

# Land Acquisition Regulation through the lens of expert stakeholders' mental models - what are the implications for business development among Swedish farmers and non-industry forestry owners?

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Agricultural and forestry land markets are regulated in several European countries. Assessing the economic consequences of land market regulation for agricultural and forestry firms is methodologically challenging for various reasons. The aim of this study is to explore the relevance of expert stakeholders' mental models in order to gain insights into the economic impacts of agricultural and forestry land market regulation. We use thematic analysis based on in-depth interview data to explore Swedish expert stakeholders' mental models concerning the regulation of the Swedish agricultural and forestry land market and focus on impacts for private land owners, i.e. farmers and non-industry forestry owners. This research strategy facilitated a rich understanding of the effects of land regulation on economic consequences for private landowners who use the land in farms and/or forestry. Findings indicate that current regulation does not have any major impact on the economic situation of the considered types of farms and non-industry forestry owners in Sweden. This is interesting from the perspective of agricultural and forestry land market policy.

*Key words:* agriculture, economic consequences, forestry, land market regulation, thematic analysis

## Introduction

In agriculture and forestry, land is a key production factor. Therefore, for farms and forestry owners, securing access to a sufficient amount of agricultural and forestry land is one of the most important areas of strategic focus. This is especially important for the large group of farms and forestry owners that pursue low-cost strategies, engaging in highly specialised production of anonymous products to be sold at a world market price. For those, expansion is one of the most obvious strategies for developing their activities. At the same time, land value per hectare in many EU member states is high (DG Agriculture and Rural Development 2018), leading to high land prices, which may further limit farm expansion. Furthermore, as reviewed by Lehn et al. (2018), several factors such as urban sprawl (Livanis et al. 2006), governmental grants to farmers (Latruffe et al. 2009) and environmental amenities (Wasson et al. 2013) contribute to an increase in land prices. At the same time, inherent properties of land, such as immobility, suggest that new land can only become available if a land-owner, such as a farmer, decides to stop cultivating it altogether, assuming all land is already used (Hüttel et al. 2016). This is likely to further intensify competition for land and thereby increase prices. From the perspective of individual farmers and forestry owners, land thus constitutes one of the most important and valuable assets in their businesses. For new farmers and forestry owners entering the industry, as well as for expanding farmers and forestry owners, high land prices can cause significant barriers due to the corresponding need for a cash outlay at the point of purchase and the subsequent need for cash to manage instalment and interest payments.

Agricultural and forestry land markets are regulated in several European countries for various reasons, including to facilitate access to agricultural and forestry land for small, family based farms, limiting concentration in the ownership of agricultural and forestry land and ensuring that agricultural and forestry land is used for the intended purposes. The ongoing discussions among stakeholders are centred around the possible need for further regulation of land markets in order to dampen rising land prices (Lehn et al. 2018), which are considered problematic from the perspective of farmers and forestry owners. Any changes to land regulation require a profound understanding of the consequences of the regulation and of the potential effects of changing the regulation.

In this study, we focus on the possible consequences of the Swedish agricultural and forestry land market regulation in relation to the prospects of the favourable business development of farms and forestry owners and the potential effects of less strict regulation. In particular, we focus on the effects for farms and non-industry forestry

