

3 *Demographic Dimensions of Resilient Farming Systems in the EU*

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3.1 Introduction

Since the beginning of the European Union (EU) and its predecessors with the Treaty of Rome in 1957, the agricultural sector's contribution to GDP and employment steadily declined compared to that of other sectors. This trend has taken place in both Old Member States, with a historical market economy, and New Member States, which have transitioned from a command to a market economy. In most Member States, the share of agricultural employment remains substantially higher than its share of GDP, causing relatively low average incomes in the sector. The comparatively low incomes drive structural change in agriculture and drive political measures intended to improve farmers' incomes.

In recent years, new demographic challenges have begun to affect the European agricultural sector. In the coming decade, the Baby Boomer generation and parts of Generation X will retire. Their cohorts are much larger than the Millennials and Generation Z, who are poised to take over the former generations' jobs. This means that a high share of farmers and the working population are approaching retirement age and that the farming sector will have to compete more intensively than before with other sectors and regions for the young generation entering the job market. The competition may intensify if rural areas face substantial outmigration due to urban areas offering substantially better income, career prospects, and better living conditions with more advanced infrastructure. The demographic changes overlap with an ongoing process of digitalisation in agriculture and society. While digitalisation may entail the substitution of labour input, it can be expected that digitalisation will increase the demand for skilled labour both on- and off-farm.

Aside from the specific demographic and economic challenges, EU agriculture is confronted with changing societal expectations of agriculture's private and public goods. Society no longer only expects that farms provide sufficient high-quality food but that it ensure high environmental standards, mitigate greenhouse gases, protect biodiversity and landscapes, increase animal welfare, etc. as expressed in the Farm to Fork Strategy (EC, 2020). These expectations have been accompanied by criticisms from citizens, NGOs, and the media about industrialised farming. This has caused many farmers to become concerned about their acceptance in society and their economic prospects. These concerns may further reduce the attractiveness for the younger generation to work in agriculture.

The economic, political, and social trends, as well as the farm demographic developments, raise the question to what extent the interplay of these trends affects the resilience of European farming systems? Secondary to that, in what ways can policy enhance resilience? To address these questions, this chapter is structured as follows. First, the concept of farm demographics and how demographics may interact with the resilience of farming systems will be illustrated. Next, we will present work from qualitative interviews focussing on farm demographics, specifically the process of generational renewal, at the farm level. After that, we will zoom out to focus on the effects of generational renewal at the regional level by presenting simulation results from two selected case studies. The chapter concludes with reflections on the presence of the three resilience capacities in the presented work and resilience-enhancing recommendations for policymakers.

3.2 Farm Demographics, Structural Change, and Resilience

3.2.1 *Farm Demographics and Farm Structural Change*

Demographics can be defined as the dynamics of populations, and how these dynamics change over time and space (MPIDR, 2021). The field of demographics encompasses the study of the size, structure, and distribution of a population, and spatial and temporal changes in response to birth, migration, ageing, and death, including, for example, gender and ethnicity. Demographics include quantifiable characteristics of a given population. Farm demographics as such can

be described via quantifiable characteristics of a farmer population. From our perspective, a farmer population is made up of all people engaging in on-farm activities, the owner or manager of the farm, and farmworkers employed on a regular or non-regular basis, such as supporting family members and seasonal or permanent labour. The term farm demographics is thereby defined along two dimensions. First, from an institutional perspective, it represents the structure of the population of farms, for example, regarding legal forms and organisation. Second, from a human resource perspective, it represents the agricultural labour force structure considering characteristics like age, qualification, gender, and ethnicity.

In the literature, farmer populations' dynamics are approached mainly by analysing farm structural dimensions such as full- or part-time farming, size, intensity and specialisation (Chavas, 2001; Hansson and Ferguson, 2011). The insights derived from these works complement the analysis of farm demographics, as farm structural change and farm demographics are interwoven processes. Farm exit/entry choices are reflected in farm structural changes. For example, increased off-farm employment of farmers stimulates technologies that best fit part-time farming, including specialised production (Boehlje, 1992). Farmers who do not have the managerial skills to introduce cost-effective measures or find attractive opportunities off-farm might leave the sector, resulting in fewer and larger farms. The close link between farm structural change and farm demographics is further illustrated by Happe et al. (2009) (Figure 3.1).

