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Impact of Textile Industry Restructuring on the Financial Condition of Local Government Units for the Example of the Łódź Region in Poland

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Abstract

Technical, technological, IT and organisational progress is most evident in industry. In a situation where innovations are accompanied by structural and political changes, it is all about restructuring. In Poland, restructuring processes occurred most frequently in the 1990s. Currently, the phenomenon still occurs, but on a much smaller scale, with the transformations concerning generic, personnel and processes structures. The textile industry is still significant and is a hallmark of the Łódź region in Poland. The recent past has shown that companies from the textile industry, although very fragmented, remain on the market and are doing well in the new economic system. The purpose of the study is to assess the financial condition of municipalities and cities with district rights in the context of the restructuring activities of the textile sector, with particular emphasis on local government units of the Łódź region in the years 2007-2017. The work consists of three parts. In the first, the authors include theoretical premises for the restructuring of enterprises. The second part contains research hypotheses which have been empirically verified with an econometric model developed in the last part of the work. The purpose of the econometric model is to describe the relationship between the self-financing indicator and the explanatory variables, which largely describe the financial condition of enterprises in the textile sector in Poland over the period between 2007 and 2017. The results of the research conducted allow to conclude that the financial condition of communes and cities with district rights is diverse, and is affected by factors related to the location, type and level of development of local government units. In addition, the restructuring which took place in industry, in particular the textile industry, had a positive impact on the financial condition of local governments, in particular on their level of self-financing.

Key words: restructuring, financial condition, local government units, textile industry, Łódź region.

■ Introduction

Industry in the Łódź region is subject to constant changes, including restructuring ones. They result from macro-structural transformations in the global economy, caused mainly by technological, IT and organisational changes. Restructuring processes have also affected the textile industry, which dominated the region in the 1980s and 1990s. The transformations involved, among others, a change in the structure of the economy, i.e. ownership, organisation, finance, accounting, and employment. As a result of these changes new industries emerged in the Łódź Voivodeship, i.e. energy, pharmaceutical, construction materials, food, machinery and electrotechnical industries (especially the production of household appliances). The textile industry is still significant and is a hallmark of the Łódź region. The recent past has shown that companies from the textile industry, although very fragmented, remain on the market and are doing well in the new economic system. They are also the main driver of local development, which is measured by the degree of financial inde-

pendence of local government units and by the amount of expenditure, including investment expenditure.

The purpose of the study is to assess the financial condition of municipalities and cities with district rights in the context of restructuring activities of the textile sector, with particular emphasis on local government units of the Łódź region in the years 2007-2017.

The work consists of three parts. In the first, the authors include theoretical premises for the restructuring of enterprises, pointing to its financial effects on the functioning of local government units. The second part contains research hypotheses which have been empirically verified with the econometric model developed in the last part of the work. The purpose of the econometric model constructed is to describe the relationship between the self-financing indicator and the explanatory variables, which largely describe the financial condition of enterprises of the textile sector in Poland over the period between 2007 and 2017. For comparison, the study was conducted in

four variants (separately for each of the groups of voivodships defined). A dynamic log-linear (power) form of the model was adopted, which was estimated based on panel data.

The study used literature on the subject, Coface reports on bankruptcy and restructuring, as well as statistical data obtained from Statistics Poland (GUS).

■ Restructuring of enterprises

The phenomenon of enterprise restructuring has been known for over 100 years, and the largest contribution to the development of knowledge in this field is attributed to E.H. Bowman and H. Singh, who claimed that restructuring measures cover a wide range of activities which may lead to privatisation of the company, acquisition of new areas of development, transformation in the capital structure or in the organisation itself, and even to the sale of a part of the company [1]. In the literature, the concept of “company restructuring” was introduced by M.L. Rock and R.H. Rock, who presented ideas, concepts and experiences

related to the restructuring, reorganisation and growth of corporations from the changing of the structure and value of assets [2].

In Poland, the concept of restructuring appeared in the second half of the 1980s as a consequence of the economic and political crisis. The explosion of interest in restructuring took place in the first half of the 1990s along with the transformation of the political system. It was the experiences of the early nineties that have influenced today's way of recognising restructuring. In world literature, restructuring is often related to issues connected with the value of enterprises [3], while in Poland this term is directly associated with systemic transformation [4, 5]. Over time, restructuring has become a synonym for multi-faceted changes, relatively fast and most often of an adaptive nature [6]. Currently, restructuring is widely recognised as a set of broad changes aimed at improving the efficiency of the organization in one or (more often) in many areas [7]. It is a consequence of the fragmentation of production processes occurring not only on domestic markets but also internationally, aimed at better division of labor and an increase in productivity [8, 9].

Restructuring is a multidimensional concept which creates a plane for a broad interpretation of the phenomenon. On the one hand, restructuring is perceived as a process of adaptation to internal and external factors [10], transition from one business system to another or a deep transformation of the enterprise's operation [11-13]. The views of the authors differ not only in the approach to the definition of restructuring but also in the determination of its causes [14-15] and objectives [16-18]. The integrated approach has made it possible to define restructuring as a set of comprehensive transformations of the enterprise to ensure its strategic stability in a changing environment, aimed at preventing or overcoming crisis [19].

The phenomenon of restructuring covers a range of actions taken, from rescue to anticipation and development [20-21]. Restructuring processes may be limited to selected areas of activity (e.g. human resources, sphere of management and organisation, structure of fixed assets or operating costs), but they can also cover all areas of the company's activity. They may be considered at several levels: at

the level of the economy (movement of assets and liabilities between sectors of industry), at the level of industry, industry sectors (change in the mutual position of enterprises within the sector of industry) [22], and at the level of individual enterprises (change in the structure of assets and liabilities within enterprises).

