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Danish Farmers and Investors: An analysis of reasons and motivations for increasing cross-border agricultural activities in Central and Eastern European countries

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Abstract

The purpose of this paper is to provide some evidence on the push and pull factors that motivate farmers to expand across their home countries' borders. The focus is on Danish expansion farmers and investor farmers setting up activities in Central and Eastern European countries like Slovakia, Poland, Romania and Latvia. Data from 44 mail surveys was analysed to explore the push and pull factors that contribute to farmers' level of activities outside their home country. The responses given in the mail survey are analysed using two analytical methods of frequency analysis and an ordered probit model. The results indicate that the important factors for Danish farmers to extend overseas are price and availability of land, institutional governance, network and image with regard to farming. These findings generally support the literature regarding reasons for farmers to increase their cross-border activities, except that we do not find a significant influence from the availability of cheap labour in the host countries.

Keywords: Denmark; Danish farmer; agriculture; cross-border; Central Eastern Europe

JEL Codes: C51, D22, F23, Q12, Q17

1. Introduction

The globalization process in agribusiness has emerged decades ago and within this process has been the emergence of the global farmer. This is a farmer or an investor in farm activities as well as farming enterprises who carries out activities in more than one country. In many countries over the past years there has been a growing demand from foreign farmers and investors for agricultural land, thereby risking moving toward the creation of a “neo-colonial” system. This is the process in which the new reach countries plan to secure farmland overseas in order to improve their food security (Financial Times, 2008). These reach countries invest in buying agricultural land in for example Africa and Asia to grow different commodities and ship them back to their own countries. This investment brings technology as well as better infrastructure and financial resources to the host countries, but it also may bring problems for the local smallholder farmers. They may suffer, given that they are unable to invest overseas and unable to compete internationally (Friis and Reenberg, 2010; Rakotoarisoa, 2011).

There have been a growing number of European farms crossing overseas. For instance, there are a significant number of Dutch farms setting up their activities in Canada and USA (Wolleswinkel and Weersink, 2001). Similarly, Danish farmers are farming abroad and mostly in Central and Eastern European (CEE) countries such as Romania, Latvia, Ukraine, Poland and Slovenia. The owners often still live in Denmark, but they have placed parts of their pig, cattle or vegetable production in Eastern Europe (Association of Danish Farmers Abroad, 2012; Karantininis and Zylbersztajn, 2007).

Farmers and investors with large financial resources expand to other countries to take advantage of land, water and human resources (productivity factors). The focus of this paper is not to go into depth about how these farmers and investors are organized and what are the pros and cons of this process both for home and host countries, but instead to highlight the key push and pull factors driving the farmers’ globalization. Investigating the push and pull factors that lead Danish farmers toward foreign markets it is of importance to two reasons. Firstly, for other potential farmers that are considering investing, expanding or even emigrating abroad, the results could help them in making a more accurate estimation of the chosen country. Secondly, for the policy makers and governments of both home and host countries to have an overview to the main factors that push or pull their investors or producers to invest somewhere else. Previously this has been investigated for the case of Dutch emigration farmers moving to Canada and USA (Wolleswinkel and Weersink, 2001; Weersink and Eveland, 2006; Richardson et al., 2007). They focus mostly on the Dutch dairy farmers that migrate. Noteworthy reasons behind the Dutch dairy farmers relocating to USA and Canada are the strict environmental regulations experienced in the European Union, expensive land and limited opportunity for growth in the Netherlands (Wolleswinkel and Weersink, 2001).

In our paper we use Denmark as a case study. Denmark is a country with large agriculture activity, with export of agricultural products making up 5.4% of GDP and producing three times the amount of food the country needs for itself. This indicates that the agriculture sector still plays a vital role in

the Danish economy. There has been an increasing modernization of agriculture combined with changes in farm management and organization as well as the attraction of industrial employments in the urban areas. These changes have made farmers more competitive and aim for foreign markets in a similar fashion to how firms do. Denmark is a suitable case study to investigate the movement of farms and to the authors' knowledge there is a lack of research regarding this process. Within the literature, one other paper looks at the incentives of European farmers to go to CEE countries (Karantininis and Zylbersztajn, 2007). Their paper uses micro-macro approach, property right theory and a multiple case study where one of the cases is Denmark. They attempt to define the global farmer and some of the reasons for globalization.

We categorize the Danish farmers into two main types and based on this framework we highlight the main push and pull factors considered most important when they engage in cross-border activities. First we use a frequency analysis to describe the general motivations for farmers going abroad and secondly, an ordered probit model is used in order to define more specifically the push and pull factors important to the two different types of farmer in the framework.

1.1 Push and Pull Factors

In order to explain the push and pull factors influencing farmers' decisions about engaging in cross-border activities, this paper adopts some theory of the firm. It can be said that the literature related to firms moving their operations abroad is equally applicable to that of farms. The concept of push and pull factors driving internationalisation is inspired by Etemad (2004).

