Empirical Factors of SME Development in Belarus: Analysis and Recommendations

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Executive Summary

We present empirical evidence proving that the business environment restricts the development of small and medium-sized enterprises (SME) in Belarus. Many of the factors with negative effects on SME's success belong to the fields of regulative framework and macroeconomic stability.

The quantitative cross-sectional analysis of this paper complements the several existing expert analysis reports from Belarusian and international SME experts and development partner organizations. The new contribution of this analysis is the empirical proof that there is indeed growth potential of modern SME's that is locked mainly by the unfavorable regulative environment.

Our analysis is based on a survey that was conducted in the first half of 2014. More than 400 SME participated in this survey. We applied several state-of-the-art statistical methods, among them a cluster analysis and a factor analysis. In order to get unbiased results, we controlled for different firm characteristics such as industries, different regions, company sizes and ages. Our findings are consistent with all these firm characteristics. By applying different questionnaire and statistical methodologies, we ensure that the survey data is not biased by personal perceptions. We compared personal views of SME managers with the analysis of objective company data in order to level out over-optimistic and over-pessimistic personal perspectives. The findings are consistent with subjective assessment and objective data.

For a policy aiming at enhancing the development of SME in Belarus, we recommend the following measures as a result of our analysis:

- Measures that reduce regulative and administrative impediments, e.g.
    - Ease the strict foreign exchange currency regulation
    - Ease tax regulations, i.e. administrative burden of tax regulation
    - Improve the system of inspections and fines in a way that is efficient for both administration and SME, i.e. reduce unnecessary burden
    - Further simplify bureaucratic procedures and thus reduce administrative burden on SME
    - Improve the system of property rights and investment protection
- Measures that improve macroeconomic stability, above all the decrease in the inflation rate, which will lead to a decrease of loan interest rates

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1. Introduction

This paper complements a series of policy papers dealing with the policy towards the development of small and medium-sized enterprises (SME) in Belarus.[1] In those reports we have presented both general and specific types of analysis of the SME sector and the SME policy in Belarus. The analysis was based on official statistical data, qualitative field research, international scientific research and international policy experience.

The current paper adds another type of analysis, namely quantitative field research. We have collected a significant amount of quantitative primary cross-sectional SME data and processed it with state-of-the-art statistical methods. This allows us to gain new insights in the SME sector of Belarus and to derive policy recommendations that contribute to the framework provided already.

The paper is organized in the following way: Chapter 2 presents a description of the empirical analysis. Chapter 3 explains the findings of the analysis in detail. Chapter 4 derives conclusions and provides some specific policy recommendations.

2. Factors of SME development: cluster analysis

Small and medium enterprises pursue different strategies in their development. They can rely mainly on internal factors, which are controlled by the enterprise itself. On the other hand, small and medium businesses can rely on external factors, using all the opportunities that appear in business environment. Enterprises can mix these strategies, relying on a combination of external and internal factors. The extent to which enterprises can effectively use both their own resources and opportunities that exist in the business environment defines their success in the market. The SME sector is heterogeneous. Enterprises react on the business environment in a different way. It is important to understand why some enterprises use opportunities of the environment effectively while the others face obstacles and difficulties derived from external factors. It is essential to use strategic approaches for creating the environment that would be friendly for the majority of small and medium businesses. If we define the groups of enterprises that react on the environment in a similar way, and if we find the main strengths of each group of SME, the main challenges they face and the obstacles they try to overcome, we will be able to design the policy that will enhance the development of the sector.

In April-May 2014, the IPM Research Center conducted the survey "Small and medium enterprise development"[2], which covered 431 enterprises that work in different industries (retail trade, industrial production, transportation and communications, construction, etc.) in all oblasts. During the study, we interviewed personally the head or a top-manager of each company. The questionnaire contained 67 closed questions of different types (dichotomous questions, likert questions, importance questions, bipolar questions, filter questions, etc.) and was worked out for a comprehensive study of SME development in Belarus. The response rate for most of the questions was more than 96%. The survey contained a set of questions aimed at self-estimation

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[1] The most prominent papers of the series are as follows:

  PP/03/2012 "SME Development Framework – German and International Experience and Implications for Belarus"

  PP/01/2013 "Improving Access to SME Finance in Belarus: Analysis and Recommendations"

  PP/01/2014 "SME support organization in Belarus: Blueprint for a Restart"

[2] Survey data is available:
  http://www.research.by/webroot/delivery/files/survey2014r1.pdf
  http://www.research.by/webroot/delivery/files/survey2014r2.pdf

of the influence of external and internal factors on success of the enterprise in the market. External factors include the factors that cannot be controlled by the enterprise and characterize the environment, while internal factors are controlled by the SME itself. The respondents were asked to rank these factors at the scale from -3 (burden) through 0 (no influence) to 3 (enhancer)[3]. This data was used to classify enterprises by the following criterion: on what factors enterprises mostly rely on[4]. Four clusters of enterprises were identified[5]: 402 enterprises were included in clusters, while 29 SME were omitted (on the basis of their responses, it was not possible to include them in any of four clusters).