Over the past several decades within the EU, there has been significant structural change in the agricultural sector. The most evident structural developments in European agriculture are reflected in the

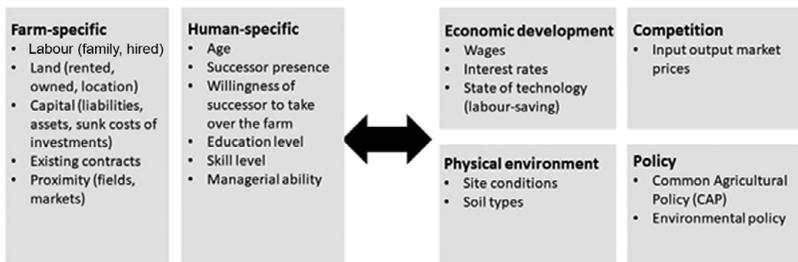


Figure 3.1 Determinants of farm structural change (adapted from Happe et al., 2009).

declining number of farms, farm size growth, and production specialisation over time (Neuenfeldt et al., 2019). As farm size grows, farms tend to specialise into, for example, cereal cropping, granivores, or grazing livestock, moving away from labour-intensive permanent crops or mixed farming. In many regions, the total number of farms is decreasing while the age of the farm population increases. Analysis of Eurostat data by Zagata and Sutherland (2015) confirmed that the proportion of older farmers is growing while the numbers of younger farmers and the utilised agricultural area (UAA) they farm is decreasing EU-wide. Finding successors has become difficult for many family farms (Fennell, 1981; Wheeler et al., 2012); however, familial intergenerational transfer remains the main entry route into farming (Lobley et al., 2010). The EU support for generational renewal is rooted in the arguments that young farmers are more productive, that young farmers born and raised on farms possess knowledge inherent to the sector which needs to be retained (through succession), and that younger farmers have a different attitude towards risk and are more open to change (EIP-AGRI Focus Group, 2016).

3.2.2 Farm Demographics and Resilience

Besides structural adaptations in the agricultural sector, farm demographics can also impact farming practices and processes to a large extent. Smooth and sufficient farm demographic change – including generational renewal, (new) entry and exit – might be a precondition for building resilient farming systems. Many European farming systems are developing towards fewer but larger farms, mainly to exploit economies of scale. Farm enlargement is often accompanied by automation and mechanisation processes, typically requiring substantial investments and financial means. When farms prepare for such expansion, they often consider whether a successor is present at a farm, as this would further justify the investment. Thus, farm generational renewal in farming systems and adaptation or continuance (robustness) of farming systems are interwoven processes.

What does this mean for the agricultural sector of a region? From 2003 to 2018, the agricultural workforce within the EU 27 declined from ~13 million annual working units to ~9 million annual working units (Maucorps et al., 2019). This loss of 4 million working units or 30 per cent of the total agricultural workforce occurred within just

fifteen years. That is an average annual decline of almost 2.5 per cent. Though this loss in the workforce is substantial, it did not result in a substantial decline in the UAA (Maucorps et al., 2019) or in a decline of the gross value added of the agricultural sector (Eurostat, 2018). Farm-level adjustments resulting in structural change on the sectoral level compensated for the loss in workforce. Arguably, despite the outflow of labour, the EU farming sector showed a substantial adaptive capacity. However, adjustments are not always smooth. This can be seen in the collapse of the former socialist European countries after 1990. These countries underwent a fundamental transition process where many employees lost their jobs and, in most countries, production was substantially reduced, which did not recover to pre-transition levels even after ten years (Rozelle and Swinnen, 2004). Moreover, substantial amounts of agricultural land have been abandoned (Alcantara et al., 2013).

While much of the literature, including the studies presented in this chapter, focuses on farm succession, the role of hired labour must also be considered when discussing farm demographics. Across the EU, farms using only family labour cultivate just about half of the agricultural land (Eurostat, 2015), meaning the rest of the land is cultivated in part or fully by hired labour. This share is particularly high in the New Member States, where the former command economies established various forms of large-scale agriculture. As structural change continues to increase farm sizes, hired labour will play an even more prominent role in future European farming systems. Many agricultural regions with a former command economy are already feeling pressure from their dependence on hired labour and the increasing difficulties to secure labour due to rural areas being unattractive and farms' inability to offer competitive wages (Pitson et al., 2019). As hired labour's role across agriculture grows and shortages continue or intensify, European farming systems' resilience will be challenged.

Farm demographics are inherently linked with the resilience of farming systems, both as a determinant of farming system resilience and its manifestation. Changes in the dynamics of farmer populations come from growth, equilibrium, collapse, and reorientation stages of adaptive cycles and the farmer population's response to changing environments and internal dynamics. Farm demographics are affected by several overlapping cycles at various scales. On family farms, the cycle of generational renewal by succession has been widely studied, as

well as a variety of factors that influence this continuous process (see, e.g., Lobley et al., 2010; Darnhofer et al., 2016; Conway et al., 2017; Joosse and Grubbström, 2017). Besides affecting individual farms, and entrepreneurial and employment opportunities in the agricultural sector, succession or farm continuance also affects rural landscapes. Cultural and environmental aspects of farming practices have significant implications for rural areas' attractiveness and demographic stability (Copus et al., 2006).