Undertaking restructuring activities is caused by many reasons. J.E. Bethel and J. Liebeskind [23] see the main reason in the intensification of radical changes in the short term, based mainly on the assumptions of agency theory, and also in the company's environment. P.A. Gibbs is of the opinion that the reasons for restructuring come from agency conflicts [24], excessive expansion and diversification, as well as errors in the management of financial resources. S. Slatter and D. Lovett are of a similar opinion; they see the reasons for restructuring in the lack of competence of management, in the organisational structure, and in the poor management of working capital [25]. The underlying reasons for restructuring are divided into external and internal. The former refer to the enterprise environment, including the state's economic policy, while the internal ones are created within the organisation.

The main goal of the restructuring processes is to achieve a better strategic position of the company on the market and, in consequence, a more favourable economic performance on a micro- and macro-scale.

Restructuring of the textile industry in the Łódź region

The decade of the 90's of the last century was a period of deep and multifaceted adaptations of Polish enterprises to the requirements of the market economy. Many enterprises, especially state-owned ones, made radical changes in ownership and organisation to adapt to dynamic systemic changes in the state. The restructuring activities in Polish enterprises were so widespread that they turned into a mass process, which became one of the most important fragments of the transformation of the Polish economy.

Significant changes were made in every industry, for example, light industry, including the textile industry (manufacturing products based on natural and artificial raw materials), the clothing industry, and the leather and footwear industries.

The Łódź district was one of the largest centers for light industry. The beginnings of its development date back to the fifteenth century, but it was in the second half of the nineteenth century that Łódź became one of the largest centers of the textile industry in Europe. Apart from the largest factories of Poznański, Scheibler, Grohman and Biedermann, there were many smaller plants operating in the city, cooperating with large spinning mills, dyeworks and weaving plants. For almost 170 years Łódź was characterised by the monoculture of the textile industry. From the 19th century to the threshold of the 21st century, the industry shaped the face of the city and surrounding areas and influenced the socio-economic condition. The textile and clothing industries have been the basis of Łódź industrial activity for many years.

The beginning of the 90s of the last century was a period of dynamic changes and, at the same time, difficult moments for the textile industry in the region of Łódź. The period of socio-economic transformation had a particularly negative impact on Łódź. In the mid-1990s, the city experienced a much larger economic breakdown than other major Polish cities, caused by the collapse of the textile industry prevailing in the agglomeration of Łódź. The institutional, structural and technological changes that took place in the economy affected all sectors, but they were particularly evident in the textile industry.

In the Łódź region, the textile industry was the core of the socialist economy, dominated by large, centrally managed enterprises deprived of the ability to function in conditions of market competition and often characterised by technological delay in relation to Western companies. In the first years of systemic transformation, the restructuring was an attempt to rescue the textile industry.

Systemic changes related to the transition of the economy from centrally planned to market resulted in the fact that large state-owned textile factories were not able to adapt to the new operating conditions.

Increasing domestic competition (rapidly growing number of small private enterprises) and international competition, excessive employment, too high labor costs, changes in customer expectations, the need to introduce new products, ex-

cess of fixed assets and resulting high financial burdens, loss of eastern markets, changes in economic legislation, lack of ability to use the freedoms that the market economy brought, changes in technology in competing companies, outdated machine parks, the inappropriate attitudes and habits of employees who thus far had been operating in a shortage economy, and excessively developed, inflexible or “sluggish” organisational structures [26] consequently led to wide-ranging changes in the ownership structure, involving the privatisation of enterprises in the Łódź region. The crisis in the region and, thus, the lack of an appropriate climate for the development of the textile sector still consists in the lack of adequate technical infrastructure, as well as the probable outflow of young, talented, and creative residents [27].

Privatisation in Poland was carried out through commercialisation (transformation of state-owned enterprises, e.g. into a sole-shareholder company of the State Treasury), direct privatisation (involving the sale of a company), and liquidation of unprofitable enterprises (sale of the company’s remaining assets). Due to the changes initiated in 1990, the output of many plants declined, and sometimes they even had to be closed. The state-owned enterprises which were not immediately closed underwent restructuring processes, some of which successfully implemented repair and modernisation programs in order to increase profitability [28]. Many large textile factories in and around Łódź were closed or sold to private owners. In Łódź, restructuring changes took place, for example, in the clothing factories of Próchnik and Wólczanka.

For society, restructuring processes in industry meant unemployment, falling incomes, lower standard of living, and from the point of view of public finances – an increase in budget expenditures on transfer payments [29].

As a result of the systemic changes in the region of Łódź, the industrial monoculture has been replaced by a diversity of industries. Currently, the key branches of Łódź agglomeration industry, in addition to textile and clothing, include energy, coal, chemicals, pharmaceuticals, the production of building materials, food, as well as machine and electro-technical industry (especially the production of household appliances).

The textile industry is becoming less and less traditionally associated with low technologies. It is gradually starting to acquire areas related to high technology industry. Traditional workplaces are being replaced by modern ones, where highly qualified people are employed who have knowledge in the field of advanced technologies, materials and raw materials of the latest generations. This is one of the stages of European integration that uses the historical specialisation of the local economy, which results in the increased competitiveness of the regions [30]. The role of the textile industry is now strongly emphasised in the strategic documents of the Łódź region. The Integrated Development Strategy for Łódź 2020+ emphasises that the development of entrepreneurship in the Łódź agglomeration will take place through the active acquisition by the city of investors from industries with the best market prospects. Particular emphasis is placed on modern textile industry. In addition, it is planned to support the development of creative industries, especially the fashion and design sectors. Support for the development of cluster structures is also important for the development of entrepreneurship [31].

At the end of 2015 in the Łódź region there were 8,803 entities registered in the REGON system engaged in the production of clothing and textile products. They constituted 21.6% of the total number of textile companies operating in Poland, the majority (87.9%) of which representing the textile and clothing industry were micro-entities, and another 10.3% employed from 10 to 49 people, while 1.8% of entities employed 50 or more persons. In 2015, the largest number of entities from the textile and clothing sector in the region could be found in the city of Łódź (in total 4,083 entities), and in the district of Zgierz (1 050 entities), Pabianice (960 entities), and in the Eastern Łódź district (550 entities). In 2015, the number of employees in the textile and clothing sector was 27,200, which was lower by as much as 13.7% compared to 2011. In the area of textile production, the employment rate decreased by 2.9%, while in the case of clothing production, a reduction in employment of 17.5% was observed.