Table 1: Results of classification of SME on the basis of influence of external and internal factors of development

Cluster No	Number of enterprises	Internal factors	External factors
1	119	+ -	-
2	111	+	-
3	70	+ +	+
4	102	+ +	- -

Note. "+ -" – mixed, "+" – positive, "+ +" – strongly positive, "-" – negative, "- -" – very negative.
Source: IPM Research Center

The first cluster is the largest group of SME: it consists of 119 enterprises, for which internal factors are mixed and external factors are slightly negative. Enterprises in the second cluster rely on internal factors of development, while external factors are negative. Enterprises in the third cluster strongly rely on internal factors, at the same time they are able to use the opportunities that arise in the environment (external factors are positive). The fourth cluster contains SME that strongly rely on the internal factors and assess the external factors as a burden, which influence their success in a very negative way. What is important, enterprises only from one cluster (the smallest one, which covers only 16.2% of the respondents) assess the influence of external factors as positive, while the most enterprises face a negative influence of the environment. At the same time, most SME rely on internal factors in their development and state that they influence their success in a positive way.

The respondents were asked to estimate how the economic situation of their enterprise has changed over the last year at the scale from 1 (improved significantly) through 3 (did not change) to 5 (deteriorated significantly). Table 2 demonstrates correlations between the factors of development and the change in economic situation of the SME.

The correlations of the assessment of the change in economic situation of enterprises and the estimated influence of both external and internal factors are significant. Signs of the coefficients correspond to the expected signs: the more positive the influence of the factors was, the more positive the change in economic situation of the enterprise occurred (see Table 2). External factors (that characterize the influence of the environment) correlate with changes of the economic situations of enterprises much closer than internal factors do. Thus, the dynamics of the economic situations of enterprises is linked to the environment more closely than to the factors that can be controlled by SME.

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[3] See Annex 1, Table 1.

[4] For classification we used k-means clustering (k=4).

[5] See Annex 1, Table 2.

Table 2: Correlations between the factors of development and the assessment of change in economic situation of the enterprises over the last year

Group of factors	Change in economic situation of enterprises
External (average)	-0.207**
Internal (average)	-0.096*

*significant at the 0.05 level
**significant at the 0.01 level
Source: IPM Research Center

If we compare average values of the assessment of the factors within clusters, this correspondence will become even more evident (see Table 3). In most cases, a better economic situation of the enterprise corresponds with a better assessment of the influence of external factors, while the internal factors turn out to be less important.

Table 3: Internal factors, external factors and assessment of change in economic situation of the enterprises

Cluster	Internal factors (average)	External factors (average)	Change in economic situation of enterprises (average)
1	-0.40	-0.34	3.01
2	1.04	-0.87	3.19
3	2.09	0.67	2.77
4	2.32	-1.32	3.08

Source: IPM Research Center

Hence, the economic situation of the enterprise corresponds closely with influence of external factors of development and the business environment. Internal factors that are controlled by the enterprise play a secondary role. In this situation, the government has a large share of responsibility for the success of the SME sector. Right policy for creation of positive business environment is the clue to a better performance of small and medium enterprises in Belarus.

In Belarus enterprises that belong to different clusters perceive conditions of the environment in different ways. Identifying why it is so is the first step towards increasing the share of enterprises that use opportunities derived from the business environment. Moreover, different target groups of enterprises may require different policies. Another step is identifying key problems that enterprises are faced with. It can be assumed that SME that pursue different strategies treat problems differently, but if almost all enterprises face a negative impact of an issue, it is a serious problem in business environment, which should be solved first.

3. Profiles of the clusters

3.1. Cluster 1: Influence of external factors is negative, internal factors are mixed

According to the survey, the first cluster is the largest group of SME (119 enterprises which is 28% of all respondents). This cluster contains enterprises that estimate the impact of internal factors of development as mixed (a number of negative and positive factors), while external factors are negative. The absolute values of the assessments are relatively small, i.e. the influence of the factors is moderate.

In general, these enterprises perform better than enterprises from cluster 2 and 4, but not as good as cluster 3. Cluster 1 differs from the others in terms of stability: many enterprises in the cluster assessed their profits, employment and investments as stable. At the same time, they do not rely strongly on neither internal nor external factors. Nevertheless, for SME within the cluster the correlation between the assessment of external factors of development and performance[6] in the market is 0.20[7]: if a company has a more positive assessment of the influence of the business environment, it will have a better performance. At the same time, there is no correlation between the performance and the internal factors of development. There is no relation between the internal factors of development and the change in profits[8] either. On the other hand, when comparing the factors of development and change in investment of an enterprise, we will find a significant positive correlation between the change in investment and both internal and external factors (0.23 and 0.27 respectively), while there is no relation between factors of development and change neither in turnover nor in employment.

Table 4: The most influential external and internal factors for cluster 1

Internal factors that have the most positive impact		External factors that have the most negative impact	
Level of legislation knowledge and ability to keep one's position before administrative and court bodies	0.28	Level of competition in the market	-0.66
Knowledge of the market, the ability to predict market conditions	0.23	Rental rates	-0.59
Relations with authorities and influential people	0.13	Bureaucratic procedures	-0.39
Ability to produce competitive products	0.12	Rates on banks' and other financial institutions' loans	-0.39

Source: IPM Research Center

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[6] Performance was measured by aggregation of assessment of dynamics of sales, profit, employment and investment for the last year at the scale from 1 (decreased) through 2 (did not change) to 3 (increased). For aggregation we used factor analysis (principal components method).

[7] Significant at 0.05 level.

[8] Respondents assessed change in profits for the last year at the scale from 1 (decreased) through 2 (did not change) to 3 (increased).

