From Individual Farms to Agriholdings: Methodological Implications. An Explorative Regional Case Study in East Germany

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Agricultural economics and policy planning make use of—and rely on—agricultural statistics. Individual agricultural firms, as they are represented in statistical systems, are usually treated as independent economic decision-makers. Our paper investigates the impacts of agriholding structures on statistical and economic parameters. Therefore, the paper will draw on the empirical evidence generated in a local case study in seven communities in northeast Germany.

It is argued that cross-regional investors systematically "assemble" agriholdings based on their overall business strategy. If large holding structures exist, then the individual business perspective may create a flawed representation of farm structures.

Keywords: agriholdings, structural changes, agricultural statistics

INTRODUCTION

Agricultural statistics in Germany [Europe] are built on the assumption of single farm units being independent entities. This concept is rooted in the Western model of agriculture in which the family farm is the predominant organizational model in agricultural production.

These assumptions allow at least two types of interpretation of data:

- A social interpretation, according to which family farms are social units in which business and household roles overlap. This interpretation is the basis for lengthy academic and policy debates about farm incomes, which are treated as more or less identical to farm household incomes. It is the key for the justification of the European Common Agricultural Policy system, which seeks to "ensure the standard of living for farmers" (Treaty of Rome agreement, Article 39). Some categories in agricultural statistics are directly derived from the underlying organizational [household] model,

such as the distinction between family and non-family labor, or the concept of full and part-time farming.

- An economic interpretation, according to which a [family] farm in agricultural statistics is the locus of production and reflects an independent production unit, i.e., a rational combination of production factors. Accordingly, statistical data is interpreted in economic terms such as factor intensity or productivity.

Although the farming sector has never been completely composed of family farms, potential errors in statistical data caused by other types of organizational forms may be acceptable given that the vast majority of farms are family enterprises. In recent years, however, agricultural restructuring and social change have brought about a greater diversity of farm business models.

Particularly in recent decades, new organizational forms have gained increasing importance due to individual firms becoming vertically or horizontally integrated in larger business holdings (agriholdings). Post-socialist transition in Central and Eastern Europe has led to large-scale farming structures in most regions (Laschewski, 1998). Internationally, particularly in developing countries but also in industrialized and emerging market economies, the appearance of mega farms is often driven by foreign direct investment (e.g., Hermans, Chaddad, Gagalyuk, Senesi, and Balmann, 2017). At the same time, new "hybrid" organizational forms of agricultural production between family farms and corporations emerge in Western economies, even in countries and regions historically dominated by family farm structures. These businesses remain driven by families but combine elements of corporate organizations (e.g., Hubert, 2018; Moreno-Pérez and Lobley, 2015; Nguyen and Purseigle, 2012; Pritchard, Burch, and Lawrence, 2007). Accordingly, decision-making units often consist of several agricultural firms (Forstner and Zavyalova, 2017).

Despite this growing evidence, research and theorizing remain much in the beginning. In this process, agricultural economists seem to lack theoretical concepts to describe and analyze the diversity of the newly emerging organizational forms due to their preoccupation with the dominant dichotomic frame of "family" vs. "corporate" farming turns out to be like a burden. Because of that, very diverse organizational structures, varying from the size of little more than a micro-business up to state-driven post-socialist mega farms, are stirred together in a stew of theoretical speculation about the forms and causes that stipulate current organizational changes.

The issue we investigate here is the question of how far changing structures and the effects of these changes are reflected in publicly accessible statistical data. This is of interest both for agricultural policy decision-makers and agricultural economists who feed their models with data from official statistics.

The questions we ask are whether business parameters are affected when business ownership patterns change and to what extent is this reflected in statistical data. In order to get closer to a possible answer, we use case study evidence for in-depth analysis. The cases we are looking at are different types of agriholdings. The dividing line between the different cases is neither family versus corporate farms nor different farm sizes, but the origin of the business and its ownership structure. We conceptualize these differences in the East German context as "local" and "cross-regional" ownership. The background for our research is that an increasing number of large corporate farms in East Germany have evolved during post-socialist transition as successors of former cooperatives that are now taken over by new owners. The post-socialist agricultural enterprises are mostly single corporate farms, but sometimes they also form types of (localized) agriholdings that encompass several individual business units (Laschewski, 1998). In recent years, some of the new owners, often with non-agricultural backgrounds and capital, have taken over several of these post-socialist agricultural enterprises and, in some cases, create new, cross-regional holdings. In this process, these owners have also taken over a significant share of agricultural land (Tietz, 2017).

However, according to a data query in the private business database Bisnode (Bisnode GmbH, o.J.), which offers contact data of enterprises, shareholders, and entrepreneurs, "cross-regional" ownership is present both in East and West Germany. We identified at least 196 individuals that together hold shares in 575 agricultural companies in a minimum of two different federal states. In

