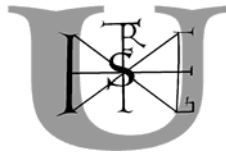


**GÖDÖLLŐ
SZENT ISTVÁN UNIVERSITY**



THESIS OF DOCTORAL DISSERTATION (Ph.D.)

Influence of budget relations on the profitability of agriculture

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1. INTRODUCTION

Hungarian EU-Accession not only raised expectations but also a challenge for Hungarian agricultural. It meant expectation from the side of farmers who hoped higher prices, larger markets and predictable regulation. On the basis of these more profitable production was hoped from the EU-Accession by farmers. On the other hand the Accession meant challenge, because the effects had been stronger which came from the tasks of intensive modernization and from the effective requirements and from the improving the competitiveness. Farmers have to face the fact that in the internal market is getting larger competition and the domestic products have to compete not only with the internal but also with the import products.

Researches have confirmed that **the Hungarian agricultural was not able to capitalize on all opportunities provided by the given situation in the first year.** According to the analysis of Kovács Gábor and Udovecz Gábor (2005) the balance of the first year in the EU is contradictory. There are parallel positive and negative effects. In medium long-term they think that "... the hungarian agriculture will be important". The market loss and the paying of subsidies can be considered only for temporary phenomenon. Well organised and specialized farmers will be winners of the EU-Accession due to the excellent operating of institution system, regulated market conditions and the good civil cooperation.

The optimistic vision can be realised if the persons of agriculture – both the state and the farmers – recognize the changes in the conditions and their reaction will be expedient. This is very important because in my opinion **in the initial post-Accession period, losses and missed opportunities were caused by the producers' and agricultural policy makers' inability to accurately gauge changes regarding internal/external legal and economic factors as well as their subsequent effects.** It is important to realise that farmers don't only wait for the help of the state because there is market economy.

I conducted a survey of producers' reaction towards legal and economic regulation and EU-Accession, I wished to formulate recommendations.

The basis of the examination was that practical reaction of farmers signs the efficiency of regulation system. The numerical analyses don't reflect always the economical reactions. This has more reasons among them important the restrictions of the production structure, the behaviour came for qualification and local interest of the managers. First of all these explain the examination of thinking, decision making and reaction of farms.

Besides the analysis of producer's reaction on the basis of secondary data it is important to analyse how influenced the above mentioned changes of internal/external legal and economic factors the profitability and self-financed ability and how large the share of production and different capital owners from the produced result.

In the course my research and analysis I set myself the following aims:

1. Analysis of the factors having influence on the agriculture's income with the elaboration of literature. Paying great attention to the facts that are influenced by agricultural policy. Naturally, the possibilities of agricultural policy have been limited by EU-Accession.
2. Examination of producer's reactions and opinions in the cases of the loans, bank relations and investments, financing means of production from the factors influence the income.
3. Analysis of the financial and income conditions of individual farmers and corporations of the Hungarian agriculture. Examination of the budget relations and the influence of different capital owners on result.

2. MATERIALS AND METHODS

In my thesis I reviewed the national and international special literature with the method called "regular research". During elaboration of literature I reviewed and analysed the factors having influence on the agriculture's income, included the changes of implements of the agricultural policy. I endeavoured to express my opinion on the basis of my practical and empirical experiences.

My dissertation can be divided into two parts after the elaboration of literature. In the first part I based my conclusions on the results of my own questionnaires and depth-interviews made with the farms chosen from the FADN, in the second part on my estimate with the using of FADN data of the period 2001-2005.

We made the reserch based on questionnaires and depth-interviews in a six member's team. The research consisted of 12 topics from which 2 were examined the financial political aspects of budget relations, called "Loans, bank relations" and "Investments, financing means of production". The drawing up of questionnaires and getting up of topics is my own work in the case of above mentioned two topics. I went a great way to the getting up and using of method.

I examined the topic called "Loans, bank relations" because to reach adequate competitiveness and profitability is necessary to improve the adequate indebtedness and credit state of supply of farmers. In the interest of these goals the state has determinant role with giving preferentials almost in the each countries of the world.

"Investments, financing means of production" is important topic in the point of view of budget relations too. Technological and technical renewal is necessary to improve the competitiveness, quantity and economic efficiency of production. There is subsidies make easier to implement the investments, the new expansion and modernization possibilities. So with the help of these the profitability of sector can be better.

The interviews research started 2004 in autumn and finished 2006 in February. The depth-interviews were made with local conversations. In the course of depth-interviews, besides completing the questionnaires the goal was to get additional information to understand the answers better and to help to make conclusions and suggestions.

At the begining of the research we planed to make 50 depth-interviews and 300 questionnaires on the basis of a sample represented some respects the multitude. (The questionnaires were made by book-keeping offices involved in the FADN. The depth-interviews were made by the

members of research team. I made 20 depth-interviews.) The selection of holdings was made by counties. From the multitude the arithmetical mean was obtained from the numbers of holdings in the cells by proportionating and by applying the Neyman formula. This was necessary because only considering the holdings' proportionating means that the number of holdings in the largest size class was too low. Conversely, if we considered only the FADN final selection plan, then the number of large-scale holdings would be too great. Therefore, we employed a statistical method also utilised in Finland. Among the farms that completed the questionnaires, 75% were individual farms and 25% were corporations.

Eventually, we were able to process 296 questionnaires. The data of General Agricultural Census of year 2003 were the base of classes and weighting the farms completing the questionnaires. The classes' point of view was the farm size and farm type similarly to the FADN selection plan. On the bases of these there were used 3 economic size categories and 6 farm types. (Table 1)

1. Table: Share of sample according to farm size and farm type

Unit: piece

Farm type	Small	Medium	Large	Total
Arable farms	32	135	18	185
Animal production I. (grazing livestock)	1	8	8	17
Animal production II. (granivores)	3	15	5	23
Permanent crops	7	22	1	30
Vegetable production		3		3
Mixed farms	8	21	9	38
Total	51	204	41	296

A weighting factor was allocated to the farms completing the questionnaires, indicating the number of similar farms it represented; based on this the analysis was conducted. The goal of this was that our results represent the characteristics of multitude more exactly.