owners, i.e. the private agricultural and forestry land owners. About 91% of the agricultural land in Sweden is owned by private persons (Swedish Board of Agriculture 2017). Remaining 9% is owned by other types of actors such as the Church of Sweden and governmental bodies (Swedish Board of Agriculture 2017). About 48% of all productive forestry land in Sweden is owned by private persons (Skogsstyrelsen 2018). Remaining productive forestry land is owned by actors such as private limited companies, other types of private owners (such as the Church of Sweden and local community associations) and by public organisations and the government (Skogsstyrelsen 2018). Acquisition of agricultural and forestry land in Sweden is regulated through the Land Acquisition Act (LAA). The main restriction of LAA implies that legal persons, such as limited companies and foundations, can only buy additional agricultural and forestry land if they sell land at the same time that can be considered equivalent in terms of size, type and productivity. While there are some exceptions to this general rule, such as the property being very large or interesting from a heritage perspective and it is unlikely that individuals have the financial capacity to purchase the property, it implies that the share of ownership between legal persons and individuals is kept constant. This is precisely related to one of the main purposes of the LAA: to avoid concentrated ownership of agricultural and forestry land and to maintain a balanced structure with land being owned by both individuals and legal persons. Indeed, one of the main purposes of LAA at the time of its introduction was to protect farmers and non-industry forestry owners from having their properties acquired by large, industrialised forestry firms; the LAA was thus especially aimed at protecting the small-scale farmers and non-industry forestry owners. The LAA in Sweden further stipulates that owners of agricultural or forestry properties in less densely populated areas must live on the property (the residence requirement). This means that buyers of agricultural or forestry properties in such areas must either already live in the area or ensure that they will move to the area. The purpose of the residence requirement is to encourage employment and that people continue living in less densely populated areas.

In practice, the legislation surrounding the acquisition of agricultural and forestry land implies that most activities in the Swedish land market for agricultural and forestry holdings take place between private persons. As a consequence, private agricultural and forestry land owners who would like to use their land assets for business purposes are restricted by Swedish legislation to organising the land assets in sole proprietorships. Some farmers organise part of their businesses (for instance the livestock production) as limited companies that rent land from the farmer in his/her capacity as a private person. This facilitates collaboration between farmers who can co-own limited companies by owning shares in the same limited company but causes potential problems by means of individual farmers having to organise their agricultural or forestry firms in two or more separate legal forms.

From a practical perspective, this study is motivated by concerns over accelerating agricultural and forestry land prices and the agricultural and forestry land market regulation as voiced in a recent Swedish governmental inquiry (SOU 2015:15). The legislation is claimed to hamper prospects for favourable business development in agriculture and forestry through its restrictions on the legal form in which the production can be operated in practice. Restrictions on legal form are highlighted as potentially constraining the inflow of financial capital to agriculture and forestry via bank loans and co-ownership. It is also claimed to potentially hamper the smooth succession of farms. These are all aspects significant to favourable business development among farms and non-industry forestry owners. Due to its assumed negative impact, the LAA has also been highlighted as potentially hampering the competitiveness of the Swedish agricultural sector (SOU 2015:15).

Changes to the LAA (as to any agricultural and forestry land market regulation) would need in-depth understanding about the possible effects of revisions. However, from a methodological perspective, it is challenging to assess the impact of a specific agricultural and forestry land regulation such as the Swedish LAA on the prospects for favourable business development. All farms and forestry owners in the country are governed by the same legislation, leaving no scope for variation in the degree of compliance. This limits the usefulness of common quasi-experimental approaches such as econometric methods to estimate the impact of a phenomenon on farm and forestry results. Furthermore, the legislation has been in force for a very long period of time, making it impossible to evaluate and compare it with the situation that existed before agricultural and forestry land markets became regulated. In fact, agricultural and forestry land acquisition in Sweden has been regulated through various versions of the LAA throughout the modern era. Although having been revised, the current version originates from 1979 and replaces the version from 1965. Agricultural and forestry land use and the development of farms and forestry is also likely to be highly dependent on the institutional and cultural context in which they otherwise exists, making comparisons with less regulated countries and markets problematic. Therefore, in this paper we posit that exploring mental models of expert stakeholders is a useful alternative way of gaining insights into how regulation of agricultural and forestry land acquisition affects prospects for favourable business development in agriculture and forestry when it is not feasible to use common quasi-experimental approaches, and/or when there

is a preference to complement and validate results from such approaches. Accordingly, the aim of this study is to highlight the usefulness of exploring expert stakeholders' mental models for such purposes. We use thematic analysis based on in-depth interview data to explore expert stakeholders' mental models and focus on agricultural and forestry land owned by private land owners, i.e. farmers and non-industry forestry owners in Sweden. We focus on private land owners. In Sweden agriculture and forestry is often combined within the same firm. The farms and forestry owners considered in this study can thus be engaged in agriculture or forestry alone or in agriculture and forestry combined.