Expenditures on innovative activity in the Łódź region on industry amounted to 5,444,395,000 PLN and were 3,190,124,000 PLN higher than 4 years earlier. In entities dealing in textiles, the most funds for innovative activities

in 2015 in the Łódź Region were allocated to machinery, technical equipment, tools, and means of transport (10,251,000 PLN), followed by research and development (1,490,000 PLN, these expenditures had increased almost three times in comparison with 2013) and the purchase of software (907,000 PLN, a decrease of 3,549,000 PLN was recorded in relation to 2011). In the clothing sector, investment expenditures on machinery, technical equipment, tools, and means of transport (3,286,000 PLN had increased by 1,864,000 PLN since 2011) were in the first place in terms of the amount of funds spent on innovations. Further items included the purchase of software (98,000 PLN) and marketing costs for new or upgraded products (66,000 PLN) [31].

Restructuring of the textile industry in the Łódź region continues to evolve, although its forms and directions change. However, changes initiated in the early 1990s had a key impact on the region’s economy. At present, the changes are dictated primarily by the desire to gain a competitive advantage on the market, as well as to generate profit. They consist mainly in the introduction of modern production techniques and technologies and in the search for new markets.

The textile sector has to seek out new innovations, an example of which being green enterprises. It will contribute to the further development of the textile sector in a circular economy [31]. Changes such as privatisation, restructuring of the economy, which affected the textile industry at the end of the last century, and the reform of vocational education introduced at the beginning of the 21st century also affected the labour market of the Łódź region.

Educational opportunities support the textile industry in the Łódź agglomeration, where there are three facilities at the vocational and secondary vocational level as well as three higher education schools educating staff in the field of textiles, design and fashion. At the same time, the number of graduates is decreasing, which leads to declining human resources in the textile industry. The drop in secondary school graduates in the school year 2013/2014 amounted to 1.3 percentage points compared to 2009/2010. At a higher level, the trend is not unambiguous. There are fields of study with a constant downward trend

and some which are becoming popular (Design at Łódź University of Technology – 422 students in 2016 – an increase of 118.5% compared to 2011, and Fabric and Clothing at the Academy of Fine Arts – 269 students – three times more compared to 2011).

Globalisation processes, the inflow of cheap goods from the East, and changes in the education system are important factors hampering the long-term and sustainable development of the industry in the Łódź region.

Financial condition of local government units and the condition of business entities in the textile sector in the context of the restructuring activities conducted

The decentralisation of public works obliges the authorities of the local government unit to conduct a financial policy which ensures continuity and a high quality of services provided to the local community. This policy has a direct impact on the financial situation of the local government, which determines the financial credibility of the entity towards its current and future creditors and the sense of security of its residents. A special role was assigned to municipalities as the units responsible not only for meeting the needs of local communities but also for local development in the broad sense, including the development of local entrepreneurship. The potential emergence of a municipality's financial problems may disrupt its ability to ensure continuity in the provision of public services and pay its financial obligations. It is in the interest of local authorities to monitor the financial condition of a given unit.

The financial condition of the local government is an abstract concept, because only on the basis of the analysis of many components of the finances of a given unit can one conclude about its financial situation. Financial condition is a measure of the finances of local government. In the literature devoted to the finances of local government units, next to the term 'financial condition', the authors use an alternative one – financial situation [32, 33].

R. Berne [34] defines the financial condition as the probability that local authorities will meet current and future financial obligations to lenders, consumers, em-

ployees, taxpayers, suppliers, voters and other stakeholders. It is expressed in cash solvency, long-term solvency, budgetary solvency and service-level solvency [35]. The financial condition of the commune is the state of its finances in a given period of time. The level of this condition is evidenced by the ability to achieve budget balance or increase the commune's assets. It is a certain state of finance, the recognition of which requires the use of a tool in the form of a financial analysis [36]. The analysis uses, among others, such parameters as the income level of the commune, the financial independence of the unit, the amount of investment expenditures, the ability to raise external financial resources, the financial result achieved by the municipality [37], the level of financial surplus, and investment attractiveness. According to B. Filipiak, when reviewing the literature, the assessment of the financial condition of local government is based firstly on many empirical measures, and secondly on the synthetic measure [38]. The first approach is based on the assessment of financial condition through index analysis, i.e. issuing a judgment based on the interpretation of individual variables and trend analysis. In these studies, the assumption was made that the indicators used should have a logical connection between them.

The second direction of evaluation of the financial situation consists in constructing one synthetic measure by means of which it is possible to make a relative measurement of the level of the financial situation and to classify communes into their respective categories [39]. Measurement of the condition made on the basis of a synthetic measure is based on a specific set of features, for example, firstly, one set of multi-feature samples describing the subject of the study [40], and [41] secondly, a number of multi-feature segments describing the dimensions (components) of the subject of the study [42, 43].

Initial work on the assessment of the financial condition was based on financial indicators closely related to the budget and its structure; later ones already used measures based on modified indicators aimed at the analysis of operating surplus and debt.

In territorial self-government units, financial analysis and proper selection of financial indicators are extremely important from the point of view of financial

managers. Improper selection of indicators for financial evaluation increases the risk of misinterpretation and of making wrong decisions in the future [44].

Defining the financial condition should also take into account social goals, which are defined in documents and legal acts, and the financial condition is treated as a result of the activity of local self-government resulting from the pursuit of these goals. They are implemented by self-government authorities as part of their policy and the implementation of programs financed by them. On the other hand, the government's participation should focus on determining certain directions of development and defining general legal norms in the field of financial management. In addition, each local government has a different development strategy and promotes different types of activity, which ultimately affects its financial condition [45].