SME from cluster 1 are focused on domestic markets more often and export less than enterprises from the other clusters. Comparing with the other enterprises, cluster 1 contains more industrial SME and enterprises involved in construction, while few of the SME operate in trade markets. Medium-sized enterprises are more likely to belong to the first cluster than to any other (see Annex 2).

Table 5: Top-5 problems for doing business in Belarus (responses of SME from cluster 1)

Problems of doing business in Belarus	Assessment (average)*
Inflation	3.51
Low level of labor ethics	3.05
Tax rates	2.98
Affordability of financing	2.96
Corruption and crime	2.96

*the problems were assessed at the scale from 1 (it is not a problem) to 5 (it is a very serious problem)

Source: IPM Research Center

Enterprises from cluster 1 were able to minimize the negative impact of external factors, they managed to adapt to the market conditions, while there is still a positive relation between the assessment of the environment and their performance in the market. These enterprises do not rely strongly on internal factors, but their knowledge of the law and the market, ability to predict market conditions indicate that enterprises from cluster one were able to learn how to work effectively in the current business environment. Working mostly on domestic markets, these SME use all their knowledge and experience to succeed in it. While the ability to produce competitive products helps SME to succeed in the market, it is not the most important factor.

The enterprises from cluster 1 are not influenced strongly by external factors, and on average, they assess the problems of doing business in Belarus as less serious than the other SME. At the same time, they still think that inflation is a serious problem for doing business in Belarus. Another related problem is the limited affordability of financing, closely connected with high interest rates.

SME from the cluster 1 are adapting quite well to the environment; the other problems, such as the problem of low labor ethics, become an important issues that, in their opinion, impede a successful doing business in Belarus. Corruption and crime is assessed as a barrier for the SME from the first cluster as well.

3.2. Cluster 2: Internal factors are positive, external factors are negative

According to the survey, cluster 2 makes 25.8% of all SME (111 enterprises), which is the second largest group. Enterprises from this cluster rely on internal factors in doing business, while external factors are negative.

For enterprises from cluster 2 both groups of factors - external and internal - have a significant impact on performance. The Correlation between the assessment of external factors and the performance is 0.21; the correlation between the assessment of the internal factors and the performance is 0.27 (both values are significant at 0.05 level). What is more important is that the internal and external factors of development correlate strongly with the assessment of the change

in profit (0.31 and 0.26 respectively), while these factors do not have any relation to the change neither in employment nor in investment.

Table 6: The most influential external and internal factors for cluster 2

Internal factors that have the most positive impact		External factors that have the most negative impact	
Level of professionalism of managers	1.80	Level of competition in the market	-1.39
Team presence / absence	1.79	Rental rates	-1.19
Knowledge of the market, the ability to predict market conditions	1.69	Bureaucratic procedures	-1.10
Ability to produce competitive products	1.60	Rates on banks' and other financial institutions' loans	-0.99

Source: IPM Research Center

SME from cluster 2 have the worst performance in comparison with the SME from the other clusters. Enterprises from this cluster mention a decrease in profit and investment in the last year more often than SME from the other clusters (see Annex 2). Moreover, 34.2% of these enterprises mention that the conditions of doing business deteriorated in the last year, while the average share of "pessimists" in the other clusters is 23.7%.

Comparing with enterprises from the other clusters, the share of enterprises operating in industrial production, transport and communications or consumer services is larger. At the same time, the share of enterprises that are engaged in trade is the lowest among all clusters. Cluster 2 has the largest share of SME that were founded between 2005 and 2009 (42.2%) in comparison with the other clusters. Enterprises of this "age" on average perceive a worse economic situation than enterprises of any other age. It may be related to the fact that between 2005 and 2008 there were high rates of economic growth (9.5% per year on average), real incomes had been growing even faster (15.3% per year on average)[9]. Businesses that were started in the period of fast economic growth and rapid increase of purchasing power might not be effective enough to compete with the other enterprises that were founded and were able to survive in less favorable conditions. The fact that the level of competition has the strongest negative impact on these SME supports this idea.

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[9] Source: Belstat

Table 7: Top-5 problems for doing business in Belarus (responses of SME from cluster 2)

Problems of doing business in Belarus	Assessment (average)*
Inflation	3.87
Poor governance	3.31
Tax rates	3.12
Affordability of financing	3.09
Foreign exchange regulation	3.06

*the problems were assessed at the scale from 1 (it is not a problem) to 5 (it is a very serious problem).

Source: IPM Research Center

Companies from cluster 2 have a negative view on the environment and mention inflation and the limited affordability of financing as serious problems for doing business in Belarus. Another problem – foreign exchange regulation – is also connected with financial issues and related to macroeconomic instability. Only enterprises from cluster 2 mentioned poor governance as a serious problem.

3.3. Cluster 3: strong reliance upon internal factors, external factors are positive.

Companies from the third cluster make 16.2% of the respondents (70 enterprises). It is the smallest group of SME, but the one that deserves a special attention. Enterprises from the third cluster rely strongly on internal factors and are positively influenced by external factors.

Enterprises from cluster 3 perform well in the market. The correlation between the assessment of the influence of the internal factors and the performance of the enterprises is positive and significant (0.26): a stronger reliance upon the internal factors is associated with a better performance. The correlations of the assessment of the internal factors and the increase in profits and employment is even stronger (0.32 in both cases), while there is no correlation with the change in investment. At the same time, external factors do not correlate with the performance. Thus, when an enterprise manages to take advantages from the environment, the internal factors start to play a more important role in explaining the performance of a SME.