Most firms are searching for a strategy to stay ahead of the competition and one way of doing this is to globalize. Generally known economic reasons like low costs influence firms' decisions of extending their activities (Porter 1986; Yip 1989). Transaction costs can be one of the most important pull factors of becoming a global farmer. A lower cost of information, processing, production and distribution are incentives for the firm to globalize. Also the firm which operate abroad is aiming to maximize the use of their manufacturing equipment and spread the high costs of research and development over the product life cycle.

Due to a low level of development, there are countries that can be attractive for the high tech countries to expand to. Fixed assets, subsidies, human capital and low wages can be some of the factors that firms may find attractive. There are push and pull factors that affect the decision. Economies of scale is a key factor that pushes firms to expand abroad (Douglas and Wind 1987; Yip 1989). This is because firms can reach a higher level of output spread over the large fixed cost in order to lower the cost per unit. Furthermore, most firms move their headquarters overseas to avoid their respective home countries' high taxes and other costs associated with business operations in their home countries. Other important factors that may push firms abroad are the size of firm, country of origin and the industry that the firm is involved in (Dunning, 2009).

Of the pull factors influencing the globalization decision, some of the most important ones are looser trade barriers, less environmental regulation, customer demands and globalization of their

competitors. Governments play an important role in dispersing activities through tariffs, nontariff barriers and nationalistic purchasing. Dispersion is also encouraged by the risks of performing an activity at one place as well as other types of risk such as exchange rate risk, political risk, risk of interruption (Porter, 1986). However, the evidence supporting the influence of environmental regulation on the globalization decision is mixed. On one hand, stringent environmental regulations are seen as a vital motivation in the location decision (Isik, 2004; Taylor, 2004; Mulatu, 2010), but on the hand there is research showing that environmental regulations either have an ambiguous effect (Weersink and Eveland, 2006) or even a negative effect on the location decision (Metcalf, 2001). It seems that the level of influence of environmental regulation in the location decision is dependent on the sector that the farmers belong to.

With our specific case of Denmark, it has been observed that restrictions and regulations in Denmark have encouraged Danish farmers to follow the example of Danish pork producers who have made investments abroad. The Baltic States are the countries where Danish milk farmers are already operating (Boersen, 2001a). Dansk Primaer Landbrug (DPL) Invest A/S, the leading pig breeder in Denmark with 21 production units in Denmark, mentions Poland, the Baltic States or the Czech Republic as the new areas in its expansion plans (Boersen, 2001b). As the Danish Agricultural Advisory Service (DLBR) explains, countries such as the Ukraine, Slovakia, Romania and Bulgaria are very attractive to Western producers, as they offer cheap land and labour as well as proximity to the European markets.

According to Zylbersztajn et al. (2002) and Karantininis and Zylbersztajn (2007), there are three crucial factors that may influence this flow of farms to CEE countries. First is the large difference in land prices and labour costs, despite the similarity that these countries may have with regard to production conditions. Secondly, there are many policy constraints for production in the home countries due to quotas, set-aside and other control mechanisms. Finally the presence of well-organized networks through which the extension paradigm is shared may also have an influence on the flow of farms to CEE countries. All the CEE countries have shown progress regarding the general reforms as well as a stabilization of macroeconomic indicators in the last years making these countries attractive to foreign investors and farmers. Romania and Poland are two of the most important agricultural countries in terms of agricultural area and farm population. Combined they have as many farms (7.6 million) as the EU-15 (Swinnen, 2002). This may also be another reason that farmers choose these specific countries for establishing their activities.

There are also push and pull factors that can affect the decision to expand abroad in a negative direction. When considering Denmark, we think of a stable country with reliable institutions and we consider Danish farmers as educated people used to living in a cooperative system where you are highly connected with each other. This can be considered as negative push factors in terms of cross-border activities. There are also negative pull factors toward expanding to CEE countries. Examples of these are problems with regards to property rights in relation to land ownership, enforcement of contracts connected with delays regarding payments for product deliveries and labour difficulties as well as market liberalization (Rozelle and Swinnen, 2004). Additionally governmental and

institutional variables for CEE countries (overall indicating the stability of a country from the perspective of corruption, democracy of media and crime) are ranked as the worst in Europe (Kaufman and Lobatón, 2002).

2. Conceptual Framework

In order to analyse how push and pull factors affect different types of farmers' globalization decision, we categorize farmers into two main groups. Firstly, we have the expansion farmer. The expansion farmer can be considered as centralized in that he is an owner and is responsible for his business. This is a farmer who may not be an investor and is only involved in one or two activities abroad. This type of farmer typically lives either in the home or host country. He may also choose to divide his time between two countries. The expansion farmer is usually responsible for most of the activities abroad, but may hire managers to attend to the activity in his periods of absence. Secondly, we have the investor farmer. This is a farmer who is interested in investing in farming abroad and invests in many activities. The expansion farmer can be considered as decentralized. He may not be the person responsible for the daily farming activities given that he acts mostly as an investor and not as an owner of the farm. The investor farmer typically does not place himself in the host countries, instead opting to have managers or other persons running the activity in the host country. We will now turn to each of these two types of farmer in more detail.