## Material and methods

### Conceptual framework – exploring possible impact of land market regulation through expert stakeholders' mental models

Mental models describe individual's cognitive structure about a situation (Beach et al. 2005) and represent the lenses through which individuals see the world (Johnson-Laird 2005). They can be thought of as knowledge collected about a phenomenon (Schumacher and Czerwinski 1992). Mental models contain values, experiences, beliefs, learning and biases about the functioning of the world (Greenfield 2005, Sax and Clack 2015). Recognised for their benefits for structuring thoughts around complex phenomena, mental models have been advanced during the last decade in the more agriculturally related literature as an important and useful theoretical lens to understand the behaviours and decisions of farmers and other actors of agricultural systems in particular related to complex and involved phenomenon. For instance, Hoffman et al. (2014) mapped farmers' mental models of sustainability, Vuillot et al. (2016) investigated farmers' individual mental models of agricultural landscapes and their management practices, and Hansson and Kokko (2018) investigated farmers' mental models of a significant change in their surrounding environment. There has also been an interest in comparing different stakeholders' mental models of a phenomenon. In this respect, Halbrendt et al. (2014) compared mental models of farmers and scientific experts regarding agricultural technologies, Schöll et al. (2010) compared farmers' and experts' mental models of pesticide systems, and Prager and Curfs (2016) compared mental models of different stakeholders in relation to soil degradation.

Mental models as a theoretical concept are rooted in cognitive science and in human factors psychology (Schumacher and Czerwinski 1992). The historical roots go back as far as to work by Craik (1943) who initiated the idea that people carry small-scale models of reality in their minds (Jones et al. 2011). Carley and Palmquist (1992) summarised theoretical and epistemological considerations underlying mental models as relating to five key features: they are internal representations; mental models can be expressed through language and can be represented based on language; they are networks of concepts; individuals attribute meaning to concepts based on relations to other concepts held by their mental models; and the social meaning attributed to concepts is defined through intersections of mental models held by individuals rather than in a universal sense.

As reviewed by Jones et al. (2011), literature has focused on the dynamic capacities and abilities of mental models to adjust over time in order to accommodate experience and learning. In particular, Nersessian (2002) highlighted that mental models about a phenomenon evolve with the learning of domain-specific attributes and techniques, and through this process they develop both in terms of nature and richness. In an experimental approach, the learning process and increasing accuracy of an individual's mental models with increasing experience were confirmed by Elsayah et al. (2017).

Building on this, in this study, the experts' mental models related to the impacts and consequences of the regulation of agricultural and forestry land acquisition on the prospects for favourable business development for farmers and non-industry forestry owners are taken to represent models of possible effects from the regulation. By focusing on *expert* mental models, i.e. in this study, mental models derived from people who through their professional activities have gained a rich and varied understanding of the mechanisms, impacts and consequences from the regulation, as compared to mental models from individuals who are less exposed to thinking about those mechanisms, impacts and consequences, we expect to obtain, i) a richer and more nuanced representation of cause and effect associated with regulation, and ii) a summarised representation which is less likely to be biased due to lack of experience of informants.

As in Carley and Palmquist (1992), we take language as being central in the representation of mental models and construction of mental models. This means that we assume that mental models can be elicited from informants' stories about the consequences and impacts of the regulation of agricultural and forestry land acquisition on

the prospects for favourable business development for farmers and forestry owners. In this study, informants' stories about the consequences and impacts are obtained from one-on-one in-depth interviews with expert stakeholders.

