MODEL FOR RESEARCHING COMPETITIVENESS IN PORK PRODUCTION INDUSTRY

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ABSTRACT

One of the most popular topics in economics is the competitiveness. Subjects of research can differ greatly from one another. They can be national economics, geographical regions, industries, firms etc. Competitive is that organization which can take and maintain market share. There are different researches that have been carried on national level, but there isn't a specific methodology which can be used at production level in the pork industry.

The goal of this article is to propose a model for researching competitiveness in pork meat production industry.

In the article are analyzed and selected different indexes that can be used when researching competitiveness. The most important factors that determent competitiveness are summarized. The role of the government policy is also analyzed. The article is based on different world researches in the area of comparative and competitive advantages. The final result has to be adaptation of the existing methodology for the specifics of the agriculture.

Key words: Relative export advantages index (RXA), Relative import penetration index (RMP), Relative trade advantages index (RTA), Porter's diamond.

INTRODUCTION

Competitiveness is a relatively new term, which is rapidly gaining attention both from the public and the scientist working in the area of economics. There is no single definition for this term that is accepted by all specialists. The one that most scientists agree upon is: "Competitiveness is an indicator of the ability to supply goods and services in the location and form and at the time they are sought by buyers, at prices that are as good as or better than those of other potential suppliers, while earning at least the opportunity cost of returns on resources employed" (1).

Two types of competition are included in this definition. First, the competition on domestic and international product markets and thus the ability to gain and maintain market shares, and second, the competition in factor markets. Competitiveness is a relative term. It always has to be compared with a base value. In a case

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of a market share the base value is the whole market.

Competitiveness can be analyzed on different level – international, entire economy, region or at firm level. On every level the competitiveness is measured by different indicator such as market share, profit etc. Competitiveness is a result of a competitive advantage in a firm or a region. The competitive advantage itself is result of a specific condition of inner and outer environment.The term competitiveness is also connected with the technical and economical efficiency of the production. The main criterion for economical efficiency is the added value. A change that increases value is efficient. The technical efficiency is related to the ratio of input recourses and the volume of production.

- The agriculture and the pork production industry have a number of specifics that have to be considered when a research is cared out. The most important are:
- The demand for agricultural products is inelastic;

- The production is influenced by the climate;
- The products are vital to human existence;
- There is an influence by different natural, chemical, physical and biological laws that limit the quantity produced;
- The volume of production cannot change its size very dramatically in a short period of time;
- The primary production resource is a living animal;
- The need for forage cannot be delay in time.

The goal of this article is to propose a model for researching competitiveness in pork production industry.

MAIN INDICATORS TO STUDY COMPETITIVENESS IN PORK INDUSTRY

The first step of the model is to calculate the following indexes:
- Relative export advantages index (RXA);
- Relative import penetration index (RMP);
- Relative trade advantages index (RTA).

They are widely used in researching competitiveness. They are based on trade data which is relatively easy to find from different trade and statistical organizations. They can be used for comparison between different time periods and products.

Relative export advantages index (RXA) is given by equation 1.

$$RXA_{ij} = (X_{ij} / \sum_{l,l \neq j} X_l) / (\sum_{k,k \neq i} X_{kj} / \sum_{k,k \neq i} \sum_{l,l \neq j} X_{kl})$$

Where: X_{ij} - Represents the value of the exported pork meat from one country;

$\sum_{l,l \neq j} X_l$ - Represents the sum from the export of pork meat from all countries to the international market;

$\sum_{k,k \neq i} X_{kj}$ - Represents the sum of all good exported from a country;

$\sum_{k,k \neq i} \sum_{l,l \neq j} X_{kl}$ - Represents the sum of all good exported from all countries on the international market;

It is defined as the ratio of a country's export share of a certain product in the world market to the same country's share in world export of all other commodities. The special feature of this measure is that the world 'total' is always taken as the sum across all countries except the one studied. This avoids counting countries and commodities in both the numerator and the denominator. Thus, instead of including all exports in the summations of equation (1), the commodity and the country considered are excluded when total exports are summed up. This aspect is especially relevant if a country is fairly important in trade on international markets, and/or if the commodity considered is important in total trade. In these cases, double counting would lead to biased index values.

The level of this index is to be interpreted as follows:
- Values above 1 suggest that thecountry has a competitive advantage;
- Values below1 point to a competitive disadvantage.