2.1 Expansion Farmer

We can assume that the expansion farmer has a choice between countries, but his choice is limited to one or two countries. This may be because he is not mobile and can realistically only physically place himself in one or two locations. He is also likely to still have his activity in his home country and is therefore not an emigrant type of farmer. Furthermore, this type of farmer is less able to absorb the risk of experimentation, due to a possible lack of financial resources. This type of farmer is more connected with the home country and has bounded ties with their home country and his decision to go abroad is affected by these home ties, which can be both social and business in nature. A social tie can be described as the presence of ties to family and friends either in the home country (corresponding to a negative push factor) or in the host country (positive pull). A business tie can be a connection with the organized chained networks such as the presence of Danish retailers, Danish farms, Danish firms and Danish banks in the host country. The expansion farmer may need a business network because (unlike the investor farmer) he may not have an existing established supply chain network. These business ties should be important for this type of farmer since they are likely to be farmers operating on their own, so the need for business ties and networks abroad is important, particularly when first setting up their activity abroad. This is also important given that this type of farmer may lack knowledge of international markets and possibly lacks an international network. An expansion farmer may also be setting up his activity on a small scale and therefore be concerned with selling his products on locally within the host country and be less concerned about the larger scale market opportunities. These factors mean that the expansion farmer is more careful about the choice of host country and as stated before will only be involved in one or two activities abroad.

2.2 Investor Farmer

An investor farmer can be either a person or entity that purchases assets with the objective of receiving a positive return (profit). He is more open to new alternatives and therefore he can choose to invest in many activities within a host country or in several countries at the same time. The investor farmer can be seen as more dynamic and eager to set up activities abroad. He could also be considered more of a risk taker with many international connections and experience in international markets, when compared to the expansion farmer. He can go for both short term and long term activities. Given that the investor farmer is able to expand in many countries, then the most important factors affecting his decision about his activity abroad should be those of efficiency. These include many of the factors outlined earlier from Zylbersztajn et al. (2002) and Karantininis and Zylbersztajn (2007), such as property rights, cheap land and labour as well as environmental regulations. The investor farmer will also be less concerned about some of the factors important to the expansion farmer such as bounded ties and selling products on a local scale. The investor farmers might be less concerned about the network ties because he may already have his own network if he is part of an investment group and could have more experience with the potential problems in different countries.

In summary, when deciding to increase their level of activity abroad, both types of farmer have to consider their options regarding where to locate their activity. They have both similar and different push and pull factors affecting the choice of host country. We will investigate how these two types of farmers evaluate various push and pull factors. The two types of farmer will have diverse characteristics and aims for their activities which will also lead them to evaluate the push and pull factors differently.

3. Data Collection and Survey Design

Data from a mail survey is used to explore the reasons and motivations that push and pull farmers to engage in activities outside their home country. The mail survey was conducted with farmers, owners of the company and representative managers who had invested or moved to CEE countries. The list of respondents was derived from information provided by other Danish farmers and the DBLR. The respondents are therefore Danish owners that invest in CEE countries and Danish managers or other representatives of the agricultural company in the host countries.

The mail survey was designed in a six month period in 2011, during which time a focus group and a pilot test were conducted. The final version of the survey was sent out to 65 respondents in July 2011. Two months after sending the survey we had received a total of 31 responses. Reminders were given to non-respondents either by phone or e-mail and in September 2011 replacement questionnaires were also sent to the remainder of non-respondents. The reminders and replacement questionnaires increased the number of responses to the mail survey to a total of 44, corresponding to a response rate of 68%. Methods were employed to boost the response rate as outlined by Dillman et al. (2009), included using a financial reward in the form of a prize draw for a gift

certificate, signatures to increase personalisation and the above mentioned reminders and replacement questionnaires.

3.1 Design of Global Farmer Motivation questions

The Global Farmer Motivation (GFM) questions inspired by Wolleswinkel and Weesink (2001), were presented to respondents after the introductory questions, where it is believed that the respondents will be sufficiently “warmed-up” to provide honest and unbiased answers (Dillman et al., 2009). Respondents were asked to state the importance that they placed on a series of statements on a five-point Likert-type scale (Likert, 1932) ranging from “1 – Not important” to “5 – Very important”. The statements were split into the four questions as shown in Table 1.

Table 1. Questions exploring GFM

Q1	“Which of the following reasons were most important for you when you emigrated, invested or established yourself outside of Denmark?”
Q2	“In your opinion, which of the following reasons are the most important for a farmer to stay in Denmark?”
Q3	“Which of the following reasons were the most important for you when you emigrated, invested or established yourself in your chosen country instead of a different country?”
Q4	“What were the most important problems that you faced when you emigrated, invested or established yourself in your chosen country?”

It can be seen from Table 1 that the four questions relate to push and pull factors as described in Section 1.1 earlier. Questions 1 and 2 are investigating positive push and negative push factors respectively while questions 3 and 4 are investigating positive pull and negative pull factors respectively.

