

Pierre Gasselin · Sylvie Lardon · Claire Cerdan ·
Salma Loudiyi · Denis Sautier
Editors

Coexistence and Confrontation of Agricultural and Food Models

A New Paradigm of Territorial Development?

Foreword by Jan Douwe van der Ploeg
With the Editorial Support of Sylvie Zasser

éditions
Quæ

Éditions Cirad, Ifremer, INRAE
www.quae.com

 Springer

Editors

Pierre Gasselin
UMR Innovation
INRAE
Montpellier, France

Sylvie Lardon
UMR Territoires
INRAE and AgroParisTech
Aubière, France

Claire Cerdan
UMR Innovation
CIRAD
Saint Pierre, Réunion, France

Salma Loudiyi
UMR Territoires
VetAgro Sup
Lempdes, France

Denis Sautier
UMR Innovation
CIRAD
Montpellier, France

Section Editor

Sylvie Zasser
INRAE
Castanet-Tolosan, France

Translated by

Kim Agrawal
SAICE
Pondicherry, India

ISBN 978-94-024-2177-4 ISBN 978-94-024-2178-1 (eBook)
<https://doi.org/10.1007/978-94-024-2178-1>

Jointly published with Éditions Quæ
Éditions Quæ, RD10, 78026 Versailles cedex, France

Translation from the French language edition: “Coexistence et confrontation des modèles agricoles et alimentaires” by Pierre Gasselin, Sylvie Lardon, Claire Cerdan, Salma Loudiyi, and Denis Sautier, © Éditions Quæ 2021. Published by Éditions Quæ, Versailles, France. All Rights Reserved.

© Éditions Quæ 2023

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors, and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature B.V.
The registered company address is: Van Godewijkstraat 30, 3311 GX Dordrecht, The Netherlands

Productive and Territorial Specialisation: A Hindrance or a Resource?

Introduction to Part I

Pierre Gasselin and Denis Sautier

The first part of this book examines specialisation and diversification, concepts commonly used to qualify the economic or ecological processes that differentiate agricultural and food systems. These concepts can also apply to transformations of a territory, depending on whether the territory evolves towards the domination by a productive activity or, on the contrary, towards a greater plurality of functions. We define a territory as specialised when the vast majority of systems of production and of derivation of value from products are part of the same development model. Conversely, the diversification of activities in a territory implies the presence of a plurality of systems which are part of development models with different orientations.

In this introduction to the first part of the book, we first recall the historical trajectory of the ‘specialisation vs diversification’ controversy, followed by a discussion of the positive and negative effects of specialisation and of diversification at the socio-economic and socio-ecological levels. This review of the debate leads us to conclude that the processes of specialisation or diversification are still too little studied through the prism of the situations of coexistence of agricultural and food models, thus raising new questions in the field. We then introduce the three chapters of this book that deal with specialisation and diversification, and we conclude with a comparative reading according to the analytical framework of situations of coexistence and the general hypotheses proposed.

Overview of Analytical Frameworks and Hypotheses

Modernising Paradigm Versus Sustainable Development

The process of productive specialisation was one of the drivers of the modernising paradigm of agriculture in the latter half of the twentieth century. It was also bolstered in the countries of the Global North by price stabilisation mechanisms (Allaire & Daviron, 2019). The debate between specialisation and diversification first emerged

in the 1970s with a strong focus on social issues of dependence and of the loss of autonomy of farms and rural spaces (Kayser, 1992). However, observing and evaluating specialisation requires precise definitions and methodological precautions, given the different possible scales of analysis: farms, rural territories and sectoral organisation (Mathieu, 1985). In the present century, the ‘specialisation vs diversification’ controversy has intensified with the rise of the concept of sustainable development, focusing on a key question: How can agricultural production be reconciled with the preservation of natural spaces and land use in a global context of pressure on resources and accelerating biodiversity loss?