## Data and procedures

Our empirical analysis investigates expert stakeholders' mental models with respect to agricultural and forestry land-use regulations. The findings are based on a sub-study carried out within the framework of a government-commissioned research project designed to analyse the effects of Swedish land acquisition and lease legislation on business development within the fields of agriculture and forestry (project conducted in year 2017–2018).

Our study draws upon 21 in-depth interviews, conducted between November – December 2017, with 23 informants, representing the banking sector, real estate agencies, consultancies, law firms and interest organisations, possessing expert knowledge in the fields of Swedish agriculture and forestry. A few informants had multiple competences in the area. The total competences among the informants can be summarised as follows: law (5), advisors and subject experts (13), brokers (3), banks (3) and analyst (1). All interviews except two were individual interviews where one informant was interviewed at a time; on two occasions there were two informants in the same interview. The interviews were complemented by desk-based analysis of additional material provided by external experts. The initial selection of potential interviewees was drawn up by the reference group engaged in the study. Besides, a snowball sampling was used to generate additional contacts that could provide relevant information to the understanding of the expert stakeholders' mental models in relation to the regulation of the Swedish agricultural and forestry land market. Upon completion of the 21 interviews, a topical saturation of collected information was obtained (Patton 2002, Babbie 2010). Complementary written material was requested from expert stakeholders in the banking sector after an initial analysis of the interview material in August – September 2018.

The interviews were semi-structured, based on a mixture of closed and open-ended questions and probes to allow more detailed and nuanced information from the informants, as well as consistency in the interview process (the interview guide can be found in the Appendix). Interviewees were asked to reflect on how agricultural and forestry firms act to handle the current LAA and how the legislation affects the firms' abilities to develop their businesses. This was achieved by probing interviewee's general views on the legislation and, after that, on the effects of the legislation e.g. in relation to the impact on organisational form, the opportunity to obtain financial capital, the opportunity to maintain and develop collaboration with other farms or forestry owners, the opportunity for farm succession, and the capacity to manage economic risk and the effects on the agricultural and forestry land market. These are all aspects that constitute important prospects for favourable business development and were developed in collaboration with the reference group.

The interviews were recorded, transcribed and coded with NVivo Plus (QSR International Pty Ltd 2011) using thematic analysis (Liamputtong 2009). Thematic coding is flexible and compatible with different theoretical and epistemological standpoints (Braun and Clarke 2006). Thematic analysis allows the eliciting of patterns within the data, focusing on the total amount of data rather than on individual respondents. According to practices of thematic analysis (Braun and Clarke 2006), the transcribed data were categorised into theme nodes across the dataset. Theme nodes were identified according to the semi-structured interview guide, which centred on aspects that can be considered of significance to farm business development. Quotations from the individual interviews were collected under each theme node and used to produce a summary of the content of the interviews across respondents under each theme node. The analysis of interviews continued until conceptual saturation was achieved and only minor new details were identified. The summarised material, across the dataset, was taken to represent a view of the expert stakeholders' mental models with respect to how the regulation of acquisition of agricultural and forestry land affects opportunities for business development.

## Results

The approach using the application of mental models aided our understanding of the economic impacts of agricultural and forestry land market regulation. By identifying seven main themes from data analysis, we were able to examine how the expert stakeholders perceive and discuss the effects of LAA on the prospects for favourable business development among Swedish farmers and non-industry forestry owners. Before going into some detail on each theme, we provide an overview of the analysis we conducted with the most pertinent insights highlighted (see Table 1).

