

# *The Key Factors in the Textile Industry*

## *Klíčové faktory v textilním průmyslu*

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### **Abstract**

The author has concerned himself with the key factors of the textile industry. From the point of view of the branch specifics of the textile industry, these factors are considered to be the number of units, the number of employed individuals, the gross value added, work productivity, exports, imports and the balance. The development of these key factors has been investigated on the basis of their year-on-year growth, the average growth coefficient and their mutual dependency as designated by the Pearson correlation coefficient. Given the specific characteristics of the textile industry which faces a high degree of competition and has a pro-export focus, the key factors have been analysed from several points of view, such as the point of view of the employees, i.e. the number of units and the number of employed individuals, the sustainability of these key factors in the past (using the average growth coefficient) and the stability shown by these units in a year-on-year comparison. This is followed by the area of performance, i.e. an investigation into the gross value added and work productivity and the sustainability and stability of these performance factors in the past. The factors involved with the openness of the textile industry in relation to imports and exports, i.e. not only how stable and sustainable these factors are, but also what influence they have on the performance indicators, have also been subsequently investigated. The following conclusions have been reached on the basis of the aforementioned indicators; all of the investigated variables have displayed growth with the exception of the number of employed individuals, so it is therefore possible to consider them to be sustainable, while exports and imports have a fundamental influence on the performance of the branch which is measurable by means of the value added and the work productivity.

### **Keywords**

textile industry, performance, gross value added, exports, imports, balance

### **JEL codes**

F10, F17, J01

### **Abstrakt**

Príspevek sa zaoberá kľúčovými faktormi textilného priemyslu. Z hľadiska odvetvových špecifik textilného priemyslu sa za tieto faktory považuje počet jednotiek, počet zamestnaných osôb, hrubá pridaná hodnota, produktivita práce, vývoz, dovoz a saldo. Vývoj týchto kľúčových faktorů byl zkoumán na základě jejich meziročního růstu, průměrného růstového koeficientu a jejich vzájemné závislosti, jak je stanoveno korelačním koeficientem Pearson. Vzhledem ke specifickým charakteristikám textilního průmyslu, který čelí vysokému stupni konkurence a má proexportní zaměření, byly klíčové faktory analyzovány z několika hledisek, například z pohledu zaměstnanců, tj. počtu jednotek a počtu zamestnaných osôb, udržiteľnosti týchto kľúčových faktorů v minulosti

(s použitím průměrného růstového koeficientu) a stability těchto jednotek v meziročním srovnání. Následuje oblast výkonu, tj. šetření hrubé přidané hodnoty, produktivity práce, udržitelnosti a stability těchto výkonnostních faktorů v minulosti. Následně byly zkoumány také faktory spojené s otevřeností textilního průmyslu ve vztahu k dovozu a vývozu, tj. nejen to, jak jsou tyto faktory stabilní a udržitelné, ale také vliv, který mají na ukazatele výkonnosti. Na základě výše uvedených ukazatelů bylo dosaženo těchto závěrů: Všechny zkoumané proměnné vykazovaly růst s výjimkou počtu zaměstnaných osob, takže je lze považovat za udržitelné. Vývoz a dovoz mají zásadní vliv na výkonnost odvětví, která je měřitelná pomocí přidané hodnoty a produktivity práce.

## **Klíčová slova**

textilní průmysl, výkonnost, hrubá přidaná hodnota, vývoz, dovoz, saldo

## **Introduction**

Every branch is specific due to its production, its pro-export orientation and its dependency on other branches within the framework of supplier and/or customer relations. In the case of an open branch of industry, i.e. where there are no entrance and exit barriers within the framework of international trade, we can ask how the performance indicators, such as the gross value added and work productivity, are influenced by exports and imports in the given branch. At the same time, it is also not possible to omit other key factors which concern each branch and influence its stability (measured in accordance with the year-on-year change) and sustainability (measured using the average growth coefficient). These key factors can be divided into the employee perspective (measured on the basis of the number of units and the number of employees) and the international trade perspective (measured on the basis of exports, imports and the balance of trade).

