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# THE IMPORTANCE OF THE FISCAL RELIEF IN THE PRODUCTION OF WHEAT AND CORN IN THE FUNCTION OF PROTECTING THE FOOD MARKET IN THE REPUBLIC OF CROATIA

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## Abstract

*Food production is one of the world's biggest problems. Statistics record a dizzying increase in the world's population, with a particularly pronounced trend in the underdeveloped countries of the world, which are also the weakest food producers, which contributes to an uneven ratio in the production of components that are components of everyday food products. The goal of this bio paper is to make a market analysis of the production of wheat and corn for the market of the Republic of Croatia as inputs from which ready-made food is produced and to point out the importance of fiscal relief of production. This research will show how important it is to implement a sustainable production management policy to reduce production costs. The emphasis of the research was focused on models for reducing the tax burden on businesses to raise the level of market competitiveness. In the research, a supply and demand curve for wheat and corn was formed based on current prices and production volumes, and changes were shown when the tax burden is reduced. Adequate management of the production process must be put into the function of protecting the domestic market. In this way, it is possible to meet domestic needs and create conditions for the expansion of food production. Considering the current market circumstances, this topic is given great importance, since the available data show that the purchasing power of the majority of the population in the country is declining, that is, food is becoming more expensive and scarcer.*

**Key words:** *wheat, corn, food, fiscal relief, market, supply and demand*

## Introduction

Production resources represent the inputs used in the production process. Economic goods are rare because there are fewer of them than human needs (that is, things or services that are desired and rare), and therefore, they represent the subject of economic science (Jones, 1965). The definition of the economy refers to the most efficient use of resources, i.e. the realization of the best choice for their use, which means that economics solves two key problems (Saxsenian, 1994):

- scarcity (absence) of resources and
- choice (economic decisions).

The problem of scarcity manifests itself in the continuous gap between the volume of satisfied and unsatisfied desires, which is reduced by economic progress, but never resolved. The scarcity of goods and services, which satisfy numerous wants, needs and aspirations, stem from the scarcity of resources (Porter, 1990). Resources are all material and immaterial sources of wealth, whether found in nature (raw materials) or produced by human labour (buildings, equipment, infrastructure; Sawant., 2010). Therefore, the treatment of scarce resources and the problem of choosing between alternative uses of these resources, shows: economics as a science of rational choice, which discovers and improves the rules that guide people in their rational economic behaviour (Blanchard, 2005). Deciding on a choice presupposes a comparison of benefits and harms, income and expenses, costs and profits, i.e. that the benefits of a given choice are greater than the cost, and that people should improve their economic situation by making a given choice. In economic terms, all resources used to produce output (products and services) are considered factors of production. The following three factors of production are most often mentioned in the literature (Davis et al., 2005):

- natural resources,
- workforce and
- capital.

Natural resources as the first factor of production represent resources that are found in nature. The Republic of Croatia is a country that has a large number of natural resources at its disposal, so it has an advantage over other countries. Labour is the second factor of production. Work can be characterized as the effort a person puts in to solve a work task. Work in the free market means any job for which a salary is paid. Persons who can work represent the labour force. Labour resources are the active population of society with their knowledge and abilities (Davis et al., 2005). Capital is the third factor of production. Capital can be physical or human capital. Physical capital is a very important factor in production because it reduces the need for labour, increases productivity, and improves the saving of money and time. Human capital is all employees, i.e. the workforce who perform a job using their skills, knowledge, and experience (Krueger, 2009). By combining these resources, new production values are created. In agricultural production, the choice of production largely depends on the availability of natural resources and costs. Producers who produce in areas that have plenty of natural resources will use more labour in the production process, that is, they will produce with a lower consumption of that resource and vice versa. The cost of labour, capital and technology represent the cost price of the product (Samuelson, 1948). Considering the large areas of arable land that belong to the category of high-quality arable soil and quality arable soil, which, according to the Ministry of Agriculture, is 1.16 million hectares, the Republic of Croatia has all the prerequisites for the production of agricultural products as the main components in food production. Currently, food becomes a limited resource necessary for human existence. The development and progress of modern technology enables the unused resources of the country in the world, with the cooperation of knowledge and

