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Exploring the Sociology of Agriculture: Family Farmers in Norway – Future or Past Food Producers?

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1. Introduction

Agriculture and farming has changed dramatically during the past 30 years, from farmers being a social group enjoying political, economic and societal support to the current situation where farmers struggle to find legitimacy for a continued production. Norwegian family farming has mainly been organised as a relation between farm (unit of production) and the household (the family) (Blekesaune, 1996a). Research on family farming has focused upon structural changes, following economic and political trends in modern society (Buttel et al., 1990). Recurring questions have been: How can family farming as an institution survive when industry in general is capitalised? (Friedmann, 1978a; 1978b; Mann & Dickinson, 1978): When will family farming be subsumed to the interests of big agribusiness enterprises? (Friedland, 1984; Newby, 1978). Consideration of such matters has been grounded in structural theories of political economy and political sociology (Buttel et al., 1990). Farmers' own will and motivation have been of marginal interest in these studies (Johnsen, 2003). This does not mean that micro-sociological studies have been absent, but they have been mainly concentrated to inter-human relations such as changing gender patterns in agriculture (e.g. Almås, 1983; Brandth, 2002). One underlying questions of this chapter deals with classical concerns, such as: Why does family farming still exist? Agriculture has clearly been rationalised since the 1950s, but households based production still dominate in Norwegian agriculture.

This chapter focuses upon the future prospects of Norwegian farms, paying special attention to the typical family farms and farmers in Norway. Norwegian farmers share the experience of most farmers in the world that farm economic output is decreasing. As a result, the number of farm units is also decreasing; remaining farms are increasing in size, both in productive area and livestock numbers.

Family farming is still the most common way of organizing agricultural production in Norway, but the content of actual participation in agricultural production has changed. From occupying extended families in production, the majority of farms are hardly able to support one person on farm income (Almås & Haugen 1991; Bjørkhaug & Blekesaune 2008; Blekesaune, 1996a). From the 1980s, part-time farming has become the dominant type of strategy among Norwegian farmers, a strategy where the farmer or spouse, or both,

combine farming with off-farm work. Part-time farming is a stable strategy on farms that need off-farm income, due to inadequate income from full time farming (Blekesaune, 1996a:49). While pluriactivity, or part-time farming, can be seen as a strategy or movement away from farming, pluriactivity might also be a factor that keeps people on the land, reduces the decline in numbers of farms and strengthens the basis of local services (Kinsella et al., 2000).

In this chapter, household strategy is used as the unit of analysis to help understand the general process of agricultural change. The argument of a survival or adaptation strategy in farming is built on a model including reproduction of capital like investments in the farm, share of family income derived from the farm and household members adaptation to the labour market outside the farm. Those households that may sustain in the future are those that are able to increase production on their farms (Blekesaune, 1996a:50). In this chapter farmers' adaptations are explored and with that the future prospects of family farming; What is the reality of family farming in Norway?; Who are the family farmers?; How do the farmers view the future? Will they continue to develop their farms?; The chapter bases its analysis on empirical survey data of Norwegian farmers collected in 2002, 2004, 2006, 2008 and 2010.

2. Theorising sociology of agriculture

The development of new critical thinking in society generally and also within the social sciences from the late 1960s gradually influenced US rural and agricultural sociology (Buttel et al., 1990) which is regarded by Buttel (2001) as a paradigm shift into the new sociology of agriculture. New, mainly exogenous studies, started to appropriate (new) theoretical tools in their studies. The already established researchers in the field began to apply tools from social development and peasant studies (Goodman & Redclift, 1981; 1988; de Janvry, 1981) to the "fortuitous rediscovery" (Buttel's, 2001:166) of a large classical literature in the political economy and anthropology of agriculture. New, non-rural sociologists entered the arena contributing to this important turn. In 1978, these scholars published four pioneering papers (Friedmann, 1978a; 1978b; Mann and Dickinson, 1978; Newby, 1978). Buttel reports that these works opened a "whole new vistas in the sociological analysis of agriculture through the application of Marxist theory" (Buttel et al., 1990:77). The new political economical thinkers appeared as a neo-Marxist movement, repeating the classical questions: Why does family farming exist: When will it disappear due to the capitalistic forces dominating the rest of society? The 1978 papers built upon political economy approaches, basing their analysis on a rediscovery of the classical theoretical contributions from Marx and Weber but also upon less known theoretical work by Lenin, Kautsky and Chayanov (Buttel et al., 1990; Blekesaune, 1996b). The following section summarises the essence of these classics.

In his work *Kapital* (1867) Karl Marx predicted that capitalism would develop within agriculture following the same pattern as industry. Technological development and organisation of work would favour large enterprises (Blekesaune, 1996b). The system would be based on feudalism, with capitalist tenant farmers and proletarian workers of the land. In the new sociology of agriculture, different interpretations of Marx's theory were launched. Friedmann (1978a; 1978b) and Mann and Dickson (1978) used Marx's argument to ask why the particularities of agriculture as a production sector meant that agriculture experienced

slower and more uneven capitalist development than other branches of industry. Newby (1978) and later de Janvry (1980) and Friedland, Barton and Thomas (1981) argued that capitalist development in Western agriculture will continue (Buttel et al., 1990:79-80). That Marx's predictions were not fulfilled could be, according to Newby (1983), Marx's inappropriate case study, England, where the present agricultural feudal structure collapsed for the benefit of family farming. Blekesaune (1996b) adds to this that farmers also no longer needed to produce a surplus or ground rent and as such could compete with capitalist enterprises.

Max Weber, in his book *The Protestant Ethic and the Spirit of Capitalism* (1904), developed a wider concept of capitalism connected to the rationalisation of society. In Weber's work, capitalisation occurs when production is divided from the household economy to bring about greater efficiency of production. This is an interesting scenario for theorising the family farm, where the household and production are intrinsically linked, presenting a special case in terms of modern conceptualisations of capitalist production under increasingly neoliberal forms of governance. In *Die Verhältnisse der Landarbeiter im ostelbischen Deutschland* (1892), Weber compared the agricultural conditions on two sides of the river Elbe (see Blekesaune, 1996b). From this work, he concluded that the commercialisation of agriculture would eventually lead to the increasing use of wage earning workers, and over time, conditions would worsen for land workers due to bad contracts and so forth. However, he added that the value of being an independent farmer would overcome some of the economic concerns, and this could keep people in farming. Critics of Weber's explanations refer to a proletarian false consciousness as a reason for such expressions (e.g. Mann, 1990). Previous research do however support a Weberian suspicion that there is much more than economic rationality that keeps people in farming, particularly as economically, farming is not always profitable (Bjørkhaug, 2006). Many farmers value the independent lifestyle of farming and often cite this as a motivation for staying in farming, despite low economic return for goods produced on the farm.