Economies of Scale Versus Autonomy and Resilience

At the socio-economic level, the respective merits of the specialisation and diversification processes oppose each other (Mathieu, 1984). The specialisation of rural spaces or productive activities has been advocated in pursuit of economies of scale, economic integration, low food prices or even agglomeration externalities (Antoine, 2016). For its part, diversification is frequently defended for the sake of the advantages of complementarity and the autonomy or resilience that are associated with it (Suryanata, 2002; de Roest et al., 2018). Some observers advocate the specialisation of spaces and forms of production in order to intensify, while correcting and compensating for the possible negative effects of such a specialisation (Pingali, 2012). Others prefer instead the integration of agriculture’s multiple functions with a diversification of farms and landscapes (IPES-Food, 2016). This debate can be extended to the organisation of food production, the organisation of rural spaces, ecological intensification, and the conservation of the environment.

Land Sparing Versus Land Sharing

At the socio-ecological level, two ideal types can be considered to manage a territory and its resources: ‘We can distinguish a first model, qualified as “segregationist”, separating what can be cultivated from what should not be from the point of view of environmental protection, in which “natural” processes will nevertheless have to be managed. [...] From another point of view, a model that can be described as “integrationist” combines ecological and productive functions of agro-ecosystems in the same territory’ (Agrimonde, 2009, p. 31). The first approach divides the territory into spaces dedicated to intensive agriculture, on the one hand, and to the preservation of natural environments, on the other. The second proposes the conception of a diversity and complementarity of forms of agriculture arranged to create ecological mosaics producing various ecosystem services. This debate on the best way to protect nature has been structured around the notions of ‘land sparing’ and ‘land sharing’ (Green et al., 2005; Byerlee et al., 2014). The proponents of land sparing hypothesise that

high-yield agriculture, based on advanced technology and industrial inputs, is the best way to produce on limited areas and therefore can best preserve large uninhabited nature reserves sustainably (Green et al., 2005). Conversely, the advocates of land sharing do not believe in isolated protected spaces surrounded by regions inhospitable to biodiversity. According to them, ‘to avoid ecosystem collapse, we must integrate biodiversity conservation throughout the landscape we use’ (Kremen & Merenlender 2018). A tension definitely exists between these two types of intervention. However, a compromise was subsequently reached between these streams of thought, according to which the choice of approach would depend in part on the scale (Fischer et al., 2014). Proponents of land sparing agree that ‘land sparing and land sharing describe two ends of a continuum of intentional spatial organisation of food production and biodiversity conservation: whether separated or integrated’ (Phalan, 2018). For their part, the advocates of land sharing recognise the importance of the traditional protected area approach, but they argue that the range of tools available to maintain biodiversity in more or less anthropised areas must include an agroecological approach to cultivated spaces (Kremen & Merenlender, 2018).

Hypotheses and Major Questions

This brief overview of the debate shows that the issues are not framed in terms of the coexistence or confrontation of territorial agricultural and food models, which nevertheless drive the processes of domination or diversity, and aggregation or dispersion (of actors, of productive and/or spatial arrangements, etc.). It should be remembered that a situation of coexistence or confrontation of agricultural and food models has to be examined in terms of the interactions between actors or systems around particular objects in a given setting. Analysis of these interactions sheds new light on specialisation and diversification processes, which leads us to propose three hypotheses to test in future research and to raise associated questions:

Hypothesis 1: *Specialisation and diversification are not always in opposition, but can follow one another, combine together or be nested, depending on the scale (spatial, temporal, social) under consideration.* Indeed, the issues of specialisation and diversification can be expressed differently at the scale of the farm, the territory, the sector, the production basin, etc. The articulation of these scales is essential. In order to endure sustainably, how can specialised systems be made to take into account and maintain the diversity of a territory’s resources? How do successful diversification trajectories borrow elements of innovation from the specialisation model? Is the diversification of productive spaces not based on a certain level of farm specialisation, for example, by relying on acquired professional skills to expand farms towards new activities or new markets?

Hypothesis 2: *Diversification and specialisation are differentiated by different power relationships.* What are the forms of power in a territory around agricultural and food issues? Is specialisation a process of internal organisation or is it a progressive subordination to an ordered pattern of decision-making and functioning? Is diversification underpinned by a plurality of powers in the territory concerned or by the absence of a common project? Does it necessarily lead to a multifunctional balance between activities?