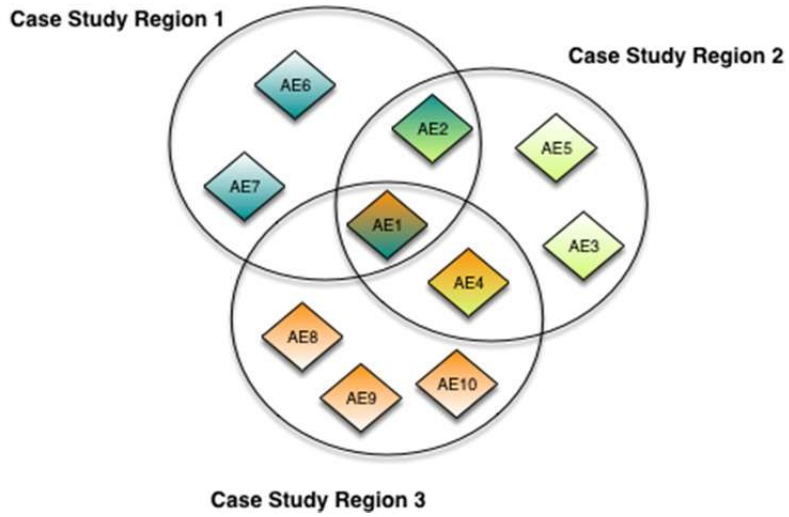
122 cases, "cross-regional" ownership is located both in West and East Germany. In the vast majority of these cases, the place of residence is in West Germany. This indicates an uneven regional distribution of business capital.

The paper is structured as follows. In the next section, we briefly describe the research context, the methodological approach, and data used. Then we briefly discuss our understanding of a "holding" as applied in this research. Thereafter, we illustrate and compare three different cases of agriholdings in the study area. Although the businesses differ in the way they are organized, there is one effect they have in common: the holding structures are not reflected in official farm structures. To illustrate these effects, we create what we call a "Consolidated Farm Structure" to compare with the official data. In the concluding section, we discuss the methodological and theoretical implications of our findings.

METHODOLOGY AND DATA

In this paper, we describe three business cases that we encountered in the context of a wider community case study in northeast Germany. This analysis is part of a research project that attempts to investigate the social and economic impacts of large agricultural holdings owned by cross-regional investors in rural communities. The research uses a "nested design" methodology (Yin, 2009) (see Figure 1). The research project is designed as a series of comparative community case studies in which case studies of agricultural holdings are nested. Thus, the localities of case study regions are deliberately chosen (theoretical sampling). The communities represent a regional context in which large agricultural holdings control a significant part of the local land.

FIGURE 1
NESTED CASE STUDY DESIGN



OWN GRAPH

For these communities, a comprehensive set of data was compiled in order to describe changes and analyze potential effects of agri-structural change on rural communities and rural life. The dataset includes official population, labor market, communal tax, and other statistics in order to map local economic and social development, and the land register, IACS data, and business documents in order to analyze agri-structural and land market changes. In addition, qualitative interviews were conducted with farmers and local experts to generate a better understanding of the local conditions and development trajectories in the farm sector.

The data are used in an exploratory way. The analysis both seeks to provide detailed descriptions of agricultural enterprises and communities, and to inductively build explanations. Thus, the research approach is qualitative in the sense that it is similar to grounded theory and, unlike hypothesis testing approaches, it follows a circular research process in which sampling, data collection, comparison, and interpretation are intertwined (Flick, 2014, 141). Hypotheses are generated from literature, exploratory analysis, or interview statements, and further explored by data triangulation.

For the purpose of this paper, we use material of the pilot community case study and we particularly draw on:

- Integrated Administration and Control System (IACS) data for multiple years (2007, 2009, 2011, 2013, 2015, 2016, 2017) for the case study region and the surrounding Landkreis (county);
- published business data for corporate enterprises, particularly annual accounts (accessible via handelsregister.de and unternehmensregister.de); and
- the land registry of the study communities (time of data collection, May 2018).

The study region consists of seven communities with an overall population of about 15 thousand inhabitants, who live in a much greater number of small settlements. The total area covers about 50.5 thousand hectares of which about 40 thousand hectares are utilized agricultural area (UAA). According to IACS data, the available agricultural land is managed by 104 agricultural enterprises (excluding a few specialized concentrated feeding operations that do not manage any land), of which 64 are organized as family farms or non-incorporated partnerships. However, the 30 corporate agricultural enterprises manage about 70 percent of the land in the area. The average farm size is approximately 378 ha. Only about 1.6 percent of the land is utilized for organic farming, which is very much below the average in the county.

REAL FORMS OF "HOLDING" STRUCTURES

In this article, we commonly apply the concept of a "holding." This term is also often referred to in the context of German agricultural policy and academic debates addressing the issue of large farm acquisitions, but the meanings assigned to it are rather diverse. In standard business-related literature, a "holding" is created when a holding or parent company owns enough (voting) stock in other corporations to control its board of directors. The parent company may be individual persons or a legal entity, whereas the associated enterprises are usually limited companies (in the German context GmbHs).

The German business literature commonly distinguishes between two ideal types of holdings:

- the asset holding that takes little control over the business's operational management; and
- the management holding, in which management functions are also centralized.

The ideal type definitions are not just academic but may have juridical consequences. The closer the holding is integrated, the more likely it is that the holding is treated as a single entity for taxation (fiscal unity). This is commonly the case if there are profit and loss transfer agreements between the parent company and its subsidiaries. The advantage of fiscal unity is that the holding can offset losses against profits between subsidiary companies. Its disadvantage is that risks are shared and the holding is liable for all companies with its full capital (Knacksted, 1998).

However, as our cases will demonstrate, real types of holdings are often more complex and existing legal relationships are not always visible to external observers. For this reason, we apply a pragmatic definition of a holding as a group of businesses that are held together by individual owners and—to a lesser degree—by joint management. From this point of view, a holding structure in legal terms can also be something that owners may want to avoid, e.g., in order to avoid disadvantages of taxation or remain eligible for subsidy payments.

