ANALYSIS OF THE IMPACT OF DECOUPLING ON THE BEHAVIOUR OF DAIRY FARMERS IN LITHUANIA

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This paper is based on the MSc thesis report which investigates the potential impact of decoupling of CAP and national payments on the production behaviour of Lithuanian dairy farmers. The author argues that the impact of decoupling on the farm production in Lithuania can differ from that in the old EU member states. Mainly that is related to the phasing-in of CAP payments, a non-binding quota, and the unique qualities of Lithuanian agriculture, dairy farming in particular. The thesis hypothesis is that the direct impact of decoupling on the farm production in Lithuania is negligible whereas the indirect positive impact incurred through farm investments is significant. A farm survey was conducted to research the topic. The design of the questionnaire survey is based on the economic theory which serves as a background and a theoretical justification for the study. Thirty-one farmers with six or more cows per farm were interviewed. The analysis of the survey results confirms the thesis hypothesis. Here, the key outcome of the research is that the potential positive impact of decoupling on the farm production is possible in the long-run due to on-farm investments. Other interesting findings highlight that the capital constraint does not prevent farmers from making investments that farmers are apprehensive about the future quota constraints, even though currently the quota is not binding, i.e. no super-levy for overproduction is imposed, and that the milk quota seems to have a more likely impact on the farm production than decoupling. It should be noted that the research results apply to the sample of the interviewed farmers. However, the research gives a good insight into the dairy farming in Lithuania as a whole and the potential impact of the EU policies on the economic behaviour of the farmers. Furthermore, the research suggests how to improve the existing questionnaire that was used to interview the farmers, i.e. what questions should be asked and which areas require a stronger focus. Furthermore, suggestions for research topics in the future are made basing on the research findings.

Keywords: Decoupling, Milk quota, Common Agricultural Policy (CAP), Dairy farms, Farmers’ behavior.

JEL codes: C12, Q12, Q18.

Introduction and objectives

Lithuania joined the EU in May 2004. The country applies the Single Area Payment Scheme (SAPS). Dairy farmers receive Complementary National Direct Payments (CNDPs) exclusively from the state budget. Since the 2007/2008 quota year, the CNDPs in Lithuania have been decoupled. The payments are based on the historic reference period, i.e. the milk amounts produced on the farm during the quota year 2006/2007 (LMA, 2008). Thus, in Lithuanian dairy full decoupling has been applied since 2007 just like in the old EU member states. However, from the market and the farm perspective the impact of decoupling in Lithuania can differ from that in the EU-15 member states.

The paper gives four reasons for the impact of decoupling in Lithuania to be potentially different from that in the EU-15 countries. Firstly, the levels of the farm support in Lithuania are historically low. Before Lithuania joined the EU, the level of direct payments received by farmers exclusively from the state budget was significantly lower than that after the accession (LMA, 2008). Secondly, it is related to the structural changes in the dairy sector, where the number of small farms is rapidly decreasing, and a relatively high profitability of the national dairy farming. Thirdly, the milk quota in Lithuania is not binding. And lastly, the level of the farm support in Lithuania is increasing due to the phasing-in of CAP payments.

The research aims at investigating the potential changes in the behaviour of Lithuanian dairy farmers when the support received thereby is decoupled. Furthermore, given the dairy farming trends in the country, it focuses on larger farmers who keep 6 or more milking cows per farm and also discusses the potential effects of the policy on small farms who keep under 6 milking cows per farm. The research does not aim at quantifying the effect of the introduction of decoupled payments on Lithuanian dairy farmers. It rather seeks to get an insight into the potential changes in farmers’ behaviour resulting from the decoupling.

To investigate the research topic, a number of research questions and sub-questions were devised. Furthermore, two hypotheses were formulated:

1. “The short-term direct impact of decoupling on the farm production is negligible”;
2. “The long-term indirect positive impact on the farm production through investments is significant”.