We can characterise the specific nature of textile production as follows "Textile production (CZ-NACE13, author's note), which is then further divided into cotton, silk, linen and woollen production depending on the used raw material. The production of the majority of textile products involves several technological levels. It includes the fields of spinning, weaving and finishing and the production of other textiles. The textile industry belongs to those sensitive branches which face a great deal of competition in the global market, especially on the part of third countries. For all that, however, the textile industry in the Czech Republic has a pro-export focus. From an overall point of view, it can be said that the competitive influences of imports from abroad are substantially projected into the economic earnings and that the branch is subject to fashion trends."<sup>1</sup>

As far as the selection of the suitable performance indicators is concerned, we can pay special attention to the stage which the company (branch) finds itself in. "The authors of the paper have analysed the dependence of the following ratios on the growth rate of growing companies: the ratios of profitability, liquidity, current assets and solvency, the

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1 *The Ministry of Industry and Trade of the CR (2017) p. 73.*

break-even point, the revenue per employee, average costs, labour costs, capital costs, capacity utilisation and productivity."<sup>2</sup>

The authors have also further developed the given dependency between the indicators of financial and non-financial performance and company growth (we can apply this to the branch) and have reached the following conclusions: "The result of our analysis clearly indicates that there is a relationship between various financial and non-financial ratios and the growth of a particular company. A relationship has been found between the measure of a company's profitability, liquidity, "current assets", average revenue per employee, costs, price of capital and productivity and the growth of a growing Slovenian company in the manufacturing industry. These results have allowed us to conclude that, when comparing the values of those measures of business performance, managers and entrepreneurs also have to take into account the company's growth. On the other hand, no such relationship has been found in the case of the rate of return on equity, solvency, the price of a company's debt, the relative break-even point and the price of labour."<sup>3</sup>

The given issue also concerns the fact that "It is very clear that there are many substantive differences between young and old companies. Many differences are both statistically significant and large in magnitude. Young companies tend to be overrepresented in the three high growth performance groups: Star, Growth Focus and High Growth. Young companies are underrepresented in all other performance groups and are the least likely to be Low Growth (only 6.5%). Young companies also tend to exhibit a "U" shaped profit relationship. In other words, young companies have a tendency to be *either* high or low in terms of profitability, but are less likely to have mid-range profitability."<sup>4</sup>

The issue of evaluating the overall performance of the branch using benchmarks in the specific market also involves the fact that "Even though it is very important in a company's overall performance, the indebtedness of a company is not important in itself, if the funds are used well (the profitability issue) and the debt repayments are regular (the liquidity issue). The case of the market leader in the Slovenian dairy processing industry presented in this paper has showed that the debt reduction was significant in both absolute and relative terms. It also had an impact on the profitability measured by the ROA and ROE indicators. This indicated that the borrowed money was used properly in the service of the core business and that debt reduction and credit crunch created problems in the Slovenian dairy industry, as represented here by the market leader. So, both the hypotheses of this research have been confirmed. Of course, debt reduction cannot take all the blame for any bad results: profitability increased in the last observed year (2014). There are numerous factors which could be analysed, such as prices, competition, milk quotas in the past, capacity usage (which is approximately up to 70% – IMAD, 2008), productivity and efficiency. This could be explored in further research."<sup>5</sup>

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2 PONIKVAR, N., M. TAJNIKAR and K. PUŠKIN (2009), p. 1.

3 PONIKVAR, N., M. TAJNIKAR and K. PUŠKIN (2009), p. 12.

4 STEFFENS, P. DAVIDSSON and J. FITZSIMMONS, J (2009), p. 14.

5 MUMINOVIĆ, S. (2016), p. 29.

The following information exists with regard to the sales level benchmark: "The overall objective of a business enterprise is to earn at least a reasonable return on the funds invested, which is consistent with maintaining a sound financial position. The present research paper aims at focusing the objectives to appraise the profitability performance from the point view of the sales levels and to analyse the profitability performance from the point view of investments. The gross margin reported the ups and downs over the study period."<sup>6</sup>

When talking about export oriented companies, it is also necessary to take the influence of the exports on working capital<sup>7</sup> into account.