technical aids, to be brought to exploitation. Scientific progress in chemistry, biology, agronomy, etc. will certainly enable the emergence of new sources of food. The business climate in the market of the Republic of Croatia is very rigid, that is, it is slow to adapt to current market shocks. The future brings prosperity, but also some negative tendencies such as environmental pollution, war conflicts, the presence of inflation, rising prices of production inputs, etc. The Republic of Croatia is an active participant in these processes. It is necessary to intensify agricultural production and, with macroeconomic and trade policy measures, influence the change in the structure of existing production, the return of young people and create conditions for quality and affordable food production, that is, endure to reduce the rigidity of business (Lynggaard, 2006). High VAT increases the price, reduces the turnover of products, and increases daily living costs (Sabolić, 2013), which results in a reduced coefficient of turnover of goods on the market. However, the positive effects that are realized can hardly compensate for the negative effects of the fiscal policy expressed through high taxes of VAT, product tax, and income tax. These are prerequisites for strategic development goals. The goal of this paper was to point out the importance of fiscal relief of production to reduce the rigidity of business, based on the market analysis of wheat and corn production for the market of the Republic of Croatia.

### Material and methods

In this research, data from the Ministry of Agriculture of the Republic of Croatia (Annual Report on the State of Agriculture in 2021), Eurostat and the State Statistical Office for the year 2021 related to wheat and corn were used, and the key terms are the volume of production, price movements, trade and taxation. The analysed data are presented in the following Table 1.

**Table 1.** The production of wheat and corn in 2021 in Republic of Croatia (Ministry of Agriculture of the Republic of Croatia)

Components	wheat	corn
Total production in tons	961.940	2.242.119
Increase, or decrease in production compared to the previous year +/-	+13,2%	-7,7%
Share of the Republic of Croatia in the EU in %	0,7	3,2
Share in total plant production in %	55	27
Self-sufficiency in %	174	177
Trade balance +/-	+437.000	+888.000
Live head price per kg in EUR	0,21	0,23
Increase decrease in price compared to the previous year +/-	+3,1	+3,6
Average value added tax in %	13	13
Average product tax in %	18	18
Average income tax in %	5	5

To determine economic policy measures, it is necessary to look at the demand and supply of wheat and corn. Given that every sector faces limitations in terms of production volume, resource spending, and profit maximization, it is necessary to take a detailed look at all types of limitations that are imposed. Due to all the above, the demand curve and the supply curve for wheat and corn will be formed below, and based on these data, the correlation calculation will show the intensity of the connection between production and taxation, and finally, the regression model will show how much the change of one variable affects the change of another variable.

### Results and discussion

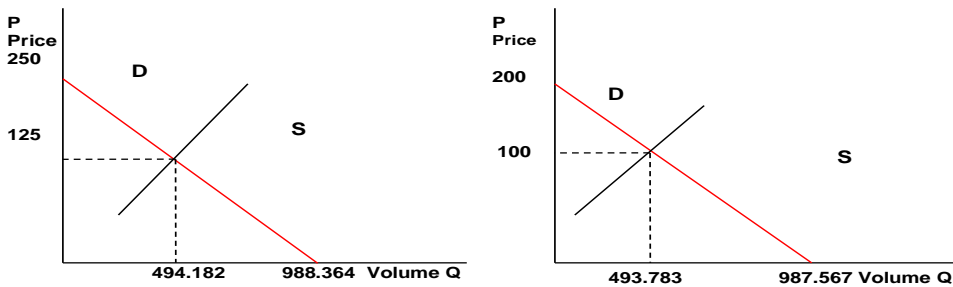
The data in Table 1 show that wheat production occupies a small share of the total European production, i.e. the values are below 1%. Maize production is represented by a larger share of over 3%. Furthermore, observing the share of wheat production in the total plant production, it is evident that wheat represents 27%, but corn occupies 55% of the share of plant production. The self-sufficiency of both crops is 55%, which is positively reflected in the net export balance. One of the main factors contributing to these figures is the large area of arable land and the high level of disbursed funds through support measures of EUR 70,000,000.00. Funds were paid for investments in physical assets, i.e. building capacities for housing agricultural products, procurement of machinery, construction of drainage systems, new plantations, etc. The above data support the fact that the agricultural policy is being implemented expediently and efficiently. According to Eurostat data, the Republic of Croatia has an almost 50% higher VAT tax rate compared to the EU average and a 40% higher tax rate on products compared to the EU. Taxes greatly burden both citizens and the business sector and create an unfavourable business climate, which leads to migration of both the population and industry to countries where the business climate is more favourable.