Farm demographics are influenced by the adaptive cycles of agricultural production, both from within and outside the sector. Cochrane's (1958) model of the technology treadmill describes how farmers must either adopt new technology (growth) or suffer from decreasing incomes that might lead to a market exit. Such exits occur through bankruptcy (collapse) or involuntary or consciously planned professional reorientation (push factor). A conscious reorientation is more likely when wages outside of agriculture grow (pull factor), and farm employees have transferable skills. At the farming system level, technological progress tends to reduce total labour input per unit of output and increase the capital-to-labour ratio. This results in higher financial capital demands and more effective use of labour, requiring specialised technical and managerial skills. This type of development can enable growth of production and per capita income. However, the accumulation of push and pull factors combined with demands for highly specialised skills may result in a structural deficit of farm successors and skilled farm labour. This type of deficit could trigger reorientation or even collapse of regional farming systems. Such a reorientation can include seasonal and permanent migration of farm labour and farmers. This was seen after 1990 when farmers from western Germany, the Netherlands, and Denmark established new operations in eastern Germany and other former socialist countries. The seasonality of agricultural production is also tied to farm demographic processes; particularly, the peak labour requirements drive the (seasonal) movements of the labour force.

Farm demographic processes are affected by policies. They do so directly through agricultural policies, such as early retirement or new entrant schemes. However, governance mechanisms can also indirectly affect farm demographics, for example, through regulations on international labour migration (Hess et al., 2011) and differing national taxation rules on intergenerational asset transfers.

Previous discussions in the literature show a need for a deeper understanding of what enhances the resilience of farming systems concerning farm demographic processes. For example, although the predominant focus of past research lies on the importance of attracting the next-generation farmers and facilitating succession processes (Suess-Reyes and Fuetsch, 2016; Chiswell and Lobley, 2018; Leonard et al., 2017), it is however still not clear whether or not Europe is facing an acute succession crisis (Fischer and Burton, 2014; Chiswell and Lobley, 2015; Zagata and Sutherland, 2015; Coopmans et al., 2020). This uncertainty raises several questions. Apart from the question about the general availability of successors and hired labour, the following sections address two particular questions. The first addresses the underlying processes shaping the quality of farm succession and its implications for the resilience of farms (Section 3.3). The second raises the question to which extent the availability of potential farm successors affects the resilience of farming systems (Section 3.4).

3.3 Lessons from a Qualitative Inquiry on Generational Renewal in European Farming Systems

A deep understanding of generational renewal processes and their links to resilience is necessary to have before prescribing resilience-enhancing measures of farm demographics. In order to achieve this deeper understanding, a large-scale qualitative investigation into generational renewal was conducted within the SURE-Farm project.

The study was based on empirical data gathered from farms in eleven EU regions. The farms in the study varied extensively regarding their current position in the generational renewal process. For example, farms where no demographic changes had recently taken place or were foreseen to take place in the near future and farms that were in the middle of an intense reorganisation of labour in terms of increasing in size or in the midst of the take-over. On each farm, researchers interviewed multiple relevant farm stakeholders to collect different perspectives on farm demographic change. As a result, the final sample of informants were farm owners/managers, their spouses, co-workers, (possible) successors and offspring who decided not to take over the farm. In total, a sample of 86 farms across 11 EU regions was obtained, involving 155 interviews with 169 respondents (see Coopmans et al., 2019; and Chapter 1 for more details). The analyses

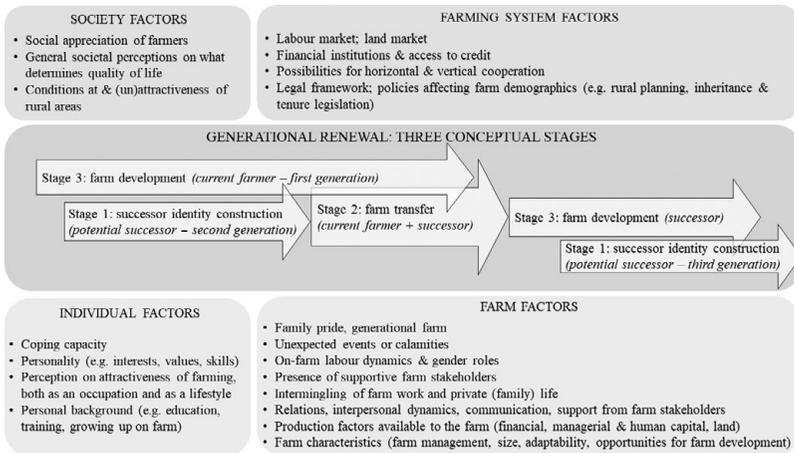


Figure 3.2 Understanding farm generational renewal through three conceptual stages and factors influencing them at four different levels: the individual, farm, farming system, and society.

of these interviews revealed that a complex intermingling of various aspects determine the farm demographic processes, including entry, exit, and other decisions taken by farm-level decision-makers. The most important aspects observed to affect generational renewal in European agriculture are summarised in Figure 3.2 and discussed hereafter.

