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The emergence and proliferation of agroholdings and mega farms in a global context

Special issue: Agroholdings and mega-farms in a global context

EDITORIAL

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Abstract

During the last two decades an increasing amount of large-scale farming operations have emerged all over the world: from (Eastern) Europe, to South America, China and the countries of the Former Soviet Union. These agribusinesses go under the name of mega-farms or agroholdings: horizontally or vertically integrated operations with farm sizes of up to 500,000 hectares and sometimes even more. These types of farms are not only found in crop farming, but also in animal husbandry. Although some information on agroholdings and other forms of mega-farming operations is available, a systematic analysis of their prevalence, economic performance as well as their social and environmental implications in an international perspective is missing. In this special issue of the *International Food and Agribusiness Management Review* we present a number of papers that highlight the different aspects of such farms. In this editorial we introduce the topic of agroholdings and place the papers in within the context of the available literature. We end with the presentation of a research agenda for the future.

Keywords: agroholdings, mega farms, integration, farm size

JEL code: Q13, Q14, Q16

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1. Introduction

The organization of food production has been the subject of an academic and political controversy for decades. Current changes in the organizational landscape of farm businesses indicate an increasing role of industrialized agriculture with large organizational units. In the recent two decades, new agribusiness models emerged that are operating at a far larger scale than traditional types of farms. The main characteristics of these new agribusiness models include their enormous size, which sometimes approaches several hundred thousand hectares of land, the integration of multiple stages of production and processing, and the increasing influence of outside investors with no background in primary agricultural production (Boehlje, 1999; Petrick *et al.*, 2013; Rylko *et al.*, 2008). In a number of developing countries, such enterprises resulted from foreign direct investments; a development which has been extensively analyzed and debated in the context of 'land grabbing' (De Schutter, 2011; Visser *et al.*, 2012; Von Braun and Meinzen-Dick, 2009). However, in a number of industrialized and emerging market economies, such 'mega farms' reached a substantial share of production as well (Deininger and Byerlee, 2011).

Compared to the issue of land grabbing, far less research attention has been paid to some fundamental aspects related to the emergence and operation of large agricultural enterprises that raise a number of additional concerns. These concerns include economic, societal and environmental issues such as land concentration, market power, tax evasion, non-transparent lobbying, loss of biodiversity and functioning ecosystems; and the externalization of social costs facilitating social imbalances or a potential incompatibility of large farming structures with the values of democracy and civil society (Baland and Robinson, 2008; Conning and Robinson, 2007).

One reason for limited research efforts so far may be seen in the widely accepted presumption among agricultural economists that large-scale farming operations involving many workers under a centralized management authority are only economically viable under some very restrictive conditions (Allen and Lueck, 1998; Binswanger *et al.*, 1993; Hayami, 2010). However, recent developments in Argentina, Australia, Brazil, Czech Republic, East Germany, Poland, Romania, Russia, South Africa, Ukraine, and the US are challenging these beliefs. The increasing competition over fertile agricultural land and increased access to international capital markets have led to the ongoing growth of these already very large enterprises, while the need for close supervision of labor has been compensated by an increased use of innovative technologies and corporate-style organizational architecture (Chaddad, 2014; Deininger and Byerlee, 2011).

The second reason for insufficient science-based discussion of the role of large agricultural enterprises in the global food system has been the low density of ties among researchers that investigate large farm operations and the resulting impacts. Being geographically and inter-disciplinary dispersed, researchers have not yet conducted insightful cross country comparisons and created a critical mass of knowledge on the relevant topics. Land markets and competition, aspects of corporate finance and human capital management, as well as the ethical dimension of large-scale agriculture in industrialized and emerging economies have hardly received any systematic scrutiny. It is this gap that this special issue of the International Food and Agribusiness Management Review aims to fill. Given a loosely coupled network of agroholdings' scholars, this special issue brings together a number of different perspectives and creates a state-of-the-art overview of current research into the different issues involving large-scale farming operations such as agroholdings and other types of mega farms. It also makes a first step towards setting up and executing a broad research agenda on this phenomenon.

First we will review some of the theoretical underpinnings of current research into corporate farms and agroholdings. Then we will shortly discuss the papers collected in this special issue and how they fit into these broader themes. Finally we will end this editorial with the outline of a broad research agenda for the future.