The analysis of financial condition should be extended to economic factors. This approach requires the use of data not included in the financial statement. In addition, it is proposed that the financial and economic factors should be treated equally as determinants of the financial condition. Determinants of the assessment of the financial condition of local governments can be divided into four categories: socio-economic (income per capita, expenditure, debt, registered unemployment, trade, and industry: an index based on the taxation of economic activity in the area of industry in the commune, tourism), political (political leadership, unions, e.g. trade unions), demographic (population, wealth of the local community, size of population, population density, age profile of the local community), and organisational (organisational factors, management capacities of local authorities) [45]. In the national literature on the subject, we can find a proposal to divide the factors of financial condition into two categories: exogenous and endogenous factors, with the third category dependent on the economic activity of communes [46]. Previous studies on the financial condition of local government units include, apart from financial factors, also those of a non-financial nature [47, 48]. There are also studies in which non-financial factors are completely neglected [49-52].

Nevertheless, local authorities should have at their disposal an instrument for

Table 1. Number of bankruptcy and restructuring proceedings in Poland and the Łódź region in the textile and clothing industry between 2007 and 2017. **Source:** Authors' own compilation based on Coface annual reports: bankruptcies and restructuring of companies in Poland between 2008 and 2017 [54].

Years	Number of bankruptcy and restructuring proceedings in Poland	Number of bankruptcy and restructuring proceedings in the Łódź region	Number of proceedings in the clothing and textile industry
2007	447	N.A.	N.A.
2008	411	14	24
2009	691	34	26
2010	655	26	28
2011	723	35	15
2012	877	29	23
2013	883	36	17
2014	823	21	12
2015	741	21	20
2016	760	22	10
2017	885	30	11

assessing the financial condition which would play the role of a specific early warning system at an early stage of emerging financial problems in the unit.

■ Research hypotheses

The aim of the study is to assess the financial condition of municipalities and cities with poviats rights in the context of restructuring activities of the textile sector, with particular emphasis on LGUs of the Łódź region between 2007 and 2017. The period of research adopted makes it possible to assess the financial condition of local government units against the background of economic fluctuations. After years of clear economic acceleration (in 2007 and 2008 the GDP growth rate remained high at 6.8% and 5.1%) as a result of global phenomena, symptoms of a slowdown appeared in the Polish economy. The slowdown in economic growth was evident primarily in the year 2009 (the GDP growth rate stood at 1.6%); in 2010 and 2011 the GDP growth rate was 3.9% and 4.3%, respectively. In 2012, and then in 2013, there was a further slowdown, where the GDP growth rate declined to 2.0% and to 1.7%. Between 2014 and 2017, the GDP growth rate increased to 3.3%, 3.8%, 3.9%, 4.3% and 5.1% [53, 54].

Restructuring processes, in particular those taking place in the textile industry, may be considered as a remedy for the increased risk of bankruptcy. These processes indirectly affect the condition of LGUs. In Poland, it was predicted that due to the economic slowdown, about 900 enterprises would be closed in 2009, more than twice as many as in 2008. However, contrary to initial ex-

pectations, as a result of restructuring changes, 691 companies declared bankruptcy, which represented an increase of 68.1% compared to the previous year [55]. In 2009, most industries were affected by the economic crisis. The steel processing industry stands out as a clear example, where the number of bankruptcies tripled. The scale of bankruptcy in the construction industry also increased significantly – the fall in demand for construction materials became a big problem for many manufacturers [56].

The number of bankruptcies in the textile and clothing industry increased from 19 in 2008 to 22 in 2009, i.e. by 15.8% [57]. Between 2007 and 2017, the total number of bankruptcies and restructuring proceedings amounted to 7,895, of which the most took place between 2012 and 2014 (877, 883, and 823, respectively) and 885 in 2017 [57].

A detailed breakdown of bankruptcy and restructuring proceedings in Poland, including the production of clothing and textiles in the Łódź region, is presented in **Table 1**.

The formulated goal made it possible to define the following research hypotheses:

- H1: Financial condition of communes and cities with district rights is varied, and is affected by factors related to the location, type and level of development of local government units (LGUs).
- H2: Restructuring which took place in industry, in particular the textile industry, had a positive impact on the financial condition of local governments, especially on their level of self-financing.

■ Material and methods

Guided by the results of theoretical research as well as the availability of specific statistical data on the financial condition of local government units, entrepreneurship, and factors that may affect the financial situation of the local government, a specification of variables was made which reflect the above-mentioned aspects.

It was decided to adopt a self-financing indicator as an endogenous variable. This is one of the most important indicators used in the financial analysis of local government units in Poland. It is calculated according to the following formula:

$$W_{sf} = \frac{N_o + D_m}{W_m}$$

where, W_{sf} – self-financing indicator, N_o – operating surplus, D_m – property income, W_m – property expenses.

The value obtained allows us to draw conclusions as to the direction, manner and investment possibilities of a given local government unit. It determines the degree to which a local government unit finances investments with its own revenues, i.e. the ability to self-finance. The higher the ratio, the lower the risk of losing financial liquidity due to excessive debt servicing costs; however, its high value is also disadvantageous, as it may indicate a low level of investments carried out in relation to an LGU's own capabilities.

In order to illustrate the diversity of the impact of individual variables on the level of the self-financing indicator presented in the article, emphasis was placed on dividing all voivodships into groups corresponding to approximate values of the parameter under study in the years between 2007 and 2017. The intervals for groups were calculated based on the arithmetic mean and standard deviation of the self-financing indicator. Based on the statistics obtained, four groups of voivodships were designated, from A to D. Group A represents voivodships with the highest level of the self-financing indicator, while group D includes those with the lowest value of the parameter under examination. These groups are left-bounded intervals with lower bounds:

- Group A: arithmetic mean + standard deviation,
- Group B: arithmetic mean

- Group C: arithmetic mean – standard deviation,
- Group D: 0 (*Table 2*).