If we summarise the aforementioned information and take into account the basic economic theory, we become aware of the fact that the goal of a company's efforts is to maximise its profits. We can define this maximisation of profits as the achievement of the greatest possible revenue with the lowest possible costs. If we break the given assumption down using company economics, we arrive at the following conclusion that, if a company has fixed costs and variable costs, the growth in revenues (through sales) must also be accompanied by growth (under regular conditions) in the total variable costs (more products also mean higher total variable costs). We can also consider the above-proportional growth of costs (especially fixed costs as represented by production capacity). The efficiency of the maximisation of profit is then mainly achieved on the basis of savings in fixed costs (the same level of fixed costs at a bigger volume of production) and/or by the difference between the product price in costs (or purchases) and the sales price. Nevertheless, if we analyse company reports and the availability of the statistical data on the given branch, we discover that the gross value added indicator comes closest to the aforementioned concept of company efforts. Nevertheless, it is also necessary to take other factors such as price rises into account. In the case of new branches, their life cycle or the cycles of the companies contained within them, the types of companies (production, sales) and the typology of the companies particularly have an impact on the activity indicators which may lead to a distortion of the indicators, for example with regard to the turnover of the total assets and fixed assets in sales companies, so that these indicators no longer make sense, because they do not include the assets designated for production and as such these indicators may look better than those for a production company.

With regard to the characteristics of the textile branch, it is absolutely necessary to analyse the stability of the key factors of the given branch using a statistical apparatus and at the same time to diagnose the performance "drivers" and the sustainability of the given branch.

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6 KUMAR, P. and M. REDDY (2013), p. 12.

7 OLBRECHT, V. and J. POLÁK (2015).

**Table 1:** The division of CZ-NACE 13 according to the individual groups

13.1	The treatment and spinning of textile fibres and yarn
13.2	Weaving textiles
13.3	Textile finishing
13.91	The production of miscellaneous textiles

Source:<sup>8</sup>

## 1 The methodology

The author of the research used statistical methods when analysing the statistical data, specifically the average growth coefficient, the year-on-year growth rate and the Pearson correlation coefficient. These methods were applied to the individual variables of the textile industry, whereby the average growth coefficient was intended to evaluate the positive or negative developments in 2009–2016. Similarly, the year-on-year change should indicate the stability on a year-on-year basis. The Pearson correlation coefficient then reveals the main drivers of the key factors in the textile industry and their influences.

### 1.1 The average growth coefficient

The average growth coefficient expresses the time series dynamic. “If this coefficient is multiplied by one hundred, it shows by how many percent of the value in time t-1 the value in time t has grown.”<sup>9</sup>

**The average growth coefficient:**

$$\bar{k} = r^{-1} \sqrt{\frac{y_2}{y_1} * \frac{y_3}{y_2} * \dots * \frac{y_r}{y_{r-1}}} = r^{-1} \sqrt{\frac{y_r}{y_1}} \quad (1)$$

Source:<sup>10</sup>

Where:

y = is the given investigated variable in the given year

r = the number of the growth coefficient

8 The Ministry of Industry and Trade of the CR (2017), p. 73.

9 ARTL, J., M. ARTLOVÁ and E. RUBLÍKOVÁ (2002), p.15.

10 ARTL, J., M. ARTLOVÁ and E. RUBLÍKOVÁ (2002), p.15.

## 1.2 The year-on-year growth rate

We can express the year-on-year growth rate both as a percentage (see the growth rate below) and in absolute terms. The year-on-year growth rate tells us how the given variable has changed as a percentage in comparison with the previous year. On the other hand, the absolute increase quantifies the given change in absolute terms.