The weighting factors were allocated similarly to the weighting method of FADN sample. The observed multitude and the sample were divided into the same structure cells according to the farm types and farm size categories. After the values belong to the same two cells were divided by each other. The multitude is in the numerator, the number of the farms being in the sample is in the denominator. If in the given cell of the multitude there were farms but in the same cell of the sample there weren't

farms we made the weighting factors with the reduction of neighbouring cells.

After the own research based on questionnaires and depth-interviews I analyzed the financial and income conditions of individual farmers and corporations of the Hungarian agriculture. In the course of the analysis of profitability besides the profitability of enterprises level I paid great attention to the profitability of individual capital elements. Almost in the each cases of field's national economy we can find that the return on own capital is higher than the return on total capital. This is good because the return on own capital is higher than the cost of foreign resources.

This fact can be attributed to the thesis of Modigliani and Miller. On the basis of this thesis the expectation proceeds of own capital is increasing linear with the proportion of foreign resources and own capital at least the average level of credit risk. If the value of indebtedness reaches a determinant level the creditors expect higher proceeds for their credits because of the increase of risk. If the cost of foreign resources is lower than the proceed of assets then the proceeds of own capital is increasing. If the cost of of foreign resources is higher than the proceed of assets then the proceeds of own capital is decreasing. (Borszéki É. 2002)

Besides the above mentioned I analyzed the tendency of the budget relations, the subsidies without reimbursement obligation and the drawings that can influence the profitability and self-financing ability. Correcting with the budget balance the produced result we get that how large result can be reached in the production with the utilized means without the budget relations.

It has to be mentioned that the investment subsidy doesn't increase the result because it is the part of the capital reserve. This is the reason that I don't count with the investment subsidies as transfer among the subsidies influence the result. (Kovács H. 2004/b)

I counted as budget drawings with taxes, fees, social security contributions and taxes of enterprises too. I didn't count with VAT as budget drawings because it can't be charged just by the agriculturists with lower income than 600 thousands forints (they use the compensatory prise) and the enterprises using presumptive taxation. The circle and sum of these is negligible.

Besides the budget relations I analyzed the costs of foreign resources (interests, rents) decreasing the result. For the using of foreign resources the farms pay interests and rents and these decrease the produced result with different proportion. I analyzed the share of different capital owners from the corrected result. I examined how large result can be reached in the

production with the utilized means apart from their source and owners background.

The above listed examinations I made according to the farm size and farm type too in the case both corporations and individual farms. I divided the farms into 3 economic size categories and 6 farm types.

The profitability of corporations and individual farms can't be compared with each other directly, as the individual farms don't charge with the wage of family members as cost. In the case of individual farms one part of personal income of the family members are in the result counted by book-keeping. Consequently, in the course of my analysis I compared just the tendency of indexes of individual farms and corporations.

3. RESULTS

3.1. Loans, bank relations

During my research I endeavoured to determine what lies behind farm borrowing decisions and to what extent it affects decision-making. (Table 2)

2. Table: The reasons behind farms borrowing*

The loan was borrowed because...	Share of farms, (%)
there was liquidity troubles because of the freezing of income and subsidies.	45,3
competitiveness and profitability was increased with the expansion possibilities given by loan.	36,4
competitiveness and profitability was increased with the modernization possibilities given by loan.	31,1
there was a very good credit possibility and it wouldn't have been worth missing the opportunity.	35,3
The loan wasn't borrowed because...	
he didn't want to neither modernize nor expand the farm.	40,5
he was able to solve the financing of current operations from internal resources.	47,4
there wasn't appropriate credit construction.	
<i>There was just too expensive credit construction.</i>	34,5
<i>There was problem with the creditability.</i>	
He was knocked out of the rating (for example the farm size was little).	16,2
There was not enough collateral.	14,8
he was averse to the credit.	19,2

*More than one answer could be marked.

Source: On the basis of own questionnaires

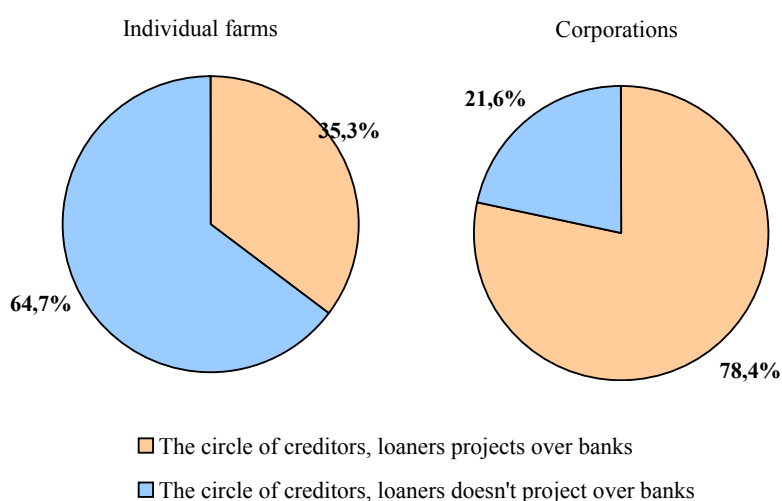
45% of the borrowers decided to take out a loan because of the liquidity troubles caused by the freezing of income and subsidies, 35% took out a loan because of the favourable credit construction. 36% of the farmers would have liked to increase the competitiveness and profitability with the expansion possibility and 31% with the modernization possibility given by loan. (Table 2)

On 47% of the non-borrower farms the reason for not borrowing was that they were able to solve the financing of current operations from internal resources. This means that **29% of the analyzed farms are able to finance the production with internal resources.** I agree with Borszékí Éva, **Hungarian farmers should reach similar to the old-member states of EU that the internal funds are determinant in the current financing and long-term credits and interest subsidy are for the developments.** (Borszékí É. 2004)

On 41% of the non-borrower farms didn't want to neither modernize nor expand the farm, 35% found just too expensive credit construction, 15% didn't have enough collateral. **The viable farms with small income and without adequate collateral can have bank loans with large difficulties, maybe with offering the family wealth.**