Hypothesis 3: *Both for specialisation as well as for diversification, there are intended evolutions, of course, but territorial actors also undergo evolutions.* The determinants are not necessarily found at the territorial scale, because the dynamics of markets and of macro-economic actors (firms, States) shape these processes to a large extent (van der Ploeg et al., 2008). Diversification, for example, can either result from an active and deliberate strategy or, on the contrary, passively reflect the lack of structuring opportunities. While the coexistence of models in a territory can result in conflicts and synergies, it can also lead to ignorance or mutual tolerance. How does competition over resources (land, water, labour) crystallise tensions between these models? What roles do the representations that actors have of specialisation and diversification play? In which cases is the territory the sole determinant of the dynamics of specialisation or diversification?

The multiple interactions between combinations of specialisation and diversification and their territorial effects deserve to be better examined. Thus, taking the coexistence and confrontations of agricultural and food models into account makes it possible to revisit the debate on the opposition between specialisation and diversification at the territorial scale. It shows dialectical relationships between these two processes and, above all, it leads to the necessity of better articulating different temporal, spatial and actor-organisation scales.

Testing in the Field

Following this short review of the scientific literature and the central hypotheses that arise from it, we present the three chapters that form this part of the book. They analyse the tensions between specialisation and diversification in situations of coexistence of agricultural and food models at the territorial level. The first chapter is a case study of pig and poultry production in southern Brazil, while the second compares five milksheds in South America and France. The last chapter is a panoramic reflection of territorial economics on the specialisation of agricultural and rural Europe. The synthesis of these studies leads us to undertake a comparative analysis that highlights their common points and divergences.

Three Illustrations

In the first chapter, Claire Cerdan analyses the processes of specialisation and diversification of food systems in Santa Catarina state, in southern Brazil. In the 1970s, integrated pig and poultry for meat production was organised in a win-win relationship between agro-industries and multi-crop-livestock family farming with the support of public authorities and the training of workers by industry. In the 1980s and 1990s, the international-level agro-industries consolidated through a process of intensification, increased specialisation and concentration of activities. Farmers lost their autonomy and more than two-thirds of pig farmers disappeared in a period of 15 years. From the 1990s onwards, agro-industries implemented new diversification strategies within and outside the territory to make their industrial units profitable, while diversifying their range of offerings (frozen products and ready meals). With the support of public authorities, trade unions and social movements promoted the diversification projects of farmers who were excluded from the agro-industrial integration model or of those who refused to be part of it. These artisanal projects benefited not only from traditional knowledge but also from the know-how acquired during years of specialisation in farms and industries. The exclusion of a large number of livestock farmers called into question the idea of a territory specialised by an integrated agro-industrial model. Producers developed small-scale processing, while continuing to raise animals for industry. At the end of the 2000s, a 'passive (or peaceful) coexistence between the agro-industrial model and the on-farm and artisanal production model' was organised. Unlike other Brazilian regions, this region has been able to retain its working population due to the presence of the food industries. This population is now the main market for family agribusinesses. Claire Cerdan considers that this case study 'confirms the hypothesis that diversification and specialisation are part of the same process of adaptation of productive spaces to the global system'.

In the second chapter, Martine Napoléone, Marie Houdart and Guillaume Duteurtre discuss three archetypal development pathways of dairy activities in five contrasting rural territories in South America and France. The authors attempt to identify the main factors impacting the dynamics of specialisation and diversification in these territories. They identify and characterise three types of milksheds: those dominated by industrialised forms of development, which are part of a globalised development model (Salto in Uruguay); those dominated by territorialised forms, which are part of a territorialised development model (Brasil Novo in Brazil); and those in which different forms of development coexist, which belong to both the aforementioned development models (Livradois-Forez, Cévennes and Drôme Provençale in France). The authors consider that the processes of specialisation and diversification are sometimes driven more by food demand and influenced by the territorial resources available than by adaptation to global change. Thus, specialisation can apply both to globalised models (Salto) as well as to territorialised ones (Brasil Novo). Moreover, the coexistence of models may result from different dynamics of specialisation: in France, the different models are spatially distributed over the territory, whereas in Uruguay, an agro-industrial model and a territorialised model are superimposed

on the same space. The authors also show that diversification and specialisation trajectories can be analysed as a combination of market dynamics and the action of strategic actors (firms, States, professional organisations or civil society). In line with DuPuis & Block (2008), the authors confirm that specialisation and diversification are not solely an adaptation to the globalised market. Finally, they categorise three situations: agro-industrial development geared towards the production of commodities; dynamics that are conducive to the commercial positioning of agro-industrial processors in the long supply chains of national or regional mass distribution entities; and finally, a territorial logic with little connection to world markets or supermarket chains, in which the territory's dairy supply meets the demand for products arising from local relationships. However, they believe that 'while some territories are favourable to the expression of several forms of development, others are not', depending on the characteristics of territorial resources and food demands.