4. Analytical Method and Model Specifications

Two stages were employed in our analysis. Firstly, we examine the frequency counts for the four questions exploring the reasons for the farmer to engage in activities in their host country. Secondly, we empirically investigate GFM by fitting an ordered probit model with the level of activity abroad as the dependent variable and characteristic variables (farm and farmer characteristics) and the GFM question responses as independent variables. The regression model can be summarised as:

$$Y = f(\text{Characteristics}, \text{Push factors}, \text{Pull factors}).$$

Following Greene (2008) and Verbeek (2008), the next subsection will outline the general model specification used in this stage of our analysis.

4.1 Ordered Probit

The model platform is an underlying latent regression model:

$$y_i^* = x_i' \beta + \varepsilon_i, i = 1, \dots, N.$$

Where x_i' is observable and ε_i is the unobserved error term while the N sample observations are labeled $i = 1, \dots, N$. β is a vector of parameters that is the object of estimation and inference. The continuous latent ‘measure’, y_i^* is observed in discrete form through a censoring mechanism:

$$\begin{aligned} y_i &= 0 \text{ if } \mu_{-1} < y_i^* \leq \mu_0, \\ &= 1 \text{ if } \mu_0 < y_i^* \leq \mu_1, \\ &= 2 \text{ if } \mu_1 < y_i^* \leq \mu_2, \\ &= \dots, \\ &= J \text{ if } \mu_{J-1} < y_i^* \leq \mu_J. \end{aligned}$$

Assuming ε_i to be normally distributed across observations and normalizing the mean and variance of ε_i to zero and one, leads to the following probabilities:

$$\begin{aligned} Prob(y_i = 0|x_i) &= \Phi(-x_i' \beta), \\ Prob(y_i = 1|x_i) &= \Phi(\mu_1 - x_i' \beta) - \Phi(-x_i' \beta), \\ Prob(y_i = 2|x_i) &= \Phi(\mu_2 - x_i' \beta) - \Phi(\mu_1 - x_i' \beta), \\ &\dots \\ Prob(y_i = J|x_i) &= 1 - \Phi(\mu_{J-1} - x_i' \beta). \end{aligned}$$

Where Φ is the normal cumulative distribution function and the μ 's are unknown threshold parameters to be estimated jointly with β . Estimation is based on maximum likelihood, where the above probabilities enter the likelihood function. The interpretation of the β coefficients for the characteristic variables is in terms of the underlying latent variable model (e.g. a positive β means that the corresponding variable increases a respondent's level of activity abroad). The variables representing the responses to the GFM questions are interpreted as follows:

- A positive β means that respondents with low levels of activity place a low importance on the corresponding variable while respondents with high levels of activity place a high importance on the corresponding variable
- A negative β means that respondents with low levels of activity place a high importance on the corresponding variable while respondents with high levels of activity place a low importance on the corresponding variable.

5. Results and Discussion

5.1 Respondent Characteristics

The results of the questions obtaining information of the demographic characteristics of the respondents showed that a high proportion of the respondents are customers of an advisory company. This may have some positive effect on the level of activities abroad. While more than half of the respondents state that they own and run one or more farms themselves, there are still

almost a third of the respondents who consider themselves as investors, which again may have a positive effect on their level of activity abroad. Many of the respondents have activities in Denmark as well as abroad. With regard to other characteristics, the most noteworthy of these are the respondents' ages, which range from 32 to 71 with only two respondents being above 65 years of age. Respondents were also given an opportunity to state where they may be interested in setting up activities sometime the future. These countries included mostly CEE countries like Romania, Slovakia, Poland and Ukraine.

As well as extracting information on the respondents, the survey also included questions about the characteristics of their farms. These farm characteristics were split into the respondents' Danish farms and their farms abroad. The most noteworthy results of the respondents who were engaged with a Danish farm, 60% said that they owned and ran their Danish farm. Only 14% of respondents said that the majority of their Danish land was rented. With regards to size of production we chose to place respondents in four categories of size, where the placement of the respondent depends on their number of hectares and number of animal livestock units (pigs or cows). Within these categories there were 25% of respondents that can be categorised as having large farming activities, while 20% have small or no farms in Denmark. Generally the respondents were evenly spread out over the four categories.

The characteristics of the respondents' farms abroad show that 20% of respondents fall into the last size of production category and can be said to have a large size of production while 18% have small farms abroad. The respondents' farms abroad seem to belong more to the medium size categories when compared to the farms in Denmark. More than half of the respondents said that their land abroad is rented, specifically 52% of respondents. The countries mentioned for the respondents activities were mostly Romania (39%), Poland (9%), Slovakia (7%) while other countries were Bulgaria, Latvia, Lithuania and Russia. With regards to the farmers' engagement in their activities abroad, only 5% said that they owned and ran their farms abroad themselves, while 52% regarded themselves as shareholders or investors in that activity. Related to this point, there were only 5% of the activities abroad that were personally owned by the respondents and 59% were said to be an incorporated activity.

5.2 GFM Frequency Analysis

In this section we show the frequency counts for the four questions exploring the reasons for the farmer to engage in activities in their host country.

