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# TRENDS IN CLOTHING INDUSTRY BY USE OF THE FORECAST - ROMANIA vs. EXTERNAL ENVIRONMENT

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**ABSTRACT**

*The starting point of this scientific research it was analyzing the possibility of future improvement on the current situation of the clothing industry. The purpose of the study is based on the research of the clothing industry, in the context of a hypothetical ties of production trends in clothing with the Forecast function, designed to improve decision-making in the economic entities in the clothing industry. The statistics provided by the National Institute of Statistics and Eurostat, which confirm the obtained results, were provided in the realization of the real benefit forecast. In this way, research results have allowed us to update and industry forecasting treated, while the clothing industry can be a real engine of the national economy and beyond. Regardless of the competitive environment in which we relate, domestic or international, referential common to all economic systems consists of a constant desire to improve productivity.*

***Keywords:*** *clothing industry, SWOT analysis, Forecast function, Trends, Romania, internationally*

## 1. Introduction

Current paper has focused on an industry interest in the economic sphere, but put little value at present, namely clothing industry, certainly. Measuring it in terms of national and international importance is given, as a major branch of light industry. However, all these technical and scientific demonstrated that apparel production in recent years has undergone a difficult period marked by numerous events unsatisfactory. We believe that the major objectives of scientific approach focuses on identifying a possible future industry studied by analysis by using the tool Forecast to predict production will be achieved in the next five years.

The research has as methods, techniques and processes used literature review and documentation in a duductiv approach from general to particular, presentation of the terms of the meanings of the research concerns the clothing industry. For the practical part of the study we considered it appropriate to use a series of methods, which focused mainly on observation, collection and primary processing of statistical data needed for determining trand, followed by analysis, synthesis and interpretation of data obtained in the Forecast.

Although we respected the rigors of scientific research understandable economic element, however research conducted was subject to limits that have been substantiated by presenting the methodology. The research was designed so that in the end we draw conclusions relevant accounting information and the construction of an array of economic output in the clothing industry, for use in întreprinderilor management so that problems can be minimized.

Even if the study function Forecast replace Excel 2016 with linear function are extensively discussed in the scientific literature, we believe that this brings new elements by how integrated learning these concepts customized industry encountered everywhere in life daily, which could help businesses to be permanently with "a step forward".

## 2. Literature review

Consistent with the past, realize that the human body was considered the standard of beauty and perfection. No matter what part of the body, according to the Greeks and Romans of antiquity (Veronica Bîrca, Stela Balan, 2011, p. 71), had to meet certain requirements regarding the need to respect the proportions, symmetry, functionality, usefulness for to fit into the accepted range of visionaries antiquity.

The present (Vasile Sîrbu, 2010), gives clothing intended purpose to play the personality of the wearer of them highlights some features, fading them physical defects, creating an industry with the development and creation of more and more clothes. We believe, helped by clothing, allure human can recompose indefinitely, thereby creating the possibility of continuing new to require that the source of the show in this way the products clothing evidenţiând through their entire complex social environment in which individual moves.

The same as we approached the scientific point of view term "confection" in "Evolution of economic indicators in the clothing industry: A comparative analysis between Romania and the external environment" (Teodora Maria Avram, Cristian Florin Bota, 2016, p. 110):

- the Explanatory Dictionary of the Romanian Language of 1998 (Romanian Academy, 1998) considers garment as "an item of clothing manufactured and delivered in series or mass";
- the New Explanatory Dictionary of the Romanian Language of 2002 (International Litera, 2002), defines garment as "an article of clothing made in series after a certain model".

Starting from the view of economists Adriana Gîrneaţă and Mihaela Maşcu (Uda) (2014, p. 434), which approaches and interprets the textile and clothing, we feel like the authors, the industry said it covers a wide range of activities transformation (cotton, linen, wool, etc.) natural or synthetic (polyester, polyamide, etc.) fibers into yarns and fabrics to produce a wide range of products such as hi-tech synthetic yarns, linen, industrial filters and clothing.