Table 8: The most influential external and internal factors for cluster 3

Internal factors that have the most positive impact		External factors that have the most positive impact	
Knowledge of the market, the ability to predict market conditions	2.50	Level of competition in the market	1.44
Professional level of the management	2.49	Level of property rights and private business interests protection	1.10
Team presence / absence	2.47	Bureaucratic procedures	1.06
Ability to produce competitive products	2.36	Conditions of doing business in comparison to public sector	0.99

Source: IPM Research Center

The third cluster has the largest share of SME involved in trade, catering and real estate activities, while the share of enterprises involved in industrial production is relatively low. These enterprises are engaged in import more often than SME from the other clusters.

In comparison with the other clusters, cluster 3 contains more young enterprises that were established between 2010 and 2014. These enterprises were founded in instable economic conditions, when inflation was high and the GDP growth rate slowed down significantly. In these conditions they were able to enter the market and take advantage from the environment. At the same time, the share of medium-sized enterprises in this cluster is relatively low as well.

These enterprises managed to take advantage from current market conditions, including the level of competition. Only enterprises from the third cluster benefit from existing bureaucratic procedures (registrations, permits, licenses, etc.), which may be connected with the "age" of the enterprises: there was a significant progress achieved by the government in simplifying administrative procedures in last years[10].

Table 9: Top-5 problems of doing business in Belarus (responses of SME from cluster 3)

Problems of doing Business in Belarus	Assessment (average)*
Inflation	3.71
Low level of labor ethics	3.17
Corruption and crime	3.11
Independence and competence of courts	3.04
Tax rates	3.04

*the problems were assessed at the scale from 1 (it is not a problem) to 5 (it is a very serious problem)

Source: IPM Research Center

The problems of doing business in Belarus, mentioned by SME from cluster 3, are very similar to problems mentioned by enterprises from cluster 1. While inflation remains the most important problem, mentioned almost by all enterprises in the survey, the most successful enterprises from cluster 3 (and from cluster 1) mention low level of labor ethics and corruption and crime as important problems for doing business in Belarus. For SME from cluster 3 independence and competence of courts is an important problem for doing business in Belarus, too. Thus, when enterprises generally react on the environment positively or neutrally, they see fewer problems for doing business.

3.4. Cluster 4: Strong reliance on internal factors, external are very negative

Cluster 4 makes 24% of the survey, or 102 enterprises. SME from this cluster rely strongly on internal factors, while external factors are very negative.

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[10] This progress was reflected in the "Doing Business" report by the World Bank.

In general, enterprises from cluster 4 perform worse than the average in the market. These SME mentioned deterioration in their economic situation and a decrease of profit more often than SME from cluster 1 and 3. On the other hand, they surpass SME from cluster 1 by such parameters as dynamics of investments and employment. SME from cluster 1 are more stable, while enterprises from cluster 4 are oriented on growth.

There is a positive correlation between the assessment of the influence of external factors on the success of the enterprise and the increase of profits (0.23), while there is no significant correlation of external factors with the dynamics of neither employment nor investment. The internal factors do not have any significant correlation with the performance of the enterprise. Thus, for enterprises from cluster 4 a better performance is associated with a less negative influence of external factors.

Table 10: The most influential external and internal factors for cluster 4

Internal factors that have the most positive impact		External factors that have the most negative impact	
Knowledge of the market, the ability to predict market conditions	2.68	Rental rates	-1.80
Level of professionalism of managers	2.66	The system of inspections and fines	-1.73
The ability to produce competitive products	2.65	Bureaucratic procedures	-1.68
Level of legislation knowledge and ability to keep one's position before administrative and court bodies	2.62	Tax regulations and tax rates	-1.52

Source: IPM Research Center

Companies from cluster 4 are involved in trade and construction more often in comparison with the other clusters. The share of old enterprises in this cluster is relatively large: 44.5% of SME were established before 2004, 13.9% - before 1996. Thus, they can take advantage from their experience, relying on such internal factors as knowledge of the market and the law, the level of professionalism of the managers and the competitiveness of the product or service.

Enterprises from the fourth cluster are less oriented on domestic markets. The share of exporters is the largest among all clusters; the share of enterprises that are involved in re-export is also relatively high (see Annex 2).

Table 11: Top-5 problems of doing business in Belarus (responses of SME from cluster 4)

Problems of doing Business in Belarus	Assessment (average)*
Inflation	4.01
Regulation of currency market	3.37
Tax regulations	3.31
Tax rates	3.30
Affordability of financing	3.13

*Note. The problems were assessed at the scale from 1 (it is not a problem) to 5 (it is a very serious problem)

Source: IPM Research Center

Inflation remains the most important problem for doing business in Belarus for enterprises from all clusters. Another related problem – affordability of financing – seems to be very important for almost all enterprises (except cluster 3). SME from the fourth cluster emphasize the problem of tax regulation in tax rates as very important for themselves and for Belarusian business in general.

3.5. Limitations of the research

Our research is aimed at the identification of factors of development of SME in Belarus. While our study provides an important basis for the further discussion, our field research has a number of limitations.

First, the list of internal and external factors was specified in advance, and the design of the questionnaire is not flexible. While we tried to make our questionnaire comprehensive, it was standardized and it did not include open questions. Moreover, our research did not allow much flexibility, did not include the results of focus groups and was not able to catch specific advantages or problems of SME that were not covered by the survey.