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Background

The theoretical justification for the research is based on the review of literature on economic theory. The theory is expected to provide incentive ideas of the potential outcomes of the research in the particular research field study given the present conditions. Therefore, first, the equilibrium condition of the Lithuanian dairy market was surveyed from the theoretical perspective (Figure 1). The authors explain how the EU dairy policy instruments affect the market equilibrium condition. They emphasize the effect of the milk production quota which was introduced in Lithuania as a EU country.

![Figure 1. Short-term implications of the integration of Lithuania into the EU market and the introduction of milk production quota on the national equilibrium of the dairy market](image)

In the Figure, the vertical P-axis represents the milk price level while the horizontal Q-axis delineates the quantity of produced/demanded milk. P0 shows the milk price level in Lithuania before the accession to the EU whereas Qd0 and Qs0 reflect the domestic demand for milk/dairy products and the domestic supply of milk and the production of dairy products, respectively. Qquota represents the milk production quota introduced in Lithuania after the accession. After Lithuania joined the EU, the milk price level increased from P0 to P1. Here it is assumed that dairy product prices determine the prices of raw milk. Figure 1 shows that an increase in the milk price led to a slight decrease in the domestic demand for dairy products from Qd0 to Qd1 while the domestic supply increased from Qs0 to Qs1. The difference between Qs0 and Qd0 indicates the export levels of Lithuanian dairy products before the accession whereas the difference between Qs1 and Qd1 shows those levels thereafter. The increase in the export levels is confirmed by statistical data which say that after Lithuania joined the EU in 2004 the export levels of Lithuanian dairy products increased by 41% when compared with 2003 (Mikelionytė, 2007). It should be born in mind that before the EU accession the raw milk price in Lithuania was not only significantly lower than in the EU-15 member states but also slightly lower than the world market price (EC, 2006).

In the long-run the supply is expected to improve due to a higher milk price and the technological upturn in the farmers’ farms. As a result of the supply shift, the quota becomes binding. Then the quota changes the market equilibrium conditions as the milk supply becomes restricted by the constrained quota.

Apart from the milk production quota, the paper briefly explains the effects of other EU dairy policy instruments, such as import tariffs, export subsidies, and intervention buying on the Lithuanian dairy market. It shows that the milk quota in Lithuania is not binding. Therefore, it is expected to constitute no threat to dairy farmers, e.g. when and if farmers want to expand their farm production.

The main body of the thesis report uses welfare analysis to show that due to the introduction of the quota and the implementation of other EU policy instruments both in the near future and in the long-run consumers are net losers while producers, i.e. dairy farmers and milk processors, are net gainers. The latter results from a higher milk price in the short run and an increase in the milk production in the long run.

After identifying the impact of the milk quota on the dairy market, the next stage of the research went down to the farm level. It focused on the impact of other EU dairy policy instruments, the direct payments in particular. It presented a theoretical background for changes in the economic behaviour of farmers when their income increases as a result of the introduction of decoupled payments, referred to as DP. Based on economic theory the authors argued that a DP might affect the production, withdrawal, and investment decisions of the farm. The farm production decision is expected to be affected by changes in relative prices. The research distinguished between the perceived and the actual price changes. Furthermore, it was stressed that a DP could keep inefficient farmers longer in business by putting off a decision on winding up a farm. Finally, it was noted that a DP might influence the farmer’s investment decision. A DP is expected to increase the NPV of a potential farm investment by increasing the farmer’s income and the level of risk-tolerance. As a result, a farmer will give-up lower risk-premiums to secure the investment cash flow, i.e. to switch from random income to certain income. Moreover, a DP might encourage farmers to obtain a bank credit required in view of the increasing land value. Investments into the farm are expected to lead to higher production levels attributable to technological changes. Furthermore the same input level can produce a higher output/milk production level. The impact of the technological change on the production output is illustrated in the figure below.
In Figure 2, the vertical axis reflects the production level/output y while the horizontal axis reflects the input level x used to produce the given output level y. Further, $y=f_1(x)$ and $y=f_2(x)$ are the production functions of a farm before and after the technological change, i.e. before and after the modernization of the farm production, respectively. $I_1$ and $I_2$ are the isoprofit curves. A production function represents the highest possible output given the input level. In fact, all output levels below the production function are technologically feasible and the area below the production function is called the production set (Varian, 1996). As the technological change shifts the production function from $y=f_1(x)$ to $y=f_2(x)$, a farmer can achieve a higher level of output/production under $y=f_2(x)$ than it could be done before the shift under $y=f_1(x)$. Before the technological change, a farmer could achieve the $y_1$ output level using the $x_1$ level of inputs. After the change, the farmer can produce the $y_2$ level of outputs using the same $x_1$ input level. If and when the production expands, the farmer can produce the $y_3$ level of outputs using the $x_2$ level of inputs. It is assumed that a technological change is directed towards an increase in the production volumes using the same input level rather than a decrease in the use of inputs to achieve the same output level. It is assumed that the technological change bears a neutral character and only one production input is presented.