2. Agroholdings, corporate farming and mega farms

Large scale farming is not a new phenomenon. The earliest example dates back to the large scale 'latifundia' of the Roman Empire. These large estates relied on slave labor and Pliny the Elder famously blamed them for 'ruining Rome and its provinces' (Scullard, 1982; White, 1967). The model of the latifundia was further developed in the plantations and haciendas of the colonial era (Conning, 2002). The first large scale corporate farms were established in the United States with the Bonanza Wheat farms (Drache, 1964). In the Soviet Union, the collective and state farms known as *kolkhozes* and *sovkhoses*, respectively, could also be included in the category of large scale farming structures that were intended to mirror the organization of the industrial sector and away from the traditional family farm (Lerman *et al.*, 2007).

In this special issue we are interested specifically in the modern day equivalent of these industrial and corporate farms that we will label as 'agroholding'. So far, the term agroholding has been used specifically in Eastern Europe and the countries of the Former Soviet Union. However, there is no widely shared view of the legal and organizational structure of an agroholding (Kuns and Visser, 2016; Magnan, 2015). The formal definition of an agroholding is an agricultural organization whose controlling blocks of shares are owned by a holding company. This holding company acts as an umbrella for a number of horizontally or vertically integrated units in the agri-food chain, such as producers of concentrated fodder, elevators, processing units and wholesalers (Visser *et al.*, 2012). An agroholding can thus execute the concentrated management of multiple farms/agricultural enterprises that are officially separate legal entities such as limited liability companies, joint stock companies or even family farms. For instance in Ukraine, these umbrella organizations include public joint stock companies, private joint stock companies (often with capital from other sectors such as steel, mining, energy, banking, etc.), and private equity/trust funds (UCAB, 2015). Serova (2007: 189) describes agroholdings in Russia as a phenomenon that 'unites a number of quite different agricultural companies, established in different ways and motivated by different incentives. [...] Sometimes such companies are organized under the control and with the participation of regional and/or local administrations, however in the majority of cases it is purely a private initiative.' Kuns and Visser (2016) make a distinction in this regard between 'oligarch-led' versus 'investor-led' agroholdings. The first type of companies have only a minority of shares traded on a stock exchange, while the bulk of the ownership remains in the hands of the founder of the company or an entity controlled by the founder. For 'investor-led' companies, most shares are in free-float trading.

Given the wide variety of organizational and legal forms already found in these countries, we argue that it can also be applied on some of the large corporate farms in other parts of the world as well. For instance, large-scale farming in Argentina can be organized as a trust fund (*fideicomiso*) or investor-oriented corporate farm but increasingly also a range of hybrid organizational forms for horizontal and vertical integration can be found (Senesi *et al.*, 2013). In the Brazilian cerrado, agroholdings are organized as publicly-traded corporations, privately-held corporations and family-owned hybrids, known as family groups (Chaddad, 2016). The first two models include capital structures with equity participation of outside investors, while family groups retain ownership rights only to family members.

Apart from their legal and organizational forms, the other typical feature of agroholdings is their size. Typical farm sizes of mega farms and agroholdings can reach up to 500,000 hectares and sometimes even more. Currently several of the largest land banks in the world are agroholdings and they can be found in Australia, China, North and South America and some of the countries of the Former Soviet Union (e.g. Russia, Ukraine and Kazakhstan). In Ukraine, 80 agroholdings farm about 6 million hectares; the largest of them operates more than 600,000 hectares (UCAB, 2015). In the Brazilian cerrado, 38 corporate farms and family groups with more than 30,000 hectares of planted area produced 14 million tons of grains and oilseeds in 3,5 million hectares in 2012 (Chaddad, 2016). In Argentina, the four largest agricultural companies, El Tejar, Los Grobo, Cresud and Adecoagro were estimated to control about 825,000 hectares of agricultural land in 2011-2015.¹

¹ <http://tinyurl.com/lvz6ewq>; <http://tinyurl.com/jeqvzgb>; <http://tinyurl.com/hlrsbal>.