Second, the study of internal and external factors of development is very important, but not enough to explain the performance of an enterprise in the market. While our analysis showed significant correlations of the factors (especially external) of development and performance of an enterprise in the market, such factors as the industry, the age of an enterprise, the region and others matter. Hence, our research shows only one approach to the study of a limitless number of factors that influence the development of an enterprise.

While we combined "subjective" data (such as the assessment of the influence of internal and external factors) with objective information about the enterprise (change in the economic situation, in profits, investment, etc.), which helped to mitigate the disadvantages of subjective assessment of the factors, self-estimates still may provide some distortions.

4. Conclusions and policy recommendations

The performance and development of SME in Belarus strongly depend on external factors. This is revealed by an objective and comprehensive data analysis. This is despite the fact that many SME managers consider the external environment less important than the internal factors. To put it in other words: Even in the case the SME managers assume that the SME's success depends mainly or at least heavily on internal endeavor, the objective analysis reveals that in fact the SME's success is in Belarus mainly determined by external factors.

The most prominent and most important external factors are all in the sphere of influence of policy makers in general and the Belarusian administration in special. The following table summarizes the major external factors:

Table 12: SME development factors in Belarus

SME development factors, that are directly under policy control	SME development factors, that are influenced by policy
Regulation of currency market	Inflation
Tax regulations	Rental rates
Tax rates	Costs of financing
The system of inspections and fines	Labor ethics of employees
Bureaucratic procedures	Corruption and crime
Property rights and private business interests protection	Independence and competence of courts

Conclusion 1: The policy towards SME in general and the regulative environment in special significantly influence the performance and development of SME in Belarus.

The second striking result of the analysis is that all named external factors have significant negative influence. The only exemption of this finding is a group of 70 enterprises (cluster 3) that report that they have had some positive experience with the improvement of the bureaucratic procedures. And again, this finding is independent of the self-assessment of the SME's manager. In other words: not all of the SME managers complain about the negative environment in the first place. However, the sophisticated statistical analysis reveals that in fact the policy and regulative environment significantly affects the business success in a negative way.[11]

Conclusion 2: The policy towards SME and the regulative environment form important impediments for the performance and development of SME in Belarus.

Our recommendations are derived directly from the results of the data analysis.

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[11] According to scientific entrepreneurship research, small business owners often possess a trait called 'overconfidence bias', which means that they underestimate the external success factors but overestimate their personal influence on the business success. Thus, our findings are well in line with international scientific observations. This is why our analysis does not rely on the self-assessment of the SME managers only, but applies some objective data mining tools.

We recommend improving the following external factors that currently influence SME development and performance negatively:

- Ease the strict foreign exchange currency regulation

- Ease tax regulations, i.e. administrative burden of tax regulation

- Consider the tax burden on SME

- Improve the system of inspections and fines in a way that it is efficient for both administration and SME, i.e. reduce unnecessary burden

- Simplify bureaucratic procedures and thus reduce administrative burden on SME

- Improve the system of property rights and investment protection

We further recommend undertaking policy measures that will affect the macroeconomic environment as described in the following.

Macroeconomic instability, namely the high inflation, is connected with high costs for financial resources for SME. While inflation is high, it is difficult to provide affordable financial resources effectively.

Further, enterprises that face a negative influence of the environment mention high rental rates as one of the most important negative factors. While dealing with construction permits has got easier in recent years, building the regulative environment for the development of an efficient commercial real estate market in all regions would also enhance the SME development.

The low level of labor ethics becomes a problem for enterprises with growth aspirations. One solution of this problem lies in increasing the competitiveness in the labor market. High level of labor ethics may be formed in a competitive environment where wages are related to the results achieved by employees.

The efficiency of the law system is also crucial for SME development. Independent courts are needed to help SME to legally enforce their business contracts. Last but not least the fight against corruption is long-term task for policy makers, because corruption always undermines competition efficiency and thus hinders innovative SME to grow and create value and employment.

Conclusion 3: The first major task for a policy towards SME development in Belarus is the improvement of the regulative environment. Reaching macroeconomic stability is the second major task.

The proposed policy measures of the second major task are easy to implement, do not require an increase in public expenditure and will show effects immediately. As our analysis shows, there is enormous growth potential in the SME sector. There are clusters of SME that have applied all possible endeavors, that have modern production technologies and management methods, that operate in competitive markets and their growth is limited only by external factors. It could therefore be a win-win-situation: Changes in the regulative framework will unlock the growth-potential of the SME sector and do not entail any kind of welfare losses for any social or political group.

Conclusion 4: With improving the regulative environment, Belarus will gain an increase in SME growth at no public costs.