„Credits” over banks

On the basis of the research I found that **41% of farms have creditors, loaners over banks.** I have compared this in the cases of individual farms and corporations. 78% of corporations and 35% of individual farms have some loans over banks. (Figure 1)



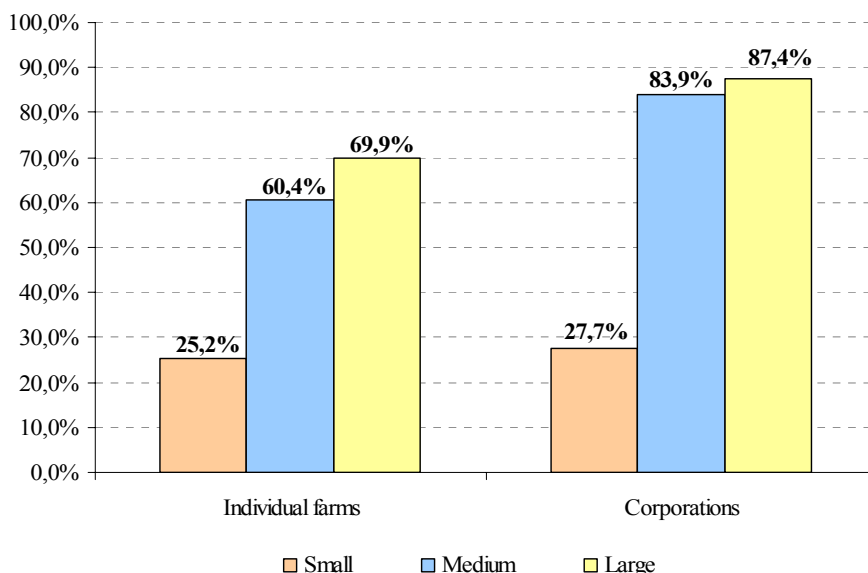
1. Figure: The share of creditors and loaners

Source: On the basis of own questionnaires

This result of the analysis can be surprising at first sight but it becomes understandable if we take account that the corporation can have the possibility of member loan.

What kind of farms take out a credit?

My research proves **that the borrowing possibilities of larger farmers are better.** 25% of small individual farms, 60% of medium farms and 70% of large farms took out loans. This tendency can be seen in the case of corporations but the larger ratio of farms belongs to the medium and large categories have to be taken account. (Figure 2)



2. Figure: The share of borrowers in terms of legal description and farm size between 2002-2004

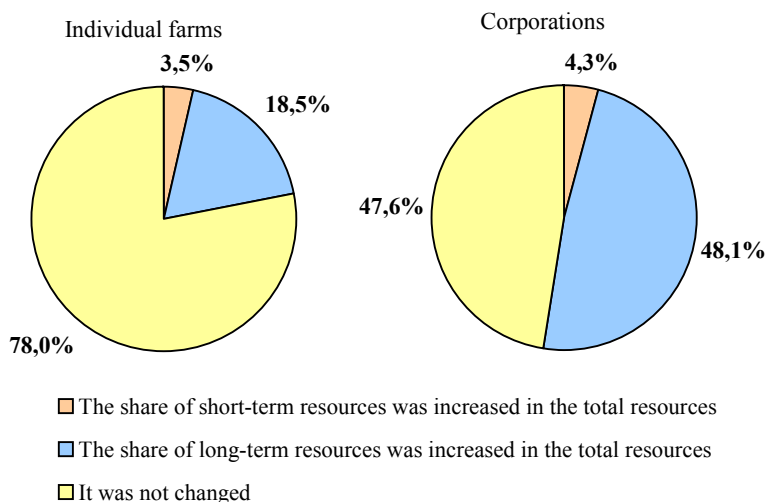
Source: On the basis of own questionnaires

Banks take account during the credit assessment rather the size and stability of farmers than the trading form. So, that the co-operatives and companies have the crucial parts is just accessory conclusions because the corporations are usually larger. In the course of personal interview the farmer said that on the basis of their practical experience banks trusted more the larger farms and banks didn't like the smaller credit transactions. The work is the same with the smaller transactions than the larger ones.

Structure of resources

The possibilities of interest subsidy belongs to the short-term credits have been limited and the interest subsidy belongs to the long-term credits are allowed. In the future you have to reach that there are constructions similar to the capital supplementary credits to financing the current assets.

During the examined period the proportion of short-term foreign resources was increased just 4% of farms, **the proportion of long-term foreign resources was increased 21% of farms in the foreign resources.** There was no change in the case of 75% of farms. The proportion of long-term foreign resources in the foreign resources was increased 48% of corporations and 19% of individual farms. Basically the structure was not changed 48% of corporations and 78% of individual farms. (Figure 3)



3. Figure: The changes of structure of the external resources

Source: On the basis of own questionnaires

Adequate income is necessary to improve the creditability of farmers. **Since on the short-term the financial standing of the farms will probably not improve**, I agree with Lentner Csaba (2004) that **further credits can only be provided by developing the credit guarantee system. The guarantee institutions improve the bank ability**, farms get guarantor to their bank loans in exchange for fee. So the farm's chances of taking out loans are increasing. These means can make the income position of farmers and their creditability better. So the bank financing could be less risky, so the interest subsidy would be less necessary. Consequently the farms can be subsidized through banks too with larger sum of national subsidized long-term credits and state guarantee. **During interview farmers said it was necessary to increase the role of mortgage and warehouse credit.**

3.2. Investments, financing means of production

Data of Table 3 indicate that, in practice there are not widely differing motives behind investment decision.