Drawing upon the Marxist tradition, some prominent figures developed theories on the political economy of agriculture. In the late 19th century Russia, Lenin shared Marx's concern about the elimination of family farming in e.g. *The Development of Capitalism in Russia* (Lenin, 1899). Based on analysis of American agricultural census data between 1900 and 1910 Lenin (1915), found an occurring dualism in agriculture. That is, that the capitalist prospered on behalf of the proletarians. In Russia, Lenin identified three strata among the peasantry: The Kulaks, who were the richer group, the middle peasants and on the bottom of the hierarchy, the poor peasants. Lenin argued that this structure was polarising into a dualistic structure: The Kulaks into a rural bourgeoisie hiring wage labourers and the poor peasants becoming the rural proletariat.

Another important classic who contributed to the new sociology of agriculture was Karl Kautsky who also was influenced by Marx. In his major work on agriculture, *Die Agrarfrage (*1899), Kautsky did not find support for the hypothesis that family farming would be out phased. Kautsky therefore questioned the existence of a tendency towards a large-scale wage labour production in the Western Europe. Instead, he found that family farming was increasing its influence in German agriculture, and he changed his question to *why*. Kautsky argued that the development of a more industrialised form of agriculture, coupled with the availability of cheap grain for import, made European peasants change their production into

cattle, dairy and crops, which were well suited to small-scale farming. Capitalists did invest in the processing industry, leaving the middle peasants with clear fields in agricultural production (ERA, 2007). The success of this was partly built on the argument that land was a non-reproducible means of production; partly that most agricultural inputs and products were still non-commodities at that time and finally; that farmers could exploit their own labour for the survival of the status of being an independent farmer (Blekesaune 1996b). Kautsky was a dedicated Marxist, but through this work, contributed with an alternative account of capitalist transformation.

Finally, Chayanov argued with his *Theory of Peasant Economy* (1986) (a series of texts published between 1909 and 1929), that farm production and size depended upon the farming families need for consumption. When farming was carried out for the family only, Chayanov claimed that factors like wages and economic surpluses were irrelevant. Reproduction of the family and farm was a sufficient goal. The needs of the family would be reflected by the size of production. The value of reproduction was so high that family farmers would pay a higher price for farmland than capitalist investors. Through his work, Chayanov represented a principle challenge to Lenin's work. Chayanov's work showed that Lenin's statistical analysis did not reveal an irreversible class polarisation and argued that the Russian peasantry could play an important role in a future socialist society. Peasants should therefore rather be helped to prosper and modernise as individual farmers through the establishment of cooperatives, and should not be seen as enemies of the Russian proletariat (ERA, 2007).

Much is to be learnt from these classics. Through the rediscovery of these theories, intense debates on the future of family farming was again on the agenda from the late 1970s until the 1990's, in America (as summarised by Buttel et al., 1990), in the UK (Newby, 1983) as well as other advanced capitalist countries like in Norway (Almås, 1984) and Sweden (Djurfeldt, 1981).

The explanation following the revitalisation of classical theories has, by Johnsen (2004:420), been roughly united in two schools of thought, conceptualised as a *subsumption*- and a *survival*-school of family farming. Subscribers to the 'subsumption school' argued that "the inevitable and irreversible penetration of capitalist relations, wherein agricultural production would become increasingly integrated in wider circuits of industrial and finance capital, would lead to the extinction of family farming" (Johnsen, 2004:420). This conceptualisation represents the neo-Leninist strand of the new sociology of agriculture (see e.g. Newby, 1980; Friedland et al., 1981; de Janvry, 1981). The aim of these studies was to illustrate the formation of the economic relationship between agricultural capitalists and rural workers. According to Buttel (2001), the neo-Leninist branch was never the dominant position within the new agricultural sociology.

The development of a dualistic farming structure has also been described as the emergence of a bimodal structure characterised by increasing dominance (in size and number) of extremely large farm units on the one hand and extremely small farm units on the other (Buttel, 1983). Another component of this development is the marginalisation and rapid disappearance of medium sized farms, the "disappearing middle". However, as Buttel (1983:104) notes, "...this is an empirical trend rather than a completed process" of a decrease of the "middle" of full-time, medium sized, independent family farms. Buttel also adds that

huge differences exist between productions. From Buttel's (1983) references to the US farming systems, Munton and Marsden (1991) tested out the dualist thesis on British Agriculture. They suggest in their conclusions that the thesis is too structuralistic, paying inadequate attention to the range of responses found among farming households. A series of detailed interviews in different areas revealed diversity in social, economic and local strategies rather than a dualism. Blekesaune (1996a:14) joins the sceptics by claiming that the hypothesis of a "disappearing middle" has doubtful empirical support. The relevance of bimodal predictions is also called into question when Blekesaune (op cit.) argues that the pluriactive farm structure allows families to avoid proletarisation through a series of strategies, either through allocating their work and capital on the farm, or outside. Predictions of a disappearing middle are frequently returning as a diagnosis of Norwegian agriculture, but have not been shown to have developed.

Scholars from the 'survival school' had an alternative view with an emphasis on "how the non-commodification of farm labour and intergenerational transfer of land, together with the reciprocal exchange of resources between family farms, enabled [farmers] to out-compete corporate farms and persist over time" (Johnsen, 2004:421). Friedmann (1978a; 1978b; 1980) and Mann and Dickinson (1978) and Mann (1990) developed theories of how family farming could resist capitalistic production, forming the dominant position of agricultural sociology at the time. This position has been conceptualised as a hybrid of neo-Marxist peasant studies and Chayanovianism (see Buttel, 2001:168). Two differing arguments formed this branch of research: One that argued that peasantries and family farms performed important functions for capital such as producing cheap food; being a refuge for surplus labour; and ensuring the legitimacy of corporate capitalism. The other stressed the comparative advantages of family farming on behalf of capitalism, such as not needing profit for production (Buttel op. cit). Blekesaune (1996b) adds that the availability of agricultural technology to most farmers reveals another presumption of the farming family's ability to compete with capitalistic farming.

In an analysis of Norwegian family farming under capitalism, Almås (1984) applied a modernised Marxist model developed by Djurfeldt (1981) to discuss when and why family farming resists capitalism. By adjusting Djurfeldt's model, farm gross income is divided in a series of components that are outlined for understanding both the decline and survival of the family farm system in Norway. The elements of the analysis are composed of; 1) A consumption fund that can be supplemented by wage income; 2) The possibility of the reproduction of one's own capital, meaning maintenance of farm buildings, animals, fields and equipment; 3) Enlarged reproduction of own capital to keep up with growing farm size and number of animals and new technology; 4) Instalment of loans used to buy the means of production (such as machinery) and raw materials if 3 and 4 fail; and finally 5) Interest on loans (Almås, 1984:122). According to Almås (op cit.) farms that cannot reproduce on an enlarged scale and keep up with the development will drop out. Survival for these will only be short term, as long as they can accept a small income or supplement the household with off-farm wages or consume their own capital. Almås predicts that these, sooner or later, will either exit farming or engage in minimal levels of production.