Table 1. Summary of findings

#	Node themes	Experts' perception
1	Respondents' general views on the legislation surrounding agricultural and forestry land acquisition	The legislation plays a significant role yet implies regulatory challenges regarding the implementation of restrictions.
2	Limitations on organisational form of farms and forestry and consequences of those limitations	The double form of business organisation, which is a consequence of LAA, does not impede business development except for livestock farms.
3	Impacts of LAA on the opportunity to obtain financial capital	The loan approval process is irrespective of the form of business organisation (which is affected by LAA). Only newly started agricultural firms and large livestock businesses lack sufficient equity for bank loans.
4	Impacts of LAA on the opportunity to maintain and develop collaboration with other farms and/or forestry owners	The ownership balance (individuals vs limited companies) facilitated by the LAA is a prerequisite for long-term collaboration in the field of agriculture and forestry.
5	Impacts on succession	Removal or revision of LAA may lead to increased forest and agricultural land prices as well as dominance of limited companies on the market, which is considered to make succession more difficult.
6	Impacts on the capacity of farmers and non-industry forestry owners to manage financial risk	The financial risk remains with the individual irrespective of organisational form (which is impacted by the LAA) because the individual may be requested to guarantee instalments of bank loans if the limited company cannot pay.
7	Effects of LAA on agricultural and forestry land markets	Respondents believe that one effect of the LAA is to keep land prices down and that this is to the advantage of those active in agricultural and forestry-based businesses

## Theme 1: Respondents general views on the legislation surrounding agricultural and forestry land acquisition

Respondents generally believe that the LAA is still a necessary regulation on the Swedish agricultural and forestry land market. At the same time, several respondents emphasise a few challenges in the agricultural and forestry sectors, which need to be addressed. Some respondents believe that these challenges can be resolved by revising the LAA; for instance, by implementing criteria that can improve the competitiveness of the sector. Those respondents think the LAA is outdated and that the market should be allowed to more freely decide on future development trajectories. They also emphasise that restrictions by the LAA are not always implemented and specifically not in a consistent way. Other respondents emphasise that those challenges can be met within the framework of the current legislation. One part of LAA defines the requirements for the landowner to live on the property acquired in rural areas with low population density (residence requirement). Respondents express that the residence requirement does not guarantee the expected positive effects on local employment. Abandoning the residence requirement is instead believed to improve flexibility for individuals to be able to purchase agricultural and forestry land. The residence requirement is also emphasised as problematic from the perspectives of the banks, because it can cause unequal processing of loan requests and create a situation where less suitable individuals are accepted as buyers instead of individuals with a higher potential as farmers or forestry owners.

## Theme 2: Limitations on organisational form of farms and forestry and consequences of those limitations

Current regulation in LAA implies limitations for farmers and forestry owners to freely select an organisational form for their businesses that, in practice, mean that most agricultural and forestry owners organise their businesses as a sole proprietorship. Another possibility is to organise the business operation as a limited company that rents land from the sole proprietorship. This implies that farmers and forestry owners need to run their businesses in two separate legal forms. When probing respondents about the consequences of this implication of LAA, a majority confirm that, in practice, this procedure does not impede business development in the agricultural and forestry sectors. However, for farm businesses specialised in animal production, considerable investments in barns

are necessary. In this case, the procedure of double organisational forms as described above, implies that the investment in barns is funded by equity in and bank loans to the limited company running the farm operation, while the agricultural land on which the barns are constructed are owned by sole proprietorships. Legally, the buildings are considered as movable property that are built on immovable property. From the perspective of the banks, this is problematic, as the buildings cannot easily be sold if the business goes bankrupt. Apart from this, respondents maintain that by running agricultural and forestry firms in double organisational forms, where sole proprietorship is combined with a limited company, functions well and covers the current needs for most farmers and forestry owners. They also emphasise that many farmers prefer to own land in their role as private persons and view this as an investment to be realised on retirement. Respondents maintain that agricultural and forestry owners consider this opportunity an important long-term strategy to manage the risk of investments in agricultural and forestry firms.

### Theme 3: Impacts of LAA on the opportunity to obtain financial capital

As mentioned above, LAA implies limitations of agricultural firms and forestry owners to freely choose organisational form. When probing about implications on the opportunity to obtain financial capital, respondents emphasised that credit requests are evaluated in the same way by banks irrespective of the organisational form of the business, as they believe that the risk posed by the owner of agricultural and forestry firms cannot be limited depending on organisational form. However, respondents maintain that problems in obtaining financial capital do exist for new agricultural firms and for large farms specialised in animal production, because these lack sufficient equity or guarantee for their loans.

