with regard to the social, economic, and environmental aspects [Brelik 2012]. Sustainable agriculture development offers an opportunity to stop environment degradation. That model of agriculture requires implementing programmes and solutions of comprehensive character extending beyond the field of agricultural production and referring to rural areas. As a consequence, only the agriculture that performs various tasks will have the future. Production tasks are one group of those tasks. They concern production of sufficient volumes of high value food satisfying ecological criteria [Kisiel 2001].

Intrinsic utility versus productivity of agricultural land

A question arises, to what extent the thesis about the occurrence of "intrinsic land utilities" in the context of the sustainable development paradigm is true. One of the premises of the development of this paradigm is the fact that the natural environment in highly developed countries became almost entirely anthropogenic. Under such conditions, the way of using natural resources has to change as well. It is forced by the new needs and priorities described above, i.e. a demand for an assurance concerning renewability of natural resources as well as pro-social and pro-environmental criteria of the resources allocation. They discover anew the land factor "utilities" which are marginal for the industrial agriculture and give them the nature of public goods which should be paid for by the entire society. It cannot, however, be the same intrinsic utility of agricultural land as in the 18th century since, at least in the highly developed countries, the natural environment was diametrically changed by a man. Once again, a bigger and bigger part of the land utility comes into existence intrinsically, however, in the conditions of advanced and irreversible accumulation of capital in the well-being of natural resources. Therefore, it can be stated that in the sustainable agriculture many new utilities of the land come into existence intrinsically, i.e. without additional capital and labour outlays (but not without their causal force in general), and in some cases without increasing the total amount of capital and labour outlays. Since they have the nature of public goods, they are paid from taxes in great measure (in the EU through the CAP programmes)¹, and this payment goes to the owners of the land resource which created them. Therefore, an intrinsic land utility takes a form of a financial product and can be called intrinsic productivity, which increases the financial productivity of the production structure.

Therefore, an important assumption for the modern concept of land rent were derived: occurrence of intrinsic agricultural land utilities under conditions of sustainable develop-

¹With the right level of social awareness these utilities can be paid through prices of products and services.

ment (which in the market economy are transformed into a financial product). The above assumption entitles to adopt the following hypothesis: the reason for the land rent to occur are intrinsic land utilities which in the commodity money economy cause the expected productivity of capital factor in agriculture to be higher than in its market environment. Therefore, the value of land rent is determined by a positive difference between the expected productivity of capital in agriculture and in its market environment.

For example, extensification of cultivating, e.g. grasslands within the agriculture-environmental programmes, enables lowering capital as well as labour outlays, and the payment of the economic rent within the CAP. The rent is sometimes misinterpreted as compensation for a fall in productivity. However, we need to take into consideration the fact that even if it scarcely compensates the lost productivity, as far as the value is concerned, it happens in the conditions of lower capital (current assets and depreciation) and labour outlays. Therefore, the financial productivity of production factors (understood as the relation between a financial product and outlays) de facto grows. The increase can be attributed to the causal force of nature (land), since lower intensity of management activates its natural utilities regarded as natural goods. In the quoted example of extensive cultivation of grasslands, it will be e.g. bigger biodiversity, landscape and recreational values and more “ecological” material (hay).

Another example is ecological farming. In this case, a decrease of capital outlay is substituted with the increase of the labour outlay, which is a condition that has to be met to receive the above-mentioned economic rent from the CAP. With the right level of social consciousness a fall in efficiency may be compensated by the increase of prices of ecological products. On the other hand, the rent received from the CAP remunerates the new land utilities and similarly to the above increases financial productivity of production factors. Analogical reasoning can be adopted in case of other subsidies within the CAP. In my opinion, the CAP programmes are an attempt to valorize the intrinsic land utilities of public goods character. A rent on this account is received by the owner of resource or its user. However, they have to enable (or not hamper) the land to create these utilities that is only possible in the conditions of the “primitive” accumulation of capital.