It is argued that some key events have slowed the pace of an economic downturn for Norwegian farmers, thus postponing, or averting, the predicted demise of the family farm. In the 1960's, Norwegian agricultural policy aimed for a stable family farm through planned

national policies (Almås, 1984; 1994). Taking the market into consideration, Norwegian agriculture was to be protected. Political welfare issues took over the agenda in the 1970's and the rationalisation of the farming sector was no longer a goal. To secure the social status of the farmers, in a market were prices were falling and many farmers were forced to leave, the political goal was to equal the farm incomes to that of industry workers. This goal never materialised, but gave farmers substantial welfare gains (Almås, 1994). It also opened a short period of optimism and growth in Norwegian agricultural production (Almås, 1984; 2004; Blekesaune & Almås, 2002). This might although have been more beneficial for the larger farms as they were able to grow and increase their influence (Almås, 1984). In 1984, Almås concluded that over time, part-time farming replaces full-time farming in Norway . Several studies later showed how part-time farming has developed as a sustainable format of structural adjustment over time (e.g. Bjørkhaug & Blekesaune, 2008; Blekesaune, 1996a). It has been not been shown that part-time farming replaces family farming due to definitional differences, but rather that family farming currently is dependent on off-farm income, as is the continuation of family farming in Norway.

2.1 The continuing domination of the family farm

Predictions of family farm extinction in advanced capitalist countries have so far not been fulfilled, largely as we have not yet seen a discontinuation of the family farm structure. However, even if it is argued that family farming as an *institution* has survived, the number of farming households has declined. In Norway, a major part of the agricultural population has been forced to look for other ways of making a living since the 1950's. Table 1 shows the reduction of farm units in Norway between 1969 and 2010. 107 289 farms have closed down production in the period.

Year	1969	1979	1989	1999	2009
Farm units	154977	125302	99382	70740	47688

Source: Statistcs Norway (2011).

Table 1. Number of farm units with a minimum of 0.5 hectares agricultural area in use between 1969 and 2009.

As local conditions for agricultural production may have changed for the worse, family farmers have been confronted with the decision of whether to try to *stay* in farming or whether to *leave*. There might be different reasons for leaving farming; economic, social or environmental reasons, or a combination of these (Gray & Lawrence, 2001). The cost-prize squeeze of agriculture has arguably forced a lot of farmers to exit the industry. Economists have predicted that the current neo-liberal global market conditions will squeeze out 'bad' producers, particular where the nation state does not intervene with protectionist policies. This rural restructuring is often seen as a cleansing process, whereby farmers are making autonomous decisions in reaction to market forces (Gray & Lawrence, 2001:53). However, an actor-oriented perspective would question the usefulness of such a simplistic causal relationship between profitability and the propensity to remain in farming, as other factors also impact upon landholders decisions to remain in farming. For example; values, traditions, self-esteem and identity also inform social actors' decision-making (Share, Campbell and Lawrence, 1991).

Due to economic support through policy arrangements, Norwegian farmers have not been as vulnerable to market changes. Economic viability has been more closely linked to ability to change commensurate with changing policies, particularly those influencing on direct payments from the state to the farm and on prizes on farm commodities and activities (Bjørkhaug, 2007). In Norway, changing conditions have also meant that commodities and services have moved out of the households, thus creating new employment and market opportunities. Higher educational levels, coupled with the centralisation of people into cities, have enticed a number of people away from agriculture since the 1960s (Almås, 1983; 2004). As many less efficient farmers exit the industry or the farm lacks successors, vacant land offers the remaining farmers new opportunities to buy or lease more land to increase their own production. Through economies of scale, this created better opportunities for those remaining in business. However, those properties that were not enrolled into new patterns of production by neighbouring farms are said to have been subject to environmental decline (Olsson & Rønningen, 1999).

Many choose to live on the farm even though production has ended. It is however those who have remained in farming, keeping up the production, that is the focus of this chapter. In the literature, a number of different concepts have been applied to explain why farmers remain in farming despite reduced profitability in farming over time. One popular conceptualisation has been the "survival strategy". Surviving has both negative and positive connotations. According to Redclift (1986:220): "To survive in rural society under advanced capitalism (…) usually means accommodating structural changes rather than resisting them. If people resist too long, they risk not surviving". A diverse range of options can be applied to try to keep up farm production; adjust the production to the market, work harder, 'tighten belts', become pluriactive and engage in off-farm work (Lawrence, 1987). Pluriactivity describes the situation where farmers combine farm work with other work, or diversify the farm work, to increase household income (see e.g. Eikeland, 1999).

Increasing the level of off-farm income has become integral to the welfare of farm households in Norway and most other European countries (Eikeland, 1999; Jervell & Løyland, 1998). Some farmers have established tourism or other leisure industries in relation to their property (Loureiro & Jervell, 2005). Refining farm produce, for example, making cheese instead of selling raw milk is another way to add value to traditional farm products. Opportunities to adapt or adjust are not, however, always equally distributed and are also linked to the availability of different sources of capital (both social and economic) within the farm household (Meert et al., 2005).

Traditional farming, in combination with forestry, fishing and/or hunting, has been a common strategy of adaptation among many farmers in Norway (Flø, 1998). These activities have been the mainstay of the traditional family farm structure (Jervell, 1999:113). This has been particularly important for Norway, with its climatic variations and short growing seasons. Traditional farming activities are most intense in spring and summer. Autumn and winter activities includes fishing, hunting and work in forestry (based on property rights connected the farm) or as hired labour by forestry companies. In this sense, farming in Norway has always had an adaptive element. Today, these multiple resources still offer opportunities to diversify the farm income and enable the family farm structure to adapt to new economic imperatives. As such, policies are developed to support such adaptations. These include e.g. payments for preserving cultural landscapes, managing

the farm forest or support for starting new enterprises in relation to the farm resources etc. This is connected to both the possibilities of deriving added value from farm resources, but also acknowledging the multifunctional outputs of farm activities for the greater public good.

Various renditions of farming can be understood as adaptations only when farms are too small to supply fulltime employment or adequate income (Jervell, 1999). However, today an essential amount of income comes from wage labour outside of farming on most farms. This is, however, a result of a long, ongoing process. Wage income from off-farm work has exceeded farm income on the average Norwegian farm since the 1980's (Jervell and Løyland, 1998). During the same period, the average working hours on Norwegian farms increased (Bjørkhaug & Blekesaune, 2008). This decreasing value of farm work occurred due to changes in agricultural subsidies and commodity prices, but also as a result of more women working longer hours off the farm. Women's increased participation in the off-farm labour market is described as one of the most important structural changes in Norwegian farm households (Blekesaune, 1996a). New relations have also created new opportunities for exploiting rural resources and niches, such as local handicraft, baking or refining other farm produce (Eikeland, 1999). But, family farming has changed from an activity that occupied the family towards one that provides job opportunities for only a few.