### The growth rate:

$$\text{The growth rate} = \frac{(y_t - y_{t-1})}{y_{t-1}} \quad (2)$$

Source:<sup>11</sup>

### The absolute increase:

$$\text{The absolute increase} = y_t - y_{t-1} \quad (3)$$

Source:<sup>12</sup>

Where:

$y_t$  = the variable in a given year

$y_{t-1}$  = the variable in the previous year.

The absolute increase and the growth rate are dynamic functions; see "The dynamic function will be created by means of the dynamic characteristics of the absolute increase, the growth rate or the change coefficient and their relations".<sup>13</sup>

## 1.3 The Pearson correlation coefficient

When analysing the statistical data, the research used the Pearson correlation coefficient which is used in causal relations. "Any dependency of the variables gives rise to the natural question as to whether this is substantial or not, i.e. how strong the given relationship is. However, a correlation is most frequently understood in statistics as a mutual and linear relationship between the variables."<sup>14</sup>

### The Pearson correlation coefficient

$$r = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2 \sum_{i=1}^n (y_i - \bar{y})^2}} \quad (4)$$

Source:<sup>15</sup>

11 ARTL, J., M. ARTLOVÁ and E. RUBLÍKOVÁ (2002), p.14.

12 ARTL, J., M. ARTLOVÁ and E. RUBLÍKOVÁ (2002), p.15.

13 MIHOLA, J., P. WAWROSZ and J. KOTĚŠOVCOVÁ (2017,) p. 10.

14 PECÁKOVÁ, I. (2008), p. 177.

15 ŠKALOUDOVÁ, A. (2016).

“The correlation coefficient ends up with values ranging from -1 to 1. A zero value means the linear (i.e. not any) dependence of the monitored pair of variables, while the correlation coefficient is in the range of plus  $\pm 1$ , if there is a functional dependency, where the value of one is unequivocally derived from the value of the second variable on the basis of the line equation. The sign expresses a direct or indirect linear dependency and the size of the coefficient in the stated interval can therefore be interpreted as the greater or lesser intensity of this dependency.”<sup>16</sup>

## 2 Data

### 2.1 Research into growth

**Table 2:** The number of units

Year	2009	2010	2011	2012
Number of units	2,123	2,601	2,828	3,151
Growth rate		22.52%	8.73%	11.42%
Growth coefficient		1.225	1.087	1.114

Year	2013	2014	2015	2016
Number of units	2,715	2,520	2,424	2,293
Growth rate	-13.84%	-7.18%	-3.81%	-5.40%
Growth coefficient	0.862	0.928	0.962	0.946

Source: own calculations based on the data<sup>17</sup>

The number of units measured by the growth rate did not fall beneath the minimum value which was achieved in 2009. The greatest change occurred in 2010, when the growth in comparison with 2009 was 22.52%.

**Table 3:** The number of employed individuals

Year	2009	2010	2011	2012
Number of employed individuals	27,343	25,449	25,641	25,537
Growth rate		-6.93%	0.75%	-0.41%
Growth coefficient		0.931	1.008	0.996

<sup>16</sup> PEČÁKOVÁ, I. (2008), p. 178.

<sup>17</sup> The Ministry of Industry and Trade of the CR (2017), p. 73–78.

Year	2013	2014	2015	2016
Number of employed individuals	25,012	24,744	25,395	25,845
Growth rate	-2.06%	-1.07%	2.63%	1.77%
Growth coefficient	0.979	0.989	1.026	1.018

Source: own calculations based on the data <sup>18</sup>

The number of employed individuals in the given branch reached its lowest value in 2013, which does not correspond to the lowest value in the number of units. As far as the stability in the number of employed individuals is concerned, we can speak about a branch which has not experienced significant changes in excess of 7%.