According to the data from Table 1, a curve of demand and curve of supply for wheat and corn was formed. The quantity was measured in thousands of tons.

**Table 2.** Calculation of the selling price of wheat and corn

Demand curve		Supply curve	
Wheat	$D = 995 - 25p$	Wheat	$S = 905 + 20p$
Corn	$D = 990 - 10p$	Corn	$S = 935 + 20p$

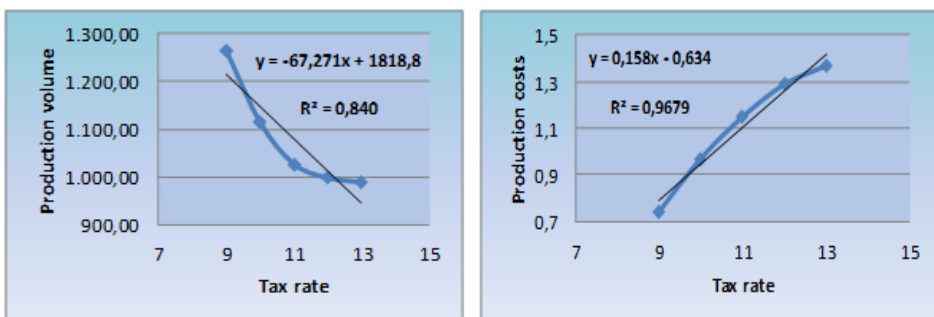
\*D – demand, S – supply, P – price



**Figure 1.** Supply and demand curve and optimal point for wheat and corn

Based on the above functions, the price of wheat was formed, which is 0.26 euro/kg, while the average price of corn is 0.24 euro/kg. When the value of the average price is included in the equation, it is obtained that according to the current prices, the need for wheat is 988,364 tons, and for corn 987,567 tons. At the intersection of two curves there is a balance point (Figure 1).

However, on the one hand, the mentioned prices are not competitive in the European market, and on the other hand, they have a destructive effect on agricultural production. One of the ways to make the unit price more competitive is to lower the fiscal levies that burden it. If we start from the assumption that the VAT on agricultural products will be reduced successively to 5%, the regression model will show in which direction the production volume and production costs will move (Figure 2).

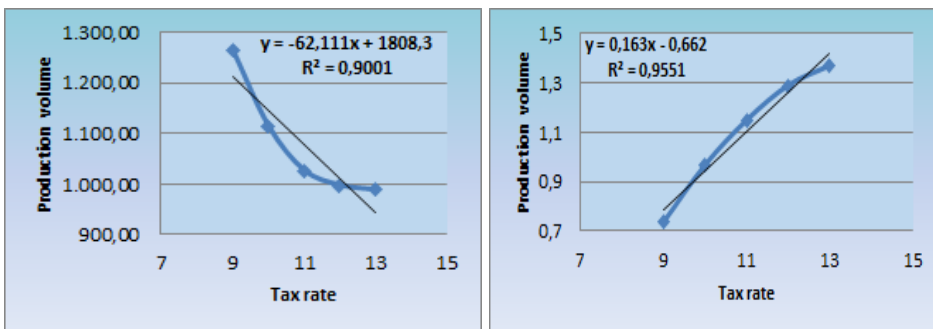


**Figure 2.** Regression model of the relationship between the tax rate and the volume of wheat production and the tax rate and wheat production costs