FINDINGS

Case 1

This holding belongs to a wealthy individual who has continuously bought land and farms and renewable energy enterprises within and outside the study area. At the time of the research, the holding controlled five agricultural enterprises in the study area, managing more than 3000 ha and a couple of other agricultural enterprises located in neighboring regions. Three agricultural enterprises in the study area were acquired before 2007 while one enterprise was bought recently in 2017; therefore, it will only be included in the static but not in the time series analysis. One enterprise has been newly created in 2011.

Formally, all businesses are fully independent. They are constructed in the way that they are not part of a conglomerate in a legal sense. In the process of takeover, all enterprises have been transformed into consolidated affiliated German partnerships in the legal form of GmbH & Co. KG. The liable partner in this partnership is a GmbH (Limited Company) that does not hold any shares itself and the investor is the partner limited to his contribution to capital (Co. KG). The only purpose of the liable GmbH is to manage the farm enterprise. It is owned by another GmbH & Co. KG, which is constructed in the same manner. In consequence, the investor does not execute any direct power on the management of the farm enterprise, at least in a legal sense. Agricultural enterprises of the holding are run as single entities, physically located in the communities but the registered office has moved to the hometown of the investor. The former management has been replaced by new management.

The common bond of the conglomerate of businesses derives from the fact the there is a single shareholder behind all enterprises (only small shares belong to other family members and individuals) and all the companies are managed by the same managers.

All the earlier acquired enterprises are arable farms. Earlier milk production in two enterprises was shut down soon after the acquisition. Only a small herd of suckler cows was kept in one of the enterprises in order to manage some meadows until 2016. Exact employment data could not be retrieved. From the qualitative interviews, we learned that the staff is pooled in a central (non-agricultural) agri-service enterprise that provides machinery services to all the agricultural enterprises in the region even across long distances. All machines are pooled in this company, too. A side-effect of this is that the company is regionally known by the name of this agri-service business, whereas the names of the agricultural enterprises are little-known.

Land ownership is separated from the agricultural enterprises. All agricultural land is owned by the private investor or by asset management companies owned by him (and his family members). Statistically, the farm's share of owned land is zero despite the fact that the investor owns about two-thirds of the land utilized by his agricultural enterprises.

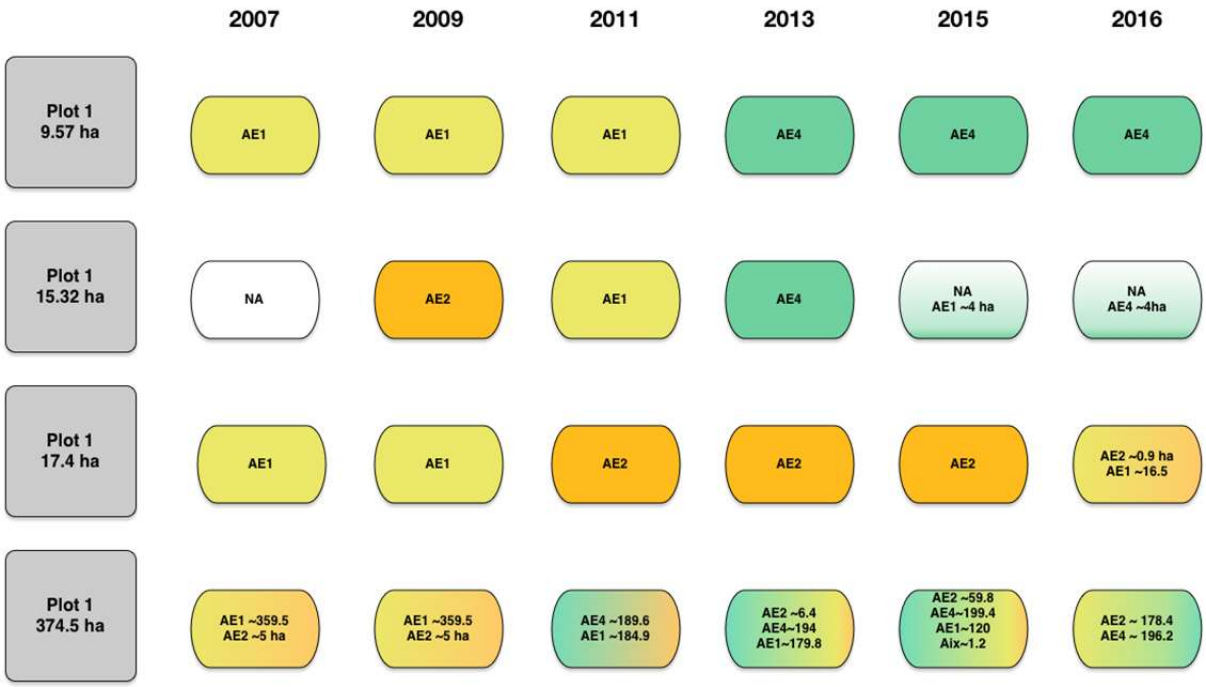
Arable land is more or less—at least as viewed from outside—deliberately shifted among agricultural enterprises (Table 1). This has resulted in some considerable changes to the farm sizes on an annual basis. The overall holding is growing, whereas trajectories of the individual businesses are rather diverse.