In the next stage of the research, an attempt was made to construct an econometric model which explains the changes in the self-financing indicator in dependence on the formation of individual explanatory variables. For comparison, a study was conducted in four variants (separately for each of the groups of voivodships defined). A dynamic log-linear (power) form of the model was adopted, which was estimated based on panel data. In dynamic terms, the value of an endogenous variable depends on its delayed (by one period) value and on the values of explanatory variables included in the model. The process of estimating the dynamic panel model usually involves using the generalised method of moments (GMM), after prior conversion of the model to the form of the first differences. The model after transforming into a first differences model has the form:

$$\Delta y_{it} = \gamma \Delta y_{it-1} + (\Delta x_{it}^T) \beta + \Delta v_{it}$$

This action removes fixed effects characteristic of individual objects from the model. Due to the fact that the delayed explanatory variable is included in the model, the occurrence of autocorrelation of the first order is common, because if the random component, i.e. ε_{it} , is independent, their first differences are subject to the first order autocorrelation scheme. Occurrence of autocorrelation of the second order in this model would lead to failure to meet the conditions of the moments and inconsistencies of the estimator, which would mean the wrong selection of instruments used in the model estimation process [58]. For this reason, it is extremely important to check if there is autocorrelation of the second order or whether AR (2) occurs in the dynamic model.

Empirical perspective and discussion

Evaluation of the impact of restructuring activities in the textile industry on the structural financial condition of LGUs in Polish communes and cities with district rights allowed for the creation of four research groups which include voivodships characterised by a similar level of the self-financing indicator in the years under study. Three to five voivodships which in 2007 and 2017 reached a similar level of this indicator (Cf. *Table 3*) were selected for each group. The purpose of the econo-

Table 2. Voivodships assigned to particular groups. *Source:* Authors' own compilation.

Group	Voivodships
A	Subcarpathia, Podlaskie, Świętokrzyskie,
B	Lubusz, Opole, Warmia-Masuria, West Pomerania,
C	Kuyavia-Pomerania, Lublin, Łódź, Lesser Poland, Pomerania, Greater Poland,
D	Silesia, Masovia, Lower Silesia

metric model constructed is to describe the relationship between the self-financing indicator¹ and explanatory variables, which, to a large extent, describe the financial condition of enterprises of the textile sector in Poland over the period from 2007 to 2017. The set of explanatory variables considered here is not complete and hence cannot be considered as closed. Due to the difficult access to data and the assumed time horizon, the work was based on the analysis of only selected factors which may favour (or inhibit) the independence of LGUs. Simplifying reality in econometric models consists in taking into account only the most important factors (variables) affecting the formation of the endogenous variable. It was decided to select the following set of explanatory variables for the model:

- self_financing_rate* – an LGU's self-financing indicator, %;
- income_CIT* – income from CIT for communes and cities with district rights per capita, PLN;
- income_PIT* – income from PIT for communes and cities with district rights per capita, PLN;
- income_inv* – subsidies received by communes and cities with district rights for investment purposes per capita, PLN;
- income_credit* – loans for investment purposes of communes and cities with district rights per capita, PLN;
- numb_entrep* – number of enterprises in the industrial processing sector;
- other_operating_rev* – other operating revenues of communes and cities with poviats rights received in the form of subsidies per capita, PLN;
- rev_entrep* – net revenues from the sale of products of enterprises in the industrial processing sector per capita, PLN;
- entrep_prof* – the share of enterprises which show profit in all enterprises in communes and cities with district rights, %;
- exp_entrep* – the share of investment expenditures of communes and cities with district rights in total expenses, %;
- prof_indic* – profitability indicator of sales in the industrial processing sector, %;

- exp_envir* – expenditure of communes and cities with district rights on environmental protection in the form of subsidies per capita, in PLN;
- aver_indus* – average remuneration in the industrial processing sector, in PLN.

Table 3 provides basic descriptive statistics of variables that have been selected for the study.

On the basis of *Table 3* describing the statistics of variables which are involved in the study, several conclusions can be made.

The vast majority of the variables differ significantly in the voivodship groups under study. Significant differences are evident in the scope of:

- The share of communes and cities with district rights in CIT, where the average value of this parameter in the period under study in group A is 28.60 PLN per capita, and in group D – 93.37 PLN per capita,
 - The share of communes and cities with district rights in PIT, where the average value of this parameter in the period analysed in group A is 495 PLN per capita, and in group D – 943 PLN per capita,
 - The number of enterprises in the industrial processing sector, where the average values in group A are 107 units, and 482 in group D,
 - Net sales revenues, where the average values of this parameter were at the level of 13.69 PLN per capita in the voivodships classified as group A, and 32 PLN per capita for those in group D,
 - Wages in the industrial processing sector, which amounted to an average of 3,138 PLN in group A and 3,818 PLN in group D,
 - The difference between the majority of the features studied is moderate. Values of coefficients of variation range between 10% and 30%. However, a large variation in the value of variables can be observed in the case of *doch_CIT* (16-46%),

Table 3. Descriptive statistics of variables examined for the research groups. *Source:* Authors' own study based on Statistics Poland data.