### Theme 4: Impacts of LAA on the opportunity to maintain and develop collaboration with other farms and/or forestry owners

When probing about the effects of LAA on the opportunity to maintain and develop collaboration with other farms and/or forestry owners, respondents highlighted the LAA as providing a basic condition to maintain and develop collaboration in agriculture and forestry. This is because LAA is designed to sustain a balance in land ownership between individuals and limited companies, which is considered to facilitate collaboration. In particular, respondents consider this to establish and maintain local establishment of agricultural and forestry firms that, in turn, they consider a prerequisite for business relationships and collaboration among firms. Respondents also claim that large-scale organisation of agricultural and forestry firms may lead to decreased activity in local areas that, in turn, they believe can negatively impact local employment.

### Theme 5: Impacts on succession

Succession and uptake of agriculture by a new generation of farmers is a key challenge for agriculture across Europe. We probed respondents for their views on the impact of LAA on the slow succession of agricultural and forestry firms. Respondents claimed that a key problem is not the LAA in itself, but the market value of agricultural and forestry land in relation to possible return on investment. Several respondents expressed concern that removing or revising the LAA would lead to a further increase in the market price of agricultural and forestry land, by opening the market more to limited companies which may be interested in buying land in order to gain from the appreciation of land value, which they believed would further accentuate challenges in farm succession.

### Theme 6: Impacts on the capacity of farmers and non-industry forestry owners to manage financial risk

During the interviews, we probed respondents for their views on the impacts the LAA has on the capacity of agricultural and forestry firms to manage financial risk in their businesses. Respondents consider that, in practice, the financial risk remains with the individual irrespective of organisational form because the individual may be requested to guarantee instalments of bank loans if the limited company cannot pay. In practice, this means that individuals will have personal liability for bank loans. In relation to the issues of financial risk, some respondents emphasise that many landowners consider agricultural and forestry land holdings as a relatively safe investment for their retirement and that this is an important driving force to acquire land, even if it implies a personal liability for the bank loans used to fund the acquisition.

### Theme 7: Effects of the LAA on agricultural and forestry land markets

Respondents believe that one effect of the LAA is to keep land prices down and that this is to the advantage of those active in agricultural and forestry-based businesses. Respondents claim that land market prices are primarily determined by the expected appreciation of land valued instead of the value motivated by return on production. Respondents view this as problematic and claim that over the long-term this may lead to problems in agriculture and forestry if the land holdings are not bought by those most qualified to obtain maximal production from the land, but instead by investors who invest in agricultural and forestry land for speculative reasons.

## Discussion

In this study we highlighted the usefulness of investigating expert stakeholders' mental models to gain an understanding about the economic impacts on farms and non-industry forestry owners of regulation of the agricultural and forestry land markets, using thematic analysis based on in-depth interview data as a research approach. We focused on the impact caused by the Swedish LAA which regulates the agricultural and forestry land market in Sweden and explored the possible economic impact of this legislation by probing about a number of potential effects of the LAA in domains which are important to the favourable business development of the agricultural and forestry sectors. From a societal perspective, it is important to understand the possible downsides of a regulation of this type on desirable outcomes, such as economic viability of the agricultural and forestry sector and that the sector can maintain its purpose to provide food and fibre.