3. Data and methods

In this chapter farmers' adaptation to changing agricultural policies and market situation are explored and with that the future prospects of family farming. Analysis of empirical data are carried out on 2002 to 2010 survey data (Trend-data), and data from Statistics Norway to reveal whether the structure of Norwegian farming resembles dualistic pattern (towards large and small farms) or other structural developments. Are small farms subsumed into larger capitalistic unites or is family farming still resisting such potential threats to the system and as such surviving and reproducing family farm?

Trend-data is derived from survey research with samples of Norwegian farmers. These surveys are conducted bi-annually by the Centre for rural research in Norway, with the first survey conducted in 2002 and the latest in 2010. The purpose of the survey is to provide a general base of knowledge on the socio-cultural factors of Norwegian agriculture and the changes in these over time. It also provides new research with relevant empirical data and reveals new questions in rural research.

Year	2002	2004	2006	2008	2010
Sample	1678	1712	1677	1607	1584
Response rate	53	55	54	51	50

Table 2. Trend-data: sample and response rate.

The target group or population is Norwegian farmers. These are persons that are main operators of farms with a minimum of agricultural production that makes them eligible for production subsidies (and then a name in the agricultural registers). All samples were

analysed and found representative for Norwegian farmers at the time of measurement (Logstein, 2010; Rye & Storstad, 2002; Rye & Storstad, 2004; Vik, 2008; Vik & Rye, 2006).

Table 3 reveals some of the characteristics of the farmer and family adaptations in the time period studied in this chapter.

Table 3 show that the gender pattern has been relatively stable throughout the decade. It starts at 12 percent women farmers (head of farm) in 2002 and end at 14 percent in 2010. It is of interest to note that women heirs gained equal rights to inherit farms in 1974. Before that it was the first born boy who had the first right to inherit. A more balanced gender distribution is wanted, but at the time being it seems to have stabilised.

	2002	2004	2006	2008	2010
Men	88	87	86	88	86
Women	12	13	14	12	14
Under 50 years	51	33	45	47	43
Over 50 years	49	67	55	53	57
Farmer identity	59	59	60	57	55
Partner involvement	83	80	80	78	84
Family successor	missing	58	61	60	62

Source: Trend-data

Table 3. Some characteristics of farmers and farm adaptations. Percentages.

Age distributions are difficult to interpret from table 3. It seems like 2004 had an overrepresentation of higher aged farmers. It is still a pattern that indicates that the farming population is getting older, and with that an indication of little recruitment of young farmers.

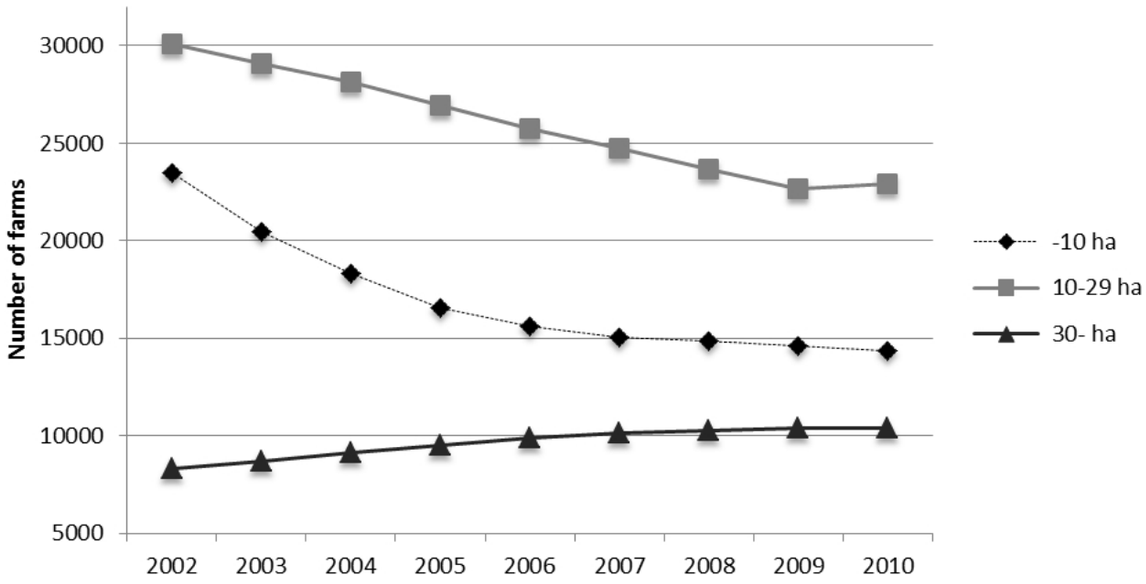
Fewer farmers affiliate with farmer as their occupational identity throughout the decade measured. This can be explained by the fact that more and more farmers work off farm. At the same time, partner (wife/husband/spouses) is participating in farming activities (above 80 percent except in 2008). Views on potential successors of the farm within family are more optimistic in 2010 (62 percent expecting family members to succeed) than in 2004 (58 percent). "Do not know" takes up a majority of the remaining percentages. This question was not included in the 2002 survey.

In the first part of the forthcoming analysis data are used to map changes in the structure of Norwegian farming across the first decade of the 21st century. Both objective criteria's like changes in farm size and income are discussed against farmers subjective opinions of the economic situation and how this affects their will to invest in- and develop their farm. The second part of the analysis is carried out on the latest survey from 2010. Bi- and multivariate technics are used to understand where the future of Norwegian farming might be heading. A linear regression model is used to identify which types of farms and farmers that will invest in their farm in the near future. In this model both characteristics of the farm like size

and production is included, in addition to characteristics of the farmer him- or herself and their views of the future (optimism/pessimism) and prospects of succession. Operationalisation of the variables used is commented on consecutively as they appear in the forthcoming analysis.

4. Structural change in Norwegian agriculture

It was mentioned above that a large number of farm units have gone out of production since 1989, and also before that. In 2011 less than one third of 1969 farms are left as independent production units. Figure 1 shows that the number of farms in the largest size group is growing, while the number of small and medium size farms is decreasing. The curves do however stabilise at the end of the scale. Figure 1 does not indicate a disappearing middle (Buttel, 1983).