Group A						
Variable	Mean	Median	Minimal	Maximal	Standard deviation	Coefficient of variation
self_financing_rate	111.03	105.00	76.00	204.00	29.91	0.27
income_CIT	28.60	28.49	21.00	43.68	4.55	0.16
income_PIT	495.43	460.10	333.76	754.63	117.34	0.23
income_inv	47.57	48.09	19.45	79.65	13.64	0.29
income_credit	0.97	0.84	0.49	1.66	0.34	0.36
numb_entrep	107.24	104.00	46.41	179.11	33.84	0.32
other_operating_rev	0.04	0.04	0.01	0.08	0.02	0.38
rev_entrep	13.69	13.11	10.27	18.87	2.19	0.16
entrep_prof	80.65	81.80	70.90	87.30	4.24	0.05
exp_entrep	18.52	17.90	9.00	29.30	4.49	0.24
prof_indic	6.13	6.00	2.70	13.90	2.68	0.44
exp_envir	6.59	7.91	1.00	11.41	3.69	0.56
aver_indus	3,138.88	3,046.08	2,350.58	4,003.08	511.41	0.16
Group B						
Variable	Mean	Median	Minimal	Maximal	Standard deviation	Coefficient of variation
self_financing_rate	103.07	96.50	68.00	163.00	21.70	0.21
income_CIT	34.76	34.47	20.52	49.15	7.24	0.21
income_PIT	578.69	551.63	413.13	413.13	121.03	0.22
income_inv	44.72	44.16	21.82	81.16	11.95	0.27
income_credit	0.93	0.96	0.42	1.55	0.30	0.32
numb_entrep	104.85	103.00	54.72	191.36	27.48	0.26
other_operating_rev	0.04	0.04	0.01	0.05	0.01	0.33
rev_entrep	17.56	17.33	10.48	30.00	4.70	0.27
entrep_prof	78.92	78.80	60.90	88.90	5.31	0.07
exp_entrep	16.15	15.90	8.60	25.50	4.25	0.26
prof_indic	5.35	5.25	2.30	11.90	1.59	0.30
exp_envir	6.07	3.74	0.98	17.25	5.00	0.82
aver_indus	3,245.89	3,173.69	2,273.46	4,303.4	561.04	0.17
Group C						
Variable	Mean	Median	Minimal	Maximal	Standard deviation	Coefficient of variation
self_financing_rate	98.97	96.00	61.00	156.00	19.91	0.20
income_CIT	48.20	49.14	21.14	81.96	13.18	0.27
income_PIT	655.69	628.90	369.58	1,031.70	158.73	0.24
income_inv	46.06	42.74	14.14	99.73	15.75	0.34
income_credit	1.13	0.98	0.35	2.80	0.56	0.49
numb_entrep	385.13	257.50	76.17	1,058.64	294.13	0.76
other_operating_rev	0.04	0.04	0.01	0.10	0.02	0.40
rev_entrep	20.66	19.43	6.73	44.46	8.94	0.43
entrep_prof	81.15	81.45	71.50	90.10	4.61	0.06
exp_entrep	18.12	18.55	9.90	24.50	3.66	0.20
prof_indic	5.87	6.00	2.00	8.10	1.31	0.22
exp_envir	3.81	3.41	1.71	8.23	1.36	0.36
aver_indus	3,274.43	3,210.86	2,161.86	4,479.21	571.60	0.17
Group D						
Variable	Mean	Median	Minimal	Maximal	Standard deviation	Coefficient of variation
self_financing_rate	94.30	93.00	39.00	150.00	24.14	0.26
income_CIT	93.37	76.24	46.17	179.43	42.81	0.46
income_PIT	943.94	949.64	579.75	1,591.20	261.78	0.27
income_inv	43.58	45.42	18.36	73.92	17.74	0.41
income_credit	1.35	1.40	0.70	2.13	0.40	0.30
numb_entrep	482.06	513.00	210.66	801.23	180.81	0.38
other_operating_rev	0.03	0.03	0.01	0.06	0.01	0.38
rev_entrep	32.28	31.39	16.84	47.70	8.58	0.27
entrep_prof	78.87	80.20	65.30	84.10	4.49	0.06
exp_entrep	18.22	18.40	10.90	23.90	3.71	0.20
prof_indic	5.02	5.00	3.40	7.90	0.89	0.18
exp_envir	4.51	4.36	2.04	7.00	1.55	0.34
aver_indus	3,818.20	3,847.65	2,589.68	4,915.05	641.53	0.17

l_przedzie (26-76%); wsk_rent_sprzed_PP (18-44%), and wyd_jst_ochr_srod_dotacje (34-82%).

- Depending on the location of a given feature, they are characterised by right-sided or left-sided asymmetry.

The **Table 4** presents the results of estimation of dynamic panel models in which the logarithm of an LGU's self-financing indicator is an endogenous variable.

The results of the estimation for the group of voivodships A (Subcarpathia, Podlaskie and Świętokrzyskie) indicate that statistically significant variables that affect an LGU's self-financing indicator include $l_self_financing_rate$ (-1), l_income_inv , l_income_credit , $l_other_operating_rev$, l_rev_entrep , l_exp_entrep , and l_aver_indus . It is worth noting, however, that the direction and impact of the variables taken into account on the endogenous variable are different. The self-financing indicator is positively affected by: $l_self_financing_rate$ (-1), l_income_inv and l_rev_entrep , which may be due to the fact that the voivodships included in this group, although classified as the poorest, have a prospective development potential, which is supported by a system of subsidies, including those supporting local entrepreneurs [59]. Industries such as aerospace, metallurgy and the airline industry have a dominant position in the industry sector. They are profitable because they represent niche and innovative markets and have the low labour costs characteristic of these regions. These are new industries developed as a result of restructuring changes whose main goal was to change the production profile by eliminating traditional branches of industry and replacing them with modern industries and by modernisation of old technological lines.

The variables that have a negative impact on the variable explained are l_income_credit , $l_other_operating_rev$ and l_income_inv . The results obtained can be explained by the fact that although investment expenditures have a positive impact on the region over a longer time horizon, when spending budgetary funds they have a negative impact on financial independence in the broad sense. In addition, it should be emphasized that investments made and expenses incurred in this are directly related to the financial possibilities of local government units, which in turn affect the level of loan obli-

gations. LGUs often use external sources of cash inflow, such as loans, which in turn translates into a decline in financial independence. Other variables that were included in the study turned out to be irrelevant to shaping the self-financing indicator in the group of voivodships under study (**Table 5**).