An illustration of the profit maximization is provided as an additional element of the Figure. The interpretation of Figure 2 assumes that farmers choose a production output that maximizes their farm profits. That is illustrated by the tangency point between the production function and the isoprofit curve. A business (here a farm) chooses the input and output combination that lies on the highest isoprofit curve (Varian, 1996). The figure shows that due to the technological change when the production function shifts from $y=f_1(x)$ to $y=f_2(x)$ the farm can reach a higher isoprofit line $I_2$. That implies a higher profit for the farm. It is also expected that farms would invest into more capital intensive production and would consequently reduce the labour intensity on the farms. However, a higher farm income and an increased level of the farmers’ risk-tolerance might also encourage farms to invest off-farm rather than on-farm. Therefore, the overall effect of the decoupled payment on the farm production might be indeterminate (Heering, 2008).

The aforementioned theory was applied in the context of the Lithuanian dairy market after the national milk production quota was introduced upon the accession to the EU and in the context of Lithuanian dairy farmers who receive direct support from the EU in the form of direct payments, which is the focus of the research interest. Accordingly, a theoretical background for the research was conceived and the changes in the farmer’s behaviour that can be expected by economic theory in view of the aforementioned policy changes were summarized. A farm survey was conducted to get more insight into Lithuanian dairy farmers, their livelihoods, and their potential reaction to policy changes. The survey was based on the economic theory discussed above.

**Methodology**

Since the aim of the research is to analyse a potential impact of a DP on Lithuanian dairy farmers, it was sought to obtain first-hand data directly from the farmers. The farm survey was expected to give a good insight into the dairy farming in Lithuania and also an opportunity to check how the assumptions on economic theory (Chapter 2) apply to Lithuanian farmers. As it was noted above, the farm survey was based on economic theory. The theory assumptions were conveyed in the survey questions. Then the questions were divided into two groups: questions related to the farm and questions related to the farmer’s characteristics. For the convenience of the analysis and for the farmers to get a better understanding of the question rationale, the questions were rearranged and then grouped into six groups. The main body of the thesis gives further details of this effort.

The research involves both deductive and inductive reasoning (Saunders, 2003). The research is deductive in terms of checking the existing economic theory in the context of Lithuanian dairy farmers and also the implications of the recent CAP developments on the behaviour of farmers. The research is inductive in terms of gathering first-hand data, i.e. obtaining them directly from farmers, who are the original source of information, and making conclusions based on the analysis of the compiled data, for example, on identifying a farmer’s viewpoint.

The focus was placed on farms with larger numbers of animals per unit. In view of the statistical information on dairy farms in Lithuania, the research revolves around farms with six or more milking cows. Then the farms were placed into three groups: 6 to 20 cows, 21 to 50 cows, and over 51 milking cows per farm. Furthermore, the sample of the research was biased towards larger farms as there is a quite a large number of farms with 6 to
20 cows, but only a few farms have 51 or more cows. The farms with under 6 cows were left out because it is assumed that in Lithuania economical and social reasons will cause the share of small farms to shrink to a minimum. Tauragė District, which has an average territory in Lithuania, was picked out as a sample region. In this district dairy is the most common type of farming.