3. Table: The reasons behind farms investments*

The investment was implemented because...	Share of farms, (%)
it was properly subsidized.	39,3
by the investment the production costs could be decreased.	38,9
the new regulations and partly the EU regulations on the animal welfare, plant protection, environment and food safety had to be met.	35,9
the equipment is so obsolete that without the investment the activity should have to be abandoned.	33,4
by the investment the income can be increased.	28,3
by the investment marketable services could be performed.	26,8
equipment could be purchased at fair prices.	26,4
the loan construction attached to the investment was favourable.	23,5
he wanted to make use of opportunity provided as he knew that after the EU Accession investment subsidies would be reduced.	22,0
No investment was implemented because...	
had no money.	62,6
it was not required.	27,9
the investment could only be implemented by taking loans of high interest rates, and he could not take it.	24,7
anyway the farm was declining and it was not worthwhile to invest „I do it as long as I can”.	21,7
has not received any investment subsidies.	7,5

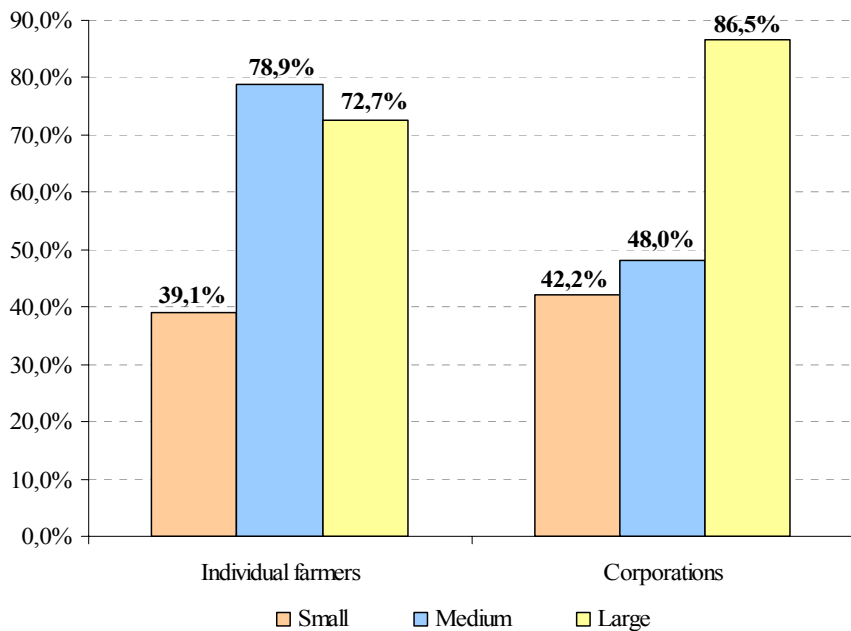
*More than one answer could be marked.

Source: On the basis of own questionnaires

By analyzing the above factors' weighting numbers I observed that the majority of investment decisions were strategically based (57%) but in 43% of the cases the decisions were made for other important motives – e.g., attractive prices, obtaining loans, subsidy opportunities, etc. Consequently I believe that during the analyzed period „over investment” and „backwardness” was equally present. Investment subsidy efficiency could be improved by projecting this issue into the development plan which should be prepared regarding agricultural strategy. Under this strategy, ideal production, farm and property structure have to be defined.

What kind of farms undertook investments?

45% of the small farms and 77% of the large undertook investments. Consequently, the investments opportunities for medium and large farms were more lucrative. (Figure 4)

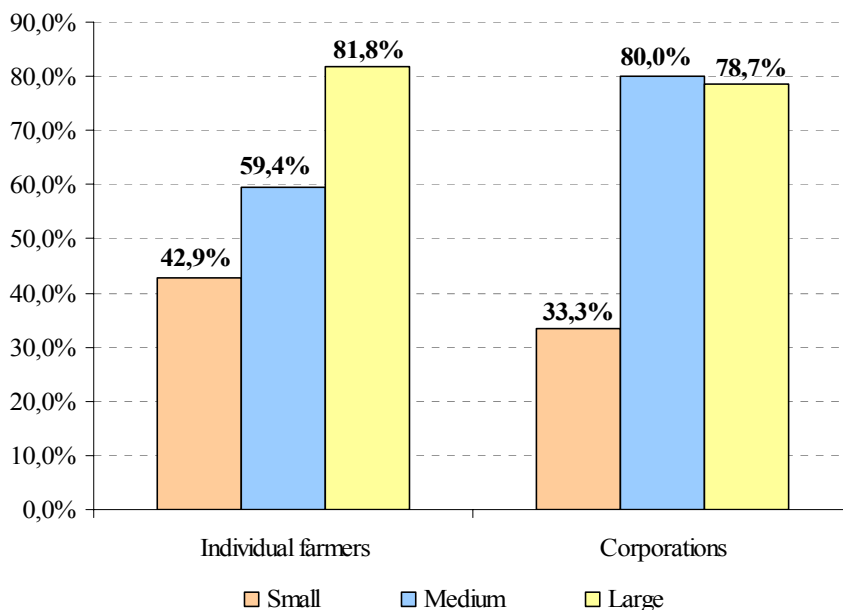


4. Figure: Investments according to legal description and farm size between 2002-2004

Source: On the basis of own questionnaires

Financing

The larger the farm (larger investment belongs to the larger size usually), the larger the share of investment subsidies in the financing of investments. (Figure 5)