**Table 4:** Gross value added

Year	2009	2010	2011	2012
Gross value added in millions of CZK	11,463	11,804	12,409	12 44
Growth rate		2.97%	5.13%	-2.94%
Growth coefficient		1.030	1.051	0.971

Year	2013	2014	2015	2016
Gross value added in millions of CZK	12 829	14 282	13 817	14 280
Growth rate	6.52%	11.33%	-3.26%	3.35%
Growth coefficient	1.065	1.113	0.967	1.034

Source: own calculations based on the data <sup>19</sup>

As a performance indicator, the gross value added has developed at a stable level, whereby it only experienced a fall in the 2012/2011 and 2015/2014 periods (with a fall to its maximum value of -3.26%), but it experienced growth in the other years.

**Table 5:** Work productivity

Year	2009	2010	2011	2012
Work productivity in millions of CZK (Gross value added/number of employed individuals)	0.419230	0.463830	0.483951	0.471629
Growth rate		10.64%	4.34%	-2.55%
Growth coefficient		1.106	1.043	0.975

<sup>18</sup> The Ministry of Industry and Trade of the CR (2017), p. 73–78.

<sup>19</sup> The Ministry of Industry and Trade of the CR (2017), p. 73–78.

Year	2013	2014	2015	2016
Work productivity in millions of CZK (Gross value added/number of employed individuals)	0.512914	0.577190	0.544083	0.552525
Growth rate	8.75%	12.53%	-5.74%	1.55%
Growth coefficient	1.088	1.125	0.943	1.016

Source: own calculations based on the data <sup>20</sup>

The work productivity copied the development of the value added and the number of employed individuals, whereby the negative year-on-year development did not exceed 6%. In this regard, we can speak of stable development in the year-on-year comparison.

**Table 6:** The balance

Year	2009	2010	2011	2012
Balance in millions of CZK	6,505	5,967	7,864	8,591
Growth rate		-8.27%	31.79%	9.24%
Growth coefficient		0.917	1.318	1.092

Source: own calculations based on the data <sup>21</sup>

We can consider the stability of the development of the textile industry to be very good, not only with regard to the positive balances in the individual years, but also with regard to the fact that no strongly negative developments occurred in relation to the previous year during the investigated period.

**Table 7:** Exports

Year	2009	2010	2011	2012
Exports in millions of CZK	39,571	42,654	48,508	49,363
Growth rate		7.7911%	13.7244%	1.7626%
Growth coefficient		1.0780	1.1370	1.0180

Year	2013	2014	2015	2016
Exports in millions of CZK	51,450	58,231	60,9756	64,152
Growth rate	4.2279%	13.1798%	4.7123%	5.2103%
Growth coefficient	1.0420	1.1320	1.0470	1.0520

Source: own calculations based on the data <sup>22</sup>

<sup>20</sup> The Ministry of Industry and Trade of the CR (2017), p. 73–78.

<sup>21</sup> The Ministry of Industry and Trade of the CR (2017), p. 73–78.

<sup>22</sup> The Ministry of Industry and Trade of the CR (2017), p. 73–78.

We can consider the rate of export development to be positive in all the given years on the basis of the year-on-year changes. Every year saw an increase in comparison with the previous year. We can therefore speak of stable positive development.

**Table 8: Imports**

Year	2009	2010	2011	2012
Imports in millions of CZK	33,066	36,687	40,644	40,772
Growth rate		10.9508%	10.7858%	0.3149%
Growth coefficient		1.11	1.1080	1.0030

Year	2013	2014	2015	2016
Imports in millions of CZK	43,280	49,495	50,948	53,658
Growth rate	6.1513%	14.36%	2.9357%	5.3191%
Growth coefficient	1.0620	1.1440	1.0290	1.0530

Source: own calculations based on the data<sup>23</sup>

The import situation copied that of exports. As such, this involved permanent imports which increased their growth rate every year without a single fall in any year.