To start with, we found that there are many perceptions about farming, both as an occupational choice and as a lifestyle choice. Some of these perceptions primarily act as push factors out of agriculture, others as pull factors into agriculture, yet most of them can work in both directions, depending on the person, region, and sectoral context.

Across all regions and farms consulted, the combination of high workload and expected low remuneration was among the most recurring themes explaining why entering the agricultural sector was considered unattractive by many respondents or why farmers felt discouraged or frustrated by their passion for their craft. Other often-mentioned aspects that make farming (as an occupation) unattractive were related to stress associated with farm management, fast-changing regulations, increasingly complex administrative work, and increasing political and societal pressures to change production practices. On the other hand, respondents often mentioned aspects that make farming attractive, which positively influences farm entry decisions and farmer

job satisfaction. Examples are the autonomy experienced when managing daily farm work and the ability to work closely with natural processes and living species. Such perceptions determining motivations for working in agriculture are very personal, hence challenging to address through policies. However, there are factors such as the perceived high workload that policies can address. For example, government institutions can help accommodate seasonal spikes in external labour demand by simplifying bureaucratic procedures or making them more flexible where necessary, for example, contracting or accommodating workers.

Interestingly, the data suggested that farming was widely interpreted as a lifestyle besides clearly being a profession. The interviews revealed that many farmers found it hard to establish a good work-life balance due to, amongst others, intensive physical labour requirements, long working hours, and lack of leisure time, all of which is perceived to negatively affect their quality of life. We found that the extent to which a farmer could address and cope with such challenges sometimes influenced the next generations' perceived attractiveness of farming. Therefore, this coping capacity indirectly impacted the farm generational renewal process. The farming lifestyle also implies a rural life, which seemed in some of the study regions to be associated with a pleasant environment to work, raise children, and be preferred over urban life. In sharp contrast to this, respondents from certain other study regions allocated the lack of young people entering the agricultural sector to the countryside's unattractiveness. Here, frequently mentioned factors associated with abandoned rural regions and discouragement of the young generation to enter into farming were, amongst others, rural outmigration, insufficient basic facilities, isolation from community life, and lack of access to markets. In these regions, policymakers aiming to attract more young people into farming might focus on making rural life more attractive rather than only focussing on making the farming profession itself more attractive or (further) increasing direct payments to farmers.

A second key finding was that generational renewal through farm transfer or succession, which is a complex process affected by many dynamics and influencing factors, can be better understood by distinguishing the process in three stages. Such a conceptualisation facilitates the evaluation of generational renewal processes and how they can be supported by policies to increase farming system resilience.

During the first stage, potential entrants gradually view themselves as successors to a particular farm, thereby constructing a farmer/successor identity, or they do not. From the interviewees' testimonies, it is clear that direct financial aid available to farmers, such as the young farmer payment, have very little or even no impact at all on the formation of a willingness, ambition, or any other type of intrinsic motivation to go into agriculture. This contradicts some studies in the literature (May et al., 2019). Factors that have much more influential power during this stage are characteristics inherently present at the farm or individual level. For example, being born and raised on a farm was often mentioned by our respondents, either as a push factor out of agriculture or as a fact that contributed to the established self-identification as a farmer. What often distinguished farm successors from their siblings exiting the agricultural sector was that the latter emphasised the negative aspects of the farming life they were confronted with during childhood (e.g., not being able to go on vacation with the family). In contrast, the succeeding siblings paid more attention to the positive aspects (such as working and building the family life on the parental farm).

Moreover, it was observed that being a farmer was for successors an important part of their identity. Some other potential successors seemed to be 'balancing' between the extent to which a farmer's self-identity was present and the extent to which the potential hardship of being a farmer was perceived as being manageable. On family farms, which constituted the largest share of the sampled farms, typically all family members were involved with the daily farm work in one way or another. The overlap between the farm and private life was often observed to create a shared dedication to the perseverance of the farm, creating emotional drivers for entry. At the same time, the combination of work and family can be the source of conflicts and lead to farm exit. On corporate farms, the interference with private life tended to be lower. This, for instance, reduces the chance of someone choosing to continue the farm out of emotions and regardless of the farm's current profitability and future opportunities for development.