TABLE 1
HOLDING 1 UAA (HA) PER AGRICULTURAL ENTERPRISE. SOURCE: IACS, DIFFERENT YEARS

	2007	2009	2011	2013	2015	2016	2017
AE1	1020	1122	702	545	488	386	384
AE2	736	620	741	756	938	946	914
AE3	141	148	49	122	247	358	336
AE4	0	0	394	623	628	873	837
Total	1898	1890	1887	2046	2301	2563	2471

These changes at the individual enterprise level are also reflected in the ways single plots of agricultural land are assigned to the single enterprises in the consortium. Figure 2 illustrates this with a graph of randomly selected plots of land. It shows which AE has claimed for direct payments in selected years.

FIGURE 2
ALLOCATION OF RANDOMLY SELECTED PLOTS OF LAND TO DIFFERENT AGRICULTURAL ENTERPRISES (AES)



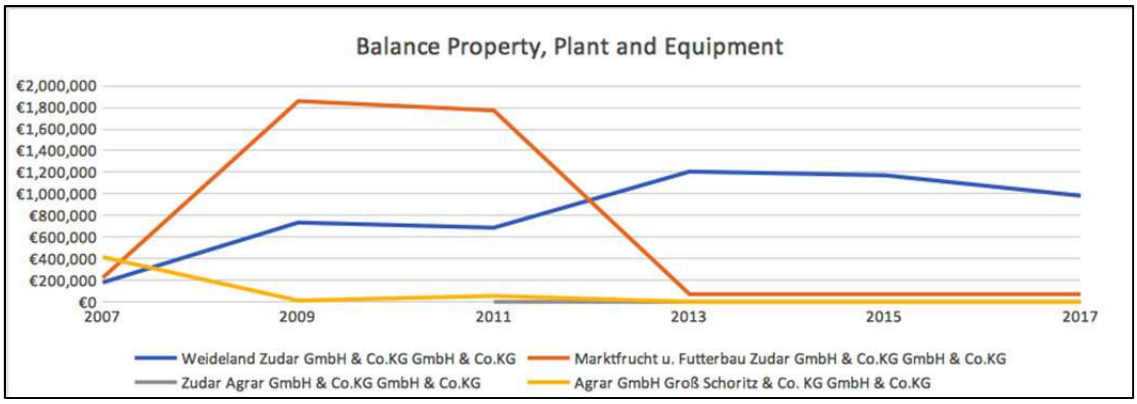
SOURCE: IACS, DIFFERENT YEARS

Single plots are moved or even split between individual enterprises on an annual basis. In 2015, plot 4 is split between four companies of the holding. In the case of the missing company name, we assume that this is also a company belonging to the holding but located outside of the study area.

The strategy of the company, i.e., to pool machinery and staff in a central agri-service business and to transfer land ownership rights to the private investor, is reflected in the financial data,

particularly of AE 1 and AE2. These are agricultural businesses without assets. At the same time, the value of "Property, plant and equipment" is increasing in AE3.

FIGURE 3
HOLDING 1. VALUES OF PROPERTY, PLANT AND EQUIPMENT



SOURCES: ANNUAL BALANCES

This shows that enterprises may have different roles to play in a larger holding. Yet, in all cases, business data do not reflect production cost–benefit relations. Profits can be deliberately assigned to single enterprises according to broader calculations. In this case, the focus of the investor seems to be on having private control over land property rights and reducing risks in agricultural production. Enterprises are designed in a way that they can be easily sold or closed if economic conditions or subsidy regulations change.

Case 2

This agriholding consists of five agricultural enterprises that together manage more than 4000 ha in one community in the study area. The holding is linked through a group of five shareholders who each own a different number of shares in individual enterprises. Although the individual companies are formally not owned by the main company, the holding presents itself as a single entity to the public. In the public, the holding is perceived as a single enterprise (AE1). This lets us assume that the agricultural enterprises are related to each other through further contracts that are not visible in the published documents.

The holding has evolved as successor to a group of former socialist cooperatives. The group of stakeholders belonged to the management of the cooperatives. In the course of the transition, they have bought shares from other employees with private loans. The organizational structure of the holding can be explained by the historical structure of the socialist era, but so too can the risk management and subsidy considerations. The three largest companies combine animal husbandry and arable farming. The main company combines dairy production with more than 1,000 cows and about 1000 ha agricultural land while the two other enterprises manage piglet production and hog feeding in closed systems. The remaining two are arable farms (mainly wheat, rape seeds, and silage maize).

Exact employment data could not be retrieved. According to the data provided by the company, a total of about 70 people are employed in all companies.

Land is owned by the agricultural enterprises while the shareholders do not own a single hectare individually. Currently, the holding owns about 2150 ha altogether: about 85 percent is owned by AE1 and the rest is owned by AE5.