## 2.2 The dependency research

### 2.2.1 Exports and gross value added

#### The Pearson correlation coefficient (exports and gross value added):

$$r = \frac{\sum_{i=1}^n (VA_i - \overline{VA})(E_i - \overline{E})}{\sqrt{\sum_{i=1}^n (VA_i - \overline{VA})^2 \sum_{i=1}^n (E_i - \overline{E})^2}} \quad (5)$$

Source: own calculations based on <sup>24</sup>

Where:

r = the Pearson correlation coefficient (exports, value added)

E = exports

VA = value added

After calculating the result, we arrive at a Pearson correlation coefficient (exports and value added) of 0.9585

<sup>23</sup> The Ministry of Industry and Trade of the CR (2017), p. 73–78.

<sup>24</sup> ŠKALOUDOVÁ, A. (2016).

## 2.2.2 Exports and work productivity

### The Pearson correlation coefficient (exports and work productivity):

$$r = \frac{\sum_{i=1}^n (PL_i - \overline{PL})(E_i - \overline{E})}{\sqrt{\sum_{i=1}^n (PL_i - \overline{PL})^2 \sum_{i=1}^n (E_i - \overline{E})^2}} \quad (6)$$

Source: own calculations based on<sup>25</sup>

Where:

r = the Pearson correlation coefficient (exports, work productivity)

E = exports

PL = work productivity

After calculating the result, we arrive at a Pearson correlation coefficient (exports and productivity) of 0.9264.

## 2.2.3 Imports and value added

### The Pearson correlation coefficient (imports and gross value added):

$$r = \frac{\sum_{i=1}^n (VA_i - \overline{VA})(I_i - \overline{I})}{\sqrt{\sum_{i=1}^n (VA_i - \overline{VA})^2 \sum_{i=1}^n (I_i - \overline{I})^2}} \quad (7)$$

Source: own calculations based on<sup>26</sup>

Where:

r = the Pearson correlation coefficient (exports, imports)

I = imports

VA = gross value added

After calculating the result, we arrive at a Pearson correlation coefficient (imports and gross value added) of 0.9712.

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<sup>25</sup> ŠKALOUDOVÁ, A. (2016).

<sup>26</sup> ŠKALOUDOVÁ, A. (2016).

## 2.2.4 Imports and work productivity

### The Pearson correlation coefficient (imports and work productivity):

$$r = \frac{\sum_{i=1}^n (PL_i - \overline{PL})(I_i - \overline{I})}{\sqrt{\sum_{i=1}^n (PL_i - \overline{PL})^2 \sum_{i=1}^n (I_i - \overline{I})^2}} \quad (8)$$

Source: own calculations based on<sup>27</sup>

Where:

r = the Pearson correlation coefficient (imports, the number of units)

I = imports

PL= work productivity

After calculating the results, we arrive at a Pearson correlation coefficient (imports and work productivity) of 0.9451

## 3 The results

### 3.1 The growth coefficients for the individual factors

**The average growth coefficient (the number of units)** is: 1.011038 which we can interpret by stating that the indicator of the number of units in the monitored period increased on average by 1.011038 times every year or that the number of units in the monitored period increased by an average of 1.1038%.

**The average growth coefficient (the number of employed individuals)** is 0.991988. This shows that the given indicator fell by 0.991988 times every year in the monitored period. The second possible interpretation is that the number of employed individuals fell every year on average by 0.8012%.

**The average growth coefficient (gross value added)** is 1.031896, which we can interpret as showing that the value added indicator increased on average by 1.031896 times every year in the monitored period or that the number of units in the monitored period increased on average by 3.1896%.

**The average growth coefficient (work productivity)** is 1.040341, which we can interpret as showing that the value added indicator increased on average by 1.040341 times every year in the monitored period or that the number of units in the monitored period increased on average by 4.0341%.

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<sup>27</sup> ŠKALOUDOVÁ, A. (2016).

**The average growth coefficient (balance)** is 1.070658, which we can interpret as showing that the balance indicator increased on average by 1.070658 times every year in the monitored period or that the balance in the monitored period increased on average by 7.0658%.