References

Duran, B., Odell, P. (1974), *Cluster Analysis: A Survey*, New York, Springer

Gorban A., Kegl B., Wunsch D., Zinovyev A. Y. (Eds) (2008), *Principal Manifolds for Data Visualization and Dimension Reduction*, New York, Springer

IBM (2011), IBM SPSS Statistics Algorithms, *User Manual*, IBM Corporation

World Bank (2014), *Doing Business 2015: Going Beyond Efficiency*, Washington, DC, World Bank Group

Annex 1. The results of clustering

Table 1. Assessment of internal and external factors of development by SME, percent of respondents

Factors	Assessment						
	-3	-2	-1	0	1	2	3
Internal factors							
Team presence / absence	3.5	2.3	7.0	16.0	13.0	18.1	40.0
Professional level of the management	4.0	1.9	6.3	14.5	14.3	22.7	36.4
Presence/absence of delegation of authority to lower-level management practice, reduction of centralized decision-making	3.3	2.1	6.0	29.7	19.2	17.6	21.1
Knowledge of the market, the ability to predict the conditions of the market	1.2	1.4	5.4	14.0	19.4	20.6	38.8
Ability to produce competitive products	1.2	0.9	5.9	21.9	13.9	17.9	38.4
Relations with authorities and influential people	0.9	1.6	6.5	33.6	22.0	13.8	21.5
Level of legislation knowledge and ability to keep one's position before administrative and court bodies	1.2	1.2	4.7	25.9	19.3	17.9	29.8
Presence / absence of relations with the state sector	2.1	1.6	8.4	37.1	20.7	14.2	15.9
Presence / absence of production capacity to meet demand	2.1	1.2	8.7	32.2	20.2	15.8	19.8
Presence / absence of working capital and funds for the enterprise development	5.1	5.1	8.6	20.7	15.4	17.5	27.5
External factors							
Level of competition in the market	18.5	15.9	20.8	19.6	13.1	7.2	4.9
Conditions of doing business in comparison to public sector	6.7	10.9	19.5	46.0	10.7	4.4	1.6
Bureaucratic procedures (registrations, licenses, permits, etc.)	13.5	12.8	26.0	31.2	9.5	5.1	1.9
Level of property rights and private business interests protection	6.5	9.8	18.5	42.5	11.9	7.2	3.5
Corruption level	10.5	10.5	23.4	42.5	7.5	2.6	3.0
Foreign exchange regulation	13.3	10.4	23.5	37.2	10.9	2.6	2.1
Tax regulation and tax rates	9.9	10.8	28.4	36.6	8.2	3.5	2.6
Rental rates	16.5	15.8	28.2	27.5	5.2	5.2	1.6
System of inspections and penalties	10.6	15.0	31.5	29.8	6.6	5.4	1.2
Rates on banks' and other financial institutions' loans	12.3	14.2	21.7	39.2	6.1	4.7	1.7
Economic policy of other countries	6.8	7.3	13.4	59.7	7.5	4.2	0.9

Source: IPM Research Center

Table 2. Results of classification: final centers of the clusters

	Cluster No			
	1	2	3	4
Internal factors				
Team presence / absence	-0.3	1.8	2.5	2.6
Professional level of the management	-0.3	1.8	2.5	2.7
Presence/absence of delegation of authority to lower-level management practice, reduction of centralized decision-making	-0.3	1.0	1.9	1.7
Knowledge of the market, the ability to predict the conditions of the market	0.2	1.7	2.5	2.7
Ability to produce competitive products	0.1	1.6	2.4	2.6
Relations with authorities and influential people	0.1	0.5	1.7	2.2
Level of legislation knowledge and ability to keep one's position before administrative and court bodies	0.3	0.9	2.1	2.6
Presence / absence of relations with the state sector	-0.1	0.4	1.6	1.8
Presence / absence of production capacity to meet demand	0.1	0.5	1.7	2.0
Presence / absence of working capital and funds for the enterprise development	-0.3	0.3	2.2	2.3
External factors				
Level of competition in the market	-0.7	-1.4	1.4	-1.3
Conditions of doing business in comparison to public sector	-0.4	-0.8	1.0	-0.9
Bureaucratic procedures (registrations. licenses. permits. etc.)	-0.4	-1.1	1.1	-1.7
Level of property rights and private business interests protection	-0.1	-0.6	1.1	-0.7
Corruption level	-0.4	-0.6	0.4	-1.3
Foreign exchange regulation	-0.4	-0.8	0.6	-1.5
Tax regulation and tax rates	-0.2	-0.8	0.6	-1.5
Rental rates	-0.6	-1.2	0.3	-1.8
System of inspections and penalties	-0.3	-0.9	0.3	-1.7
Rates on banks' and other financial institutions' loans	-0.4	-1.0	0.4	-1.3
Economic policy of other countries	0.1	-0.4	0.1	-0.9

Source: IPM Research Center

Annex 2. Structure of the clusters
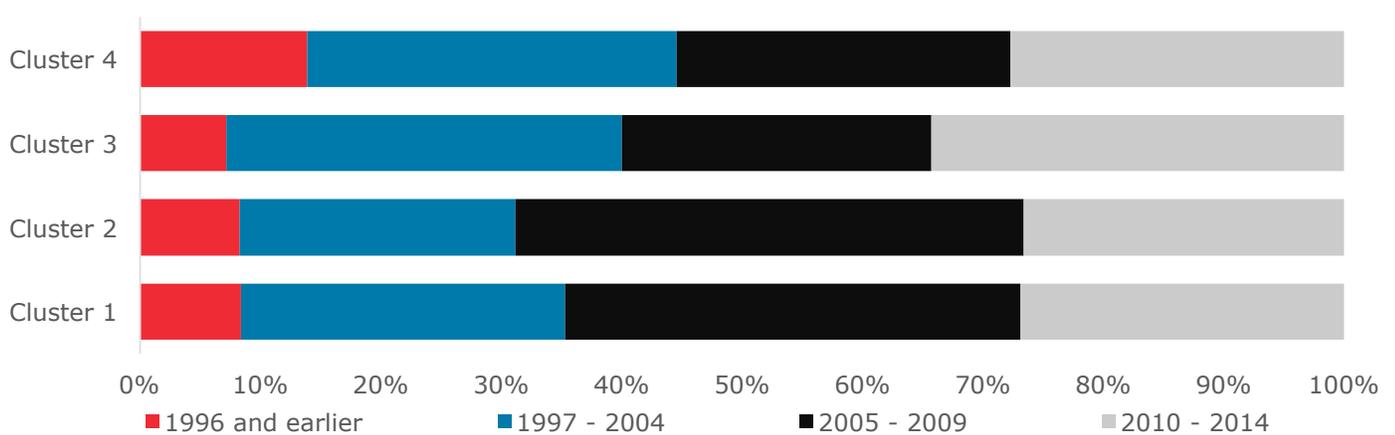
Figure 1. Structure of the clusters by industries