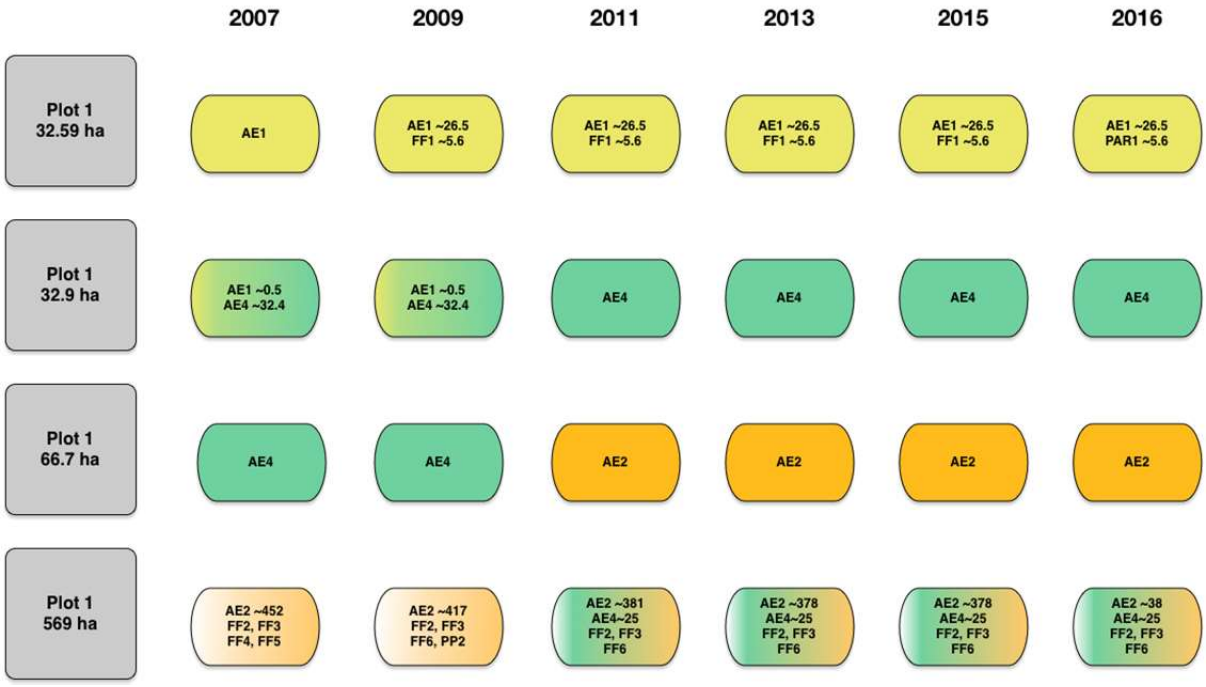
TABLE 2
HOLDING 2 UAA (HA) PER AGRICULTURAL ENTERPRISE.

	2007	2009	2011	2013	2015	2016	2017
AE1	754.7	909.9	766.1	779.7	775.7	770.3	1023.8
AE2	771.6	781.2	816.1	816.9	813.8	816.8	646.7
AE3	932.8	859.6	825.8	773.1	799.8	794.8	554.1
AE4	794.8	740.2	749.3	792.3	793.6	792.9	959.5
AE5	930.3	919.8	909.6	915.0	910.7	906.8	891.4
Total	**4184.3**	**4210.6**	**4067.0**	**4077.1**	**4093.6**	**4081.6**	**4075.3**

SOURCE: IACS, DIFFERENT YEARS

Table 2 shows some changes in the allocation of land between the individual enterprises; overall, the proportions remained rather stable, at least in comparison to case 1. A look at randomly selected land plots confirms this impression. It seems that most plots are more or less firmly associated with one enterprise. Interestingly, to some degree, plough exchange with other local (family) farmers seems to be more relevant than in case 1.

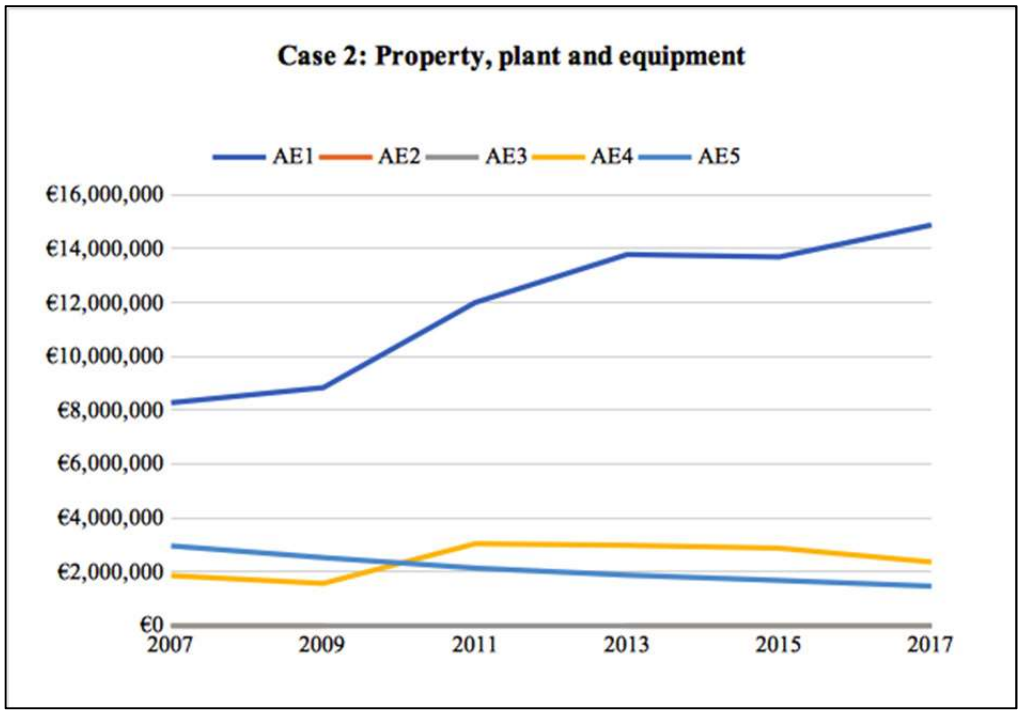
FIGURE 4
ALLOCATION OF RANDOMLY SELECTED PLOTS OF LAND BETWEEN DIFFERENT AGRICULTURAL ENTERPRISES (AES)



SOURCE: IACS, DIFFERENT YEARS

Capital and assets are unevenly distributed within the holding. About 80 percent of the total value is concentrated in AE1 as illustrated in Figure 5. The two arable farms do not hold any property or equipment while the hog production units own their production facilities; only AE5 also owns agricultural land.