In accordance with the Classification of Activities of National Economy of Romania, the activities of the companies operating in the industry apparel can be found in Section C - manufacturing, which corresponds to Division 14 - clothing, which is divided into 3 groups : 141 - manufacture of wearing apparel, except fur 142 - manufacture of articles of fur 143 - manufacture of knitted or crocheted fabrics which are subdivided into a number of classes according to the group to which referred. If we relate to the legal framework specific to the textile - apparel seen in Romania (Website EuroIMM, Item Legislation on textile / apparel in Romania) with the accession to the European Union, they have been harmonized EU directives into national law. In the textile / clothing, this refers primarily to the marking of the fiber composition of products, name and label.

From the international standpoint, in terms of NACE (European Commission, 2008, p. 127) - Nomenclature générale des Activités économiques dans les Communautés Européennes (Classification of Economic Activities in the European Communities), we point out that it presents as in Romania, clothing that are found in division 14 holding 3 groups and 8 classes. This division includes all tailoring of all materials, all clothing and accessories. In addition to the set division 14 also includes, fur industry. At EU level, the textile-apparel legislation implies that the smooth operation of the market in textile and clothing products which are based on three specific directives of the Council and Commission Directives 4 labeling.

We can say that conferred production in the garment sector, can be dispersed in multiple locations inside or outside the country. In developed countries, this is associated with outsourcing production to developing countries, and in the case of the latter, the production moves elsewhere and between countries in search of cheaper labor or faster. The transnational corporations in order to reduce production costs, their capital can move across borders, but small businesses and individual workers do not have this mobility, being forced to work in an increased market uncertainty, characterized by an exacerbated competition. (Adriana Gîrneață, Mihaela Maşcu, 2014, pp. 434 – 442)

**3. Methodology – Forecast function**

Machine Learning is a branch of artificial intelligence that deals with the construction and study of systems that can be learned through data. (Encyclopaedia Britannica website, Item Machine Learning)

In 1959, Arthur Samuel (p. 535) defines Machine Learning, as a field of study that gives computers the ability to learn without being explicitly programmed.

Probably the quickest way of forecasting data, with satisfactory results in Excel Forecast is the function that calculates and provides forecasts a future value by using existing values and also returns a value along a linear trend.

Estimated value is a value "y" for value "x" date. Known values are values "x" and "y" existing and new value is pre-calculated using linear regression. The function is used to predict future sales, inventory requirements, or consumer orientation and so on.

Forecast function syntax has the following arguments: (Site Office, Item Forecast)

- "x" - mandatory. Is the benchmark data that predicts a value;
- Known_"y" - mandatory. Or the data matrix is dependent;
- Known_"x" - mandatory. Or the data matrix is independent.

Can make the following observations (Site-ul Office, itemul Forecast):

- If 'x' is nonnumeric, Forecast returns the value error: #VALUE!;
- If known_"y" and known_"x" are blank or contain a different number of parts data, Forecast return error value: #N/A;
- If known_"x" variance values is zero, then turn Forecast error value of the form: # DIV/0!.

The equation for determining Forecast function is as follows:

$a + bx$, where:

- $a = \bar{y} - \overline{bx}$
- $b = \frac{\sum(x-\bar{x})(y-\bar{y})}{\sum(x-\bar{x})^2}$
- "x" and "y" are averages for samples AVERAGE (known_x) and AVERAGE (known_y).

Possibilities forecasting data are diverse, such as multiple models in statistics, econometrics "The autoregressive conditional heteroscedastic" (ARCH model) (Tim Bollerslev, 1986, p. 308) used to characterize and model time series observed or newer using Machine Learning (Dayne Freitag, 1998, p. 11) models, particularly "neural networks" models.

After analyzing the clothing industry at world and European level, we deduced that manufacture clothing usually occurs in countries with low labor costs, but one factor is not enough for companies to be successful fashion. The biggest factor in the return area for clothing seems to be the efficient way of producing clothing in a company. Companies must be able to differentiate its products and its own brands in the world thought to be able to have the opportunity to ask a price as possible.