In recent years, there has been an increasing interest in the effects of agricultural and forestry land market regulation and related issues. For instance, focusing on price drivers, Lehn and Bahrs (2018) found urban sprawl and livestock production to be the most important factors driving the price of agricultural land in Germany and suggested a focus on regulation that underlines these factors instead of new land price related regulations if society is seeking a reduction in land prices. Juknelienė et al. (2017) assessed the regulation of legal aspects in relation to territorial planning in Lithuania. Nixon and Newman (2016) evaluated the efficacy of land use regulation in British Columbia, and found the regulation to be successful in protecting farmland. Caldas et al. (2016) investigated how landowners decided on land-use after the expiration of contracts related to a land conservation program. Other authors have considered land markets and regulation at a more general level. Examples include Jae Hong (2010) who examined the effect on regional economic prosperity by land use and regulation, Bovet et al. (2018) who compared how planning and approval of land use takes sustainability requirements into consideration across five European countries, and Jaeger et al. (2012), who investigated how property values were affected by land use planning systems in Oregon. Thus far, however, the literature has not considered the usefulness of exploring mental models of expert stakeholders to understand consequences of agricultural and forestry land market regulation. The novelty of this paper thus lies in its introduction of expert stakeholders' mental models as a means to analyse the possible impact of land regulation.

Our approach enabled a rich understanding of expert stakeholders' views on and understandings of agricultural and forestry land market regulation of the type used in Sweden, the implications of current Swedish regulation of agricultural and forestry land acquisition, and the economic consequences of those in terms of business development. From a methodological perspective, this study highlights an approach which is particularly useful for gaining an insight into possible effects of land regulation in situations where it is not possible to assess policy impact from using quantitative methods or when a need arises to add to and validate results from such studies. In addition to using the approach presented here to analyse the impact of land regulation in other settings, future research could also use this approach to nuance and validate results obtained using, for instance, quasi-experimental methods in a situation where such approaches are feasible. This would also add valuable and interesting methodological comparisons across two domains of research methods.

The representation of the mental models, as reported in the summary of the thematic nodes in this paper, contains expert stakeholders' values, experiences, beliefs, learning and biases about the functioning of the world (Greenfield 2005, Sax and Clack 2015). It should therefore be noted that possible biases in understandings about causes and effects and stakeholders' own values and beliefs are captured by the thematic nodes, implying a risk that the nodes are affected by erroneous perceptions held by stakeholders. However, previous research has found that mental models become more rich and accurate with increasing experience (Nersessian 2002, Elsawah et al. 2017), and, as this study is based on interviews with expert stakeholders who are expected to possess key insights into how land

regulation may affect the economic development of agricultural and forestry firms, they are expected to provide rich and accurate views. Furthermore, constructing the thematic codes based on interview data collected across a large set of in-depth interviews with expert stakeholders is expected to provide a balanced representation of stakeholders' mental models, with only limited impact from erroneous perceptions.

According to our findings, it seems plausible to state that the LAA does not affect business development among Swedish farms and non-industry forestry owners. For instance, findings give us no reason to believe that the inflow of external capital is constrained by the constraints of organisational form of agricultural and forestry firms imposed by the LAA. One notable exception to this is, however, respondents' views on the opportunity for large specialist animal farms to obtain bank loans to fund investments in animal buildings. Constraints on organisational form imposed by LAA imply that barns are sometimes built on land owned by another organisational entity. This is problematic from the banks' perspective if the organisational entity owning the barns goes bankrupt. Respondents did not attribute possible problems in the generational succession of agricultural and forestry firms to the LAA. Collaboration with other farms and/or forestry owners was considered facilitated by a situation involving many smaller firms, which is considered to be an effect of the LAA. Respondents considered the impact of the LAA on the capacity to manage financial risks to be only minor. They also maintained that LAA possibly had a negative effect on land prices by constraining purchases by legal persons.

Findings presented here have implications for policy related to agricultural land regulation and the competitiveness of the agricultural sector. In particular, based on the findings presented here one can question the assumed negative effects of the Swedish land acquisition act as suggested by the Swedish public inquiry (SOU 2015:15). Instead, this study calls for other explanations for the 'competitive puzzle' of the Swedish agricultural sector. This also emphasises the need for future research to continue to try to understand the causes of differences in competitiveness across regions and countries. As highlighted by this study, such differences may not appear due to institutional conditions based on agricultural and forestry land use regulation of the type in Sweden. Instead, reasons have to be sought beyond such explanations.