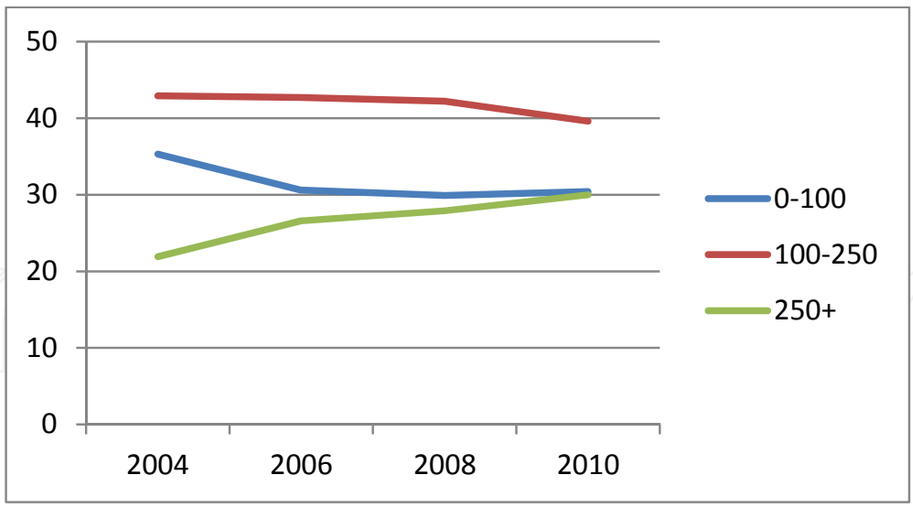


Source: Statistics Norway 2011.

Fig. 1. Property structure development among active farms. Farm size.

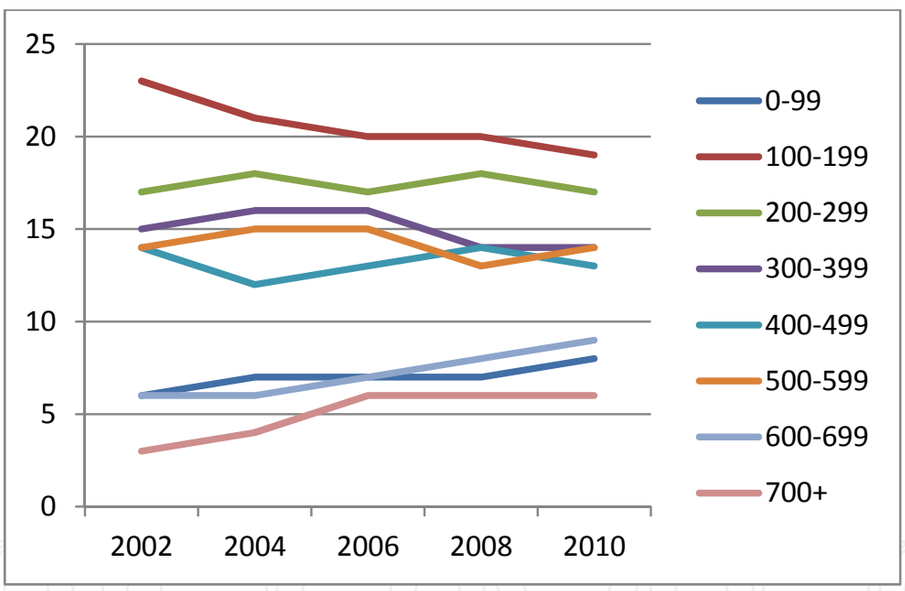
Figure 2 below show a slightly different pattern than the pattern found in figure 1. Large size farms are still increasing, and represent same number of farmers as in the smallest size group. This figure does however measure total area cultivated by the farm. Farm land and farm units have been protected by a particular land/inheritance act (The allodial law). Figure 1 and 2 then indicate that the structure of property has levelled out (due to lack of sales) while medium size farms have been able to grow their farmed area on leased land (from units going out of production).

According to Statistics Norway (2011), average income from farming has grown substantially in the 2000s. It is dairy and animal husbandly (cattle, pork and poultry (not sheep)) that derive most income from farming. Trend-data indicates that this is true for the highest income groups that are growing. Trend-data do however also show that the group of farmers with little or no income is also growing.



Source: Trend-data.

Fig. 2. Farming structure change. Farm size.



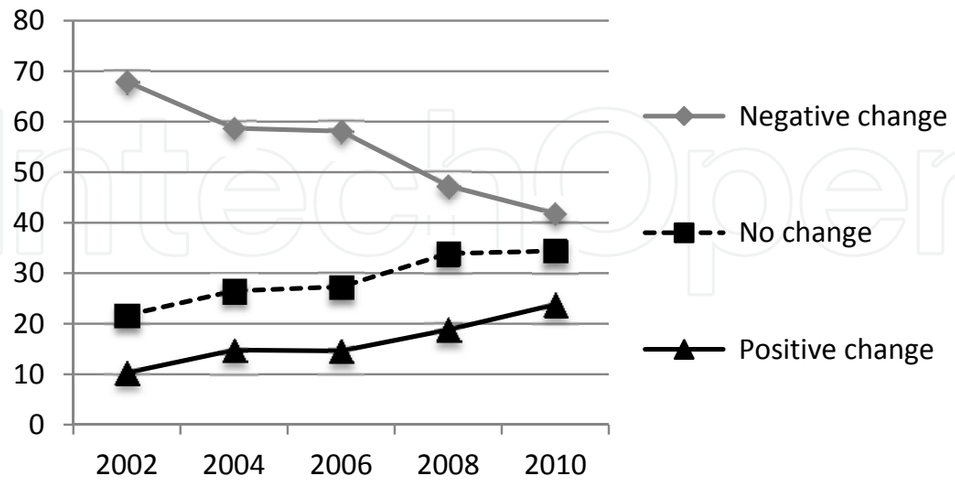
Source: Trend-data.

Fig. 3. Income from farming.

Many farmers also feel that the economic situation has become better during the last decade. Figure 4 show that both the number of those experiencing positive economic change and those experiencing no change is increasing on behalf of those who experience negative change (from 68 to 42 percent).