It should be emphasized that the research does not strive for data representativeness. It rather attempts to get a good insight into the patterns of dairy farming in Lithuania which would help to predict potential changes in the production behaviour of farmers in the context of policy changes such as decoupling of support for farmers. Therefore, the research aimed at interviewing 30 dairy farmers. The final sample consisted of 31 interviewed farms. The lottery method of stratified random sampling was used to select farms for the interviews. The interviews were conducted in August 2007.

Before proceeding with the analysis of the survey data it should be noted that the percentage of interviewed farmers from each of the three groups was different. Therefore, the weights attributable to the answers of the farmers with 6 to 20, 21 to 50, and over 51 milking cows should be 1, 1/2, and 1/8, respectively, since the number of farms surveyed in the latter group was 8 times larger than that in the group of farms with 6 to 20 cows. However, to make the analysis simpler, the answers from all the three groups were treated equally.

The survey consisted of both multiple-choice and open questions. To analyse the collected data, it was necessary to categorize the answers to the open questions in a way that would enable to analyse them just like the answers to the multiple-choice questions. The SPSS statistical software was used to save the collected data in electronic format. After some additional arrangements of the answers to the questions, the data was ready for further quantitative analysis.

### Data analysis

The survey data analysis included a descriptive and explanatory analysis of the results of the survey. The descriptive analysis consisted of three approaches: a single survey question analysis, two-variable analysis, and factor analysis. The single survey question analysis dealt with the outcomes of the key economic variables and some non-economic variables which explained the economic variables. Then the two-variable/cross-tabulation analysis was performed. Here, pairs of variables were correlated based on economic theory and the expectations suggested by the authors. The aim of this analysis was to explain the potential correlations between the variables without quantifying them. Furthermore, the factor analysis (hereinafter FA) was expected to capture a broader insight into the survey data and to summarize and reduce the volume of the obtained data. Based on the technical outcomes generated by the FA it was expected to check the efficiency of the previous two analyses.

The three approaches above were anticipated to provide a clear and informative descriptive picture of the key survey findings. This was expected to offer interpretation of the survey data and to answer the research questions.

Based on the descriptive survey analysis and its outcomes, an explanatory survey analysis was conducted. The explanatory survey analysis included a regression analysis based on the multinomial logistic regression technique. The background for the regression analysis was the research hypotheses and the findings of the descriptive survey analysis. The regression analysis was expected to quantify the relationships between the variables and to test the research hypotheses. Due to specific tools available in Stata, this statistical software was chosen instead of the SPSS for the explanatory survey analyses.

### Results

#### Results of the descriptive survey analysis

The single survey question analysis was structured according to the farm and farmer’s characteristics. The SPSS bar-charts and tables were used to illustrate the main findings of the analysis. They showed that most of the interviewed farmers had at least higher education. Farmers did not approve of the decoupled support policy. It is important to note that farmers seemed to be more concerned about the potential negative effect of the milk quota on their farm development than about the decoupled support policy. However, further inquiries revealed that over the interview period the quota was not binding at the farm level and no super-levy fines for overproduction were incurred by the farmers. Therefore, the farmers seemed to fear the quota constraints in the future. Furthermore, it is interesting to note that most of the farmers stated that they had a sufficient collateral to get a bank credit. Thus the accessibility of capital appeared to be no problem for most of the interviewed farmers. Moreover, most farmers thought that in the future (in 10 years) the national and EU support is going to shrink while their farm income is going to increase. That suggested that farmers were market oriented and they did not rely on the support to farmers. Most common on-farm investments included investments into new machinery. It could be explained by a shortage of labour force which might be the primar reason for investments which do not aim at increasing the production efficiency.

The two-variable analysis was based on the formulation of nine expectations related to the correlations between the variables. The key findings from the two-variable analysis indicated that there were more farmers who benefited from the EU structural funds than those
who used a bank credit. That suggests that the EU structural funds are relatively easy to access and most of the interviewed farmers took advantage of the funds. It is also interesting to note that the farmers who stated that their production volumes came up to 100% of their quota usually did not know whether decoupling could affect their farm production. It could be expected that this group of farmers were not aware of their actual quota fulfilment rate. However, the most unexpected finding on the economic behaviour of farmers was related to the collateral available thereto. That is to say that if a farmer found collateral for getting a bank loan insufficient, it was not necessarily considered a hindrance to expand the farm production. Those findings suggest that within the group of the interviewed farmers a limited access to capital did not constitute an impediment to farm expansion. Farmers could probably finance their farm expansion from their own savings or by borrowing money from other sources.