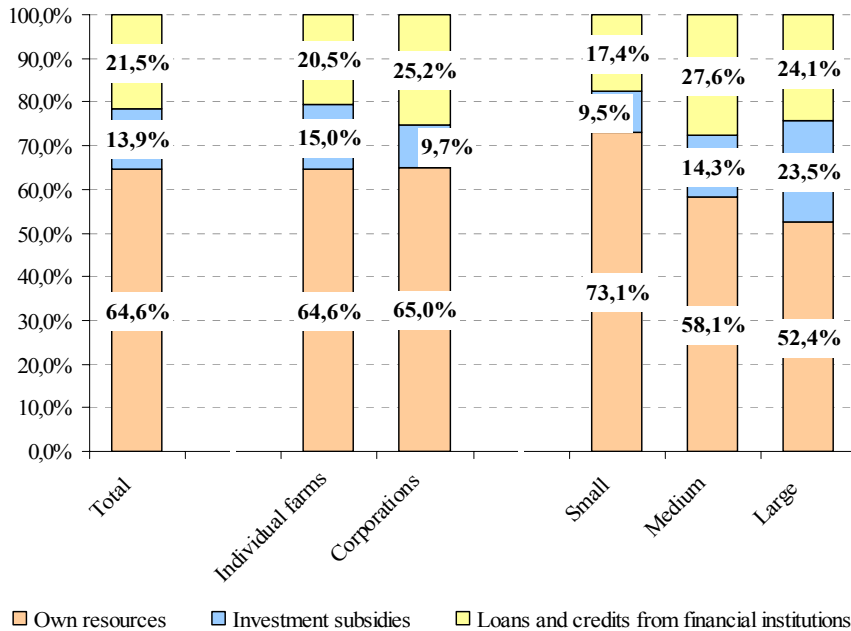


5. Figure: The share of subsidized investments in total investments between 2002-2004

Source: On the basis of own questionnaires

During the personal interviews I observed that excessive bureaucracy hindered subsidized investments. The other problem is that the farmers are not able to prepare the proposal, so the cost of preparing the proposal is quite expensive. In the future the increasing of role of extension system has to be followed with greater attention. Individual farms don't have recourse to the official extension, because it is very expensive. Increasing the role can be reached both to understand its necessity in the farmer's thought and to form its price to the income of agriculture.

During my research I analyzed the role played by personal equity, governmental subsidies and financial institution loans for financing investments. Between 2002-2004 I discerned that in total investments the producers' private capital was paramount in financing investments. On average the producers' private capital accounted for 65% of investment cost. In investment financing loans and credits from financial institution amounted to a relatively low share, meaning a 21% annual average for 2002-2004. One of the reasons for this was that one part of the farmers are not creditable and the banks take account the higher risk of agriculture. (Figure 6)



6. Figure: Composition of the resources in agricultural investments

Source: On the basis of own questionnaires

I also analyzed financing in terms of legal description and farm size. I could not find any significant difference between the individual farms and corporations but when it came to farm size there were obvious trends. **The larger the farm the smaller the private capital, as well larger farms relied more heavily on investment subsidies, loans and credit.** The larger farms have such profitability that gives collateral to their investments loans. Properly, banks advance an income arising in the future. So, farmers can put into practice the investments earlier that in the most cases enough free sources can be available just later. (Figure 6)

Based on my research I agree with those experts who contend that, to create a competitive agricultural sector, **subsidies, including investment subsidies should focus on farms that are viable in the long term.** Presently the most producers are unable to solely rely on their personal resources and even financing their current operations requires significant external resources. As long as producers' own private capital is insufficient for new initiatives it is logical to increase the list of subsidy related preferential loans.

The indebtedness of individual farms is much lower than the corporations. This supports the result of my questionnaires research that the borrowing possibilities of larger farmers are better. Corporations are larger

typically than individual farms. However the low indebtedness decrease the risk, but it limits the rate of developing and the large-scale establishment of competitiveness size and equipped farms. Therefore the evolving of the convenient share of internal and external sources is very important.

3.3. The financial and income conditions of individual farmers and corporations and the tendency of income-transfers influenced their result

Return on own capital and return on total capital of corporations were increased from 2001 to 2002 and from 2002 to 2004 were decreased and from 2004 to 2005 were increased. Return on total capital is higher than the return on own capital in every year. This means that the external resources was not used efficiency, accordingly proceeds of foreign resources is higher than the proceeds of own capital. In opposition to this, in the case of individual farms the return on own capital is higher than the return on total capital in every year, with the exception of 2003. **The reason of the mentioned facts is that the profitability of farms is low. The volume of used foreign and own resources is too large considering the income level producing in the agriculture. Conceived as follows there is efficiency problem. Effective using of available resources would be much more important than the much talked-of problem of shortage of capital.** (Table 4)

4. Table: Return on own capital and return on total capital

Indexes	2001	2002	2003	2004	2005
Corporations					
Return on own capital	5,4	4,8	-4,3	4,6	5,7
Return on total capital	6,9	5,8	0,1	5,5	5,8
Individual farms					
Return on own capital	6,3	5,2	1,9	5,1	6,5
Return on total capital	6,0	5,0	2,2	5,0	6,3

Source: Own calculation on the basis of FADN data

The volume of subsidies was increased 3,5 times from 2001 to 2005 with increasing tendency both in the cases of individual farms and corporations. From the comparison of the income before taxes and income after taxes with subsidies we can draw that the corporations wasn't able to produce result without subsidies during the examined period, the individual farms was able to produce positiv income before taxes and income after taxes just in 2001 and 2002. **I found that however the volume of subsidies are increasing the farmers are not able to produce result over the volume of subsidies, in fact one part of the subsidies counteract costs too. It is important to use both available national and EU resources to**

tend to the increasing of the result in large rate to increase the self financing capacity of farms. (Table 5)

5. Table: Different result's categories and subsidies of corporations and individual farms

Indicator (1000 HUF/ha UAA)	2001	2002	2003	2004	2005
Corporations					
Production result	23,6	23,6	-2,2	32,1	34,7
Subsidies	18,6	39,1	36,4	53,7	62,8
Production result-Subsidies	5,0	-15,5	-38,6	-21,7	-28,1
Income before taxes	13,7	14,5	-11,5	16,6	21,5
Income before taxes-Subsidies	-4,9	-24,7	-47,9	-37,1	-41,3
Income after taxes	11,8	13,6	-12,6	15,0	19,1
Income after taxes-Subsidies	-6,8	-25,5	-49,0	-38,7	-43,7
Individual farms					
Production result	27,1	24,5	13,4	34,7	42,9
Subsidies	13,2	19,4	14,6	38,0	44,6
Production result-Subsidies	13,9	5,1	-1,2	-3,3	-1,7
Income before taxes	26,5	22,9	10,3	29,7	38,5
Income before taxes-Subsidies	13,3	3,6	-4,3	-8,3	-6,1
Income after taxes	23,6	20,2	7,3	26,0	33,2
Income after taxes-Subsidies	10,4	0,9	-7,3	-12,0	-11,4