The “primitive accumulation” should be understood in a broad sense. It concerns technological progress, advancement of urbanization processes, infrastructure development, as well as living standards and already reached level of spatial development, agricultural conditions and agricultural land cultivation. Referring to the example of grasslands, we cannot squander the fact that for many years of cultivation, these grasslands (in today’s understanding) were created at all and we cannot allow for a secondary succession of plants (shrublands and woodlots) since in this instance, the essence of land utilities is the ecosystem of grasslands; unless the secondary succession was a conscious choice which would be made to enable the land to create other utilities – e.g. nonfeasance of land cultivation in the national park buffer zone.

Scarceness of land and the obligation of consumption of its broadly understood products reveal new needs of consumers. It is impossible to stay indifferent to such a thesis and it is necessary to justify where the new needs that translate into demand come from. If we assume that the Maslov’s pyramid of needs is not a universal model of consumer’s preferences, and that satisfying basic needs is linked with the necessity of simultaneous response to those from higher levels, there must exist resources that satisfy these needs.

Up to a certain point in economic development, these resources are free goods and thus they do not have a price and they do not provide utilities in the meaning of financial product. Therefore, many needs are satisfied imperceptibly which determines their economic non-existence. (Nota bene, perhaps this is where the confidence in the versatility of the Maslov's pyramid of needs stems from). The needs are: the taste and health aspects of food, rural landscape, biodiversity of ecosystems, recreation, access to raw materials and other elements of the well-being of rural areas.

On the other hand, the increasing scarceness of land relative to other production factors exacts increase of efficiency of this factor in food production, or in general terms of goods "burdened" with the obligation of consumption. It is possible owing to technical progress which is the key condition for the development of the "industrial model of agriculture". However, technical development still raises the boundaries of the increase of efficiency. Under the market conditions, this process is subject to, i.a., the criterion of microeconomic efficiency which does not take into consideration the goods of public character. Therefore, consumers get deprived of utilities that previously were free and did not have a price. In this sense, the higher the scarceness of land factor, the more new needs appear, or rather a consumer becomes aware of the existence of needs and utilities which previously were widely accessible.

Land may spontaneously satisfy a significant part of the new needs, i.e. without increasing capital and labour outlays, although the "price" of produced utilities should be returned to the owner (or holder) of the resource in the form of a land rent so that he could "invest it in land", in the sense of the socially desired way of using it.

Land utility² is an increasing function of its resource scarceness. From the point of view of the conducted discussion, this regularity is very important since it concerns only the land factor and singles it out at the backdrop of other factors [Czyżewski, Brelik 2013]. In practice, it means that the bigger "land pressure" in a given area, the more real benefits it provides – the fact of increasing scarceness of land reveals new and/or larger needs in the economic sense (previously they were satisfied by free goods).

It is worth to examine this problem more thoroughly. The development of the market economy is inevitably associated with the following processes: technical progress, industrialization, urbanization and globalization understood as increasing mobility of resources and broadly understood polarization of structures. These processes occur with various intensity, in various places and time. Nonetheless, they have one common feature – they move the land factor to applications outside agriculture and therefore reveal the following consumers' needs, adding the economic dimension to them:

- environmental, in the sense of searching non-degraded natural environment (the more non-degraded areas surround us, the more we need them);
- alimentary, in the meaning of increasing demand for food with health-related, taste and energetic values (additionally, there appears a problem of social cost of health damages caused by "unsafe" food;

²It is a certain mental shortcut since according to the neoclassical economics, a utility is a feature of a product and not of a resource, on the basis of which the demand function is developed. Therefore, it rather concerns the total utility of the land factor products.

- recreational, in the sense of managing free time and recuperation of the labour factor (progressing fall of land share in the production factor resources extorts faster circulation of labour and capital to keep a current rate of growth; thus globalization processes precipitate the pace of life simultaneously revealing the need for recuperation of the labour factor on an unprecedented scale);
- alternative sources of energy³;
- localization, in the meaning of broadly understood life space;
- cultivation of tradition and “cultural heritage”;
- behavioral, in the sense of realization of needs of broadly understood freedom.