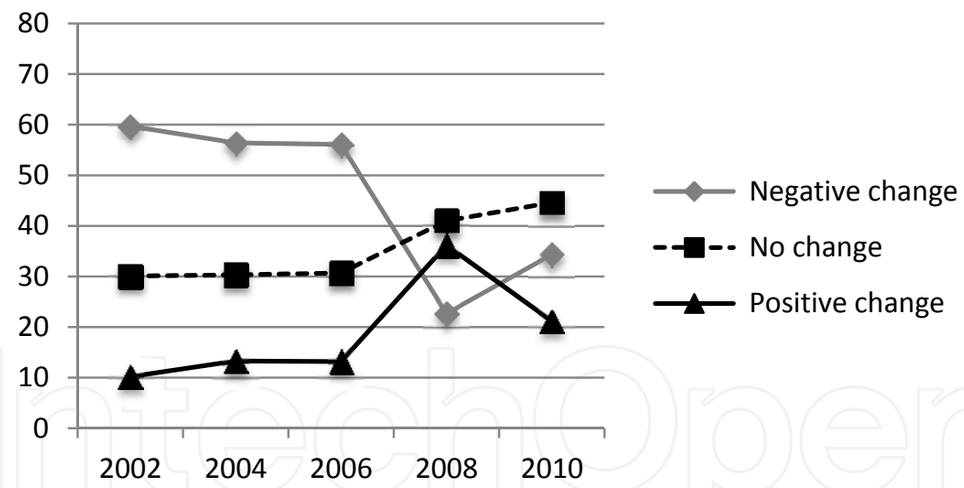
Figure 5 shows expected change the next five years. A remarkable drop in those expecting negative change was measured in 2008, and similarly a rise in the number of those expecting a positive change. This picked up rising food prices globally and shows an immediate effect of that. Prices on the world market did fall – but later rose again. Expected direct returns to

farmers did however not appear and we see that the curve has changed in 2010. Still, positives and negatives have changed during the decade, disadvantaging pessimism.



Source: Trend-data.

Fig. 4. Economic result from farming returns over the last five years. 2002-2010.



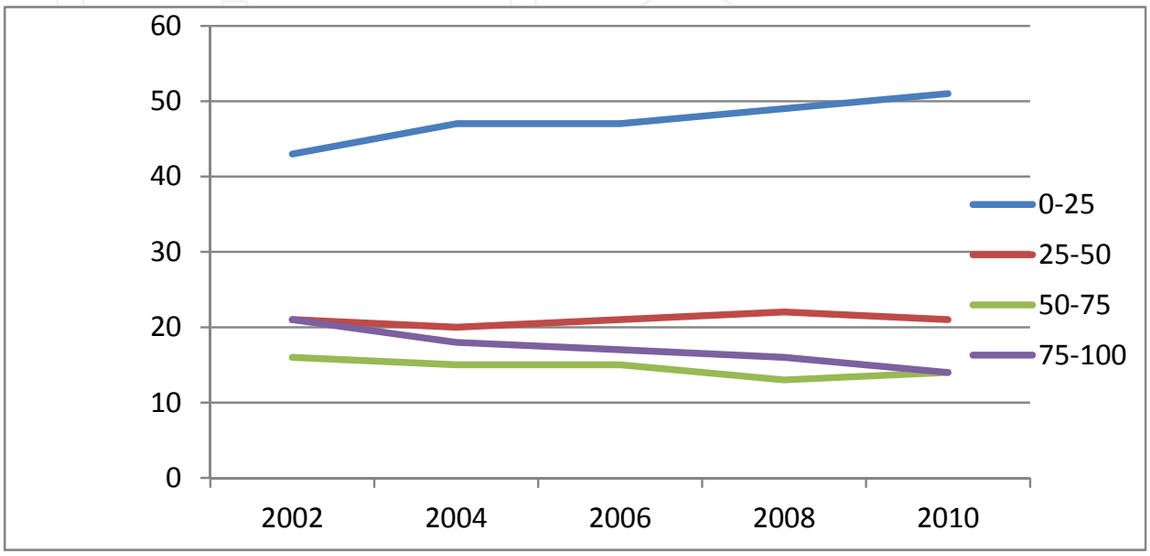
Source: Trend-data.

Fig. 5. Expectations of economic results from farming over the next five years. 2002 - 2010.

Statistics Norway (2011) show that farmers total income has grown even more than farm income. One must then keep in mind that this income is not from farming activities but also from off-farm sources of income.

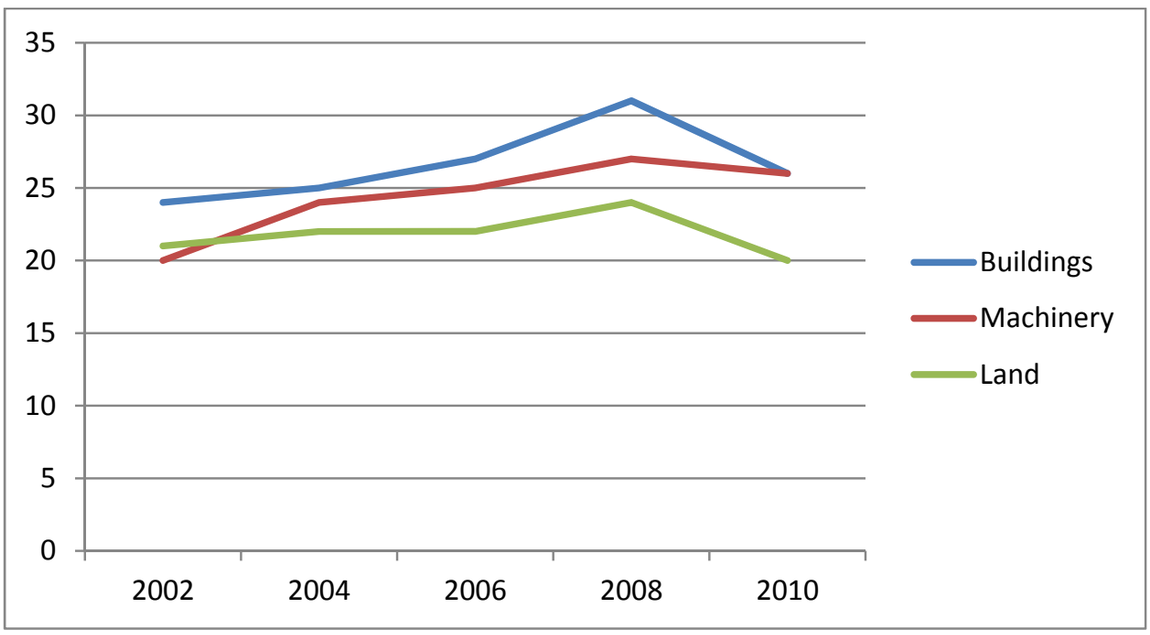
Figure 6 shows that the group of farmers with little or no income from farming (compared to other income) is increasing. In 2010 1 out of 2 Norwegian farmers collected more than 75 percent of their household income from off-farm sources. In a situation where farmers have

increased their income opportunities (according to Statistics Norway) this is levelled out by rise in other incomes and/or in amount of income generating activities off-farm. It is the group of farming households that rely on 75-100 percent of their income from farming that lose. A growing amount of farmers in the 0-25 percent groups is alarming for the future of Norwegian farming. Figure 7 below show changes in farmers will to invest in their farm buildings, machinery and equipment and in new productive land across the last decade.



Source. Trend-data.

Fig. 6. Share of household income from farming activities.



Source: Trend-data.

Fig. 7. Will to invest in farming (buildings, machinery and land).