In the third chapter, Frederic Wallet offers a panoramic reflection on the evolution and coexistence of agricultural production models in the light of European knowledge and policies on regional specialisation. He notes that low energy prices, the search for economies of scale and the criteria for granting aid help explain productive specialisation in France. This is marked by a geographical dissociation of crop and livestock production, a massive decrease in the number of farms and a concentration of agri-food industries that capture most of the added value. Frederic Wallet emphasises that the many alternatives (short supply chains, organic farming, etc.) to the dominant model 'make up a complex array of production and distribution models for food products and services', which makes uniform or sectoral policies irrelevant. On the basis of this observation, European territorial development policies with a 2025 horizon have adopted a 'place-based' logic. These 'smart specialisation and growth' policies have the goal of offering a differentiated development of territories depending on their resources, their technological capacities and their modes of organisation. It is a matter of promoting sectors of activity in which regions have a competitive advantage over others, without, however, losing the 'related variety' (i.e. interconnected and complementary activities). This consists of combining specialisation with a coherent diversity of sectors in order to take advantage of the processes of production and knowledge dissemination and thus stimulate innovation between various value chains. However, these 'smart specialisation' strategies are more favourable to metropolitan areas than to rural territories, which struggle to benefit from scale effects. The conditions for the success of smart growth policies in rural spaces include the fight against land competition and specialisation, on the one hand, and well-structured agricultural and food innovation systems, on the other. Finally, Frederic Wallet discusses the processes of coexistence marked by the mechanisms for allocating aid and land, as also by oppositions between the value systems underpinning the different agricultural models. He calls for the modification of regulatory mechanisms to reduce the asymmetries of resources, market configurations and public intervention mechanisms, which still clearly favour a dominant form of agriculture.

In this way, he argues that smart specialisation ‘will only prove beneficial to agricultural value chains and the rural economy if it allows the full expression of the transformative potential of the dynamic co-evolution of the various agricultural and food models’.

Comparative Reading

Combined Specialisation and Diversification

These three chapters mobilise analytical frameworks from various disciplines, in particular rural geography, agro-economics and territorial economics. They also situate productive and territorial specialisation in a historical movement: since 1970 for Claire Cerdan; at the earliest since the 1930s for Martine Napoléone, Marie Houdart and Guillaume Duteurtre; and since the 2000s for Frederic Wallet. To do so, the authors rely on various diachronic approaches: a historical trajectory of the region, with particular attention to the power relations between actors and the interactions between different development models (Cerdan); specialisation pathways divided into a sequence of periods with a view to chronicling the transformation of dairy activities within a territory and identifying explanatory factors (Napoléone et al.); and the analysis of the emergence of alternative agricultural models and the mutations of territorial development policies (Wallet). These temporal perspectives lead these authors to highlight, in each of their respective chapters, that there are different types of specialisation: ‘dual process of specialisation/diversification’ and ‘flexible specialisation’ (Cerdan), ‘agro-industrial specialisation’ and ‘territorialised specialisation’ (Napoléone et al.), ‘open specialisation’ and ‘smart specialisation’ (Wallet). In so doing, they confirm our first hypothesis which is that *specialisation and diversification are not always in opposition, but can follow one another, combine together or be nested, depending on the scale (spatial, temporal, social) under consideration*.

Choice or Submission?

The historical trajectories also allow these authors to identify the main determinants of the process of specialisation. Their analyses converge to a large extent and point to the deregulation of markets and the opening up of borders; public aid directed to agro-industries favouring the concentration of value chains and integration; land-use planning facilitating commodity flows; certain networks of actors (particularly between agro-industries); and foreign private investment. In addition, Napoléone et al. emphasise the extent to which the characteristics of demand are also determinants of specialisation or diversification (commodities for international trade; generic products for distribution through national or regional long supply chains;

products with a quality label and/or originating from a particular area for distribution in regional, or even national, long supply chains; food produced in proximity (geographical or organisational) to consumers). The underlying or explicit rationales for specialisation are the search for better productivity of production factors through economies of scale and cost reductions (in industries, land structures, seed markets, distribution, etc.).