The general trend in the clothing industry companies is to modernize quickly in order to maintain production efficiency in the face of global competition. They also had to modify existing products to match customer demand, such as creating clothing from recycled materials, incorporating other materials in their products (such as electronics), or creating supply chains faster and more efficient to get goods to consumers faster.

Demand is driven almost exclusively on consumer taste. Downturn in the economy forced many causes consumers and businesses to cut budgets and seek cheaper products. Despite the fierce competition, many companies have achieved success by finding and dominating niche markets and achieve success for designers and stores is when they recondition the marketing strategy. (Global EDGE website, Apparel and Textiles item: Background)

In Microsoft Excel 2016, this function has been replaced by forecasting Linear as part of new functions forecasts. It is still available for backward compatibility, but consider using new function in Excel 2016. (Site Office, Item Forecast)

**4. Results and discussion**

Wishing to present a forecast on the clothing industry I used function Forecast in Excel, so managed to understand and use.

In continuation, we present the forecast function Forecast of industrial production within the next five calendar years. After the calculations situation is as follows:

**Table no. 1 Forecasted production values of the clothing industry in national context**

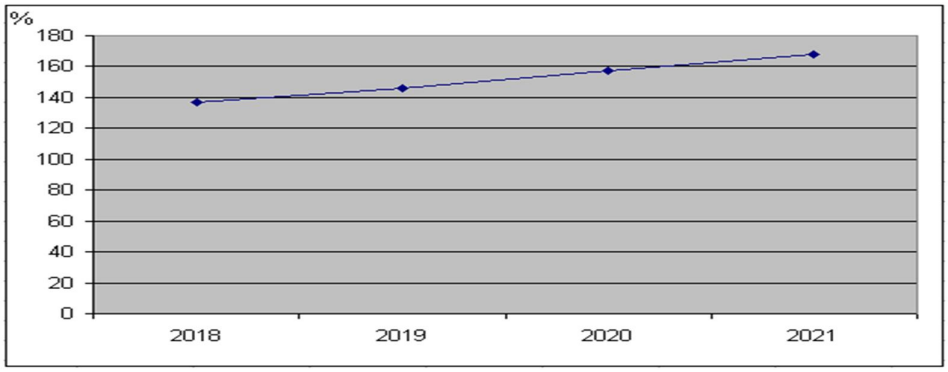
-%-

| | **2018** | **2019** | **2020** | **2021** |
|---|---|---|---|---|
| Forecasted production at national level | 137.18 | 145.91 | 157.09 | 168.19 |

*Source:* Results calculated by using the tool in Excel Forecast

Forecasting industrial production nationally depends on factors dependent or independent, as the number of companies in the clothing industry, prices in marketing clothing, number of employees working for clothing and salary levels of their influence clothing in total light industry and so on. We note an increase in production by 31.01 percent, the ratio of 2021 to 2018 that could climb and also redress the situation of financial collapse in which Romania is currently in the clothing industry.

We seem appropriate, emphasizing forecast data through a graphic for a better view of the future evolution:




**Graphic no. 1 Evolution of industrial production gross national forecast**
*Source:* author processing

What can be seen in the chart above, is production development emphasized by using the lines. The percentage shows an upward trand, this hope to defend the recovery in the economic situation in Romania and overcoming the economic and financial crisis in 2008 installed in Romania.

All elements analyzed constitutes an effective guide because she presents on the clothing industry past, present and future, bringing new elements through their integrated manner.