FIGURE 5
HOLDING 2 VALUES OF PROPERTY, PLANT AND EQUIPMENT



SOURCES: ANNUAL BALANCES

However, it is a different story when we look at the equity capital. Here, AE1 only contributes to 65 percent of all equity while all other enterprises contribute relatively more in comparison to their total capital value. Because receivables contribute largely to total capital of the smaller (arable) farms, it is apparent that transfer prices can be an effective mechanism to allocate profits among companies within the holding.

Case 3

This agriholding consists of three agricultural enterprises, of which two are located in the study region, and an agri-service enterprise. The main actors are an industrial investor, which we call the majority shareholder, and the manager of all businesses, who is also minority shareholder. Initially, the majority shareholder was a limited partner in one small company; however, since 2006, the partnership has expanded significantly. The partners bought two additional neighboring agricultural companies and the original partnership was also reorganized into a consolidated affiliated German partnership in the legal form of GmbH & Co. KG (in the following, AE2).

The legal structure of the single enterprises is similar to case 1. For the two main agricultural enterprises, a limited company (GmbH) was created as the liable partner. Thus, every agricultural enterprise is an independent entity in a legal sense. The majority shareholder holds the majority of shares of all four enterprises. In 2011, he pooled all his shares in a new asset management company.

The third agricultural enterprise (outside of the study region) is organized as a limited company. The partners bought this enterprise in 2008 and—unlike the other two agricultural enterprises—in 2011 the minority partner has taken over the majority of shares.

All three agricultural enterprises are arable farms. No animals are kept and marketed. In total, the three farms manage about 2800 ha, of which 2100 ha are allocated in the study area. In addition, the minority shareholder holds another farm of about 420 ha as sole trader.

In the study region, the consortium owns about 1540 ha (~72 percent of the managed land), of which 864 ha are owned by the asset management company of the majority shareholder. In addition, the minority shareholder owns about 250 ha.

According to the annual accounts, the three agricultural enterprises employ 10 people and another 5 people are employed by the agri-service business.

The management is highly centralized. The minority shareholder is the managing director of all agricultural enterprises including the agri-service business. Unlike the other two cases, however, the structures have remained rather stable over the last decade.

TABLE 3
HOLDING 3 UAA (HA) PER AGRICULTURAL ENTERPRISE

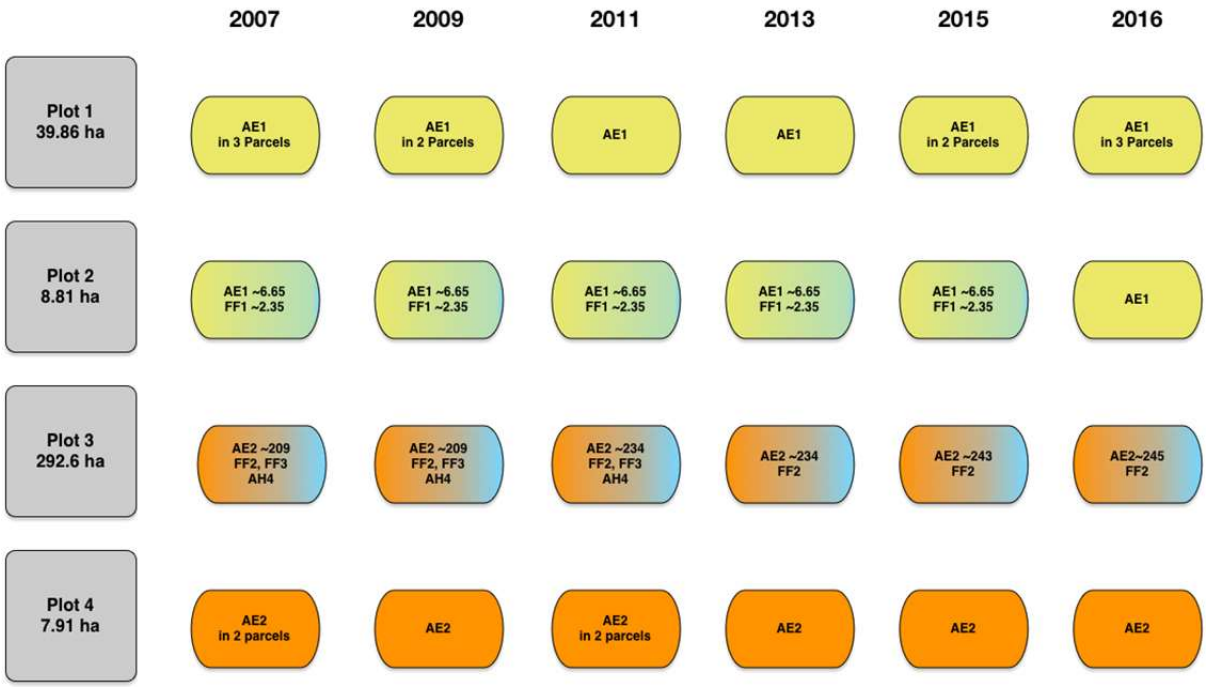
	2007	2009	2011	2013	2015	2016	2017
AE1	1128.1	1111.1	1112.2	1112.2	1137.9	1135.5	1147.6
AE2	814.0	794.0	842.4	885.2	930.6	933.7	947.0

SOURCE: IACS, DIFFERENT YEARS

For instance, Table 3 shows that the land allocated to AE1 has remained stable over the last decade, while AE2 is growing, but not at the expense of AE1.