In the United States, the Chinese owned company Smithfield Foods Inc. is estimated to produce annually around 18 million pigs, which represents more than 9% of total pig production.² These large intensive livestock operations are generally recognized to be very similar to manufacturing operations (Allen and Lueck, 1998). On the other side are the very large extensive livestock operations as found in Australia. Here, beef producers like S. Kidman & Co, Australian Agricultural Company and North Australian Pastoral, farm areas of up to 10 million hectares^{3,4} and the geographically wide dispersal of these operations is thought to help in reducing risks. Even in the European Union, where family farms prevail as a form of agricultural organization, several large agricultural enterprises emerged such as Spearhead International Ltd., with a land area of 84,300 hectares in the UK, Poland, Czech Republic, Slovakia and Romania; or KTG Agrar SE with some 45,000 hectares in Germany and Lithuania.⁵

Many of the issues of agrohholdings are therefore not necessarily due to their specific legal form, but have to do with the size of the farm and consequent farm management challenges as well. In this special issue we have brought together a number of contributions that highlight some different questions around the emergence and operations of agrohholdings:

1. How do different regional/national differences contribute to the emergence of different types of agrohholdings with different business structures, sources of capital and management structures?
2. How are horizontal and vertical coordination processes of farm production and the value chain organized?
3. How are profitability and efficiency of agrohholdings affected in different environments?

The first issue deals with the question of what factors contribute to the emergence and proliferation of agrohholdings in different parts of the world. The emergence and continued growth of agrohholdings reopens the debate in agricultural economics regarding the natural scale of farming enterprises. In contrast to other sectors, agricultural production does not seem to benefit from significant economies of scale. In fact, the negative relationship between farm size and output per area in non-mechanized agriculture has become broadly accepted in the scientific literature (Eastwood and Newell, 2010). Often cited reasons include: (1) the owner-operators of the typical family farms have proper incentives to work harder, since they are the residual claimants, but farms of a certain size require the input of hired labor that is less motivated and thus requires costly supervision; (2) family farms have a deep knowledge of local conditions, for instance regarding soil and climate, that is sometimes built up and passed along over generations; and (3) family farms are more flexible with regard to allocating superfluous labor to other off-farm economic opportunities (Allen and Lueck, 1998; Deininger *et al.*, 2013).

Discussions on the emergence of large-scale agrohholdings, therefore, investigate whether these assumptions are still valid and under what circumstances large-scale farming operations can succeed beyond the already well-established exceptions of plantations (Byerlee, 2014). The plantation model often can make use of increasing returns to scale because of the typical types of crops they usually cultivate: either perennial crops with low seasonality (that allow for year round employment and the specialization of labor and supervision of hired labor), or crops (like palm oil and sugar cane) that require close coordination of production, harvesting, transportation and processing in order to maximize processing efficiency and avoid costly deterioration of the raw material (Byerlee and Deininger, 2013). In this special issue we focus on agrohholdings that do not fit the plantation model as they mostly produce annual crops, or are involved in animal husbandry.

The growth of farm sizes can be related to various reasons that undercut the advantage of family farms. For instance, the introduction of new technologies is an important reason why farm sizes can grow over time. New technologies related to crop breeding, minimum tillage farming systems, and pest-resistant and herbicide-tolerant varieties reduce the number of production processes and make it possible to substitute capital for

² <http://tinyurl.com/glkxryz>; <http://tinyurl.com/h3eshdb>.

³ <http://tinyurl.com/zlp2oyc>.

⁴ <http://tinyurl.com/jkhoyca>.

⁵ Cf. <http://www.spearheadinternational.com> and <http://www.ktg-agrar.de>.

labor. Other types of new technology (e.g. GPS steering and information technology) make it possible to supervise hired labor more efficiently, while satellite data and remote sensing may reduce the knowledge advantage of traditional family farms about local conditions (Byerlee and Deininger, 2013). The introduction of corporate-style organizational architecture, including clear allocation of decision rights, incentive-based compensation contracts for corporate and farm managers, and performance evaluation systems, also help ameliorate some of the internal transaction (agency) costs in agroholdings (Chaddad, 2014).

Another reason is related to the extent to which changes in relative input prices can account for changes in farm sizes. One factor here is how rising wages in the non-agricultural sector have led farm operators to seek ways to attain incomes comparable to what they can obtain in other sectors of the economy (Eastwood and Newell, 2010). Normally this implies substitution of capital for labor and an increase of farm size over time in line with wage rates (Byerlee and Deininger, 2013; Kislev and Peterson, 1982). Although this is a popular explanation for changes in farm size in the US between 1930 and 1970, it no longer seems to be very compelling since manufacturing wages in the US have stagnated (in real terms) since around 1980 and farm household incomes have caught up to and exceeded non-farm incomes. Substitution of capital for labor can still be accounted for, but now through the falling costs of capital (including equipment prices as well as user costs of capital) relative to wage rates in the US (MacDonald *et al.*, 2013). This would be in line with other regions that see an increasing importance of finance related transaction and agency costs. Particularly for transition and emergent economies with rather weak financial institutions traditional family and corporate farms may suffer from credit rationing (e.g. Petrick, 2004; Zinych and Odening, 2009). The argument is that very large enterprises can overcome such limitations through direct investments from other sectors, foreign direct investments or through the access to international financial markets and this will lead to a particular advantage (Byerlee and Deininger, 2013). Indeed, many agroholdings have such a financial background.