**The average growth coefficient for exports** is 1.07145, which we can interpret as showing that the balance indicator increased on average by 1.07145 times every year in the monitored period or that the balance in the monitored period increased on average by 7.145%.

**The average growth coefficient for imports** is 1.071716, which we can interpret as showing that the balance increased on average by 1.071716 times every year in the monitored period or that the balance in the monitored period increased on average by 7.1716%.

### 3.2 The strength of the dependency of the selected factors

The result of the Pearson correlation coefficient (exports and gross value added) is 0.9585. We can therefore interpret this as showing that a strong linear dependency exists between the value added and exports, whose development is strongly projected into revenues from sales of own products, goods and services and therefore strengthens the performance in relation to the market.

The result of the Pearson correlation coefficient (exports and productivity) is 0.9264. We can therefore interpret this as showing that productivity is strongly influenced by exports.

The result of the Pearson correlation coefficient (imports and gross value added) is 0.9712. We can therefore interpret this as showing that imports strengthen the performance of the measured gross value added.

The result of the Pearson correlation coefficient (imports and work productivity) is 0.9451. This therefore involves a strong dependency between performance and productivity.

## The conclusions

The textile branch has been investigated from the point of view of several key factors: the number of units, the number of employed individuals, the value added, the work productivity, the balance, the exports and imports.

The textile branch has been selected for the reason that it is one of those sensitive branches which face a high degree of competition and which underline this fact through their pro-export orientation. The key factors have been investigated on the basis of statistical methods, i.e. the year-on-year growth rate, the average growth coefficient and

the Pearson correlation coefficient. The key factors were investigated in the time period of 2009–2016.

From the point of view of the year-on-year growth, the number of units (number of business entities) did not report any significant changes, with the exception of the 2010/2009 comparison, and we can characterise the key textile branch factor pertaining to the number of business units as being stable (with regard to growth) within the context of the overall growth coefficient for the period (2009–2016): see the table below.

The key factor of the number of employed individuals did not display any significant fluctuations in the given period within the general context of the overall growth coefficient (2009–2016), but it does have a falling value: see the table below.

The value added reported falls and growth which did not exceed the value of 11%, but for all that its overall value grew within the context of the overall period.

Work productivity showed a higher value of positive growth than falls within the year-on-year comparisons. In general, work productivity grew the most out of all the investigated indicators, i.e. the number of units, the number of employed individuals and the gross value added.

**Table 9:** Growth coefficients

Variable	Average percentage growth
Number of units (growth)	1.1038%
Number of employed individuals (fall)	0.8012%
Gross value added (growth)	3.1896%
Work productivity (growth)	4.0341%
Balance (gross)	7.0658%
Exports	7.145%
Imports	7.1716%

*Source: own calculations*

We can also reach the conclusion that the development of the number of employed individuals has not copied the growth in the number of units in the textile industry. The gross value added has not achieved the same degree of growth as work productivity. Work productivity has grown more quickly than value-added. Exports and imports have shown the greatest growth of all the investigated variables, which indicates the strong export and import orientation of the textile industry. The development in the growth of the balance has further confirmed this.

On the basis of the investigated factors (2009–2016), we can speak of a positive development of the balance (the balance was positive in all the years).

**Table 10:** The strength of the dependency in relation to exports

Variables	Correlation coefficient
Exports and gross value added	0.9585
Exports and work productivity	0.9264

Source: own calculations

The strength of the dependency of the gross value added key performance indicator on exports is born out by the result of the correlation coefficient (exports and value added). The result of 0.9585 shows a strong dependency between value added and exports, i.e. gross value added is strongly influenced by exports.

Nevertheless, the growth rate for exports is higher than the growth rate for gross value added and, if we take into account the fall in the number of employees, we can also ponder whether the textile branch is sufficiently profitable with regard to its export rate (whether it is capable of selling export goods for a sufficiently high price).