The regression model  $Y = bx + a$  in Figure 2 on the left shows that if the tax rate were to increase by 1%, we can expect a decrease in the total volume of production by 67,271 tons. The downward trajectory of the curve shows that each percentage reduction in the tax rate causes an average increase in the volume of production by 8%. The regression model  $Y = bx + a$  in Figure 2 on the right shows that if the tax rate were to increase by 1%, it would cause an increase in production costs by 0.015 per kg. The upward trajectory of the curve shows that



each percentage increase in the tax rate causes a percentage increase in production costs by over 9% on average.



**Figure 3.** Regression model of the relationship between tax rate and production costs in wheat and corn production

The regression model  $Y = bx + a$  in Figure 3 on the left shows that if the tax rate were to increase by 1%, we can expect a decrease in the total volume of production by 62,111 tons. The downward trajectory of the curve shows that each percentage reduction in the tax rate causes an average increase in the volume of production by 9%. The regression model  $Y = bx + a$  in Figure 3 on the right shows that if the tax rate were to increase by 1%, it would cause an increase in production costs by 0.016 per kg. The upward trajectory of the curve shows that each percentage increase in the tax rate causes a percentage increase in production costs by over 9% on average.

### Conclusion

The main purpose of the paper was to give a hypothetical overview of the trend of wheat and corn production at the current tax rate. The results of the research showed that, through support measures, financial resources are directed to the technological improvement of factors of agricultural production. This is one of the reasons why the price of wheat and corn does not deviate significantly from the market price. A decrease in the market price would stimulate the demand for wheat and corn on the domestic market, which would further enable additional production in the processing sector. Given the sufficiency of wheat and corn production, the produced surpluses are exported, which gives a positive trade balance. Furthermore, any further reduction in the tax rate of 1% would cause an increase in the volume of wheat and corn production by an average of 9%. The results of the research showed that it is very important to maintain a continuous interaction between agricultural policy and fiscal policy in order to encourage production in the secondary and tertiary sectors. Considering the openness of the market of the Republic of Croatia, and the free movement of goods, works and services, it is necessary to focus on attracting investments through an active investment policy, but it is necessary to make the tax system more flexible, that is, to correct the level of tax rates in such a way that they are attractive to investors.



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## ZNAČAJ FISKALNIH OLAKŠICA U PROIZVODNJI PŠENICE I KUKURUZA U FUNKCIJI ZAŠTITE TRŽIŠTA HRANE U REPUBLICI HRVATSKOJ

### Sažetak

*Proizvodnja hrane jedan je od najvećih svjetskih problema. Statistike bilježe vrtoglavi porast svjetske populacije s osobito naglašenim trendom u nerazvijenim zemljama sveta, koje su ujedno najslabiji proizvođači hrane što pridonosi neravnomjernom odnosu u proizvodnji komponenti koje su sastavnice svakodnevnih prehrambenih proizvoda. Cilj ovog bio rada jeste napraviti tržišnu analizu proizvodnje pšenice i kukuruza za tržište Republike Hrvatske kao inputa od kojih se proizvodi gotova hrane, te ukazati na značaj fiskalnog rasterećenja proizvodnje. U ovom istraživanju će se pokazati koliko je važno provoditi održivu politiku upravljanja proizvodnjom s ciljem smanjivanja troškova proizvodnje. Akcent istraživanja jeste usmjeren na modele smanjivanja poreznog opterećenja poslovanja kako bi se podigao nivo tržišne konkurentnosti. U istraživanju formirana je krivulja ponude i potražnje pšenice i kukuruza na osnovu trenutnih cijena i obima proizvodnje, te su pokazane promjene kada se smanjuje porezno opterećenje. Adekvatno upravljanje proizvodnim procesom neophodno je staviti u funkciji zaštite domaćeg tržišta. Na taj način se omogućava zadovoljavanje domaćih potreba i stvaraju uvjeti za proširenje proizvodnje hrane. S obzirom na aktualne tržište okolnosti, ovoj temi se pridaje veliki značaj obzirom da dostupni podaci pokazuju da većini stanovništva u državi opada kupovna moć, odnosno hrana postaje sve skuplja i oskudnija.*