The second research question of this special issue is how the horizontal and vertical integration processes of production are organized. Within vertically organized agricultural enterprises, the farms serve as input suppliers of processors. Within horizontally organized agricultural enterprises, a management company operates different farms at different geographical locations. Vertical integration can be found in the livestock sector, while horizontally organized firms can be found in crop farming. However, agroholdings are usually part of a mixed form with both horizontal and vertical integration of agricultural production. According to Byerlee and Deininger (2013), the recent trends in the certification of agricultural value chains with regard to food safety and environmental standards provides an opportunity for agroholdings because of the associated high fixed costs of the certification process and the need to preserve product identity through the supply chain. They add that integration is also a strategy that helps to overcome some of the aforementioned institutional weaknesses and market failures in some countries, leading to lower transaction costs and better prices. For instance, the emergence of agroholdings in the countries of the Former Soviet Union has less to do with economies of scale and more to do with some of the institutional weaknesses of these countries and a governmental predisposition for large farms in order to provide national food security (Wandel, 2009). On the other hand, government intervention in land policy and subsidies can also reduce average farm sizes below what could be expected without government intervention (Binswanger *et al.*, 1993).

The third question in this special issue has to do with the governance and profitability of agroholdings. Historical examples include the rise and collapse of large-scale corporate farms, such as the Bonanza wheat farms that were established in North-Dakota and Minnesota at the end of the 19th century. The rise of these farms was linked to new technological developments in the mechanization of agricultural production and efficient transportation routes with the availability of new railroad tracks (Benton, 1925; Drache, 1964). In the end however, these corporate farms proved very vulnerable for economic boom-and-bust cycles. The rise and decline of the Bonanza farms thus seems to show some parallels with their modern day equivalent, the agroholdings, because despite their promise and a lot of hype many agroholdings are facing substantial difficulties in turning a profit. Issues to be addressed include productivity deficits, the internal transaction (agency) costs and financial risks related to the increased dependence on local and international financial markets (Balmann *et al.*, 2013; Lapa *et al.*, 2015). Kuns *et al.* (2016) explain how some of these problems

are related to a lack of understanding of outside investors in agroholdings of the specific nature of (local) agricultural production that often lead to an initial prioritization of short-term speculative strategies over longer-term production-oriented strategies. A related question is what kind of organizational structure and management strategies may overcome the challenges of managing large-scale farms, in particular human resources management. In addition, questions arise with regard to the quality of corporate governance in agroholdings. Kuns and Visser (2016) put that there is a great diversity in corporate governance practices agroholdings, with some agroholdings performing badly, while others belong to the best led and most transparent organizations in their region. An important question regarding corporate governance is therefore how to manage farm labor and corporate managers, and which kind of incentive and control mechanisms contribute to both good governance and the profitability of the firm.

3. Papers in this special issue

This special issue contains a number of papers that address these three questions in different parts of the world. The papers by Plunkett *et al.* (2017) and Huang *et al.* (2017) are intended to provide an overview of the development of agroholdings and large-scale farms in Australia and China, respectively. These two countries can be seen as two more or less opposites as it comes to government intervention in agriculture. The short paper by Plunkett *et al.* argues in this regard that the relatively low level of public subsidies for agriculture combined with low productivity gains and the absence of competing land uses in much of regional Australia makes farmland relatively cheap, thereby allowing larger sizes of farms. However, the paper shows the impact of climatic circumstances in explaining the pattern of agroholdings and family farms in relation to the geographic factor of climate variability within Australia. The paper thus calls attention to the effects of climate change on the (limited) future development of agroholdings in certain areas that will likely suffer from increased climate variability. The paper by Huang *et al.* (2017) provides an overview of the historical government policies regulating the agricultural sector. The paper reviews the recent scale development of farming operations in China based on cases taken from Zhejiang province. The paper identifies two trends that have contributed to increasing scale operations in China. The first is based on the concentration of farmland due to transfer of farmland management rights and the establishment of farmland shareholder cooperatives. The second is related to the agricultural service system that encourages technology intensive types of production often promoted by the government.