Table 2. GFM frequency results of Question 1 – Positive push

Which of the following reasons were most important for you when you emigrated, invested or established yourself outside of Denmark?	Importance				
	1	2	3	4	5
Limited possibility for expansion in Denmark	20	7	17	20	37
Limited possibilities for next generation in Denmark	33	20	22	12	12
High prices for land in Denmark	14	2	5	20	61
High taxes in Denmark	33	10	12	12	32
High VAT in Denmark	51	13	7	10	17
Lack of agricultural land in Denmark	36	7	24	20	15
Decreasing financial support in Denmark	45	13	27	12	2
Increasing environmental restrictions in Denmark	20	2	22	29	27
Too many laws in Denmark	15	5	20	17	41
Lack of support from the population in Denmark	18	13	2	22	44
Personal challenge in Denmark	19	5	29	10	29
Personal reasons (e.g. marriage)	71	15	10	2	0

The most notable results from Table 2 reveal that many of the respondents consider the high prices for land in Denmark and the limited possibility for expansion as important reasons to expand or invest outside Denmark. Almost half of the respondents consider the lack of support from the Danish population as a very important factor, while 41% of respondents consider the high number of laws in Denmark as another reason to go abroad for better opportunities. Additionally, it seems that increasing environmental regulations are also considered an important positive push factor. Generally taxes in Denmark are considered higher than in the other countries, but when it comes to the respondents, they do not have a clear opinion about this issue. These results seem to support the literature mentioned earlier and in particular show that cost of land is the key factor to push the respondents out of Denmark. Environmental restrictions seem to be another important push factor for Danish farmers abroad. This may be because Denmark has strict environmental laws thereby pushing the Danish farmers to go for countries that have less stringent environmental restrictions.

Table 3. GFM frequency results of Question 2 – Negative push

In your opinion, which of the following reasons are the most important for a farmer to stay in Denmark?	Importance				
	1	2	3	4	5
Financial support for farmers in Denmark	32	8	21	21	18
High taxes when selling property in Denmark	26	18	21	26	8
Lack of experience with other countries' agriculture	8	8	33	28	25
Moving from friends and family	5	7	12	29	46
Worries for family's wellbeing	8	5	15	23	50
Leaving the family farm where born	10	13	26	31	21
Happy with current situation	10	8	33	35	15
Risk connected with move	5	5	24	46	20

The most important factor keeping the respondents in Denmark as shown in Table 3, seems to be the issue of moving from friends and family and worries for family's wellbeing. It seems that farmers' social network is an important negative push factor that keeps Danish farmers connected to their home country. The statements related to risk and lack of experience with other countries' agriculture also seem to rate as quite important factors for the respondents.

Table 4. GFM frequency results of Question 3 – Positive pull

Which of the following reasons were the most important for you when you emigrated, invested or established yourself in your chosen country?	Importance				
	1	2	3	4	5
Low wages in that country	5	17	39	22	17
Cheap local workforce in that country	2	20	37	27	15
Liberal environmental laws in that country	13	23	33	28	5
Land less expensive in that country	2	0	2	29	67
Cheap milk quotas in that country	61	21	3	9	6
Better climate in that country	26	18	36	15	5
Better business climate in that country	21	15	31	13	21
Less bureaucracy in that country	23	26	26	18	8
Higher soil quality in that country	15	12	24	32	17
Presence of other Danish farmers in that country	40	18	25	13	5
Presence of other Danish firms in that country	33	25	25	13	5
Presence of Danish food producers in that country	72	13	13	3	0
Presence of Danish banks in that country	71	16	11	3	0
Presence of Danish retailers in that country	66	18	13	3	0
Large consumer market in that country	16	8	16	32	29
Low population density/farm density in that country	21	18	37	16	8
Social activities in that country	47	26	21	3	3

Two of the most important positive pull factors to go to CEE countries are the cheap land and large consumer market. It is clear that farmers and investors engage in cross-border activities for profit and it makes sense to aim for a country with cheap land and high demand. Importance is also given to high quality soil in the host country. It is interesting to notice that the presence of the Danish farms, firms, retailers and banks do not seem to be important for the Danish farmers when setting up their activities abroad. This result is somewhat surprising, given that there are a number of studies that have found the existence of well-organised networks having a positive effect (Roe et al, 2002; Isik, 2004; Karantininis and Zylbersztajn, 2007). The most interesting result from the frequency analysis is that cheap labour is not overwhelmingly considered an important pull factor by the respondents. This could be a signal that Danish farmers pay more attention to the quality labour. It should also be noted, that in Table 4 the reason "liberal environmental laws in that country" does not seem to show an overwhelming importance, thereby showing a rather ambiguous result for the importance of environmental regulation. A result also found in the literature mentioned in Section 1.1.