These three chapters also highlight the importance of the State's role in productive and territorial specialisation and diversification. In Brazil's Santa Catarina state (chapter by Claire Cerdan), public actors first encouraged specialisation by setting up a research centre specialising in agro-industrial meat production in 1975. In 1996, they began hosting an international food industry fair, which showcases regional industrial know-how and a network of service providers. 'This fair reflects the dual process of specialisation/diversification underway in the region'. Later on, public programmes and the research centre for family farming encouraged the professionalisation of family farming and the growth in a number of small-scale processing units, some of which were associated with the agro-industry network. In the Salto milkshed in Uruguay (chapter by Martine Napoléone et al.), specialisation towards an agro-industrial model is taking place in a landlocked region with no dairy tradition thanks to the support of the State, which invested between the 1930s and 1980s in infrastructure and dairy industries oriented towards supplying the city of Salto with standard products. In contrast, the State only intervened to support a 'horizontal' territorial specialisation already undertaken by the actors in the Brasil Novo milkshed in Brazil. In Europe (chapter by Frederic Wallet), the criteria for allocating aid have largely contributed to territorial specialisation and concentration. Moreover, the mechanisms for uniform intervention in all territories have shown their limitations. As a result, the new regional development policies propose an alternative based on the recognition of the importance of regional particularities according to a principle of 'smart specialisation'. Thus, these three chapters confirm our third hypothesis which states that *both for specialisation and for diversification, there are intended evolutions, of course, but territorial actors also undergo evolutions.*

Towards Moderate Specialisations?

These three studies are also unanimous in criticising the disadvantages of excessive specialisation, in particular the sociotechnical lock-in by systems of standards and networks of actors established during specialisation (which leaves little room for alternatives and innovations), the increase in farm size (which generates social and economic exclusion), the disappearance of small and medium-sized agrifood businesses, and the capture of a growing share of added value along the entire lengths of value chains. But it is all a matter of extent. Indeed, all three studies are in favour of moderate specialisation. Claire Cerdan praises the synergies between specialised industries, which represent a source of employment, and numerous alternative micro-activities. These complementarities have stabilised the working population in rural areas as well as in urban and peri-urban areas, which is now the main market for family agro-industries. Martine Napoléone et al. note the benefits of a territorial

specialisation of activities in Brasil Novo, Brazil. This is achieved thanks to ‘horizontal relations between different actors who undertake their activities following the same logic of territorial anchoring’. Frederic Wallet, for his part, considers that the ‘related variety’, linking specialisation to a diversity of interconnected and complementary activities, is a favourable path for territorial development in Europe, even though he underscores the many conditions necessary for this ‘smart specialisation’ to succeed. The three studies call for a deepening of our second hypothesis, which states that *diversification and specialisation are differentiated by different power relations*. Indeed, these three chapters show that specialisation and diversification can be both a process of internal organisation and subordination to an ordered pattern of decision-making. Thus, specialisation can apply to both globalised and territorialised models.

The Coexistence of Models is Not Self-evident

These three studies describe the interactions between agricultural and food models in their territories. In the Brazilian state of Santa Catarina, Claire Cerdan notes that while there were ‘win-win’ relationships between family farmers and agribusinesses in the 1970s and 1980s, the advantage shifted in the 1990s to equipment suppliers, agribusinesses and maize distributors. The losers were the farmers who had to bear the costs of the intensive production model. At the end of the 2000s, solidarity started being established, with ethical and sustainable development values coexisting peacefully between the agro-industrial model and the family farming and artisanal production model. Martine Napoléone et al. show that specialisation can lead to a spatial distribution of various agricultural models within a territory (French case) or, as in Salto (Uruguay), to the exclusion of certain actors from the agro-industrial model and to coexistence in the same territory. Frederic Wallet focuses his attention on the hybridisation of practices and resources, the competition in the mechanisms for allocation of aid or land and the opposition between value systems. He invites us to consider the processes of coexistence from a transition perspective and to set up appropriate governance mechanisms to support initiatives that respond to local issues.