Furthermore, the production factors land, labour, and capital determine farm characteristics like farm size, scope, specialisation, and adaptability. Since these farm characteristics, in turn, affect how attractive a farm is to a potential future successor or employee, they indirectly influence farm demographics through the first stage

(i.e., when someone is forming an opinion on how attractive working in agriculture is and consequently whether farming is a possible option for future occupation or not).

During the second stage, the farm is (gradually) transferred to the next generation. Farm transfer or farm succession typically entails multiple practical, symbolical, juridical, and accounting actions. It is this stage that currently receives the most attention through policy, education, and advisory services. The data illustrated that lack of access to and/or quality of the production factors land, labour, capital, and management could hamper the generational renewal process extensively during this stage. Indeed, farm succession requires cognitive capital to manage the often-complicated legal steps that need to be carried out correctly to materialise farm transfer. The absence of such qualifications may result in discontinuance.

Similarly, on many farms there is typically a period of transition wherein both the transferor and successor work together on the farm, hence the need to gain two full-time wages out of the farm. The absence of such ability to organise the farm in such a way that this output is created, due to, for example, financial or managerial deficits, once again may result in discontinuance. Because of these reasons, policymakers aiming to support farm transfers should evaluate whether access to the production factors is sufficient. If not, they should assess how the access can be optimised and address the relevant policy measures or domains to address the identified bottlenecks. Next to policymakers, other farming system actors, such as agricultural extension services, may play a central role in supporting the farm transfer process in all its complexity.

Besides the production factors, relationships and communications between the most important farm stakeholders influence the smoothness of the farm succession process. Good interpersonal skills act as an enabler, whereas bad relationships and poor interpersonal skills may prevent (smooth) farm transfer and increase the need for specific advice and support. On some farms in the sample, the successor and transferor could not reach a compromise in their conflicting opinions about future farm development, which delayed or sometimes even negated farm succession. This illustrates that the intention to take over a farm, which is a required outcome of the first stage to initiate entry into farming, does not always materialise into farm succession. Similarly, relationships between farmers and various acquaintances like

landowners, especially in non-family farm transfer, were observed to serve as an important provider of opportunities for farm transfer.

When challenges relating to these production factors and interpersonal dynamics are overcome, a farm can successfully be transferred from the older to the younger generation. The latter is known in the literature for bringing innovations into farm businesses. Our empirical data provided additional examples wherein alternative practices improving farm performance were brought in by the incoming generation preceding, during, or just after farm take-over. Interestingly, young potential successors going through stage one (successor identity construction) were observed to often spend a period away from the family farm, for example, by an internship or other (non-)agricultural career experiences abroad. Sometimes, such experiences pulled them away from agriculture because they realised other careers are financially more beneficial. In other cases, farming remained their preferred career path, but potential successors encountered barriers to innovate and therefore decided not to continue the farm. This illustrates the central role of innovation and technology in generating resilient farm demographic developments in the future.

The family farm succession model is known for overcoming typical entry barriers occurring in this second stage, like the need for a considerable starting capital for necessary investments or to acquire a farm. Inheritance of farmland and farm infrastructure and temporarily shared ownership between different family members facilitate entry into the sector. Likewise, the (often unpaid) family labour can enable the successor to overcome financial pressures, especially shortly after take-over, when debts are usually high due to investments that are often made during the farm transfer process. If farm demographics in the future moves away from the traditional family farming model, for example, as a result of more frequent occurrence of non-family farm transfer, policymakers should think of other solutions to offer entrants specific opportunities in addition to those that have made it possible for family successors to continue the farm.

During the third stage, the farmer makes strategic decisions about farm development, which typically affect the (long-term) demographic structure and need for labour on the farm. Such decisions often influenced the next generation's decision-making process about whether or not to enter agriculture. The experienced imbalance between what farmers invest into their farm development (input prices and labour

efforts) and what they get out of it (job satisfaction and farm profitability) seemed to put considerable pressure on the farmers' overall well-being. When facing challenges, farm survival could largely depend on the farmer's ability and their surrounding network to cope with the challenges at hand successfully. In this regard, support from family members, often in the form of long unpaid working hours and psychosocial support, was sometimes stated as crucial for farm continuity. This illustrates how current farm demographics can impact future farm (non-)entry and (non-)exit decisions. It was observed that these negative aspects of farming could be overcome by one's personality or compensated by one's ambition to be a farmer. However, the weight of these factors adversely impacting well-being seemed high on all farms in the sample, which implies that shifting focus from supporting farmers in terms of income stability towards protecting farmers' well-being and mental health may better contribute to resilience-enhancing farm demographics. Besides, some interviewed farmers seemed to struggle with a perceived low appreciation towards farmers from the wider society, and some of the non-entrants even mentioned that low social appreciation was another reason discouraging them from becoming farmers.