Legend:
- Trade
- Catering
- Industrial production
- Construction
- Transpotration and communications
- Domestic services
- Consulting
- Education
- Computer services
- Tourism
- Advertising
- Printing / publishing
- Real estate
- Other
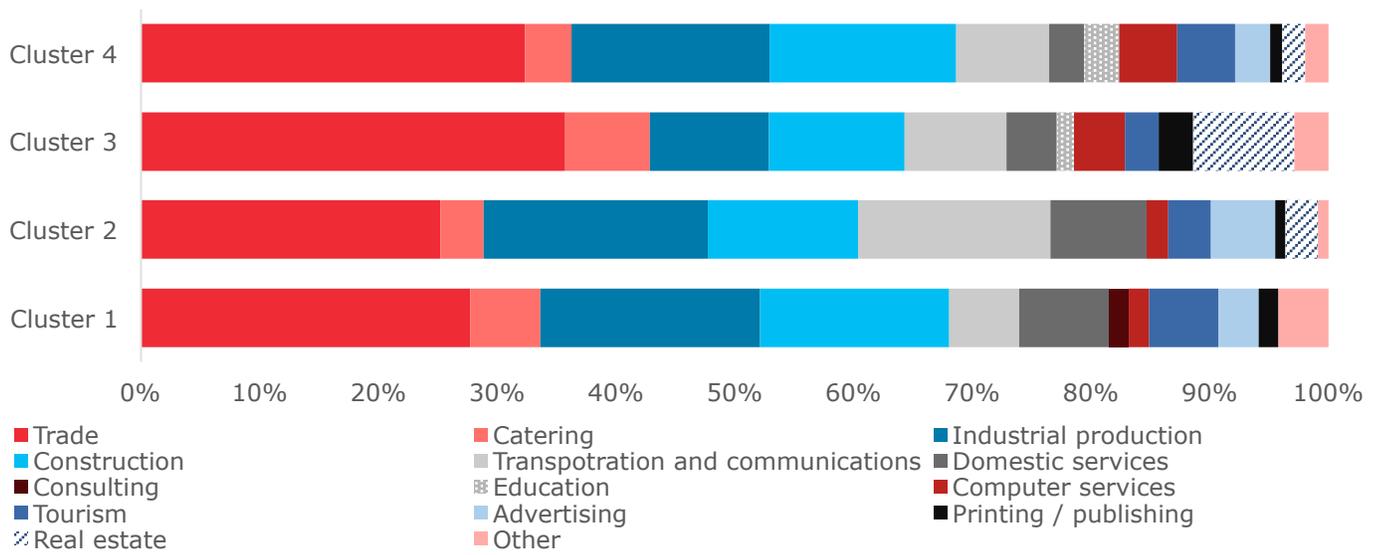
Source: IPM Research Center

Figure 2. Structure of the clusters by size of enterprises

Legend:
- 1-10 people
- 11-50 people
- 51-100 people
- 101-200 people
- >200 people
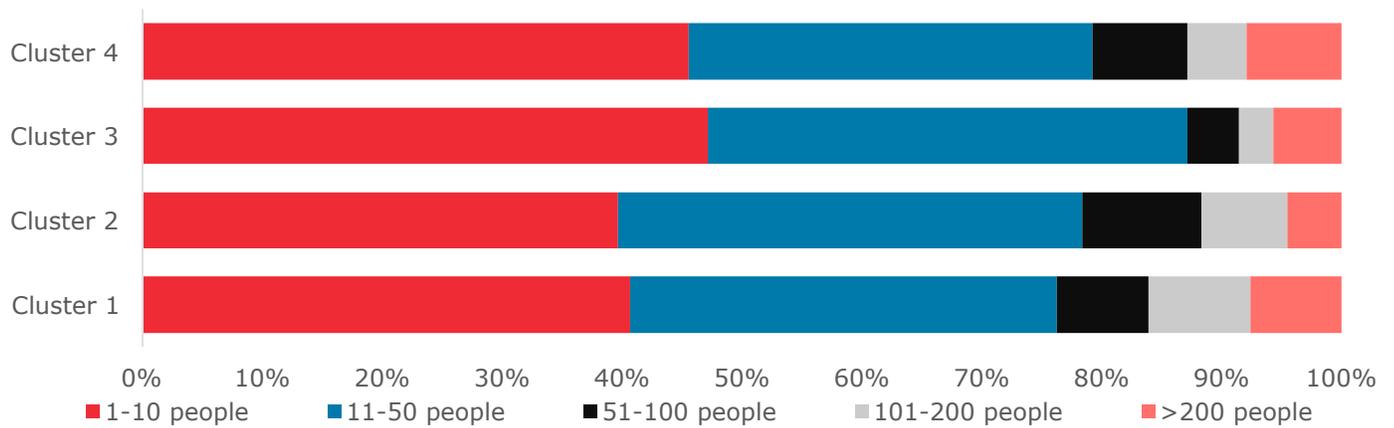
Source: IPM Research Center