Econometric analysis for group B voivodships (Lubusz, Opole, Warmia-Masuria and West Pomerania) shows that the factors that influence the self-financing indicator are $l_self_financing_rate$ (-1), l_income_inv , l_numb_entrep , $l_other_operating_rev$, l_rev_entrep , l_entrep_prof , l_exp_entrep , l_prof_indic , l_exp_envir , and l_aver_indus . The direction and strength of only three variables indicate similarities with group A (l_income_inv , l_exp_entrep and l_aver_indus). Explanatory variables: $l_self_financing_rate$ (-1), $l_other_operating_rev$, and l_rev_entrep show a different sign than for group A. These differences result from the fact that the dominant industries in this region are those which are in the development phase, following restructuring activities; thus, they are characterised by lower profitability in relation to traditional industries, including those involving the textile industry, which is not the dominant branch in this region.

The study found that the significant variables also include l_numb_entrep , l_entrep_prof , l_prof_indic and l_exp_envir . The results can be interpreted in such a way that the significance of the impact of the variables under study on the self-financing indicator, in particular investment expenditure or expenditure of local government units on environmental protection (negative values), is related to investments made in the regions studied. All voivodships included in this group focus on sustainable development, for example, they invest in green economy, environmentally friendly packaging industry and healthy food [60], investments in such being extremely cost-intensive. The following variables have a positive influence on the self-financing indicator: l_entrep_prof and l_aver_indus . Industrial sectors related to sustainable development (the effect of industrial restructuring) are a fairly new economic branch in Poland, hence the growing remuneration and profitability in this sector are at a high level (**Table 6**).

In group C, which represents Kuyavian-Pomeranian, Lublin, Łódź, Lesser

Table 4. GROUP A. Estimation of the dynamic model, 1-step, using 27 observations. Note: * $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Source: Authors' own compilation.**

Variables	Coefficient
$l_self_financing_rate$ (-1)	0.144*** (3.074)
Const	-0.086*** (-3.786)
l_income_inv	0.465*** (3.562)
l_income_credit	-0.305*** (-7.234)
$l_other_operating_rev$	-0.239*** (-3.648)
l_rev_entrep	2.094*** (17.70)
l_exp_entrep	-0.942*** (-9.414)
Residual sum of squares	0.686934
Residual standard error	0.190143
AR (2) test	z = -1.03271 [0.3017] lack of autocorrelation $p > 0.05$

Table 5. GROUP B. Estimation of the dynamic model, 1-step, using 36 observations. Note: * $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Source: Authors' own compilation.**

Variables	Coefficient
$l_self_financing_rate$ (-1)	-0.125 (-0.951)
Const	-0.049*** (-23.72)
l_income_inv	0.305*** (3.614)
l_numb_entrep	0.483*** (13.38)
$l_other_operating_rev$	0.374*** (25.14)
l_rev_entrep	-0.517*** (-3.546)
l_entrep_prof	0.937*** (10.15)
l_exp_entrep	-0.796*** (-6.447)
l_prof_indic	-0.176*** (-4.027)
l_exp_envir	-0.056*** (3.565)
l_aver_indus	1.603*** (5.566)
The residual sum of squares	0.645250
Residual standard error	0.160655
AR (2) test	z = -1.11987 [0.2628] lack of autocorrelation $p > 0.05$

Poland, Pomerania and Greater Poland voivodships, the results were different from those in previous studies. Of all the groups studied, it is in this group that the textile industry is one of the most important industries. As many as four out of the seven most well-known clothing brands (of international importance) are located in these voivodships. The Łódź

Table 6. GROUP C. Estimation of the dynamic model, 1-step, using 54 observations. Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. **Source:** Authors' own compilation.

Variables	Coefficient
$l_self_financing_rate(-1)$	-0.243 *** (-4.519)
Const	0.002 (-0.3213)
l_income_CIT	0.114 (0.8000)
l_income_PIT	0.692 * (1.835)
l_income_inv	-0.067 (-1.515)
l_income_credit	0.094 * (1.938)
l_numb_entrep	-0.158 *** (-3.888)
$l_other_operating_rev$	-0.111 ** (-2.333)
l_rev_entrep	0.0776 (-0.6982)
l_entrep_prof	0.714 (1.111)
l_exp_entrep	-0.271 (-1.234)
l_prof_indic	-0.131 (-1.006)
l_exp_envir	0.121 ** (2.118)
Residual sum of squares	1.789381
Residual standard error	0.211505
AR (2) test	$z = -1,12609$ [0.2601] lack of autocorrelation $p > 0.05$

Table 7. GROUP D. Estimation of the dynamic model, 1-step, using 27 observations. Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. **Source:** Authors' own compilation.

Variables	Coefficient
$l_self_financing_rate(-1)$	-0.347 *** (-2.938)
Const	0.081 *** (5.310)
l_income_PIT	2.609 *** (4.466)
l_numb_entrep	-0.455 *** (5.571)
l_aver_indus	-6.529 *** (-4.180)
The residual sum of squares	1.654018
Residual standard error	0.274194
AR (2) test	$z = -0.8447$ [0.3968] lack of autocorrelation $p > 0.05$

region is particularly interesting. This region has many years of tradition related to the textile industry. The production of textiles and clothing accounts for ca. 10% of the value of sold production of the entire industrial processing sector in the Łódź region, while at the same time ca. 23% of employees engaged in industrial processing in the Łódź region

work in enterprises operating in the sector [61].

Variables that have a statistically significant impact on the self-financing indicator of local government units include $l_self_financing_rate(-1)$, l_income_PIT , l_income_credit , l_numb_entrep , $l_other_operating_rev$, l_exp_envir and l_aver_indus . It is noteworthy that the direction of impact of these variables is also different from that obtained in previous versions of the model. The results indicate that local government units which allocate funds for investments (in this case, investments in environmental protection), are characterised by rapid changes in the development of infrastructure, which translates into investment attractiveness and is conducive to economic activity. Expenses incurred for investments after their completion will be returned to the municipality in the form of tax revenues, which is confirmed by the results in the model. The use of returnable instruments (as proven by the activity of managers) in financing own tasks exerts a positive impact on the value of the self-financing indicator until the Individual Debt Ratio is exceeded, which in the long-term is indicative of the deteriorating financial condition of LGUs, thus limiting self-financing opportunities. The self-financing indicator is decreasing.