Conclusion

A diversity of agricultural and food models in a territory can appear to be propitious to increases in the capacities for innovation and for taking initiatives. However, the coexistence of models does not guarantee sustainable development. As Frederic Wallet points out, ‘Some niches are oriented more towards a posture of resistance or a rationale of subsistence than they are towards unseating the industrialised and globalised agricultural model’. Thus, moderate and horizontal specialisation, whether ‘smart’ or ‘territorial’, implies that the coexistence and confrontation of agricultural and food models, and therefore of their interactions, have to be managed.

The chapters in this part of the book help to inform the three major hypotheses we are proposing, which encourages us to put them on our research agenda. Research on the coexistence and confrontation of agricultural and food models is renewing our understanding of the forms, determinants and impacts of processes of productive and territorial specialisation and diversification. However, these studies leave the door open to new research on topics that have not been studied much in this book, for example the analysis of specialisation and diversification of socio-ecological systems and the examination of their resilience.

References

- Agrimonde (Eds.) (2009). *Agricultures et alimentation du monde en 2050: scénarios et défis pour un développement durable*, Report of the working group (February 2009) (p. 194). Inra-Cirad.
- Allaire, G., & Daviron, B. (2019). *Ecology, capitalism and the new agricultural economy: The second great transformation* (p. 194). Routledge.
- Antoine, A. (Ed.) (2016). *Agricultural specialisation and rural patterns of development* (p. 304). Brepols Publishers.
- Byerlee, D., Stevenson, J., & Villoria, N. (2014). Does intensification slow crop land expansion or encourage deforestation? *Global Food Security*, 3(2), 92–98.
- DuPuis, E. M., & Block, D. (2008). Sustainability and scale: US milk-market orders as relocalization policy. *Environment and Planning A*, 40(8), 1987–2005.
- Fischer, J., Abson, D. J., Butsic, V., Chappell, M. J., Ekroos, J., Hanspach, J., Kuemmerle, T., Smith, H. G., & von Wehrden, H. (2014). Land sparing *versus* land sharing: Moving forward. *Conservation Letters*, 7(3), 149–157.
- Green, R. E., Cornell, S. J., Scharlemann, J. P., & Balmford, A. (2005). Farming and the fate of wild nature. *Science*, 307(5709), 550–555.
- IPES-Food (2016). *De l'uniformité à la diversité: Changer de paradigme pour passer de l'agriculture industrielle à des systèmes agroécologiques diversifiés* (p. 110). International Panel of Experts on Sustainable Food Systems.
- Kayser, B. (Eds.) (1992). *Naissance de nouvelles campagnes*, (p. 175). coll. Monde en cours, Éditions de l'Aube/Datar.
- Kremen, C., & Merenlender, A. (2018). Landscapes that work for biodiversity and people. *Science*, 362(6412), eaau6020.
- Mathieu, N. (1984). Mécanismes et limites des processus de spécialisation, diversification de l'espace rural. *Économie rurale*, 162(1), 31–32.
- Mathieu, N. (1985). Un nouveau modèle d'analyse des transformations en cours: La diversification-spécialisation de l'espace rural français. *Économie rurale*, 166(1), 38–44.
- Phalan, B. T. (2018). What have we learned from the land sparing-sharing model? *Sustainability*, 10(6), 1760.
- Pingali, P. L. (2012). Green revolution: Impacts, limits, and the path ahead. *Proceedings of the National Academy of Sciences*, 109(31), 12302–12308.
- Roest, K., Ferrari, P., & Knickel, K. (2018). Specialisation and economies of scale or diversification and economies of scope? Assessing different agricultural development pathways. *Journal of Rural Studies*, 59, 222–231.
- Suryanata, K. (2002). Diversified agriculture, land use, and agrofood networks in Hawaii. *Economic Geography*, 78(1), 71–86.
- van der Ploeg, J. D., van Broekhuizen, R., Brunori, G., Sonnino, R., Knickel, K., Tisenkopfs, T., & Oostindië, H. (2008). Towards a framework for understanding regional rural development. In J. D. van der Ploeg, & T. K. Marsden (Eds.), *Unfolding webs: The dynamics of regional rural development* (pp. 1–28). Koninklijke Van Gorcum.