The findings of the two-variable analysis supported and extended the findings of the single variable analysis. A particularly interesting finding is related to the milk quota. Since the farmers were not imposed a super-levy for producing over their quota, they did not express any fear related to the short-term effects. However, when the farmers were asked questions about a longer perspective, e.g. their farm expansion, the impact of decoupling on the farm production, the negative effect of the quota on the farm production, etc., usually their answers were in-line with the economic theory when the quota is binding. That confirmed the previous findings showing that farmers were market oriented.

The last part of the descriptive survey analysis dealt with the factor analysis. The technical outcomes of the FA allowed to check some of the findings from the cross-tabulation analysis and to track down some other interesting correlations between the variables. For example, the FA found that the variable “Have you ever used a bank loan?” correlated positively with the variable “Have you taken advantage of the EU structural funds?” That suggested that the cross-tabulation analysis could have used one of those two as explanatory variables without any need to use both. However, the latter finding is ambiguous bearing in mind the above fact that the farmers who have taken advantage of the EU structural funds have not necessarily used a bank credit. The analysis also showed that the EU structural funds seemed to have played an important role in the farm development of the interviewed farmers and it appears to remain important at least in the near future.

The three aforementioned approaches play a vital role in the descriptive survey analysis and they are all highly important in answering the research questions. Moreover, the descriptive analysis was performed in the aforesaid order: to provide a relevant background for the regression analysis, the research started with the simplest, i.e. the single variable analysis, where no relations between the variables are assumed and no explanations are required, and then it proceeded to the most complex, i.e. the factor analysis, which embraces correlations between groups of variables, checks expected correlations, and finds new ones.

**Explanatory survey analysis**

As noted above, the regression analysis was based on two thesis hypotheses and the outcomes of the descriptive survey analysis. The aim of the regression analysis was to quantify the relationships between the variables and to test the thesis hypotheses. Decoupling was not expected to have a direct impact on the farm production decision, short-term in particular, but it was anticipated that it could affect the farm investment decision mainly related to long-term periods. To test the later hypotheses, two regression equations were defined: one equation is related to the farm production and the other to the farm investment decision. The inclusion of dependent and independent variables in the regressions was justified. The variables are presented in the table below.

<table>
<thead>
<tr>
<th>Variable number/ ID</th>
<th>Variable name</th>
<th>Variable outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>(q39)⁷</td>
<td>Do you think that decoupled payments can affect your production decision?</td>
<td>-1 – No; 0 – I don’t know; 1 – Yes;</td>
</tr>
<tr>
<td>(q8)⁴</td>
<td>What percentage of your quota have you fulfilled?</td>
<td>1 &lt;70%; 2 71 to 99%; 3 100%; 4 101 to 130%; 5 &gt;131%</td>
</tr>
<tr>
<td>(q36)⁴</td>
<td>How much land do you rent?</td>
<td>1 &lt;20% 2 21 to 40% 3 41 to 60% 4 61 to 80% 5 &gt;81%</td>
</tr>
</tbody>
</table>

Table 1. Description of variables included in the regression model
The multinomial logistic regression model (MLM) technique was chosen to run the regression model, which consists of testing the two hypotheses. The MLM was specifically applied to analyse the farmers’ opinion on whether decoupling could affect their farm production. The MLM is specified as follows:

$$prob( y_i = j ) = \frac{e^{\beta_j x_i}}{1 + \sum_{j=1}^{0} e^{\beta_j x_i}} \quad \text{for } j = -1 \text{ and } 0$$ (1)

$$prob( y_i = 1 ) = \frac{1}{1 + \sum_{j=1}^{0} e^{\beta_j x_i}}$$ (2)