Figure 3. Structure of the clusters by the date of establishment

Legend:
- 1996 and earlier
- 1997 - 2004
- 2005 - 2009
- 2010 - 2014

Source: IPM Research Center

Figure 4. Structure of the clusters by primary sales markets

■ Export mostly   ■ Approx. equal share of import and export (re-export)
■ Orientation on domestic market   ■ Import mostly
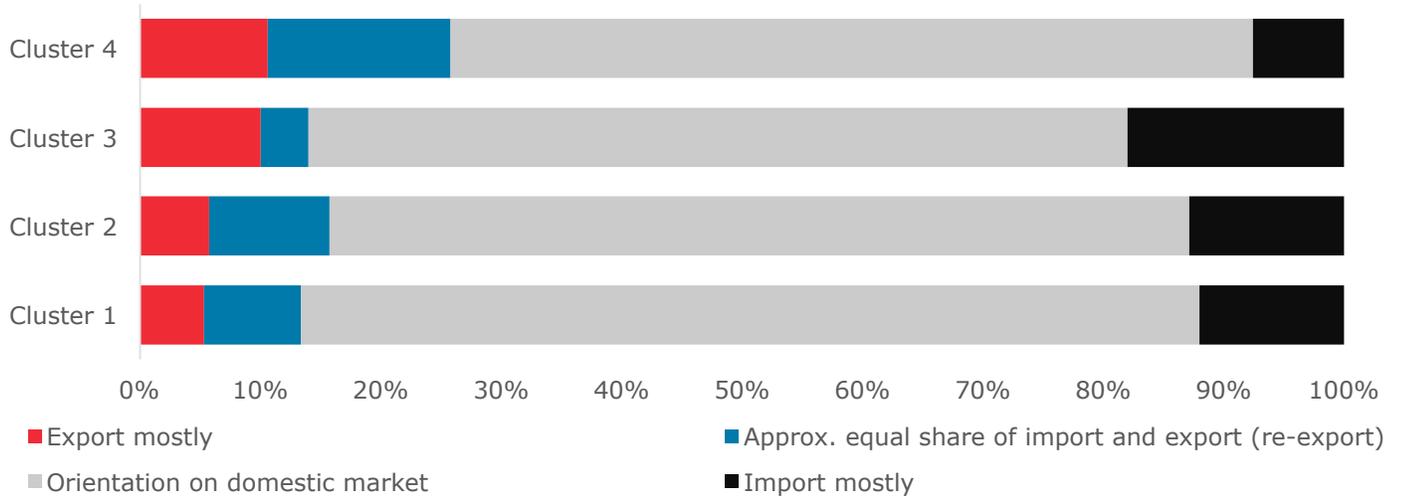
Source: IPM Research Center

Annex 3. Methodological notes

In our analysis, we used different state-of-the-art statistical methods, including factor analysis and cluster analysis. These methods are widely used in economic and social research and are able to present very useful results.

Cluster analysis

Cluster analysis is a statistical method of data classification into categories. The aim of cluster analysis is to specify homogenous groups of observations – clusters. Clustering is a very useful method that helps to deal with large numbers of observations. By classifying the data, we can solve the following tasks:

- We can understand the data by structuring it
- We achieve data reduction for further analysis
- We find something new about the observations we cluster

Cluster analysis is quite simple to implement, and it is not necessary to make any assumptions regarding the distribution of data.

There are several types of cluster analysis. One of the most popular methods, which we used in our research, is k-means clustering. This procedure is quite simple and does not require a lot of time to implement (another name of this method that is used in statistical software is "quick clustering"). The method requires the number of clusters to be defined in advance, taking to account theoretical basis. The procedure starts with finding the centers of the clusters. The centers of the clusters are defined iteratively: the procedure starts from initial centers and recalculates them to the moment when the difference between two iterations becomes too small. An observation is assigned to the cluster on the basis of the distance to its center. The final iteration of the procedure is computing final centers of the clusters, which may be used for describing every cluster and for further analysis.

In our study of empirical factors of SME development in Belarus we used k-means clustering, were k (the number of clusters) had the value 4. The number of clusters was defined on the basis of the following idea. An enterprise can rely on internal factors of development, external factors or a combination of these factors, which should make 4 groups of enterprises (internal positive and external positive, internal positive and external negative, internal negative and external negative, internal negative and external positive).

Factor analysis

Factor analysis is a statistical method that is used to define the interlinkages between variables. Using this procedure, we can describe the variables comprehensively and densely at the same time. Usually the method is used for the following purposes: reduction of the number of variables and defining the structure and classification of variables. Factor analysis is a very useful tool if a researcher deals with a number of variables that correlate with each other. As the result of factor analysis, we get a set of new variables –called factors – that are not correlated and save initial information.

One of the most popular methods of factor analysis is principal component analysis, which we used in our study. We had a number of correlated variables that describe the change in economic situation of an enterprise: dynamics of profit, investment, employment and sales. These variables presented the objective side of our analysis and characterized an enterprise in general from one side – how well it performs. The procedure identified one principal component (factor), which we used in the further analysis.