Figure 7 shows that will to invest most possibly also were affected by the increased optimism after the global food and price fluctuations in 2007 and 2008. Will to invest in buildings and machinery (equipment/technology) is still higher in 2010 than 2002. Fewer consider increasing the size of productive land.

A farm cannot be maintained without any investments (Almås, 1984). History has also shown that structural change in agriculture is based on a model where fewer farms means that remaining farms need to increase in size and production to uphold domestic production when number of mouths to feed is stable or increasing.

Continued supply of Norwegian food depends on those farmers that will develop their farm. The following analysis aims to reveal in which groups or on wich types of farms continuation of family farming and Norwegian food production will take place.

4.1 Interest in farm development

The following analysis is carried out in a linear regression model of will to invest in Norwegian farming. An additive index was built on the three areas of investments shown above, investing in farm buildings, farm machinery and/or increasing farm land. This variable is dependent variable in the model. Table 4 shows that the majority of Norwegian farmers do not plan to invest in their farm in near future.

	No plans to invest	Invest in one area	Invest in two areas	Invest in three areas
Frequencies	56.5	21.4	15.5	6.6

Table 4. Will to invest. Percent

A combination of farm and farmer characteristics and variables measuring optimism but also potential family succession is included in the forthcoming model.

The size variable has been transformed from an ordinal level variable to interval level variable using real average size instead of scores from 1 to 6.

Farm production was given by farmers as main production. This excludes the possibility of distinguishing farmers with mixed production from mono production. It is does however give a good indication of potential differences between major production groups in Norway – if they exist for the questions analysed. In 2010 the largest group of producers were animal husbandry (39 percent). 29 percent were involved with dairy, 20 percent with grain production. 5 percent were involved with horticulture and 2 percent had forestry as their main production. The final 4 percent had other productions. An analysis of means showed that dairy producers were most willing to invest in their farm. The production variable is recoded into a dummy-set variable for the regression analysis, and dairy represent the control group in the analysis.

Two different measures of income were tested in the regression model. First an ordinal level variable of income was recoded into real average of the income groups. The second model used a recoded version of amount of income from farming into the groups none income, little income, medium income, majority income and all income from farming. In the analysis little income is used as control variable. This value or income group showed in bivariate

analysis the lowest average score on will to invest. The difference between the two models is commented below.

Optimism related to whether farmers believe future farm income will be improved is included in the model due to its potential effect on will to invest. The variable is coded from 1 (optimistic) 0 and -1 (pessimistic).

Another variable possibly influencing on the will to invest is the prospect of a future family successor. In the model this variable is coded into a dummy variable were value 1 indicates a family successor and 0 is no family successor or farmer does not know. 63 percent believe a family member will succeed the farm. In bivariate analysis those who have successors are significantly more interested in investing in their farm than those who have no successor.

Farmer characteristics are included in the model. Farmer's gender is coded as 1 man and 0 woman. There is no significant difference between men and women in bivariate analysis of this question.

Age is a linear. The variable is found to behave linear in the analysis.

Finally education is included in the analysis. Like several of the variables above, an ordinal level variable was recoded into real average years of education in all school categories. The variable varies from 9 years to 20 years of eduction.

The results of the regression models are shown in table 5 and 6 below.

Model Summary: **R Square .301** **Sig. .000**	**B**	**t**	**Sig.**
Constant	1.524	8.837	.000
Area in use	.001	6.557	.000
Husbandry	-.104	-1.821	.069
Grain	-.115	-1.672	.095
Horticulture	-.042	-.389	.697
Forestry	-.144	-.985	.325
Other	-.075	-.568	.570
Income from farming	6.452E-7	3.084	.002
Economic optimism	.382	12.292	.000
Men	.032	.497	.619
Age	-.024	-11.046	.000
Education	.012	1.572	.116
Family successor	.170	3.632	.000

Constant: Dairy

Table 5. Linear regression model. Dependent variable: Will to invest in farm I.

The regression model shows several interesting correlations. First of all will to invest in farming increase with increasing size of agricultural productive land. Larger farms are more willing to invest than smaller farms. This is not connected to any particular production; rather it is valid across large size holdings in all production groups. Willingness to invest in farming is further related to income and prospects of the future income situation in agriculture. Willingness to invest is higher in groups that have high income from farming in real value and increase with optimistic views on the economic development of farm income. When it comes to characteristics of the farmers themselves the model do not reveal significant differences between men and women nor of educational level. Age is negatively correlated with will to invest. Young farmers are more willing to invest and this desire decline with increasing age. This might indicate that investments takes place in the beginning of a farming career. On the other hand, knowledge or prospects of a family successor also influence heavily on will to invest in the farm. Bivariate correlation analysis do show that there is a positive correlation between age and knowledge of a family successor, but it is not particularly strong. This means that will to invest due to successors does not necessarily take place in the final stage of one's own farming career. Table 6 shows how the model changes with a different measure of income.

Model Sumamry: R Square .301 Sig. .000	B	t	Sig.
Constant	1.463	8.392	.000
Area in use	.001	7.396	.000
Husbandry	-.084	-1.397	.163
Grain	-.098	-1.362	.174
Horticulture	-.012	-.114	.909
Forestry	-.118	-.801	.423
Other	-.054	-.406	.685
No income	.158	1.907	.057
Medium income	.157	2.454	.014
Majority income	.186	2.788	.005
All income	.211	1.956	.051
Economic optimism	.373	11.999	.000
Men	.029	.453	.651
Age	-.024	-11.174	.000
Education	.014	1.870	.062
Family successor	.194	4.205	.000

Constant: Dairy and Little income from farming.

Table 6. Linear regression model. Dependent variable: Will to invest in farm II.

The regression model in table 6 show very similar results to the model shown in table 5 above. No variables have strengthened or weakened their position in the model

substantially. The reason for showing two separate models is the measure of income that is carried out differently in table 6. Here share of income from farming is recoded into a dummy set variable where little income from farming is the control variable in the equation. In bivariate analysis this group was found to be substantially less interested in investing in the farm than the other income groups. This is still valid when controlled for the other variables in the model. Will to invest depends on farm income for the farming household and increase with increase dependence on this income. A deviation from this pattern is the group having no income from farming at all.

A combination of the two income variables in the same model does not add new knowledge to the analysis of will to invest in Norwegian farms. There is a strong positive correlation between farm income and share of income from farming. This indicate that relying on a *substantial* amount of off-farm income (and off-farm work) decrease the opportunity to increase farm income and with that further interest in investing in the farm. There seems to be a moment of critical change when off-farm income to the household exceeds 75 percent. Further adaptation in direction to increased dependence on off-farm income in Norwegian farming might be an unsustainable development of future Norwegian agriculture.