Table 5. GFM frequency results of Question 4 – Negative pull

What were the most important problems that you faced when you emigrated, invested or established yourself in your chosen country?	Importance				
	1	2	3	4	5
Proof of ownership	10	12	15	27	37
Enforcement of contracts	5	15	23	28	30
Bank system	8	11	37	26	18
Worker morale	3	5	36	31	26
Social life	18	24	32	18	8
Corruption	7	15	32	22	24
Crime	12	24	29	17	17
Enforcement of law	8	10	35	23	25
Courts (law system)	5	12	32	27	24
Permissions	3	15	23	35	25
Lack of land	35	25	28	8	5
Soil quality	28	10	20	20	23
Production equipment	15	20	40	15	10
Inexperienced workers	8	10	33	15	35
Lack of local outlets (marketing potential)	15	5	28	28	25
Public administration	7	5	44	22	22
Language	8	18	30	23	23
Infrastructure (e.g. roads)	5	12	32	29	22

As always there are pros and cons to consider when deciding about an investment in a foreign country. The first problem highlighted by Table 5 is with the proof of ownership regarding the land. Often in Eastern European countries, land is divided into small segments where considerable paperwork is required to acquire ownership. Other problems that occur are worker morale and the inexperience of the labour force. Interestingly, it seems that lack of land in CEE countries is not an important problem thereby supporting the finding that high availability of cheap land is a vital factor affecting the respondents' globalization decision. Some other problems that the Danish farms face when abroad are those of contract enforcement, court system and permissions. This could be due to the institutional and governmental issues being a fundamental problem for the Danish farms. Notice that Denmark has some of highest indexes regarding the institutional governmental issues, meaning that Danish farmers are used to farm in an institutionally structured and stable country.

5.3 Empirical Analysis

An ordered probit model is used to examine GFM where the level of activity abroad is the dependent variable. The dependent variable takes six possible values of 1 for engagement in one farm, 2 for two farms, 3 for three farms, 4 for four farms, 5 for five farms and 6 for six or more farms. The independent variables of the model are the characteristics of the respondents and the responses to the GFM questions. Two of the characteristic variables (*Investor* and *Land abroad is rented*) enter the model as dummy variables while the final characteristic variable (*Size of production in DK*) enters the model as a variable that can take values 1 to 4 according to the size of

the respondent's production in Denmark. The other independent variables originate from the GFM questions which enter the model as the level of importance (1-5) that the respondent has placed on that particular push/pull statement. Table 6 shows the results from the ordered probit model.

Table 6. Ordered probit model

Variables	Coefficients (std. err.)
<i>Characteristic variables</i>	
Investor	1.23 (0.48)***
Land abroad is rented	-1.14 (0.54)**
Size of production in DK	0.42 (0.17)**
<i>Positive push</i>	
High prices for land in DK	0.59 (0.18)***
Too many laws in DK	-1.35 (0.29)***
Lack of support from the population in DK	0.98 (0.24)***
<i>Negative push</i>	
Moving from friends and family	-0.73 (0.23)***
<i>Positive pull</i>	
Presence of Danish retailers in that country	-1.31 (0.30)***
Large consumer market in that country	0.50 (0.21)**
<i>Negative pull</i>	
Proof of ownership	0.32 (0.18)*
Inexperienced workers	0.40 (0.19)**
Lack of local outlets (marketing potential)	-0.77 (0.22)***
μ_1	-3.09 (1.41)
μ_2	-2.25 (1.43)
μ_3	-0.95 (1.42)
μ_4	0.27 (1.34)
μ_5	0.47 (1.33)
Observations	44
Log likelihood	-45.09
Pseudo R ²	0.38

* Significant at 10% level

** Significant at 5% level

*** Significant at 1% level

Characteristic Variables

These variables show that if the respondent considers himself as an investor farmer, then he is more likely to engage in activity abroad. This can be seen as an expected result and would also appear to have the largest coefficient relative to the other two characteristic variables, thereby indicating that it is the factor which has the largest relative marginal effect on the dependent variable (level of activity abroad). The second of the characteristic variables shows that if the land used by a respondent for their farms abroad is rented and not owned, then this has a negative effect on the dependent variable. This could be explained by rented as opposed to owned land abroad being an indicator of less commitment to the activity in the host country and other activities. The last of the three characteristic variables shows that the larger the size of Danish production, the more activities

is engaged in. This can be expected, since having a large production in the home country indicates that the respondent may be more open to diversification and expansion of activities. It also shows that there may be more capital available for investments and cross-border expansions.

Positive push

The variable for high price for land in Denmark is positive thereby indicating that it is of high importance for the investor farmer when globalizing, but not for the expansion farmer. This is an expected result given that the expansion farmers most likely already own their own land and are not looking to purchase new land and therefore are not concerned with land prices in Denmark. The variable for too many laws in Denmark is negative. This issue seems to disturb the Danish expansion farmers but not the investor farmers. This is connected to the different centralization structures that the two types of farmer have. The expansion farmer mostly deals with everyday issues related to farming, while the decentralized investor farmer is not concerned about the laws in Denmark. Unlike the expansion farmer, the investor farmer is not usually involved with the daily activities.

The variable for lack of support from the Danish population is positive. It seems from our results that the possibly negative view that the Danish population has about farming in Denmark, pushes the investor farmer to go abroad but not the expansion farmers to the same extent. The investor farmers may wish to invest abroad where there could be a more positive image for agriculture and farming in general. Recent surveys conducted in Denmark show that almost 67% of the surveyed respondents believe that Danish farming has an image problem and that this problem has not been improved over the past years (Landbrugsavisen, 2010).