Some of the interviewees – not necessarily young individuals – were settled farmers with a genuine entrepreneurial profile. They continuously kept looking for new opportunities to implement innovative activities on their farm. It seemed their motivation to enter or to stay in the farming sector was strongly driven by their high interest in agricultural-related topics and their eagerness to keep learning more. Altogether, these findings illustrate that a lack of a farming background is not necessarily a barrier to entry, as other respondents sometimes assumed. More generally, creating a social network to be able to rely on during difficult times was observed to shape opportunities for future farm succession. Policy can respond to this observation by stimulating the organisation of training on knowledge and skills development and events that connect farmers with potential successors.

Risk management and resilience appear to be very important in the third stage. Certain events such as extreme losses, physical or mental health issues, intra-family conflicts, changing regulations that invoke a need for adaptation or transformation, trends such as technological development, and supply chain organisational changes can cause a

farm to enter the farm transfer/succession stage in an unanticipated way and at an unforeseen moment. This puts farm continuity at risk because, often, this process' outcome is non-entry and exit rather than succession and entry. Even when the outcome is farm transfer and entry, it is often under less-than-ideal circumstances, putting the farm's future at risk. Nonetheless, unexpected events can, very occasionally, have a positive impact on farm transfer/succession. This can be the case, for instance, in situations where the generation wants to enter the farm transfer stage, whereas the old generation is not ready for this.

Some of the interviews indicated that management and hired labour on corporate farms are affected by similar processes of generational renewal. In every new generation of a family or turnover of employees (especially managers) on a corporate farm, similar decisions need to be made. Such examples are whether to continue and how to adapt the organisation of the farm to changing needs and abilities.

3.4 Adaptive Capacities of Structural Change in Selected Regions

On the farm level, demographic trends can affect the process of generational renewal in several ways. Family farms may lack a farm successor, corporate farms may have difficulties securing a new manager or managing the generational change within the group of main shareholders, and farms relying on hired labour may face labour market shortages and increasing salary levels. These factors can cause farms to exit as well as to restructure, for example, by reducing labour-intensive production activities. In certain cases, farms may collaborate with other neighbouring farms and establish partnerships that may allow for a mixed-age structure. These farm-level adjustments accumulate on the system, regional or sectoral level and result in structural change. However, farm-level adjustments are interdependent. Farms can usually only increase the amount of land they farm if other farms reduce their land bank or exit farming.

To study the consequences of a lack of potential farm successors, simulation analyses with the spatial and dynamic agent-based model AgriPoliS (Happe et al., 2006; Pitson et al., 2019) have been carried out within the SURE-Farm project. AgriPoliS simulates structural change of selected farming regions over periods of fifteen to twenty-five years. Within AgriPoliS, farms make decisions every period (year)

Table 3.1. *Scenarios of alternative availabilities of farm successors*

Scenario Name	Share of farms with potential successor			
	Altmark		Flanders	
	Family farms	Corporate farms	Family farms	Corporate farms
100%	100%	100%	100%	–
50%	50%	80%	50%	–
25%	25%	50%	25%	–

Source: based on Pitson et al. (2020)

on investments, production, hiring labour, land rentals, and farm exit. Farms interact via the land rental market. If a farm exits or loses its rental contracts, other, usually neighbouring, farms can rent the newly available land.

Here, we present analyses of two case study regions of the SURE-Farm project, the Altmark region in eastern Germany and Flanders in the north of Belgium. The study regions are described in more detail in Chapters 6 and 8. The Altmark region's farm structure was greatly affected by its socialist history and is still dominated by large (often corporate) farms. Flanders is a typical family farming region in the western part of the EU. Since one major concern of EU policy is that farms have no successor, several scenarios with alternative probabilities of a potential successor's availability are defined. These scenarios are presented in Table 3.1. Farms without a successor exit at the time of generational change. If a successor is available, the farm continues if it is expected to be profitable.