Source: Own calculation on the basis of FADN data

During the examined 5 years the budget balance augmented both to the individual farm's income and corporations income increasing rate and positive. So the low profitability in the agriculture is not because of the budget relations directly. Besides using the available sources efficiently it is necessary to increase the farmer's revenue and/or to decrease the costs in the interest of increasing profitability. (Table 6)

6. Table: Tendency of income before taxes and budget balance according to legal form

Indicator (1000 HUF/ha UAA)	2001	2002	2003	2004	2005
Corporations					
Budget balance	-2,5	15,9	10,4	27,7	38,1
Income before taxes	13,7	14,5	-11,5	16,6	21,5
Income before taxes- Budget balance	16,2	-1,4	-21,9	-11,1	-16,6
Individual farms					
Budget balance	4,4	11,2	6,2	29,2	33,9
Income before taxes	26,5	22,9	10,3	29,7	38,5
Income before taxes- Budget balance	22,1	11,7	4,1	0,5	4,6

Source: Own calculation on the basis of FADN data

Further I analyse the income before taxes corrected with the budget balance and the costs of foreign liabilities and assets (rents, interests). The corrected income before taxes of corporations is higher than the income before taxes in every year with the exception of 2005. The corrected income before taxes of individual farms is higher than the income before taxes in 2001 and 2003. (Table 7 and 8)

7. Table: The share of different groups from the corrected income before taxes in the case of corporations

Indicator	2001	2002	2003	2004	2005	2001	2002	2003	2004	2005
	1000 HUF/ha UAA					%				
Budget	2,5	-15,9	-10,4	-27,7	-38,1	6,4	-72,3	-205,1	-113,0	-297,3
Financial institutions	10,2	8,7	9,2	14,7	11,9	26,2	39,6	181,5	59,9	92,9
Landholders	7,8	8,9	11,8	13,7	15,2	20,0	40,5	232,7	55,9	118,6
Machinery and building owners	4,8	5,8	6,0	7,2	2,3	12,3	26,4	118,3	29,4	17,9
Capital owners	1,4	1,8	2,9	3,7	6,3	3,5	8,2	56,6	15,1	49,2
Production	12,3	12,7	-14,4	12,9	15,2	31,6	57,6	-284,0	52,7	118,7
Corrected income before taxes	39,0	22,0	5,1	24,5	12,8	100,0	100,0	100,0	100,0	100,0
<i>Income before taxes</i>	<i>13,7</i>	<i>14,5</i>	<i>-11,5</i>	<i>16,6</i>	<i>21,5</i>					

Source: Own calculation on the basis of FADN data

8. Table: The share of different groups from the corrected income before taxes in the case of individual farms

Indicator	2001	2002	2003	2004	2005	2001	2002	2003	2004	2005
	1000 HUF/ha UAA					%				
Budget	-4,4	-11,2	-6,2	-29,2	-33,9	-16,0	-61,8	-53,6	-330,4	-284,9
Financial institutions	1,6	1,8	2,4	3,8	3,1	5,8	9,9	20,8	43,0	26,1
Landholders	2,0	2,2	2,9	3,3	3,8	7,3	12,1	25,1	37,3	31,9
Machinery and building owners	1,8	2,4	2,2	1,2	0,4	6,5	13,2	19,0	13,6	3,4
Capital owners	9,4	15,4	13,1	17,2	19,5	34,1	85,2	112,9	194,7	163,9
Production	17,2	7,5	-2,8	12,5	19,0	62,3	41,3	-24,2	141,8	159,7
Corrected income before taxes	27,5	18,1	11,6	8,8	11,9	100,0	100,0	100,0	100,0	100,0
<i>Income before taxes</i>	<i>26,5</i>	<i>22,9</i>	<i>10,3</i>	<i>29,7</i>	<i>38,5</i>					

Source: Own calculation on the basis of FADN data

In the case of both legal forms the share of production from the corrected result is uniform in volume and increasing in proportion in comparison with the other persons, this should be lasting. The share of financial institutions wasn't changed in volume, the loans outstanding was increased so the interests levels show decreasing tendency in spite of the decreasing of interest subsidy from 2004.

The share of landholders is increasing both in volume and in proportion too apart from the fluctuation of result. (Table 7 and 8) **This supports that there isn't close correlation between the farm rent and the share of production from the result, but it is necessary. Taking administrative steps is not absolutely enough to reach this goal, but changes are necessary in this field too (for example regulation of rents). In my opinion you have to open up new opportunity for buying own land with preferential credit possibilities for farmers and you have to**

authorize to buy own land for the corporations. In this situation it is economical decision that the farmers buy or rent the land. The correlation between the rent and efficiency has to be risen. Owners who don't sell their lands and they can't/don't want to cultivate them will put right the rent with the market.

3.4. The financial and income conditions of individual farmers and corporations of different-sized and the tendency of income-transfers influenced their result

The indebtedness of corporations is higher than the indebtedness of individual farms, but in the case of both legal forms the specific capital demand is decreased with the increasing of farm size. This influences the profitability positively.

The difference between the return on own capital and return on total capital is smaller and smaller with the increase of farm size in the case of corporations; the difference is larger and larger in the case of individual farms. **The larger size means better capital efficiency in both legal forms.** (Table 9)

9. Table: Return on own capital and return on total capital according to size

Indexes		2001			2002			2003			2004			2005		
		Small	Medium	Large	Small	Medium	Large	Small	Medium	Large	Small	Medium	Large	Small	Medium	Large
Corporations	Return on own capital	1,9	4,7	6,7	1,9	2,0	6,4	-11,9	-2,2	-1,5	3,3	0,7	6,5	3,4	4,2	7,0
	Return on total capital	4,2	6,3	8,0	3,5	4,4	7,0	-5,4	1,4	1,9	4,1	3,7	7,4	4,0	4,7	6,5
Individual farms	Return on own capital	5,2	6,7	11,5	3,1	8,1	11,0	0,4	3,0	5,1	1,3	8,5	10,0	3,0	8,6	12,4
	Return on total capital	4,9	6,6	10,7	3,0	7,4	10,1	0,6	3,3	5,0	1,6	7,7	8,9	2,9	7,9	10,9