On the other hand, display output trends internationally in table no. 1 was used in Microsoft Excel function Linear Regression Forecast to predict future developments in production, with the following results:

**Table no. 2 Forecast production values of the clothing industry in an international context**

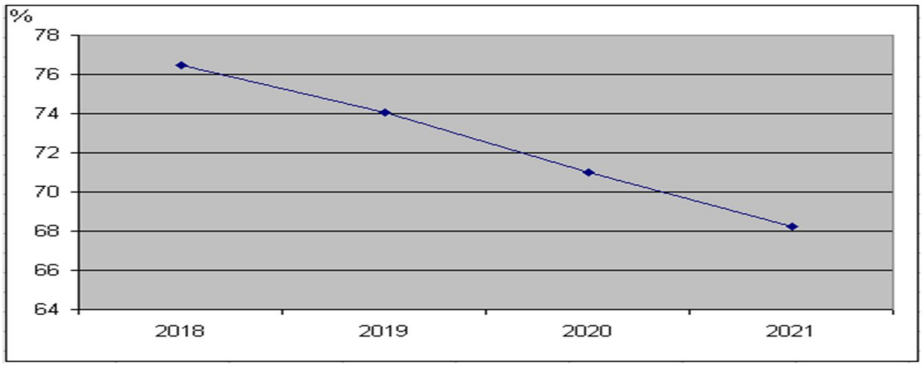
-%-

| | **2018** | **2019** | **2020** | **2021** |
|---|---|---|---|---|
| Forecasted production at international level | 76.48 | 74.08 | 71.00 | 68.26 |

*Source:* Results calculated by using the tool in Excel Forecast

The production level in the clothing industry by reporting at international level, seems to lead to a situation of increasingly unfavorable, reaching to decrease within four years foresee with 8.22%. We believe that producers and potential investors in this market, it would be necessary to make such predictions are to observe market trends. In addition to using the tool Forecast, one can use other methods of forecasting by some statistical software such as Eviews and IBM SPSS Statistics.

In view of focusing and more accurate view of production forecasting garment was shown in the following diagram layout and percentage of forecasted values:




**Graphic no. 2 Evolution of production forecasted internationally**

*Source:* author processing

Observe the results forecasted downward trend. The highest value after forecasting production in the clothing industry appearing in the current year 2017 according to the results obtained from calculations made by the function Forecast and coming years previzionaţia shows decreases the continuous production disincentive for those who were thought to commence a business in this field.

Forecasting methods used, has a fair degree of accuracy when using known values of the past as close to the present moment, and especially when market condition are, if not ideal, at least normal, linear and are not taken into account periods of market conditions suffering abnormalities and disturbances produced by various major events in society, such as strikes, revolutions, changes of government, mass violence, discontent and manifestations of different social classes, fundamental changes in social structures, political changes major, radical changes in various fields, natural disasters, major adverse events in neighboring countries and others, which leads to crisis or economic collapse. (Teodor Hada, Petru Lazar, 2013, pp. 121-126)

**5. Conclusions**

We believe the clothing industry as one full of challenges, we found that shows a trand national upward until 2021, and on the other hand, internationally a trand downward, these situations in production is influenced by factors directly and indirectly.

On the clothing industry in Romania, we presented an analysis of its fund, which is of particular importance for the country, given the high capitalization of clothing is a strategic objective at the country level. Although there are important challenges for the sector, it can be said that investment in the clothing industry are mostly profitable, and this is due to the outstanding quality of Romanian clothing manufactured, exported mostly in Central and South America.

We have found that international reference in the clothing industry includes extensive presentation, from history and daily life to the fashion industry. We recall the main steps involved in the evolution of clothing in the world and in the EU context under consideration stable development which can be understood as having considerable seniority in the area of industry. Thus it was introduced the industry's prospects shown by Forecast feature found in Microsoft Excel, nationally and internationally. Study can be extended of course, all components of the clothing industry companies.

Although this research was referred to the apparel business activity, theoretical results obtained can be extrapolated to other types of enterprise management improvement. We believe that an important direction of research is to determine the impact will dress in establishing financial analysis of econometric models that can be useful formulation company's results and thus will be manufactured by textile companies clothing.

That said, we believe that the solution that companies garment start to produce, would be to create a brand of its own that could be only a matter of time as to be able to impose a mark on the market, it takes time.

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