Czech University of Life Sciences Prague

Faculty of Economics and Management
Department of Statistics

Bachelor Thesis

Statistical analysis of farm economy with regard to the change of less favoured areas payments

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Summary

This bachelor thesis is devoted to subsidies in less favoured areas in the Czech Republic. The theoretical part is focused on the development of subsidies from 1970 to 2014. Author describes changes of area and methodology of calculation payments in less favoured areas. He compares the effect of payments as well as their amount in years 2004-2014, considering different points of view – production, size of farm or type of less favoured area.

The practical part is focused on changes of financial results of farms with and without payments. Author evaluates the importance of subsidies in regard to size of farm and type of less favoured area and compares results using statistical analysis of variances.

Thesis objective and methodology

The objective of this thesis is to analyse payments in less favoured areas in the Czech Republic and to compare them from different points of view. The purpose of theoretical part of the thesis is to clarify important terms and to explain the situation in the Czech Republic. For this part, it was used descriptive method. The majority of data used in theoretical part was from Annual Reports of the Ministry of Agriculture of the Czech Republic, which is called Zelená zprava.

The analytical part of the thesis is focused on financial analysis of farms according to different criterions – size and type of LFA they belong to. The objective is to compare financial results of farms with and without LFA payments. For statistical analysis was used analysis of variances (ANOVA) along with Scheffe's test for comparing of means. For all test, it was used 0.05 level of significance. Data, which had been used for analysis, were from Bisnode Albertina, which is databases of financial results of companies. For the analytical part, it had been used Microsoft Excel and SAS Enterprise Guide 7.1.

Results and Discussion

After applying LFA payments to earnings of farms, financial ratios went up. The biggest differences were between values of the first group, the second group, and LFA-H. Those groups are highly dependent on payments; their economical and/or natural conditions are the worst. Scheffe's test explained that differences between means are smaller with payments; it means that LFA payments are helping to reduce a gap between earnings among groups.

The smallest difference, between values of ratios with included and not included LFA payments in earnings, is in sixth group. The share of less favoured areas is very small, as well as their revenue is much bigger in comparison with small farms. Thus, their ratios are not very affected

by LFA payments. Small farms, especially those, which are smaller than 300 hectares, are dependent on LFA payments, as they operate in loss without them. On the other hand, it cannot be said that big farms do not need LFA payments; as more than 50% of farms does not receive financial help as a part of less favoured areas, still, the influence on the other half can be significant.

After analysing areas separately, without LFA payments, mountain less favoured areas operates in loss. After including LFA to earnings, their rations of return went up significantly. With applying LFA payments, the worst conditions were in other less favoured areas. The reason is simply: farms in those areas are receiving much smaller payments than mountain areas, as their disadvantage is less serious, which means that payments do not improve their situation that significantly. On the other hand, they operate on the same level as not less favoured areas, which mean that their level of income can be considered as sustainable.

Conclusion

In 2004, the Czech Republic became part of the European Union. Since then, conditions for agriculture in the Czech Republic started to be better and better. The European Union provides many subsidies, one of them are LFA payments. Since conditions for agriculture are quite difficult in the Czech Republic, LFA payments include about 50% of agricultural land. In 2014, we received 2300 billion CZK from EU for LFA payments. The Czech Republic paid 595 million from own budget.

The European Union tries to simplify and centralize system of LFA payments. Since every country has its inner specification, it is not easy to set conditions, which could be applied to every member state. Since 2007, the Ministry of Agriculture, along with other institutes, works on redefining less favoured areas and remaking the methodology for computing payments. The European Union hopes, that in the future, LFA payments will be defined evenly in all states, only with small amount of exception; so that the level of subsidies will be comparable among states. Currently, there is running Rural Development Program, which is meant to improve conditions in rural areas (which are from the big part less favoured areas). It focuses on improving conditions for farmers, attracting new people to rural areas, decreasing pollution etc. In recent years, a number of farms increased (44 833 in 2008, 48 554 in 2014); on the other hand, the average area of farms went down (82.6 hectares in 2008 to 75 hectares in 2014). It means that more and more people are entering sector of agriculture.

The highest payment in the Czech Republic receives farms in mountain areas, which are specializing in livestock and milk production. Usually, their area is smaller in comparison with farms from other categories. Surprisingly, their returns, after including LFA payments in earnings, were much better than in other types of less favoured areas. LFA payments play crucial role in their revenue.

After involving LFA payments in the model, all financial ratios started to be more balanced. In every case, small farms had the lowest ratios; their revenues are made basically only from LFA payments (without them, they would operate with a loss). Only in the case of return on sales, the result was slightly different – there were big differences between groups. It is caused by higher share of sales in bigger groups. The most balanced model was the model of return on equity; after including LFA payments, the differences between groups were very small.

Comparison of areas separately proved that mountain areas are not profitable at all. All ratios were negative, which means that without LFA payments, they would operate with big loss. On the other hand, other and specific areas were able to generate profit even without LFA payments. After including payments, most profitable were specific LFA and mountain LFA.

Whole analysis proved that without payments, less favoured areas would have to deal with serious economic problems. If we consider, that LFA payments are only one of all subsidies, agriculture, in general, has to solve a big problem for future development: Does it make sense to have market, which is actually forcing suppliers (farmers) to be unprofitable?

LFA payments do not serve only for improving conditions of farmers, they are meant to help people living in areas, which would have leave otherwise. And considering the development of areas in recent years along with analysis of LFA payments, we can claim that it is actually happening. In average, LFA payments help to equalize economic results of small and big farms, farms dealing worse natural conditions and farms with better conditions, different kind of productions, different cost of production and different revenue; payments are helping overcome all types of problems. The main goal of environmental development is to preserve quality of countryside in the Czech Republic. And without subsidies paid to less favoured areas, it would not be possible.

References

GITMAN L.J. – ZUTTER C.J. – Principles of Managerial Finance 13th edition, Harper & Row, 2011. ISBN: 978-0-13-611946-3

HINDLS, R. -- Hronová, S. -- Seger, J. -- Fischer, J. *Statistika pro ekonomy*, Praha: Proffesional Publishing, 2007 – osmé vydání. ISBN 978-80-86946-43-6

MAUR, P. -- HLAVSA, T. -- ŠTOLBOVÁ, M. -- VÝZKUMNÝ ÚSTAV ZEMĚDĚLSKÉ EKONOMIKY. *Dopady plateb LFA na ekonomické výsledky zemědělských podniků a návrhy na diferenciaci sazeb.* Praha: Výzkumný ústav zemědělské ekonomiky, 2008. ISBN 978-80-86671-50-5

ŠTOLBOVÁ, M. *Hospodaření zemědělců v oblastech s přírodními omezeními po vstupu ČR do EU, Farming in areas with natural constraints after the Czech Republic accession into the EU: (výzkumná studie)*. Praha: Ústav zemědělské ekonomiky a informací, 2012. ISBN 978-80-86671-93-2

Ministry of Agriculture of the Czech Republic, 2013. *Program rozvoje venkova České republiky na období 2007-2013* [Online]
Available at: https://www.szif.cz/cs/CmDocument?rid=%2Fapa_anon%2Fcs%2Fdokumenty_ke_stazeni%2Feafrd%2F1393415127062.pdf
[Accessed on 10 January 2016]

Ministry of Agriculture of the Czech Republic, 2015a. *Program rozvoje venkova na období 2014-2020.* [Online]
Available at: http://eagri.cz/public/web/file/434289/PRV_1._modifikace_schvalena_verze_EK.pdf
[Accessed on 10 January 2016]