Source: Own calculation on the basis of FADN data

In the case of corporations the larger sum of subsidy was given to the large size farms from 2002, from 2003 the larger the farm size the larger the sum of subsidy. In the case of individual farms during the all analysed period the larger the farm size the larger the sum of subsidy per hectare. **We can state that the largest farms get the most sum of subsidy per hectare. In the case of farms with different size the difference between the measures of specific subsidy is smaller than the difference between the production results produced by them. So the better result of the larger enterprises is**

not due to the subsidies directly, but their more efficiency operating. The farms with smaller size firstly should use the available sources efficiently. (Table 10) In the case of corporations decreased the production result with the subsidies there is a tragic situation. In 2001 every sized farms would have operated effectively, from 2002 every sized farms would have operated with a deficit without subsidies. **In the case of individual farms decreased the production result with the subsidies we can found that the basic activity of medium and large farms would have been effectively without the subsidies too in every year. We can't say the same in the case of small farms. The subsidies counteracted costs too in every year, with the exception of 2001.** (Table 10)

10. Table: Tendency of production result and subsidies

Indicator (1000 HUF/ha UAA)		2001			2002			2003			2004			2005		
		Small	Medium	Large	Small	Medium	Large	Small	Medium	Large	Small	Medium	Large	Small	Medium	Large
Corporations	Production result	25,3	18,2	25,3	25,7	13,9	27,0	-53,1	6,8	6,5	31,1	21,2	35,4	33,4	30,2	36,5
	Subsidies	24,2	16,7	18,4	39,6	32,6	41,5	32,0	32,0	38,7	49,0	56,0	54,1	60,7	61,1	63,9
Individual farms	Production result	24,3	26,9	39,1	15,9	31,5	50,2	3,6	18,2	26,5	12,6	49,0	51,6	24,2	49,7	60,7
	Subsidies	13,2	14,1	11,3	16,4	22,3	26,7	10,9	16,4	19,4	34,5	39,5	43,2	37,6	47,5	50,4

Source: Own calculation on the basis of FADN data

The share of production from the corrected result in the case of individual farms and corporations is quite different and its fluctuation is significant among years. The share of production and landholders from result is directly proportional to the size of the farm. The share of capital owners is in inverse ratio to the size of the farm. In the case of corporations the share of financial institutions and machinery and building owners are in inverse ratio to the size of farm. In the case of individual farms the share of financial institutions is directly proportional to the size of the farm.

3.5. New and of new scientific results

1. With the increase of farm size the capital demand is decreasing per hectare and the self financed capacity and the creditability is increasing. The larger the farm size the larger the role of subsidy and loan in the investment. The farms with larger size have such profitability that provides collaterals to the investment credits.
2. The capital efficiency is directly proportional to the size of the farm that supports the necessity of size extension of farms.
3. The result produced by farms shows increasing tendency, to which belongs to increasing volume of subsidy. In spite of former tendency, from 2001 the budget balance augmented to the farmer's income increasing rate and positive. The low profitability in the agriculture is not because of the budget drawing. In the case of farms with different size the difference between the measures of specific subsidy is smaller than the difference between the production results produced by them, so the operating of larger farms is usually efficiency.
4. The share of production – in the case of both legal forms – from the result is uniform in volume and increasing in proportion in comparison with the other persons. The share from result of landholders is increasing apart from the fluctuation of result. This supports that closer correlation should be elaborated between the farm rent and the share of production from the result. You have to encourage that the choice between property and lease should be economic decision. Therefore land buying should be made possible for the farmers (involved the corporations) with preferential loans.
5. I found the following connections between the share of individual persons from result and size and farm type.
 - The share of production and landholders from result is directly proportional and the share of capital owners is in inverse ratio to the size of the farm. This means that the view of long-term property is coming to the front better and better with the increase of size. In the case of coporations the share of financial institutions from the result is decreased with the increase of size that shows the better creditability and the more effective using of credits too.
 - The share of production and individual capital owners from result is quite different in the case of farm types.

4. CONCLUSIONS AND SUGGESTIONS

In the course of the questionnaires I found that just 30 percent of the examined farmers are able to finance the production from internal resources. Hungarian farmers should reach similar to the old-member states of EU that the internal funds are determinant in the current financing and long-term credits and interest subsidy are for the developments. The borrowing possibilities of larger farmers are better. Banks take account during the credit assessment rather the size and stability of farmers than the trading form.

The agricultural credit is unsolved in spite of the series money infusions and special credit constructions. Developing the credit guarantee system is necessary to improve the creditability of agricultural enterprises. Increasing incomes and profitability can decrease the risk of agricultural financing, so the interest subsidy too.

In practice there are not widely differing motives behind investment decision. By analyzing the mentioned factors' weighting numbers I observed that the majority of investment decisions were strategically based (57%) but in 43% of the cases the decisions were made for other important motives – e.g., attractive prices, obtaining loans, subsidy opportunities, etc. Consequently I believe that during the analyzed period „over investment” and „backwardness” was equally present. Investment subsidy efficiency could be improved by projecting this issue into the development plan which should be prepared regarding agricultural strategy. Under this strategy, ideal production, farm and property structure have to be defined.

Government subsidies are a significant factor in financing and in encouraging the investments. During analyzing the investments and investment subsidies I found that the larger the farm, the larger the share of investment subsidies in the financing of investments too. In the future the increasing of role of extension system has to be followed with greater attention. Increasing the role can be reached both to understand its necessity in the farmer's thought and to form its price to the income of agriculture.

During analyzing the financing in terms of legal description and farm size I found that the larger the farm the smaller the private capital, as well larger farms relied more heavily on investment subsidies, loans and credit.

On the basis of the FADN I found that in the cases of corporations the profitability of total resources is higher in each year than the profitability of internal resources, so the external resources weren't used efficiently enough. Conceivable as follows there is an efficiency problem. Effective use of available resources would be much more important than the much-talked-of problem of shortage of capital.

However, the volume of subsidies is increasing, but farmers are not able to produce a result over the volume of subsidies, in fact one part of the subsidies counteracts costs too. It is important to use both available national and EU resources to tend to the increasing of the result in a large rate to increase the self-financing capacity of farms.