5. Summarising trends in Norwegian family farming

Norwegian agriculture has faced major structural changes in the statistical history since 1969. Close to 70 percent of the farm units have closed down. Remaining farms are getting bigger, on either bought, but most often rented neighbouring farm land. There has been an increase in big farms (relatively in a Norwegian context), and a decrease in small farms, but the middle size segment is still the dominating farm group.

Norwegian farms are operated by mostly male heads that on average are getting older. Farmers are gradually losing their farming identity and more and more farmers find their occupational identity in off-farm work. Still, farming in Norway is based on family involvement and wife/husband/partner participates in farm work on most farms. A small majority of farmers expect family succession to take place in the future. The Norwegian agricultural system is still based on family farming system.

In the first decade of the twenty-first century Norwegian farmers have experienced increased revenue from agricultural production. The subjective experience of the situation is fewer farmers reporting on negative economic development throughout the decade. This could also reflect that many farmers in the red left the statistics when closing down the farm production.

The income pattern in Norwegian farming households also shows a critical pattern of off-farm income dominating the economic situation on many farms. 38 percent of Norwegian farmers collect a majority (more than 50 percent) of their household income from farming. This pattern is even enhanced by the finding that one out of two farmers report that farm income constitute less than 25 percent of their household income. This is a critical negative development in Norwegian agriculture.

Future agriculture in Norway is depending on farmers' interest in developing and investing in farming. The willingness to invest has increased slightly in 2002, but there is still a minority of farmers that plan to invest in their farms in the near future.

Analysis of whom the future farmers in Norway might be, show that it is (relatively) younger farmers on the larger farms that are most interested in investing in their farms (the will to invest decreases with age). The willingness to invest in farming must be viewed in the contexts of the economic situation at the farm. High income from farming increases the willingness to invest. On the other hand, does high dependence on off-farm income take away the interest in farm investments.

Having family successors in sight strongly correlates with willingness to invest in the farm. This shows that "The Family Farm" has a very strong value in the Norwegian farming system. If not, one could expect that a market value of farm properties could encourage farmer's interest in developing their farms. Such market economic considerations do not seem to be widespread among Norwegian farmers. This is of course also limited by farm property regulations.

5.1 The sociology of family farming

In this chapter farmers' adaptations in agriculture have been explored and with that the future prospects of Norwegian family farming. Through analysis of empirical data it has been documented that Norwegian farming has experienced major structural change and continues to face major challenges related to upholding farming on many units in the future. Still, there is a group of farmers that are interested in investing and developing their farms. This should not be under-communicated. These are still family farmers, many relying on expectations of a family successor to keep up their motivation for further investments.

Worrying about the future of family farming was a topic also 150 years ago. The old classical theories and thoughts were concerned with the possibility of sustaining agriculture in a capitalising and industrialising world. Marx predicted that small farmers would have to give up their farm to tenant farmers and consequently find themselves having their labour exploited as proletarian workers. Lenin was also expecting that capitalism would subsume the family farm as a structural phenomenon. Both Weber and Kautsky stated that farmers would adapt to this new situation and stay on the land despite the fact that the land did not give immediate financial rewards. The two major brands of the "new" sociology of agriculture of the late 1970s and 1980s diverged in their predictions of the future situation of family farming. The Marxist inspired branch of theorists expected that capitalist forces would hamper small farmer's ability to control the means of production – their land. In other versions capital interest would be able to control farmers through contracts or capitalisation of agricultural industries.

But Norwegian farming is still carried out on family farms. Why is this? Political economic theories of structural dominance by capitalist forces have failed to explain the patterns of Norwegian agriculture. Even though the number of farms has decreased dramatically, they are not replaced by large capitalist companies that own a lot of farms. Land on closed or abandoned farms is sold or, most often, rented out to neighbouring farmers.

It is tempting to explain the relative success of the family farming system in Norway with, for example, the protectionist policies of the Norwegian social democratic model securing Norwegian production against cheaper imported products. It can also be explained by Norwegian cooperatives, owned by the farmers themselves. Still, Norwegian agriculture is

also influenced and challenged by global trade agreements and other major changes that have taken place in industry over the past centuries.

Capitalism will not be the immediate future structure of Norwegian agriculture. Analysis in this chapter have shown that the family structure is strongly valued and one could use the explanatory force of Chayanov (1986) from his early text of the 20th century; "Reproduction of the family farm is a sufficient goal". Handing the farm over to a new generation of family members is a very strong incentive for investing in and developing Norwegian farms. There are however too many farmers giving up farming to conclude that economic returns are of no relevance.

But, when structural theories alone fail to explain the development of Norwegian family farming, answers should be sought within other theoretical tools. Branches of contemporary sociology have been more interested in trying to understand the interrelationship between structural opportunities and constraints and the actors will and ability to control their own choices, with modern classics such as Bourdieu and Giddens as frontiers. The former emphasising structure, while the latter the individual to a slightly stronger degree.

The structuring aspect of the farmers' reality is for many given through inheritance of the farm in kinship. Analyses in this chapter encourage a closer perspective on kinship relations in the continuation of farming. There is a strong connection between future prospects and prospects of a family successor. The family connection to farms as places and property has also previously been found to be a constraint for sales of farm properties, including those that have closed production (e.g. Flemsæter, 2009). Families keep the properties as a source of maintenance of traditions and emotions. Having future successors in sight encourage development of the farm as a productive unit also. It is however noteworthy that maintaining and developing farms for future successors are not necessarily taking place when the successor is ready to take over, rather it takes place when the transferor has entered agriculture and has started his or her own family reproduction. The choice and motivation for upgrading the farm is then more family oriented and lesser production oriented.

Another aspect of family farming is the economic aspect. The family farm organisation is a household economic model unlike a more capitalistic oriented business model. Historically Norwegian farms did not give sufficient income to the farming families. Household income was supplemented through other labour, either based on own resources in forest and outfields/waters or in income generating work off farm for both farmer and family members. Pluriactivity has been a stable strategy, and still is on many farms. The relative increase in off farm income is now working as a disincentive to invest in farming activities. Almås (1984) stated that survival of Norwegian family farming depends on reproduction of an enlarged scale of agricultural production to keep up with development. Being able to gain substantial economic returns are of crucial importance for being able to invest in the farm. But those should be earned from the farm. Analysis in this chapter has however shown that money from off-farm work will not be re-allocated to farming when off-farm income is dominating the structure of household income. In this perspective those farmers that eventually leave farming are not outcompeted by capitalistic production out of their control, but by their own adaptations to income generating activities outside the farm.

The sociology of agriculture must challenge the dichotomies of structural and actor oriented social science approaches to the study of agricultural restructuring, family farming, and

farmer adaptation to be able to offer explanations on how structures influence on actors and groups differently, and how actors possess different interests in changing their current situation. Classical structural theories certainly have much to offer in understanding some parts of the political economy of agriculture. This study has however shown some of their shortcomings in relation to understanding the survival of the Norwegian family farm system.

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