The paper by Chaddad and Valentinov (2017) focuses on the relationship between farm size and organization of crop production by juxtaposing it to the property rights structure of corporations from other sectors. They describe and analyze the management and ownership structures of three large Brazilian corporate farms. In addition, they show the role of advanced farm technologies in enabling the rise of large corporate farms in the Brazilian agricultural frontier. New technologies not only affect crop production, but also help to generate technical solutions to the internal challenges of managing a large corporate farm. Coupled with corporate-style organizational architectures, these new technologies help ameliorate pervasive agency costs in large-scale farming entities.

The paper by Senesi *et al.* (2017) investigates the process of horizontal and vertical coordination organized as networks in the case of Argentina. The authors investigate hybrid forms of agricultural production by studying what these informal temporal networks in Argentina look like and how they have developed as compared to the corporate farms that could also be found in Argentina in the same time period. They highlight the importance of such integration to combat the institutional uncertainty that pervaded Argentinian agricultural sector and show how agroholdings can grow out of these hybrid networks of agricultural production.

The paper by Petrick (2017) takes economic agency theory in agroholdings as the starting point for discussion. It makes an assessment of the effects of different pay systems on the productivity and profitability of these farms by making a comparison between the developments in Eastern Germany and Kazakhstan. The author presents a framework to evaluate agricultural pay systems specifically for large farms. The paper concludes that farms in both countries seem to work well under mixed bonus systems combining a time rate with a

simple performance pay scheme, as it balances the trade-off between productivity and cost. Differently from their Kazakhstani counterparts, East German managers pay a lot of attention to non-wage incentives. Managers tend to move away from the Soviet piece rate system if external investors become engaged in farming operations and if farms specialize in crop rather than livestock production.

Finally, the paper by Gagalyuk (2017) delves further into the performance of agroholdings and asks how agricultural corporations can capitalize on being transparent in weak institutional environments that are characterized by imperfect capital and land markets. The author demonstrates that the issue of top management opportunism can persist in such environments even despite higher requirements toward mandatory disclosure that are imposed by participation in international equity markets. However, the use of effective corporate governance mechanisms, coupled with voluntary disclosure and corporate citizenship initiatives, increases the competitiveness of agroholdings as it helps to preserve access to international equity markets and to reduce uncertainty arising from local market imperfections.

4. Toward a research agenda

The papers in this special issue only inform on some of the issues and challenges related to the emergence and operation of agroholdings. This special issue is therefore only the beginning of an intensified investigation of agroholdings. In what follows, we provide an overview of some of the open questions that should be included in a future research agenda on agroholdings and corporate mega farms.

The interplay between farm size, integration, geographical and institutional frameworks

In the debate on global 'land grabbing' in agriculture, it is increasingly recognized that the social benefits of large-scale agricultural investments in land are highly dependent on the institutional frameworks for land ownership and land management that exist in different countries (Deininger and Byerlee, 2011). Analysis of legal and spatial aspects of access to land, implementation of new production and management technologies as well as their socio-economic effects become key questions for assessing the impacts of investments. The social benefit of large-scale agricultural investments is also highly dependent on the institutional frameworks for land use, human capital development, and implementation of production and management technologies (Petrick *et al.*, 2013). Ideally, further research should address these questions at the regional and farm levels. At the regional level, it would be necessary to analyze how existing institutional conditions affect different stakeholders (management, employees, rural communities, etc.) of large agricultural enterprises. This type of analysis would help to clarify under which conditions large-scale investments and the emergence of large farms contributes to positive social effects. At the farm level, research should aim to better understand how internal governance structures (e.g. intra-farm coordination, management supervision, etc.) and transaction costs (e.g. labor supervision costs, combatting theft, human resource management, etc.) affect the performance of large farms and which conditions (e.g. implementation of new monitoring technologies and organizational architecture) reduce these costs. The obtained results will essentially contribute to the literature on land management, transaction costs and human resource development.

Organizational structure and performance of mega farms

Further research should also address the issue of economic and financial sustainability of large farms by analyzing the interrelationships between financial strategies, access to capital, economic performance and structural characteristics such as organizational and corporate governance structures of large farms. In conditions of constrained credit markets, the greater dependency of large farms on internal funds for investments can be assumed to restrict desired investment levels (Swinnen and Gow, 1999; Zinych and Odening, 2009). However, many large farms have reached a size that makes their access to equity markets possible. Indeed, some of them have successfully undergone listing in international stock markets (Chaddad, 2014; UCAB, 2015). The possible implications for the stability of these companies, as well as for the risks to current and potential investors, are one of the main motivations of further research. This research could be

closely related to the research direction under the last point of discussion, which focuses on interrelationships of governance structures and distributional justice as well as on labor supervision and transaction costs, targeting the question of whether the comparative advantages of large farms fully lie in their ability to overcome challenges caused by non-functioning markets. This research will particularly contribute to the literature on strategic management and corporate governance.