This land management pattern is confirmed when looking at single plots. Figure 6 illustrates two typical patterns. Land is not rotated between the agricultural enterprises. If the land is split into smaller parcels, then all parcels remain in the same enterprise. If land blocks are split among different users, then land is not rotating between them (plough exchange) but the allocation remains stable. However, holding 3 is expanding its share of land at the expense of other land users.

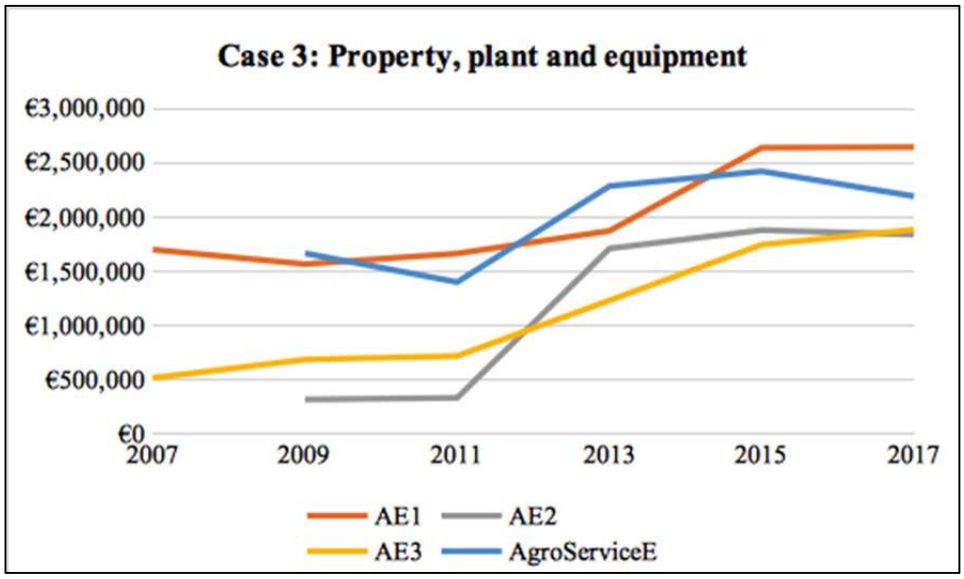
FIGURE 6
ALLOCATION OF RANDOMLY SELECTED PLOTS OF LAND AMONG DIFFERENT AGRICULTURAL ENTERPRISES (AES)



SOURCE: IACS, DIFFERENT YEARS

Unlike the other cases, this holding does not pool financial resources. Instead, all enterprises show indication of substantial investments into real assets (Figure 7). To some extent, this can be explained by land acquisitions because the companies own about 670 ha of UAA, but there are also real investments. In particular, AE1 and AE2 serve as a container for the majority owner's financial capital. From 2009 to 2011 the total value of these two enterprises increased from around 4 Mio. € to over 16 Mio. €, largely in the form of financial assets. While in cases 1 and 2 we found undercapitalized arable farms with no fixed assets, here we find another extreme of overcapitalized firms.

FIGURE 7
HOLDING 3 VALUES OF PROPERTY, PLANT AND EQUIPMENT



SOURCE: ANNUAL BALANCE, SEVERAL YEARS

All in all, holding 3 follows another path than holding 1, although similar structures have been developed. However, labor and financial resources are not pooled outside the agricultural enterprises. Instead, the two enterprises seem even to serve as a storage for financial assets.

Consolidated Farm Structures

The cases illustrated above are not the only agricultural holdings we identified in the region. Indeed, we assigned 29 agricultural enterprises to 9 different holdings. Most, but not all of them, are legal entities usually in the form of limited companies (GmbH) or consolidated affiliated German partnerships in the legal form of Gmbh & Co. KG. However, in some cases holdings include also private businesses, run by one or all partners of the consortium.

Based on the criteria "local/cross-regional" and "the origin of the holding," we distinguish three different types of holdings:

- **Cross-regional holdings (CRH)** are consortia where one or more non-local investor exerts control as the majority shareholder. They also own further agricultural enterprises outside of the study area. They accessed the area through acquisitions of large agricultural enterprises or even holdings of type 2. We assign case 1 and case 3 to this group.
- **Local holdings as successors of socialist cooperatives (LH)** are the products of post-socialist transitions. They may have emerged when several cooperatives decided to keep the holding structures that were already established under socialism. The main reasons to

maintain a decentralized structure were the complexity of property distribution after unification and the heterogeneous starting conditions in the cooperatives. However, holding structures may also have emerged as a response to changing subsidy regulations (e.g., for suckler cows or to comply with minimum requirements for the number of animal units per ha). Despite their considerable size (at least in comparison to Western Europe), their focus remains local, which means they do not expand further than into the direct neighborhood. If they grow, then they take over the land and assets of smaller farms in the community or buy corporate farms in neighboring areas. Case 2 belongs to this group.