This study opens avenues for future research. Of particular interest and relevance would be to focus on the mechanisms through which a regulation of the LAA type can have a dampening effect on land prices. Interesting alternatives include differences in access to capital and in possibilities to spread and handle financial risks between individuals and limited companies, which could affect their possibilities to participate in agricultural and forestry land markets. Respondents also highlighted the relationships between land prices and succession. Future research would have an important task in furthering the understanding about land price as a possible dampening mechanism on prospects for succession in agriculture and forestry. In this respect it would also be interesting to investigate possible differences across regions and countries.

The present study is not without limitations. We interviewed expert stakeholders who are active on the Swedish market and therefore it should be acknowledged that their understandings and insights about possible consequences of land regulation of the type considered in this paper may be affected by the institutional frameworks in which they exist. Future studies could therefore expand the analysis done in the present study by also including expert stakeholders active on other (e.g. foreign) markets in order to highlight possible consequences of land regulation when comparing with less regulated markets. This would be a useful way of highlighting transactions which are possible at a less regulated market and how they may affect the economic situation in the agriculture and forestry.

## Conclusion

Exploring expert stakeholders' mental models could be demonstrated as a successful research approach to gain insights into the economic impacts of agricultural and forestry land market regulation among private land owners, i.e. for farmers and non-industry forest owners. The approach facilitated a rich understanding of possible consequences of land regulation on the economic situation among the considered farms and forestry holdings. Based on our findings, we conclude that the current regulation regarding agricultural and forestry land markets in Sweden does not have any major impact on the economic situation of the type of farms and non-industry forestry owners considered in this study.

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## Appendix: Interview guide

The interviews were semi-structured and organized around the following questions and areas for discussion

First, the overall project was briefly introduced to the respondent and we informed the respondent about how the interview material would be handled.

Semi-structured interview questions:

1. Please tell us briefly about your background:

- a. Your professional role and tasks
- b. Number of years in your current role
- c. The issues that you work with that relate to our project about the Land Acquisition Act

2. Please tell us about the company or organization that you work for:

- a. How is it related to farms and forestry owners?
- b. In what way do you work with questions that relate to the Land Acquisition Act?

3. What is your spontaneous view of the Land Acquisition Act?

4. What is your view on how farms and forestry owners are affected by the Land Acquisition Act? The interviewer probed about the impact of the Land Acquisition Act on the possibilities for:

- a. Business development;
- b. Innovation;
- c. Use of technology;
- d. Improved sustainability: economic, environmental and social;
- e. Employment;
- f. Business relationships and collaborations;
- g. Co-ownership;
- h. Generational succession;
- i. Change of ownership;
- j. Supply of capital;
- k. Attitudes around investments;
- l. Choice of organizational form and
- m. Management of private financial risk.

5. What strategies do you think farmers and forestry owners apply today to deal with constraints imposed by the Land Acquisition Act?

- a. Is the act a real obstacle for development?
  - i. In sparsely populated areas?

- ii. In typical agricultural areas?
    - iii. In areas of economic and demographic expansion?
  - b. If you think the act is considered an obstacle for opportunities for business development, how well do you think can the obstacles be managed through various strategies? Which strategies would that be?
6. What is your opinion on how the Land Acquisition Act affects the land market?
- a. How does it affect possibilities to develop the land as a production factor?
  - b. What are the opportunities to increase the productivity value of the land in relation to other price increase?
  - c. How are the driving forces to own land affected by the Land Acquisition Act?
  - d. What does the situation look like in different types of areas (sparsely populated areas, typical agricultural areas, areas around larger cities)?
7. What would happen if we did not have the Land Acquisition Act?
8. What to you consider the most significant obstacle for business development among farms and forestry owners?