The scenarios have a substantial effect on the speed of structural change. With a lower availability of potential successors, the annual exit rate of farms increases from about 2 per cent p.a. to 3 per cent p.a. (Flanders) or 3.5 per cent p.a. (Altmark). However, irrespective of the scenario, most farms exit due to low profitability, not because of lacking a successor. Nevertheless, with fewer potential successors and reduced competition, other farms' survival probability increases. The land which the exiting farms release is rented mainly by larger farms. Figure 3.3 shows that in Altmark when there are fewer potential successors, more land would be farmed by farms larger than 1,000 ha. In the same situation in Flanders, more land would be farmed by

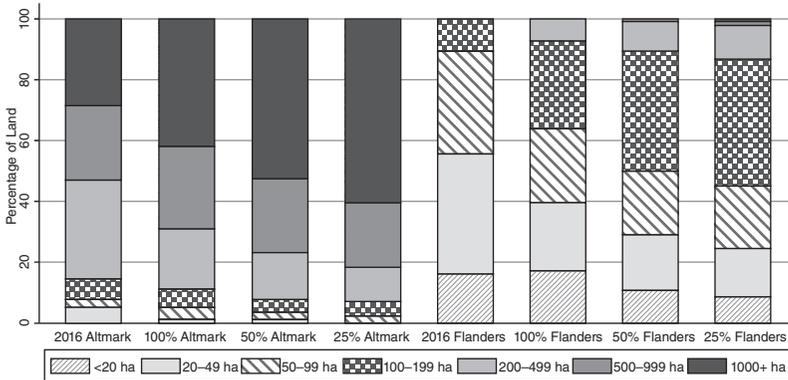


Figure 3.3 Shares of land by farm size class in 2016 and 2040.

farms larger than 100 ha. In addition to increases in the farms' acreage, the land-use intensity increases in terms of livestock density. The surviving farms benefit from exploiting returns to scale. Their land growth allows them to invest in more efficient livestock facilities.

To illustrate the economic effects of a lack of farm successors, Figure 3.4 shows the evolution of the components of agricultural gross value-added (GVA) per hectare for each scenario and region. On the regional level, the GVA is hardly affected by a lack in successors. Irrespective of the farms' performance and profitability, even when most farms do not have a successor and exit at the age of retirement, the GVA does not decline. In Flanders we find in the long run a slightly higher GVA when there are fewer successors. Moreover, there are slight shifts from profits (i.e. farm income from owned production factors) towards payments for land rentals and hired labour wages.

A lack of farm successors will cause farm closures. From an economic point of view, the effects on the sectoral level can be compensated by the remaining farms' adjustments. That means that the farming system shows the capacity to adapt on the regional level even if many farms collapse. This also means that structural change is not just the exit of farms but also the exploitation of new opportunities and particularly efficiency potentials by the surviving farms.

The adaptability on the regional level is, however, based on certain preconditions. The farms that grow in size and intensity need to finance their investments and hire additional labour. If loans and hired labour are not available or if these factors are too expensive, farms' capacity

inhibited due to bureaucratic burdens. In such cases, market mechanisms may facilitate adaptations. Reduced economic land rents may be translated into lower land prices and/or extensification towards less labour- and capital-intensive production systems. These adjustments, however, do not occur immediately and take time.

3.5 Conclusions

From a farming systems perspective, structural change has to be considered as a resilience capacity. In general, structural change in response to economic growth, technological progress, or demographic changes, which is often expressed by farm exits and other farms' growth, means adaptation on the system level. Conscious farm exits need to be understood as transformation, another resilience capacity (Appel and Balmann, 2019). In principle, this means that a lack of a successor can be understood as a transformation on the farm level if the older generation plans and prepares the exit. At the same time, involuntary farm exits because of bankruptcy or insolvency may be seen as a sign of limited resilience on the farm level. On the farming system level, such involuntary exits may result in adaptations. As demonstrated in the AgriPoliS simulations, farm-level resilience is often lower than regional-level resilience. This scale difference between the micro and the macro levels must be understood as an emergent property of the farming system or the sector (Klasen et al., 2016).

Contrary to the role of these emergent properties, the current EU Common Agricultural Policy (CAP) seeks to target farm demographic change by a unique focus on the farm level and the farms' robustness. Thus, policies such as the young farmer payment fail to support the farming systems' capacity to adapt or transform (Vigani et al., 2020). Instead, these policies only support farms' robustness in the critical phase of farm succession and preserve the status quo. This problem also exists for the CAP direct payments (Balmann et al., 2006). Direct payments inhibit structural change by providing a financial buffer for farms, thus enhancing their robustness. At the same time, these payments may bear certain risks. Incentivising the continuation of uncompetitive farms often prevent necessary adaptations in time and are postponing or even provoking a collapse. Second, the exit of

uncompetitive farms provides opportunities for farms competing for scarce factors such as land. In the end, farm-level support may constrain the resilience capacities on the system level.