In the formulas above, $i$ refers to an individual farmer and $j$ denotes the farmer’s choice with $j = -1$ or 0 (a dependent variable to obtain one of the three outcomes: -1, 0 or 1). Then, $e$ is the base of the natural logarithm, $\beta$ is the coefficient of the independent variables $x_i'$, and $y_i$ is the dependent variable. Here, $y_i = q39$ (the likelihood of decoupling changing the farm production decision) and the following independent variables and $x_i$:

1. $x_i = q38$ (fulfilment of the milk quota) + $q36$ (land rented) + constant (in testing the hypothesis that decoupling has no impact on the farm production decision);
2. $x_i = q32$ (attractiveness of investments into agriculture) + $q63$ (farm expansion plans) + $q76$ (whether a bank could refuse granting a credit to a farmer on the grounds of an insufficient collateral value) + constant (in testing the hypothesis that decoupling has no impact on the farm investment decision).

The provided MLM model estimates J log-odds ratios (a ratio of the probability of the $i$th individual to choose one outcome rather than another in natural logarithms): $ln \left( \frac{P_{j|i}}{P_{0|i}} \right) = \beta_j x_i$, and $ln \left( \frac{P_{j|i}}{P_{k|i}} \right) = x_i(\beta_j - \beta_k)$. Thus the model predicts the relative probability of an individual (i) choosing a particular outcome rather than another.

The MLM technique was chosen because the dependent variable could obtain one of the three outcomes which were mutually exclusive. Here it is important to remember the main assumption and the major limitation of the MLM which says that the odds ratio of any two categories are independent of all other response categories. For example, if a new product is introduced into a market, this assumption states that the market shares of all other products are affected proportionally. In other words, the MLM requires a restrictive assumption such as an assumption of the independence of irrelevant terms (IIA), (Verbeek, 2008).

However, the interpretation of the coefficients generated by the MLM technique based on the maximum likelihood estimator is not as straightforward as the interpretation of the coefficients estimated by the OLS (ordinary least squares) estimator. The MLM technique requires to calculate the marginal effects which are the derivatives of the probabilities of each outcome of the dependent variable and which occur when the independent variable increases by one unit. In a shortened/final form, the marginal effect can be illustrated by the formula below (Burrell, 2007):

$$\frac{\partial P}{\partial x_{\beta_j}} = P_i(\beta_j - \overline{\beta})$$ (3)

Where $\overline{\beta} = \sum_{k=0}^{I} P_k \beta_k$ - is a weighed sum of all $\beta$s.

$\overline{\beta}$ can be interpreted as the sum of the multiplication of the estimated regression coefficients $\beta_j$ and the probabilities of each outcome of the dependent variable. It should be born in mind that outcome probabilities always sum-up to 1 and the estimated coefficient $\beta_j$ for the reference category is interpreted as 0. However, the interpretation of the marginal effect estimates required caution since the research sample included only 31 observations. Due to the small number of observations, findings at 80% confidence level were interpreted as significant (although it is generally accepted that an estimate is significant at 95% confidence level).

It was noted that only the regression equation, which tested the hypothesis that decoupling has no impact on the farm investment decision, generated statistically significant results. In other words, the results were inconclusive. Therefore, the hypothesis that decoupling has no impact on the production decision could not be rejected as the independent variables included in the regression equation had no explanatory power. The research hypothesis that decoupling...
has no direct impact on the farm production was confirmed. The table below illustrates the results of the regression which tested the hypothesis that decoupling has no impact on the farm investment decision.

The table contains the marginal effect estimates and standard errors of estimates (provided in brackets below each marginal effect estimate). The estimates that are significant at 5% confidence level are marked with ** (three stars), the estimates significant at 10% are labelled with * (two stars), and the estimates significant at 20% are identified with * (one star).

The table also provides shares of probabilities of each outcome of the dependent variable as predicted by the independent variables included in the regression model as well as the actually observed probabilities. The differences between the observed and the predicted probabilities were calculated. Finally, the table provides estimates of Pseudo-R2, the log-likelihood, and the significance of the model as a whole (“Prob > chi2”). Those indicators give an idea of the accuracy of the model; of how well the model predicts the probability of the outcomes of the dependent variable as compared to the outcomes that have already occurred (actually observed probabilities of the dependent variable).