*Ključne riječi: pšenica, kukuruz, hrana, fiskalne olakšice, tržište, ponuda i potražnja*

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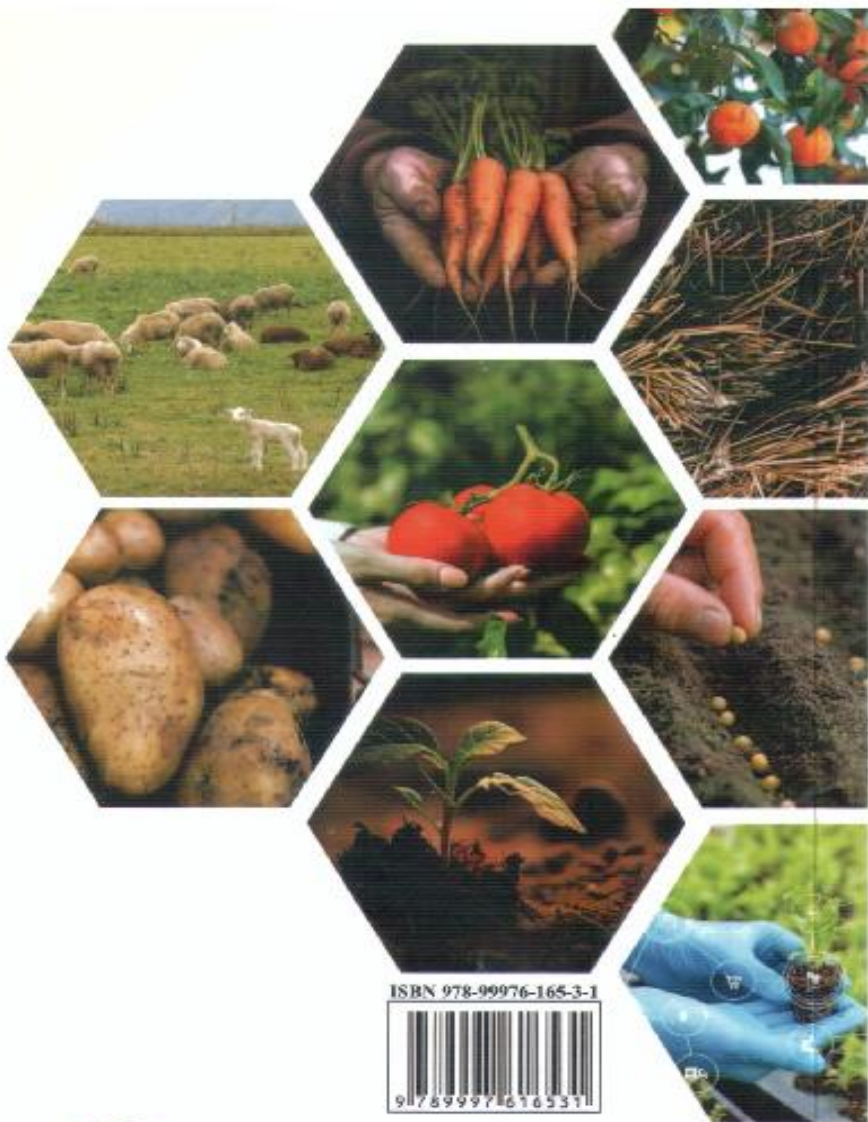
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