If policymakers decide to continue to target increasing the amount of generational renewal, there are several factors they should take into account which would increase the policies' effectiveness. First, policies regarding the continuation, exit, and structure of farming should be based on territorial, that is, spatial, considerations. Because it is usually not clear what a desired or even sufficient level of intergenerational transfer is, a starting point could be the definition of a resilient delivery of system functions (public and private goods) in a particular region. Defining a sufficient level of public and private goods may inform desired levels of intergenerational renewal and structural change.

The main policy approach to stimulate generational renewal has been to support young farmers. In particular, the EU executive proposed that a minimum of 2 per cent of direct payments allocated to each EU country (Pillar 1) should be set aside for young farmers, complemented by financial support under rural development objectives and measures facilitating access to land and land transfers. However, these measures typically reach young farmers after they have already decided to enter farming and do not target the crucial stage – the farmers' identity formation. Indeed, if enabling more intergenerational renewal is the policy objective, policymakers should be aware that many exit and non-entry decisions have been made before the farm transfer stage. When there was no possible successor present or the designated potential successor has eventually decided not to continue the farm, measures to facilitate the farm transfer are ineffective. Policy measures that increase the attractiveness of farming, both as a career and as a lifestyle (including by increasing the attractiveness of rural areas) are likely to have a more considerable influence than measures that enable the transfer/succession process itself.

Policies and strategies that can increase the mobility of production factors land, labour and capital will improve the smoothness of farm demographic change processes. Whereas in some countries, land mobility is the limiting factor, in other regions, labour mobility is more challenging, which leads to a need for locally adapted policies.

Furthermore, non-agricultural policies such as fiscal, inheritance, and corporate law policies precisely limit production factor mobility. These policies are often specific to the region/country and often the result of a policy mix. Therefore, policymakers should take a more systemic view on a broad combination of policies rather than relying on one single policy instrument.

Overall, however, policymakers need to be realistic regarding policies' ability to impact the level of generational renewal. The analysis suggests that the relatively low number of young farmers is part of a typical farm structural change process. Moreover, generational renewal is the result of decisions being made at all individual farms, which are often personal and influenced by a very specific mix of personal, interpersonal and familial, and structural and economic characteristics. The ability to influence such processes with one or more policy instruments is relatively limited.

There is a bias of studies and policies on farm demographic change in general and generational renewal in particular towards the family farm model. Generational renewal and farm demographics should be seen much broader. Particularly in the New Member States of the EU but also other regions of the EU, the agricultural sector heavily depends on the availability of hired permanent and seasonal labour. The Covid-19 pandemic in 2020 demonstrated the dependence of EU agriculture and food processing on labour mobility and migration. Accordingly, hired labour and migration need to be addressed by agricultural policies which aim to enhance the resilience of the EU agricultural and food systems. In general, our data shows there is enough evidence to at least question whether the family farming model has positive or negative impacts on farm continuity, farm demographic change, and resilience. Whereas the family farm model could overcome some typical entry barriers such as the need for a substantial starting capital and labour demands, it could also be a nuisance, for example, when interpersonal relations within farm families falter or even create barriers for other forms of generational renewal such as new entrants or share-farming. As such, the bias towards the family farm model could be seen as a normative model rather than rooted in evidence. The different forms of generational renewal beyond intra-family succession should receive more consideration.

Finally, many agricultural and non-agricultural policies at the regional and national level affect the achievement of the goals and pathways towards agricultural resilience. Apart from policies that address generational renewal, regulations on permits, leases, land market mobility, migration, development of rural infrastructure and the resulting attractiveness of rural areas, and rural planning policy have a substantial impact on farming. Together with issues such as administrative requirements, fiscal policy, and inheritance policy, regional and national governments have powerful possibilities to drive the level and direction of generational renewal and farm demographic change, regardless of European regulations and policies. National policymakers often underestimate their possible influence and overestimate the influence of the CAP.

By understanding how the farm demographic trends affect resilience, policies can be better directed towards enhancing resilience. As emphasised in this chapter, policies need to be explored at a regional level. For example, in areas where poor infrastructure drives away potential successors, infrastructure-improvement policies could target the farm system's resilience capacities more effectively than agricultural policies: robustness may be improved by retaining successors; adaptation or transformation may facilitate new opportunities. Policies that support furthering education and training will likely enhance the systems' adaptive and transformative capacities, as farmers will likely look to integrate the obtained knowledge on-farm. At the same time, such opportunities offer farmers the chance to exchange knowledge and grow their networks – thus further targeting systems' robustness and adaptive, and transformative capacities. National and regional governments have the possibility to implement policies with a potentially profound impact on farming system resilience. How these policies should look depends on the normative assumptions on acceptable farming and production activities, speed of structural change, and a desired level of intergenerational renewal.

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