Salaries in the processing industry are quite high. However, both their level and the number of enterprises operating in the region do not translate positively into the self-financing indicator. This may mean that the regions included in the group under study are characterised by more developed urban centers and a well-developed infrastructure in comparison with groups A and B, and thus attract many investments. However, in order to make it possible, the local government needs to develop appropriate technical facilities, and this requires significant financial outlays, which in turn have a direct impact on the decline (in the initial period) of the self-financing indicator.

These regions also have greater possibilities of obtaining financial resources from the EU due to the following: 1) the manner of granting funds, depending on the number of inhabitants of a given territorial unit, 2) having their own financial resources necessary to undertake an investment project co-financed from the Union budget, and 3) greater skills in acquiring funds and using them (Table 7).

Group D, in which there are the following voivodships: Lower Silesia, Masovia and Silesia, and which at the same time have the lowest self-financing indicator, has the following statistically significant factors: $l_self_financing_rate(-1)$, l_income_PIT , l_numb_entrep , and l_aver_indus . It is noteworthy that all of them, apart from l_doch_PIT , are destimulants. These regions are characterised by a high level of the industrialisation and urbanisation rate (average result – 70.57%) [62], which directly translates into a relatively high level of remuneration (average salary in this region is PLN 5,355.67, which is 125.31% of the average wage in Poland) [63]. Also, the number of enterprises, including those operating in the industrial processing industry, is the largest of all groups. These variables may have a negative impact on the self-financing indicator (a positive one on development) through increased outlays on property expenses, related, among others, to an increase in the number of population or business entities and investments in infrastructure.

The desire to improve the quality of life causes greater migration than in other regions (Masovian and Lower Silesia voivodships). This, in turn, translates into an increase in income derived from personal income tax. The study also showed that both the direction of the impact of variables and their strength are analogous to those in group C. Thus, there are clear similarities between these voivodships.

To sum up, currently operating centers of the textile industry have successfully undergone the process of change initiated at the turn of the century. They have adapted to the changing economic realities and become notable enterprises in their industry. The dominant position is often the result of mergers (such as the merger of Vistula and Wólczanka in 2008). There are as many as four in group C (Próchnik and Wólczanka – Łódź, Modena – Poznań, Vistula – Kraków), two in group D (Cora – Warsaw, Intermoda – Wrocław), and one in group B (Dana – Szczecin). No textile industry plant was in group A.

Conclusions

The analysis of the financial condition of local government units clearly indicates that the financial position of a given unit is determined by the financial independence indicator. Three financial cate-

gories have an impact on this indicator: property income, operating surplus and property expenditure. The level of financial surplus depends on current income and current expenditure, the first being primarily affected by own income, in particular tax revenues collected from residents and enterprises. A high level of the financial independence indicator leads to investment opportunities, particularly in infrastructure. A high level of infrastructure determines the region's attractiveness both to enterprises and the community, and these translate into the level of tax revenues. The analysis conducted also showed that the self-financing of communes depends on such elements as the macro- and micro-economic situation. The development of local entrepreneurship and the wealth of residents are the micro-factors affecting the financial situation of territorial self-governments. The reduction of bankruptcy processes and properly conducted restructuring proceedings stabilise the base of companies in the Łódź region, thus guaranteeing the stability of income, especially tax revenues, of communes. The base of enterprises and the degree of affluence of a society also affect the amount of transfers from the state budget to municipalities. Targeted subsidies for investment tasks are particularly important as they foster the development of the region. The analysis carried out for the Łódź region clearly indicates that restructuring processes initiated and successfully carried out in the textile industry in the 1990s, despite the initial economic and structural crisis of the region, translated into systematic development and positive changes in the region and helped to develop a long-term development and education policy. Conclusions from the econometric research conducted, preceded by desk research, allowed positive verification of the research hypotheses put forward at the beginning, which read:

- H1: The financial condition of communes and cities with poviats rights is varied, and affected by factors related to the location, type and level of development of local government units.
- H2: restructuring which took place in industry, in particular the textile industry, had a positive impact on the financial condition of local governments, especially on their level of self-financing.

The number of restructuring proceedings is increasing every year. "The year 2018 ended with 457 new restructuring

proceedings, which means an increase of as much as 20 percent. compared to 2017." [64]. The largest percentage of proceedings conducted in 2018 concerns the industrial sector, followed by entities dealing in trade, while construction companies rank third. Transport companies, considered to be the barometer of the economy, rank sixth in this ranking, constituting slightly over 4% of the total number of restructuring proceedings [65].

The currently operating centers of the textile industry have successfully undergone the process of change initiated at the turn of the century. The textile industry remains the hallmark of the Łódź Voivodeship. Companies of the Łódź region are the largest suppliers of pantyhoses and tights (93% of domestic production), cotton fabrics (56%), pull-overs, sweaters, vests and similar knitted products (39.2% of domestic production), men's or boys' suits and clothing sets (32.9%), dresses, as well as women's or girls' skirts and divided skirts (28.0%) [66]. The multitude of companies is the result of, on the one hand, restructuring processes and fragmentation of large state-owned enterprises, and on the other, mergers (e.g. the merger of Vistula and Wólczanka in 2008 [67]). Entities from the textile industry have adapted to the changing economic realities, often becoming notable enterprises in their industry. The good condition of companies from the textile industry, characterised by stable income and employment, in turn translates into the income of municipalities, which ultimately determines the degree of their independence.



Editorial notes

- 1) *Determines the extent to which a local government unit finances investments with its own funds, i.e. the ability to self-finance. The higher the ratio, the lower the risk of losing financial liquidity due to excessive debt servicing costs; however, its high value may also indicate a low level of investments carried out in relation to an LGU's own capabilities.*

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