**Table 11:** The strength of the dependency in relation to imports

Variables	Correlation coefficient
Imports and gross value added	0.9712
Imports and work productivity	0.9451

Source: own calculations

The aforementioned values clearly show the strong dependency of the value added on imports and we can therefore state that value added is strongly influenced by imports. This is subsequently projected into revenues for sold goods when accounting for this sales margin. Imports therefore influence value added and work productivity.

**Table 12:** The overall characteristics of the textile branch from the point of view of its individual variables

Variable	Characteristic
Number of units	Minimal growth in the last 8 years, large fluctuations in growth in year-on-year changes: given the ability of specific companies to absorb the fluctuations in the growth of the year-on-year changes, we can consider the given branch to be stable and sustainable from the point of view of the prospects for the number of units.

Variable	Characteristic
Number of employed individuals	The number of employed individuals has seen a fall in the last 8 years: given the number of units (growth), it is possible to assume that this has involved a fall caused by the implementation of more modern technology which has substituted the labour force.
Gross value added	The performance of the given branch is increasing, mainly with regard to the increase in the number of units: we can therefore speak of growth in the performance of the given branch in the long term period of 2009–2016, despite the slight increase in competition.
Work productivity	Work productivity is increasing at a faster rate than the performance measured by the gross value added, which inclines us to assume that human work has probably been substituted with technology (the growth in the number of units, the growth in the gross value and the fall in the employed individuals)
Balance	The balance is positive and it has developed with 7% growth per annum. We can consider this characteristic to be positive from the point of view of the national economy.
Exports and gross value added	On the basis of the results, we can state that there is a strong dependency between exports and performance which indicates that exports are a significant driver for performance.
Exports and work productivity	Exports contribute to work productivity to a significant extent: given the strong dependency between performance and exports and the fall in the workforce, we can state that performance (gross value added), strongly influenced by exports, is a significant driver for productivity.

Variable	Characteristic
Imports and gross value added	Imports contribute to the performance of the given branch to a significant extent: given the fact that the majority of imports are realised without any local production capacities (imports occur), we can therefore assume that imports are admittedly a significant driver of performance in the branch, but at the expense of employment in the given branch.
Imports and work productivity	Imports contribute to the performance of the given branch to a significant extent and given the development in employment we can postulate that greater work productivity has been achieved, albeit at the expense of "employment": this means simply the strengthening of work productivity by increasing gross value added influenced by imports.

Source: own calculations

In general, we can characterise the textile branch as being stable for companies which are already functioning in the given market and have done so since the beginning of the measurement of the key factors for the given branch, i.e. from 2009, on the basis of the data from 2009 to 2016. The textile branch is growing from the point of view of the number of companies, albeit with large year-on-year fluctuations, especially in the increases in the number of companies. From the point of view of the national economy, the number of employed individuals is falling with slight year-on-year fluctuations, which we can take to mean, for example, the greater participation of technological advances or the substitution of employees with technology. The performance of the branch is increasing and it has achieved significant growth in relation to the previous investigated variables (employment, the number of units), which we can characterise as being generally positive for company owners. Work productivity is increasing more quickly than the gross value added (the performance indicator) and it can be assumed that this involves the substitution of the workforce with technology, both with regard to the increase in the number of companies and the falling employment and to the increase in performance. Exports and imports have maintained more or less the same tempo, which indicates that commercial and production activities are not being substituted in individual companies or in the given branch, from which we can postulate that the ratio of production (export) and sales (import) activities in the given branch is stable and that there is no fall in employment as a result of a reduction of production companies at the expense of sales companies. Given that the balance of trade is positive (and stable), we can consider the given branch to have good prospects, to be a branch which is not threatened by foreign trade and likewise to be a branch which is not influenced by customs barriers during

exports or which would not be in need “protection” against imports from the point of view of the national economy. On the basis of the aforementioned information, we can characterise the given branch as a stable and competitive branch on the basis of the data investigated within that branch. In the author’s opinion, further investigation could concern yourself with the predictability and outlook for the given branch.

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