The issue of the “institutional change” as a condition for the sustainable development is not new in the economics and has already been largely operationalized by modern institutional economics within E. Ostrom’s theory of managing common property and M. Olson’s economic theory of collective action. Many institutions have already implemented basic premises of these concepts, and the question of building institutions supporting sustainable development is not any longer only an enigmatic creation of academic discussions. An example can be the “Protection of Man and the Environment Commission” operating in the German Bundestag, which already in the 1990’s defined a basic strategy for creating effective structures governing well-being of the natural environment in agriculture. It assumes, i.a., such solutions as [Hagedorn et al. 2002]:

- establishing markets enabling the external effects trade e.g. for marketable pollutant emission quotas;
- effective allocation of property rights to common resources e.g. in favour of social organizations [McKean 1993, p. 5, Żylicz 1995, pp. 10–11];
- creating so-called hierarchical structures of governing agricultural productions and environmental resources, in which the role of a coordinator is taken up by e.g. a governing body;
- propagating contractual integration of e.g. farms management contracts;
- supporting non-market horizontal linkages (e.g. groups of producers and cooperatives);
- building information systems and networks;
- developing methods and infrastructures for measuring and monitoring negative and positive external effects related to the well-being of the natural environment;
- developing procedures for resolving conflicts, dividing costs and benefits, and responsibility for the negative external effects, e.g. through introduction of the “ecological tax” [Żylicz 1995, p. 5];
- supporting pro-ecological innovation and education.

Detailed guidelines concerning the above points can be found in the OECD reports [OECD 1998].

CONCLUSIONS

To sum up, agricultural land spontaneously creates a part of utilities which are subject to the market or institutional valorization, as long as intensity of the agricultural

³Some alternative sources of energy cause negative external effects. Therefore, using them has to be a conscious choice of the society.

economics is limited to some extent. The level determines the society's (consumers') demand for given utilities that are subject to evolution in time. Therefore, it is a vague border and every arbitrary attempt at setting it becomes outdated with time. It is, however, conditioned by a specific level of the "primitive" accumulation of capital due to which the economy is at such a stage of evolution where the society declares a demand for the above-mentioned utilities.

The proposed heuristic model of creating the land rent is positive in nature. Therefore an attempt at falsification should be taken. Moreover, also normative premises advocate for it from the point of view of the sustainable development. If a part of the agricultural surplus is a land rent connected with higher productivity of capital, and the remaining part remunerates the own labour of a farmer, a "fund" for the development of agrarian structures is generated in the sense of land concentration and rehabilitation of the well-being of rural areas. In other words, financial resources for so called "concern for land" are accumulated in agriculture. Of course provided that a part of the surplus constituting the remuneration for own labour is fair. Does "fair" mean guaranteeing parity labour cost regarding average remunerations in economy? It is hard to say. Certainly, it is a remuneration allowing farmers to take part in the essential processes of the society development. If the farmer's labour cost is too low, the farmer also consumes the land rent, thus limiting the possibilities of the sustainable development of the farm.

The sustainable development paradigm seems to be supported by societies of the European Union and by most of the highly developed countries. However, the concepts formulated above are disputable. In an appalling way a Canadian economist, T. Weiss diagnoses mechanisms of the food economy development at a global scale: "with untiring striving for broadening markets and increasing profits, big supranational corporations make farmers more and more dependent on components, and standardize more and more the agricultural production. They contribute to more and more brutal treatment of the increasing population of farm animals and to polluting soil and water, they externalize environmental costs, change dietetic habits, break local links between production and consumption, and lower the value of labour replacing it with technology" [Weiss 2011, p. 162]. Above all, this vision concerns the emerging markets, but it is far from stipulations of the sustainable development. In my opinion, these processes can be stopped only by grassroots consumers pressure, and to a small extent by the rhetoric of international institutions. The researches show that the life cycle of food products is relatively the longest and due to that it may resist the unification resulting from globalization processes [Szymański 2001, p. 58]. However, the life cycle of utilities of the natural environment well-being (the land factor) may turn out even more resistant, in the sense that the needs connected with it are difficult to be created "artificially" and/or distorted by broadly understood marketing. Simply speaking, as numerous tests concerning pro-environmental technologies show, it is not cost-effective. The global society has to realize that these needs exist and only this way can it "keep a tight rein" on supranational corporations. This moment, however, still remains ahead of us.