- **New local holdings (NLH)** are locally based holdings that have been created after German unification . The holding structure emerged through the acquisition of neighboring farms and/or the foundation of new businesses as a response to subsidy regulations. In this group, we often find a composition of sole proprietorships, non-incorporated partnerships, and corporate enterprises (GmbH).

Table 4 shows a consolidated farm structure in which holdings are treated as single entities. Therewith,

- the number of agricultural firms is decreasing from 104 to 76 and the average (consolidated) farm size is increasing to over 500 ha;
- the holdings control almost two-thirds of UAA and receive a similar proportion of agricultural subsidies;
- although LHs on average appear to be the largest holdings, one has to take into account that the CRHs own further agricultural enterprises outside the study region. Further, currently the CRHs are in most cases continuously growing through further acquisitions inside and outside the region; and
- CRHs' share of land owned is substantially underestimated when only the land owned by agricultural enterprises is known.

TABLE 4
CONSOLIDATED FARM STRUCTURE 2017

Organizational Type	Number of Parent Businesses	Number of Agricultural Enterprises Receiving Subsidies	UAA (ha)	UAA Share (%)	UAA Owned by Agri. Enter-prises %	UAA Owned by Agri. Enterprises and Investors %	Amount of Subsidies Paid	
							Total	Per Parent Business
Cross-Regional Holding	3	10	8053	20.5%	28,1%	50%	1943.2	647.7
Local Holding (Successors of Cooperatives)	4	14	13653	34.7%	57.7%	57.7%	3764.5	941.1
New Local Holding	2	5	3456	8.8%	51%	56.1%	920.6	460.3
Single Corporate Enterprises with more than 1000 ha	2	2	2502	6.4%	48.6%	48.6%	707.4	353.7
All types of AEs from 100 to 1000 ha	32	39	11123	28.3%	33.1%	33.1%	3215.7	94.6
Sole proprietors below 100 ha	33	34	534	1.4%	43%	43%	298.5	8.8
Total/ Average	76	104	39320	100.0%	43.7%	50%	10849.9	135.6

SOURCE: IACS, 2017; LAND REGISTRY

SUMMARY AND DISCUSSION

Our research questions were whether business parameters are affected by holding structures and to what extent this is reflected in statistical data. In order to answer these questions, an exploratory nested case study approach was applied that combines business and community cases. It could be shown that the emergence of holding structures in the study area has a significant effect on the business parameters of individual agricultural enterprises within the consortium.

Holding structures allow the separation of capital, assets, and land from the production process. A common element in all the three cases is the arable farm—in two cases without any assets (machinery, land)—and a minimum of employed staff. Within the consortium, individual enterprises may be used as pools for physical assets and people. These pooling enterprises may be agricultural or non-agricultural enterprises (e.g., a centralized agri-service company).

In two cases of cross-regional investors, we found that agricultural land is also completely separated from the agricultural enterprises and either owned by a specialized estate management company or the investor personally.

Thus, in agricultural statistics, two indicators may point to the existence of holding structures:

- agricultural enterprises that do not own land and
- arable farms without any property, plant and equipment assets.

Taking holding structures into account by creating consolidated farm structures shows a significant impact on the interpretation of agricultural statistics. At least for East Germany, the case study evidence allows the assumption that concentration of farms and land ownership is far more advanced than standard statistical reports reveal. Particularly, the separation of land ownership from agricultural business disguises that owners of large corporate businesses might own significantly more land than agricultural statistics suggest.

At the same time, agricultural employment data may underestimate agricultural employment as a growing number of employees who are working in or for agricultural production are organized in specialized non-agricultural service businesses.

Regarding the question whether cross-regional holdings differ from local holdings, the answer is, at the current stage of the research, moderately "yes." While some organizational patterns are similar (like the creation of arable farms without physical assets), others are distinctively different (e.g., the degree of centralization of machinery and of land ownership separation). However, it is not clear to what extent local holdings will follow the path of specialization and outsourcing further in the future. In addition, further case studies may reveal new and more differentiated evidence. What we do know, however, is the growing relevance of holding structures for the agricultural sector in general and cross-regional holdings in particular. While the total number of the latter group appears to be modest, their impact can be considerable as the holdings are often very large in terms of utilized land.

From a business management perspective, the trajectory of separation of assets and land ownership from production units makes sense for a couple of reasons, such as the reduction of risks and increased efficiency, e.g., through the specialization of land and estate management functions or centralization of supply and marketing.

However, regarding the theorizing about agricultural firms, it is evident that none of these rationalities are production-related. This is reflected in the fact that the profitability of agricultural enterprises becomes subject to transfer agreements (e.g., service and product prices/land rents, etc.) between companies of a holding. The holding structures can be increasingly attributed to organizational environments (markets, legal system) rather than pure production requirements. The single enterprise appears as a bundle of rights/duties rather than a production unit.

Traditional agricultural economic theorizing of agricultural firms (e.g., Allen and Lueck, 1998) is built around the image of the owner-entrepreneur and the focus on management of the production process is currently poorly equipped to adequately describe and conceptualize the newly emerging organizational structures. It is necessary to adapt organizational theories and frameworks that put a

stronger focus on organizational environments (e.g., Aldrich and Ruef, 2006; Scott and Davies, 2007). Furthermore, theory should move beyond the family vs. corporate farming dichotomy by opening perspectives not only to analyze differences between these two forms, but also to acknowledge the diversity among newly emerging organizational forms at the interface between family and corporate farming, and within corporate agriculture. Only then will we also be able to modify agricultural statistics in a manner that reflects the new organizational realities.

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