Relative import penetration index (RMP) is given by equation 2.

$$RMP_{ij} = (M_{ij} / \sum_{l,l \neq j} M_l)/(\sum_{k,k \neq i} M_{kj} / \sum_{k,k \neq i} \sum_{l,l \neq j} M_k)$$

Where: M_{ij} - Represents the value of the imported pork meat from one country;

$\sum_{l,l \neq j} M_l$ - Represents the sum from the imported of pork meat from all countries to the international market;

$\sum_{k,k \neq i} M_{kj}$ - Represents the sum of all good imported from a country;

$\sum_{k,k \neq i} \sum_{l \neq j} M_{kl}$ - Represents the sum of all good imported from all countries on the international market;

It is very similar to the RXA. The differences are that it considers import rather than export. The interpretation of this index is just the opposite of that of (RXA) and it is as follows:

- Values below 1 suggest that thecountry has a competitive advantage;
- Values above 1 point to a competitive disadvantage.

Relative trade advantages index (RTA) is more complex than the other two. It takes in account both import and export at the same time. A positive value indicates a competitive advantage, and a negative one a competitive disadvantage.This index gives the difference between the RXA and the RMP.

$$RTA = RXA - RMP$$

The index analysis shows us a past condition of the industry. To find a better future position we need to analyze the factor that determents competitiveness. A very fine tool for that purpose is the Porter's diamond, created by Michael Porter (2). He summarizes four main determinants of competitiveness.They have to consider each for their own and as a system. Determinants of competitiveness are:

- Relative and supporting industries;
- Demand conditions;
- Factor conditions;
- Firm strategy, structure and rivalry.

The most important determinant of competitiveness for the pork industry is the relative and supporting industries. They are also known as clusters. They are distribution and supply firms that are concentrated geographically. Pork industry is in the middle of a production line. It starts at the fields with the production of forage and end with the distribution system. The needs of the animals for forage cannot be delayed in time. The cheap and efficient forage production which is

near the farm will lead to cost advantage of the final product. To analyze if the industry has a competitive advantage we need to find the following factors and indexes:

- The structure of forage produced in the country, its price and the access to them;
- The access to slaughtering houses and distribution channels.

Demand conditions are another important determinant of competitiveness. In some case the consumption of pork meat is banned by non-trade restrictions. They can come from religion, lifestyle or national traditions. When researching competitiveness one must analyze if such restrictions exist and how they influence the production. Other important index that has to be taken in account is the number of consumers and their preferences.

Factor conditions are viewed as the main source of competitiveness by the classical authors. Production factors are land, labor and capital. Having a big labor pool or a lot of unused land isn't enough for one production to

be competitive. It is very important how those production factors are used. Thus the efficiency of production has to be researched by the following indexes:

- Used man-days for 1ton produced meat;
- Production cost of 1ton produced meat;
- The meat produced from 1 animal;
- Profit produced by a single worker.

Firm strategy, structure and rivalry are the last determinants of competitiveness in Porter's diamond. Local rival usually compete on the production factors market as well as on the product market. Fierce rivalry for market shares pushes the firms to introduce better and more efficient production methods and selling their products on the international market. The conditions of the national business climate and traditional approach in organizing firm determents the markets where the final product will be sold. Production of pork meat can take place in farms that differ by their size and technology. They can specialize in producing large amounts of meat by using conventional methods of breeding or to produce biologically clean production. An important indicator when researching competitiveness is the total number of producers and the way they are organized. The indexes that have to be researched are:

- Average number of animals in the farm;
- Structure of the production.

The final piece that needs to be researched when analyzing competitiveness is the role of government. Its part in the economic game is ever increasing in a globalizing world. Its main task is to introduce strict rules for safety in meat production and animal well-fare. The policies which a government can follow can be divided in two broad classes – one that improve competitiveness and one that decreases it.

To stimulate competitiveness the government has to lead a policy that protect the producer. It also has to take care for production of specialized production factor such as specially train personal and animal with better production capabilities. When trade barriers exist the government should try to remove them.
On the other end the government can decrease competitiveness by adapting policies, which overregulate the production and distribution.

SUMMARY
The exciting standard indexes for evaluation of competitiveness can be used when analyzing competitiveness in the sector. The industry has specifics that have to be considered by using additional indexes. The government policy can improve or decreases competitiveness.

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