



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Oksana Kleban

Department of Marketing, Faculty of Economics and Management, Lviv National University of Veterinary Medicine and Biotechnologies, named after S. Z. Gzhytskyi, Ukraine
oksanaukr@hotmail.com

Problems of effective use of physical capital in agricultural enterprises of Ukraine

Abstract: *Our primary focus is to analyse the dynamics and structure of physical capital in agricultural enterprises of Lviv region (Ukraine). Conceptual, logical, normative and simplex methods have been used with a view to carrying out the research. The results of the study can be taken into consideration by agricultural enterprises while planning physical capital requirements and forming the optimal structure of physical capital. Also, the results can be used while elaborating and implementing state activities, relative to increasing the economic effectiveness of physical capital usage in agricultural enterprises. The effective use of physical capital is possible under condition of forecasting of the market situation and dissemination of this information among all producers of agricultural products.*

Keywords: *physical capital; agricultural enterprises; economic effectiveness; market situation; Ukraine*

Introduction

The problems of effective use of physical capital are always relevant. From the beginning of 1991, Ukrainian agrarian reforms have been directed to increasing the effective usage of resource potential of agriculture. These reforms were based on the transformation of government property to private and rejection of the administrative command system. It was considered that the business initiative of private owners would automatically ensure targeted results. But the course of events in the following years confirmed the mistake of this opinion

Many Ukrainian economists researched problems of effective physical capital usage at agricultural enterprises. But still, there is no single viewpoint concerning ways of forming the optimal structure of physical capital and supporting

effective use of it. There are different approaches concerning the definition of economic effectiveness of physical capital usage in the economic literature. S. Ishchuk considers economic effectiveness as a ratio of results to resources used in obtaining these results. However, the author lays the stress on the importance of timely enterprises reacting to changes in the market situation (Ishchuk 2006). The business competition stimulates producers to use their physical capital in the most reasonable way. Hence, Shnytko (2005) defines economic effectiveness as a combination of resources that provide maximal output with minimum expenses. Other researches define economic effectiveness of physical capital usage as a possibility of enterprises to raise output from existing means of production (Cramon-Taubadel 2004).

The aim of this paper is to explore practical questions of forming and effective use of physical capital in agricultural enterprises under changeable market conditions. Our research has been conducted in accordance with current principles of market economy, namely when resources (including physical capital) are limited and they have to be used in the most expedient way. If there is no demand for the product or the output does not satisfy some needs, this kind of product cannot be used for measuring the level of effectiveness of physical capital usage. The value of this product is equal to zero until it is sold. Market pricing depends on the product value for customers. Manufacturing expenses of the enterprise are considered as lost abilities to produce other kinds of products. The excess price indicates the effective use of all resources including physical capital. So, in our opinion, economic effectiveness of physical capital usage is considered as the possibility of the enterprise to turn the maximum profit per unit of used physical capital. Therefore, the main index of effectiveness of physical capital usage is the profit per unit of its value.

Methodology

The principles of Ukrainian and foreign economic science concerning physical capital usage are the theoretical and methodological background for this research. In order to carry out the study, we used following methods: conceptual and logical – for summing up the theoretical tendencies and substantiating ways of effective physical capital usage; normative – for calculation of physical capital requirements according to the market situation; simplex – to determine the optimal structure of physical capital of the agricultural enterprise.

Results

Lviv region was the first area where the agrarian reform was started. However, the legislative basis was extensive in time. It did not facilitate to save integral property complexes and it had a negative influence on property. Nowadays, it is problematic to secure effective use of physical capital which has been privatized in such a way. Many agricultural enterprises do not have their own physical capital that can be used in production process. Thus, they take some types of physical capital on a lease for a short-term period of time. Accordingly, it

is not possible to make long-term economic plans directed at effective use of physical capital of agricultural enterprise. In 2002-2008 a downward tendency of the value of physical capital used in agricultural enterprises, can be observed (Table 1).