Negative push

Moving from family and friends seems to be one of the most important factors that keep the expansion farmers in Denmark. Danish people have close ties with their family and the results indicate that this is important for the expansion farmer. He may need to move abroad and leave family and friends and this can bring many problems. This farmer will want to consider the family ties before he expands abroad. On the contrary the investor farmer does not typically relocate and therefore moving from friends and family should not be an issue when increasing his level of activity abroad. He is most likely staying in Denmark and so does not lose his network of family and friends.

Positive pull

It is interesting to see that the variable representing the presence of Danish retailers in host countries is negative making it important for the expansion farmer. They may prefer to have some partners to sell their products to in the host country and it seems reasonable that they would prefer this contact to be from the same country of origin as themselves. With the expansion farmer being centralized and possibly responsible for the daily activities, he is eager to have more collaboration with the retailers from the home country. The variable for large consumer market in the host countries is shown to be important for the investor farmer. The investor farmer has similar behavioural

characteristics as a multinational firm in that he would like to expand his activity broadly across many countries and it is of importance that these host countries have large demand as well as opportunities for further expansion.

Negative pull

The variables for proof of ownership and inexperienced workers are both positive. That indicates that the investor farmers are the farmers mostly concerned about these negative pull factors. It is important for them given that they engage in many investments to have a decent knowledge of the property rights in the host countries. With regards to investor farmers seeing inexperienced workers as a problem, we can argue that high quality experienced workers is a requirement nowadays given that the investor farmer will likely not be able to fully control the daily activities. The investor farmers are assumed to be characterized as being mobile and not placing themselves in any of the foreign countries for a long period of time. This is an indicator of requiring experienced and high quality workers in the host countries.

Finally, marketing potential (local outlets) appears to be a significant problem for the expansion farmers when they are abroad. The expansion farmer is aiming to have local demand in the host country and he may not be aiming for international trade. Given that his experience of cross-border expansion or lack of a network abroad may be more limited than that of the investor farmer, he is likely to be more concerned about local demand in the host countries and not so much for further expansion. This is also supported by the variable for the importance of having large consumer market in the host country. This variable is positive indicating that it is of importance for the investor farmer.

5.4 Implications of Results

The findings from the frequency analysis and the empirical analysis are mostly in line with the literature in terms of the land process and policy constraints. Both of the analytical approaches used in this paper indicate that availability and cost of land are vital factors for farmers when engaging in activities abroad. Another interesting result comes from the institutional and governmental issues such as proof of ownership, contract enforcement, bank system, corruption and enforcement of law. The property rights seem to be important mostly for the investor farmer. CEE countries have a low index of institutional governance compared to the other countries, and this may be an important issue for farmers when crossing overseas. Institutional government issues today are seen as being more important than cheap labour when globalizing (Dunning, 2009). This is also supported by our results regarding cheap labour and low wages (i.e. not of high importance in the frequency analysis and not appearing significant in the ordered probit model). This indicates that both types of farmer do not consider cheap labour as a primary reason to increase their cross-border activities. The respondents are aiming at having a Danish structured farm or company abroad and to them it is important that they have well-trained labour. They go abroad with the aim of being effective and they are willing to pay to achieve this, often hiring Danish managers.

The network and the perception that the Danish population has of farming in general are some of the social factors that also seem to be of importance for Danish farmers when they decide to expand overseas. It is interesting to see that the network is of importance mostly for the expansion farmer and the investor farmer is more concerned about the farming image. It is also interesting to see that most of the organized forms of network such as firms, other farms and banks (with the expectation of retailers which is shown to be important for expansion farmers in the ordered probit model) do not seem to be a main motivation for crossing the borders. The result that indicates that retailers are considered important by the expansion farmer partially supports our hypothesis about this type of farmer considering a business network to be of importance, possibly due to this farmer not having an existing established network and may have some lack of knowledge of international markets.

For future research it would be interesting to compare the behaviour of Danish farmers with that of the Dutch farmers. There has been an emigration of Dutch farmers to Denmark (Wolleswinkel and Weersink, 2001), but there is no evidence of Danish farmers emigrating to the Netherlands. Given that both of these countries are in the European Union it would be interesting to investigate the reasons for this difference.

6. Conclusion

In this paper we have provided some evidence on the push and pull factors that motivate farmers to expand across their home countries' borders. The focus has been on Danish farmers setting up activities in Central and Eastern European countries like Slovakia, Poland, Romania and Latvia. Data from 44 mail surveys was analysed to explore the push and pull factors that contribute to farmers' engagement activities outside their home country. Two analytical approaches of frequency analysis and an ordered probit model (with the level of activity abroad as the dependent variable) were used. The results indicate that the important factors for Danish farmers to extend overseas are cheap land, institutional governance, network and image with regard to farming. These generally support the literature regarding reasons for farmers to increase their cross-border activities, except that we do not find a significant influence from the availability of cheap labour in the host countries. When categorizing respondents into two types of farmer (expansion farmer and investor farmer) we highlighted some of the main interests and motivations that were important for each type of farmer. It would appear that the smaller scale expansion farmer considers a network to be of importance while the investor farmer is more concerned about image and having a large consumer market in the host country.