REFERENCES

- Brelik, A. (2012). Sustainable tourism development-case of Wolin. *Acta Scientiarum Polonorum, Oeconomia*, 11 (2), 19–27.
- Bryden, J., Shucksmith, M. (2000). The concept of sustainability in relation to agriculture and rural development in the European Union. [In:] *Rural and regional development in the Northern Periphery*. Report 4/00. Center for Rural Research. Norwegian University of Science and Technology, Trondheim.
- Czyżewski, A., Matuszczak, A. (2011). Dylematy kwestii agrarnej w panoramie dziejów. *EiOGŻ*, 90, 9–14.
- Czyżewski, B., Brelik, A. (2013). Public goods and intrinsic land productivity – deliberations in the context of the paradigm of sustainable agriculture. *Acta Scientiarum Polonorum, Oeconomia*, 12 (4), 31–40.
- Czyżewski B., Brelik, A. (2014). Sustainable development of agriculture – case of Poland. *Roczniki Naukowe*, 2, 38–43.
- Hagedorn, K., Arzt, K., Peters, U. (2002). Institutional Arrangements for Environmental Co-operatives: a Conceptual Framework. [In:] K. Hagedorn (Ed.), *Environmental Co-operation and Institutional Change. Theories and Policies for European Agriculture*. Edward Elgar, Northampton, 14–19.
- Haite, I. (2010). Sustainable Development Planning Experience in Rēzekne. *Economic Science for Rural Development*, 23, 30–36.
- Kisiel, R. (2001). Obszary wiejskie i rolnictwo wobec wyzwań XXI wieku. *Roczniki Naukowe SERiA*, Book 1.
- Marks-Bielska, R. (2011). Chosen aspects of sustainable development in Poland with particular focus on agriculture. *Management theory and studies for rural business and infrastructure development. Research Papers*, 2 (26).
- McKean, M.A. (1993). *Empirical Analysis of Local and National Property Rights Institutions*, za Beijer Discussion Paper 42. Beijer International Institute of Ecological Economics, Stockholm.
- Our Common Future (1987). *The Brundtland 2. Commission*.
- Rogall, H. (2010). *Economics of Sustainable Development. Theory and Practice*. Zysk i S-ka, Poznań.
- Szymański, W. (2001). *Globalizacja, wyzwania i zagrożenia*, Difin, Warszawa.
- Weis, T. (2011). *Światowa gospodarka żywnościowa. Batalia o przyszłość rolnictwa*, Polska Akcja Humanitarna, Warszawa.
- Żylicz, T. (1995). *Can There Be an Ecological Tax?* *Economic Discussion Papers*, 17, Warsaw University, Faculty of Economic Sciences, Warsaw.

ROZWAŻANIA WOKÓŁ SAMOISTNEJ PRODUKTYWNOŚCI ZIEMI I JEJ UWARUNKOWAŃ W ROLNICTWIE ZRÓWNOWAŻONYM

Streszczenie. W artykule przedstawiono koncepcję zrównoważonego rozwoju, wskazując jego różne wymiary. Środowisko naturalne w krajach rozwiniętych stało się niemal całkowicie antropogeniczne. W takich warunkach sposób wykorzystania zasobów naturalnych powinien także się zmienić. Związane jest to z nowymi potrzebami i priorytetami opisanymi w artykule, czyli zapotrzebowaniem na zapewnienie dotyczące odnawialności zasobów

naturalnych, jak również prospołecznymi i proekologicznymi kryteriami alokacji zasobów. Podstawowym celem artykułu była próba opracowania nowej koncepcji renty gruntowej oraz odpowiedź na pytanie, czy ziemia potrzebuje dodatkowych nakładów kapitału w formie bodźca, aby utrzymać produktywność pieniężną w warunkach zrównoważonego rozwoju. Autorzy sformułowali hipotezy: powodem występowania renty ziemi są samoistne użyteczności czynnika ziemi, które w gospodarce towarowo-pieniężnej powodują, że oczekiwana produktywność kapitału w rolnictwie jest większa niż w jego otoczeniu rynkowym. W związku z tym, wartość renty gruntowej jest zdeterminowana pozytywną różnicą między oczekiwaną produktywnością kapitału w rolnictwie i jego otoczeniu rynkowym.

Słowa kluczowe: zrównoważony rozwój, nowa koncepcja renty gruntowej, ziemia rolna

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