The role of technology and innovation

Although it is acknowledged in the literature that technological development can both help in streamlining primary production processes and facilitate the management of large agricultural operations, most studies focus on the issue of technology transfer and technology adoption. However, current innovation literature not only points to the importance of diffusion and adoption of technologies, but also stresses that innovations themselves are not fixed and they can change over time, between different regions and at different scales and levels (Hermans *et al.*, 2016), thus shifting the attention from processes of transfer to processes of ‘translation’ of technology in different contexts (Garb and Friedlander, 2014). The process of ‘co-evolution’ of technology development and its institutional environment has remained underappreciated in the literature of agroholdings so far. The emergence of agroholdings in certain regions, for instance in South America, with the introduction of conservation tillage and new genetically modified organism-seed varieties can provide interesting examples of how technology, institutions and agriculture influence each other.

The socio-political and ethical aspects of large scale agricultural production

Large-scale farms are subject of an intense societal and political debate. The establishment of large scale farms may come under intense public opposition of the local population as well as campaigns led by non-governmental organizations (Beers *et al.*, 2014). An important element of such political processes is related to images and discourses about the place of the farm within the countryside (Hermans *et al.*, 2009) and agroholdings, especially some horizontally integrated operations that grew out of family run businesses, challenge the ‘agri-ruralist’ discourse of the traditional family farm that still dominates many western countries (Frouws, 1998). This debate often involves discussions about perceptions of scale: when does a large scale farm becomes a ‘mega farm’ (Van Lieshout *et al.*, 2011).

One of the most striking features of large farms is their power, which originates from their size, resource base as well as political connections, particularly on the local level and in the rural development context (Gagalyuk *et al.*, 2013). As this power is held privately, it necessarily raises important ethical and societal issues related to the compatibility of large farms with democratic values (Binswanger *et al.*, 1993). Being disposed to such discourses, large farms may implement social responsibility strategies in order to address the ethical dimension of their operations. Both external and internal dimensions of the ethical implications should be analyzed in-depth. The external dimension includes aspects such as corporate social responsibility, reputation, transparency, stakeholder management, and advocacy activities of large farms. The internal dimension addresses agency problems such as trust, social capital, employee rights and ‘organizational citizenship behavior’ within large farms as they are generally exposed to higher opportunism than traditional family farms (Allen and Lueck, 1998).

For the non-industrialized countries, the issue of large-scale farms is often closely connected to the issue of land grabbing and the relation of agroholdings with subsistence farmers in their direct environment. Land reform in many countries including former socialist countries in Eastern Europe have not always benefitted local smallholders, but instead has allowed outside operators to purchase large pieces of land, causing unemployment and the creation of a class of landless unemployed workers without alternative employment opportunities (De Schutter, 2011; Visser *et al.*, 2012;). Moreover, such operations may gather considerable political clout, influencing political processes in their favor, distorting market forces and locking out alternative types of farms. The question of how mega farms can fit within regional development strategies (as opposed to the national export oriented strategy alone) is of special interest.

5. Conclusions

Large farms are quite visible today and will likely become more widespread and important in the future. However, in-depth insights into the ownership and organizational architecture settings that facilitate these effects are still missing. Empirical evidence suggests that corporate agriculture based on many hired workers under a centralized management authority attracts outside capital and displays remarkable growth rates, a fact which cannot be explained with existing theories and requires further empirical and theoretical investigation. The papers in this special issue form a first step toward a better understanding of the emergence and operation of such agroholdings.

Post script

On Thursday, November 24, 2016, Dr. Fabio R. Chaddad, one of the guest editors of this special issue and a member of the editorial board of the *International Food and Agribusiness Management Review* passed away in St. Louis, Missouri, at the age of 46. He was affiliated with the department of Agricultural and Applied Economics at the University of Missouri and Insper in São Paulo, Brazil.

Fabio was an internationally renowned expert and scholar with wide-ranging interests in the global agribusiness sector. He was also intimately involved in the conception and editing of this special issue: organizing the pre-conference workshop in Milan on which this special issue was built, contributed his own paper and edited and reviewed the contribution of other authors, including this last part of the special issue: the editorial.

We dedicate this special issue to his memory.

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