7. References

- Association of Danish Farmers Abroad (2012). URL: <http://www.danishfarmersabroad.dk/arrangementer/index.html>.
- Boersen (2001a). Milk farmers aim at expansion abroad. URL: <http://www.faqs.org/abstracts/Business-international/Denmark-Milk-farmers-aim-at-expansion-abroad-DenmarkLarge-cattle-breeding-investments-cause-concern.html>.
- Boersen (2001b). Pig breeder to start operations abroad. URL: <http://www.faqs.org/abstracts/>

Business-international/Denmark-Pig-breeder-to-start-operations-abroad-DenmarkNo-more-opposition-to-increased-pork-productio.html.

- Dillman, D.A., Smyth, J.D. and Christian, L.M. (2009). *Internet, Mail and Mixed-Mode Surveys: The Tailored Design Method*. John Wiley & Sons, New Jersey.
- Douglas, S.P. and Wind, Y. (1987). The myth of globalization. *Columbia Journal of World Business* 22: 19-29.
- Dunning, J.H. (2009). Location and the multinational enterprise: A neglected factor? *Journal of International Business Studies* 40: 5-19.
- Etemad, H. (2004). Internationalization of Small and Medium-sized Enterprises: A Grounded Theoretical Framework and an Overview. 21(1): *Canadian Journal of Administrative Science* 1-21.
- Financial Times (2008). UN warns of food 'neo-colonialism'. URL: <http://ft.com/intl/cms/s/0/3d3eDe92-6e02-11dd-b5df-0000779fd18c.html>
- Friis, C. and Reenberg, A. (2010). Land Grab in Africa: Emerging land system drivers in a teleconnected world. GLP Report No. 1. GLP-IPO, Copenhagen.
- Greene, W.H. (2008). *Econometric Analysis*. Upper Saddle River, New Jersey: Pearson Pentice Hall.
- Isik, M. 2004. Environmental regulation and the spatial structure of the US dairy sector. *American Journal of Agricultural Economics* 86 (4): 949-62.
- Karantininis, K. and Zylbersztajn, D. (2007). The global farmer: typology, institutions and organisation. *Journal on Chain and Network Science* 7(1): 71-83.
- Kaufmann, D., A. Kraay, and P. Zoido-Lobaton (2002). Governance Matters II: Updated Governance Indicators for 2000-01. World Bank Policy Research Working Paper No. 2772.
- Landbrugsavisen (2010). URL: <http://www.landbrugsavisen.dk/Nyheder/Netnyheder/2010/12/8/Imagekraeverlangtsejttraek.htm?fag=A>
- Likert, R. (1932). A Technique for the Measurement of Attitudes. *Archives of Psychology* 22(140): 1-55.
- Metcalf, M. (2001). US Hog Production and the Influence of State Water Quality Regulation. *Canadian Journal of Agricultural Economics* 49(1): 37-52.
- Mulatu, A., Gerlagh, R., Rigby, D. and Wossink, A. (2010). Environmental Regulation and Industry Location. *Environmental Resource Economics* 45(4): 459-479.
- Porter, M.E. (1986). *Competition in global industries*. Boston: Harvard Business School Press.
- Rakotoarisoa, M.A. (2011). A Contribution to the Analysis of the Effects of Foreign Agricultural Investment on the Food Sector and Trade in Sub-Saharan Africa. FAO Commodity and Trade Policy Research Working Paper No. 33.
- Richardson, J.W., Herbst, B., Duncan, A., den Besten, M. and van Hoven, P. (2007). Location Preference for Risk-Averse Dutch Dairy Farmers Immigrating to the United States. *Journal of Agricultural and Applied Economics* 39(3): 735-748.
- Roe, B., E.G. Irwin and J.S. Sharp. (2002). Pigs in space: Modeling the spatial structure of hog production in traditional and nontraditional production regions. *American Journal of Agricultural Economics* 84(2): 259-78.

- Rozelle, S and Swinnen, J (2004). Success and failure of reform: Insights from the transition of Agriculture. *Journal of Economic Literature* 42(2): 404-456.
- Swinnen, J. (2002). Transition and Integration in Europe: Implications for Agricultural and Food Markets, Policy and Trade Agreements. *The World Economy* 25(4): 481-501.
- Taylor, S. (2004). Unbundling the pollution haven hypothesis. *Advances in Economic Analysis and Policy* 4: Article 8. Verbeek, M. (2008); *A Guide to Modern Econometrics*. West Sussex, England: John Wiley & Sons.
- Weersink, A. and Eveland, C. (2006). The siting of Livestock facilities and environmental regulations. *Canadian Journal of Agriculture Economics* 54: 159-173
- Wolleswinkel, A. and Weersink, A. (2001). Farmer emigration: the case of Dutch dairy farmers moving to Ontario. *Livestock Production Science* 69(3): 197-205.
- Yip, G. (1989). Global strategy in a world of nations? *Slone Management Review* 30: 29-41.
- Zylbersztajn, D. (2004). Organization of firm networks: Five critical points for empirical analysis. *Journal on Chain and Network Science* 4(1): 1-6.