Before analysing the data in Table 2, it should be first noted that Prob > chi2 = 0.018. This implies that the independent variables made a significant contribution in explaining the dependent variable. Therefore, the hypothesis that independent variables had no impact on the dependent variable had to be rejected, which confirmed the thesis hypothesis that decoupling had a potential positive impact on the farm production through investments.

The numbers provided in the table indicate that the attractiveness of investing into agriculture reduces the potential effect of decoupling on the farm production. Furthermore, planning related to the farm expansion dispels uncertainties about a potential impact of decoupling on the farm production. Finally, it seems that the capital constraint does not preclude farmers from investing in their farms. Decoupling is likely to make investments into the farm easier but even in its absence farmers find ways of investing in their farms. This is an important finding of the research.

The outcomes of the explanatory analysis lead to a conclusion that farmers are market oriented and they tend not to rely on either national or the EU support. Furthermore, the unavailability of a collateral does not stop them from planning their farm expansion and/or investing into the farm. That is to say that a limited access to capital does not impede farm expansion. All things considered, in the sample of the interviewed farmers the impact of decoupling on the farm production is more likely to occur in the far rather than in the immediate future. Decoupling, which implies an increase in the farmer’s income and the value of the collateral held thereby, makes it easier for farmers to invest into their farms or outside the farms. On the other hand farmers are likely to be capable of investing into their farms without an external support, e.g. decoupled payments.

**Discussion**

The research provided answers to most of the research questions and sub-questions. The answers to each research question are detailed in the main body of the
thesis. However, the interpretation of the research findings had to take into account the limited sample size and the fact that the research did not aim at data representativeness. The research looked into the dairy farming in Lithuania and the potential production behaviour of farmers resulting from the decoupled support policy.

The research showed that the interviewed farmers were long-term market oriented. However, the findings showed that their behaviour was not always driven by economic incentives. An interesting finding of the research is that the liquidity constraint does not stop farmers from investing into their farms. Moreover, due to the fact that farmers are not subject to any super-levy for overproduction, the milk quota in Lithuania is more like a guideline for production rather than a constraint. Therefore, it was unexpected that most farmers respect their quota. Moreover, most farmers perceived the quota constraint as a threat for their farm development. Those farmers who produce below their quotas, mostly replied that decoupling could have some impact on their farm production. This suggests that the interviewed farmers may fail to understand the EU policies including the decoupling correctly.

Based on the research, it can be concluded that a positive impact of decoupling on the farm production is not likely to emerge in the nearest future. However, an increase in the production will be associated with larger investment levels on the farm in the long-run. Moreover, the findings of the study may provide useful insights into the potential behaviour of dairy farmers in other EU member states, EU-12 in particular, caused by policy changes. That is to say, in the new member states, just like in Lithuania, the driving forces of the farmers’ economic behaviour may be difficult to predict. For example, the investment behaviour of a farmer may not depend on whether the farmer is liquidity constrained or not, which is observed in the old member states.

The study provides scope for future research. It is assumed that a stronger focus should be placed on the investigation of the farmers’ risk tolerance as this could contribute to explaining the farmers’ investment behaviour. Moreover, the investment behaviour of the farmers also requires more scrutiny. Variables should be analysed to identify the driving forces of the farm investment behaviour. Finally, based on the findings and the information collected during the research, it is noted that the CNDPs (complementary national direct payments) paid to dairy farmers per tone of quota milk in the new member states applying the SAPS (Single Area Payment Scheme) support scheme might be an interesting topic for future research. Those countries will have to shift to the SPS (Single Payment Scheme) after 2013 and the CNDPs will no longer be allowed. That brings to the question what is going to happen with the CNDPs which were paid to farmers per tone of quota milk? How will dairy farmers be compensated for losing this particular farm support, if at all? Depending on the answer to the latter question, it would be interesting to investigate how the shift from the SAPS to the SPS could affect the economic behaviour of dairy farmers in Lithuania and in other new EU member states?

References