Table 1. Physical capital of agricultural enterprises of Lviv region according to types of economic activities (in initial value)

Physical capital according to types of economic activities	2002	2004	2006	2007	2008	2008 vs. 2002 (in %)
Physical capital – grand total (UAH*)	2314.0	1795.3	1852.5	1821.4	1810.9	78.3
including physical capital used in:						
agriculture	2091.9	1609.0	1657.7	1616.9	1582.4	75.6
industry	68.9	76.7	109.4	132.8	152.1	220.8
construction	1.4	1.4	0.9	1.2	1.2	85.7
wholesale and retail trade	7.5	2.9	2.0	2.2	2.5	33.3
transport and communications	67.6	34.1	30.3	27.6	35.5	52.5
real estate operations, leasing and services for entities	57.3	47.9	29.3	13.8	25.5	44.5
other types of economic activities	19.4	23.3	22.9	26.9	11.7	60.3

*UAH: Ukrainian hryvnia

The value of physical capital used in agricultural production declined by 24.4%. It can be explained that agriculture is a less profitable sector than others. Therefore, the rate of profit is a determinant factor in attracting investments in general, including physical capital investments. As we can see from Table 1, the share of the value of physical capital used in industry increased by 120.8%. It can be explained that agricultural enterprises give specific attention to forming physical capital of manufacturing industry exactly. In this way, producers try to reduce the negative impact of monopolistic trends from purveying centres and processing enterprises. Thus, many farms buy mainly non-agricultural physical capital. In this way, they try to diversify their economic activity. As it is generally known, the possibilities of enterprises concerning production efficiency are determined by many factors. One of them is the procurement of physical capital. To illustrate this impact, we have classified agricultural enterprises of the Yavoriv district (Lviv region).

The highest index of effectiveness of physical capital usage is evident in those enterprises where there is the least value of physical capital. This contradicts conventional approaches. A lot of physical capital cannot be used in the production process because of high level of physical depreciation. Some types of physical capital are used only in separate agricultural production, e.g. grain

combine harvester. Besides, many fixed assets cannot be used at all, for example livestock houses, because of decreasing of agricultural land in enterprises. These are the main problems and particularity of physical capital usage in agricultural enterprises of Ukraine. Farms with a lower value of physical capital can use it more flexibly and quickly adapt to the market conditions. According to this, they can earn the highest level of profit per 100 UAH of physical capital value. Large-scale enterprises with high value of fixed capital have an advantage due to scale effect. Even in the conditions of an unfavourable market situation, they can secure profitability of physical capital use by reduction in production costs. According to the data in Table 2, the profit of large-scale farms per 100 UAH of physical capital value is lower than in the group of enterprises with the lowest similar index. It means that large-scale enterprises do not realise their production potential to any great extent.

Table 2. Classification of agricultural enterprises of Yavoriv district of Lviv region according to physical capital value per 100 hectares of households

Indexes	Classified enterprises according to physical capital value per 100 hectares of households (ths UAH)				Average
	I - Less than 100	II - 100-299	III - 300-499	IV - 500+	
Number of agricultural enterprises	8	9	5	3	25
Average value of physical capital – grand total (ths UAH)	168.6	561.2	1719.3	2386.6	886.2
Average value of physical capital per 100 hectares of households (ths UAH)	55.5	171.6	409.4	2081.5	249.9
Income (+), loss (-) at an average per an enterprise (ths UAH)	+32.8	+26.2	-22.4	+15.4	+17.3
Income (+), loss (-) per 100 UAH of physical capital value (UAH)	+44.5	+6.9	-1.6	+1.2	+16.5

The most significant reason for low economic efficiency of physical capital use is dynamical agrarian market conditions, which are not prognosticated. Producers of agricultural products are deprived of the information about the expected market situation. Enterprises take decisions concerning reasonable ways of using physical capital according to the information from previous market periods. As a rule, in the following year producers usually raise the output of such products that were profitable in previous year. The supply of some agricultural products increases by joint action of many producers. Hereupon, prices of those products decrease and farms cannot get the expected profit. So, it leads to ineffective physical capital usage.