During the examined period the budget balance augmented both to the individual farmers and corporations' income increasing rate and positive. So the low profitability in agriculture is not because of the budget relations directly. Besides using the available sources efficiently it is necessary to increase the farmer's revenue and/or to decrease the costs in the interest of increasing profitability.

Decreasing the result before taxes with the budget relations, paid rents and interests I found that the share of production from the corrected result is uniform in volume and increasing in proportion in comparison with the other persons. The self-financed capacity is increased and this should be lasting.

The share of landholders is increasing both in volume and in proportion too apart from the fluctuation of result. This supports that there isn't a close correlation between the farm rent and the share of production from the result, but it is necessary. In my opinion you have to open up new opportunities for buying own land with preferential credit possibilities for farmers and you have to authorize to buy own land for the corporations. If it is not worth buying land then the farmers buy it.

The volume difference between the rates of specific subsidy of different size farms is lower than the difference between their production results. I found that the larger farms the better result don't thank directly to the subsidies but more effective operation. The smaller size farms should use the available sources efficiently firstly.

The share of production from the corrected result in the case of individual farms and corporations is quite different and its fluctuation is significant among years.

LIST OF PUBLICATIONS

Studies In Agricultural Economics:

1. Antal Katalin – Guba Mária – **Kovács Henrietta**: Mezőgazdaság helyzete az agrártörvény hatálybalépését követő időszakban, AKII, 2004. 3. szám, 83-93. o.
ISSN 1418 2122
ISBN 963 491 464 0
2. Dorgai László (szerk.): A magyarországi birtokstruktúra, a birtokrendezési stratégia megalapozása, AKII, 2004. 6. szám, 11-23. o.
ISSN 1418 2122
ISBN 963 491 469 1
3. Kapronczai István (szerk.): A mezőgazdasági termelők alkalmazkodóképességének jellemzői (Gazdálkodói válaszok időszerű kérdésekre), AKI, 2005. 6. szám, 61-69. o. és a 99-107. o.
ISSN 1418 2122
ISBN 963 491 480 2

Agroeconomic Information:

1. Kovács Gábor – **Kovács Henrietta** – Lámfalusi Ibolya: A mezőgazdasági vállalkozások pénzgazdálkodásának változó feltételei, AKI, 2007. 4. szám, 51-63. o.
ISSN 1418 2130
ISBN 978 963 491 507 2

Articles in scientific review:

1. **Kovács Henrietta**: Mezőgazdasági vállalkozás önfinanszírozó képessége, Gazdálkodás, 2004. 1. szám, 47-53. o.
ISSN 0046-5518
2. Antal Katalin – Guba Mária – **Kovács Henrietta**: Az agrártörvény megvalósulása a jövedelemtermelés és felhalmozás tükrében, Gazdálkodás, 2004. 2. szám, 1-14. o.

ISSN 0046-5518

3. **Henrietta Kovács:** The effects of the EU accession of Hungary on agrarian sector in Austria and in the EU- Budapest, 2003, Studies in Agricultural Economics, 2004. 1. szám, p. 123-125.
HU ISSN 1418-2106
4. Kapronczai István – Korondiné Dobolyi Emese – **Kovács Henrietta:** Támogatás, hitel és jövedelem a mezőgazdaságban – következtetések termelői reagálás-vizsgálat alapján, Gazdaság és Statisztika, 18. (57.) évfolyam, 3. szám 2006. június, 3-24. o.
ISSN 0239–1589
5. **Kovács Henrietta** – Vágó Szabolcs: How hungarian agricultural producers reacted during EU accession, Studies In Agricultural Economics, No. 104, 2006. p. 65-84.
ISSN 1418 2106
6. Kapronczai István – **Kovács Henrietta** – Varga Edina: Mezőgazdasági termelők alkalmazkodása a beruházások és a foglalkoztatás aktuális kihívásaihoz, Statisztikai Szemle, 84. évfolyam, 8. szám. 2006. augusztus, 788-811. o.
ISSN 0039 0690
7. Kapronczai István – Korondiné Dobolyi Emese – **Kovács Henrietta** – Kürti Andrea – Varga Edina – Vágó Szabolcs: Currents issues in agricultural economy, Answers based on analysis of farmers' reactions, Hungarian Agricultural Research, Journal of the Ministry of Agriculture and Rural Development, Hungary, September 2006 14-17 p Vol. 15. No. 3.
ISSN 1216-4526

Articles in other review:

8. Kapronczai István – **Kovács Henrietta:** Beruházási hiány és felesleg, Magyar Mezőgazdaság, 2005. 48. szám, 6-9. o.
ISSN 0025-018X
9. Kapronczai István – **Kovács Henrietta:** Hitelek, banki kapcsolatok, Magyar Mezőgazdaság, 2006. 1. szám, 10-13. o.
ISSN 0025-018X

Scientific conference lectures in full, in publication:

1. **Kovács Henrietta:** Mezőgazdasági vállalkozás költségvetési kapcsolatai, In: 9th International Scientific Days Of Agricultural Economics, KRF, Gyöngyös, March 25-26, 2004, 8 oldal
ISBN 963 214 313 2
2. **Kovács Henrietta:** Mezőgazdasági támogatások az agrártörvény megjelenésétől az EU csatlakozásig, In: Nemzetközi Konferencia, XLVII. Georgikon Napok, VE-GMTK, Keszthely, 2005. szeptember 29-30., 8 oldal
ISBN 963 9639 03 6
3. **Kovács Henrietta:** Agricultural subsidies before and after the EU accession, In: 5th International Conference of PhD Students, University of Miskolc, 14-20 August 2005, p. 97-102.
ISBN 963 661 673 6
ISBN 963 661 674 4
4. **Kovács Henrietta:** A magyar mezőgazdasági termelők hitelfelvételi gyakorlata és tapasztalatai, In: X. Nemzetközi Agrárökonómiai Tudományos Napok, Agráralkalmazkodás a változó gazdasághoz. 2006. március 30-31., KRF, Gyöngyös, 8 oldal
ISBN 963 229 623 0