A lot of physical capital in agriculture is specific and can be used only for production of definite products. That is why this physical capital cannot be

used in alternative ways. It is difficult to lease idle premises in rural areas because of low business activity. Many agricultural enterprises cannot buy new machinery owing to lack of financial resources. Therefore, one of the acceptable ways of increasing effectiveness of physical capital usage in a short-term market period is optimisation of current expenses and accordingly support of optimal level of physical capital usage intensity.

Under conditions of market economy, the structure of capital assets is formed on the basis of the development of such branches of economy that ensure income due to the existing or expected market situation. For the purpose of determination of the optimal structure of farm production due to existing market conditions, we have made an economics model based on the simplex method. The criterion of optimality was the maximum trading profit. According to the results of this economics model, we have found the optimal structure of physical capital for the agricultural enterprise “Ukraine,” situated in Yavoriv district, Lviv region.

Table 3. Physical capital requirements of agricultural enterprise “Ukraine” (Yavoriv district, Lviv region) according to optimal structure of farm production

Types of physical capital	Physical capital requirements according to optimal structure of farm production			Factual value of physical capital		
	2006	2007	2008	2006	2007	2008
Value of physical capital – grand total (ths UAH*) including:	1845.0	3090.0	3081.7	680.2	706.7	676.2
buildings	943.4	1886.6	1795.1	199.3	220.7	207.4
machinery and equipment	582.2	697.0	710.4	93.6	105.6	105.6
transport	162.9	227.7	237.3	52.1	52.1	52.1
livestock	103.3	203.1	255.6	64.0	63.5	59.7
other physical capital	53.2	75.6	83.3	271.2	264.8	251.4

The changing market conditions have an effect on the forming of farm production structure and accordingly optimal structure of physical capital in the agricultural enterprise (Table 3). During 2006-2008 in the farm “Ukraine”, the value of buildings ought to be firstly increased and then cut down. In much the same way, they should change the value of other types of physical capital. This kind of reorientation of agricultural enterprise requires considerable investment. Herewith, the sale of useless physical capital is difficult under existing market conditions. Nowadays, agricultural enterprises cannot make investments not only because of the deficit of financial resources, but also for the lack of clear guidelines for the expedient trend of investment. So, it is important to organise a marketing service which can explore and forecast agrarian market conditions, and also to circulate this information among producers of agricultural products.

Conclusions

In the transitional period, the market infrastructure is not yet formed. It is hard to make either strategic plans, or present corporate development plans under existing trends in prices. Therefore, the government regulation that is current in many countries with developed market economy is necessary. This kind of regulation supports effects of market regulator that facilitates economic stabilisation. Small-scale enterprises with small physical capital value are more manoeuvrable according to changes of market conditions. Large-scale enterprises cannot so flexibly reorient their production process by changing the structure of physical capital. In unfavourable years, government aid to large-scale agricultural enterprises is necessary. The existing system of support leads to dissipation of funds and does not provide a promotional and regulating effect.

References

- Іщук С. О., Виробничий потенціал промислових підприємств: проблеми формування і розвитку: Монографія. – Львів: ІРД НАН України, 2006. – 278 с. (Ishchuk S. Production potential of industrial enterprises: problems of forming and development. – Lviv, 2006. – 278 p.)
- Сільське господарство України: криза та відновлення / За ред. Ш. фон Крамона-Таубаделя, С. Дем'яненка, А. Куна. – К.: КНЕУ, 2004. – 207 с. (Agriculture of Ukraine: crisis and renovation / Edited by S. Cramon-Taubadel. – Kyiv, 2004. – 207 p.)
- Шнипко О., Нагромадження основного капіталу як фактор конкурентоспроможності економіки // Економіка України. – 2005. – № 7. – С. 23-35. (Shnyuko O. Accumulation of capital assets as a factor of competitive ability of economy // Economy of Ukraine. – 2005. – № 7. – P. 23-35.)