



Review

The second middle: Conducers and the agrifood economy

Katharine Legun ^{a,*}, Michael M. Bell ^b^a Department of Sociology, Gender and Social Work, Centre for Sustainability: Agriculture, Food, Energy, Environment (CSAFE), 280 Leith Walk, University of Otago, Dunedin 9010, New Zealand^b Department of Community and Environmental Sociology, University of Wisconsin-Madison, 1450 Linden Drive, Madison, WI 53706, USA

ARTICLE INFO

Article history:

Received 4 March 2016

Received in revised form

4 October 2016

Accepted 14 October 2016

Keywords:

Conducers

Institutions

Performativity

Narratives

Organizations

Assemblages

Middle industries

Mid-sized

Alternative food networks

Processors

Suppliers

ABSTRACT

Academic interest in food has increased over the last decade with heated debates over organic agriculture, local food, and the globalization of the food economy. While much of this research gravitates towards producers and consumers, there is also growing interest in the economic activities that are performed in-between these two ends. In this paper, we will argue that there is a need to develop stronger discussions engaged with the economic middle broadly and a theoretical framework with which to think through middle industries. We offer the word *conducers* to categorize economic actors engaged in these middle industries and develop a theory of conduction that can be used to critically approach their activities and organization. Building an approach around practice, performance and the politics of narration, we further conceptualize the role of *conducers* and conduction, and describe how they contribute to our understanding of rigidity and change in the food industry.

© 2016 Published by Elsevier Ltd.

Contents

1. Introduction: the state of the middle	104
2. Farms and markets: A need for <i>conducers</i> and a critique of their devaluation	107
3. Theorizing <i>conducers</i> : what it is to conduce	108
3.1. Conduction as practice	108
3.2. Conduction as performance	108
3.3. Conduction as politics	109
4. Critical conduction for contemporary agri-food industries	110
4.1. Reshaping <i>conducer</i> practices	110
4.2. A few large look-alikes and performing rationalization	110
4.3. A Narrative of absence and the Erasure of labor	111
5. Concluding with conduction optimism	111
Acknowledgements	112
References	112

1. Introduction: the state of the middle

The “disappearing middle” has been a concern for scholars of agriculture since it became a key term in the early 1980s in

* Corresponding author.

E-mail addresses: Katharine.legun@otago.ac.nz (K. Legun), michaelbell@wisc.edu (M.M. Bell).

reference to farm size (see [Buttel, 1983](#); [Buttel and LaRamee, 1991](#); [Lyson et al., 2008](#)). Large farms and small farms both are growing in number, with a hollowing out of everything in-between ([Kirschenmann et al., 2008](#)). While mid-sized, independent, family farms may emerge in the picturesque imaginings of rural America, this type of environment is not always supported through policy and practice.

One important factor in this hollowing out is the growing power of the “middle man”—the middle industries between producers and consumers, farms and forks. As that power has grown, farmers' share of the food dollar has steadily dropped. This phenomenon is common to all countries of the developed world, and increasingly the developing world as well. In the United States, our empirical focus, the farmer's share has fallen from 18.4 percent in 1993 to 15.5 percent in 2011, according to one study ([Canning, 2013](#): Table 1), and from 34 percent in 1982 to 19 percent in 2004, according to another study using somewhat different metrics ([Stewart, 2006](#): Table 6). At the large-scale end of the farming continuum, farmers compensate for smaller margins with higher volumes. An alternative that is widely attempted, often successfully, is for farms to go small through direct marketing or shorter value chains, gaining higher margins for lower volumes, and side-stepping the middle industries. Mid-sized farms find themselves increasingly unable to succeed, as they are too large for direct marketing and too small for the low-margin and high volume agriculture that the middle industries require.

In short, there are two middles in agrifood. On the one hand, there is the “disappearing middle” of farms, and on the other hand there is the “growing middle” of firms participating in non-farming aspects of the food industry. This second middle of firms that are not farms has grown both through the increased bite it takes from the food dollar and through the increased number of people who work in it, from truck drivers, to line workers in food processing plants, to the servers and cooking staff in the half of the household food budget that is now spent out on food served out of the home in countries like the United States. The strength of these middle industries stems in part from shrinking the number of firms through whom this capital flows and for whom these food workers work. They typically integrate vertically, and favor larger suppliers of foodstuffs in order to limit transaction costs ([Hobbs, 1996](#); [Frank and Henderson, 1992](#); [Wood, 2013](#)). In this sense, the growing middle of the food value chain is also a “consolidating middle,” (See [Hendrickson and Heffernan, 2007](#); [Hendrickson et al., 2008](#)) and this has only intensified with the expansion of budget mega-marts into the grocery retail sector ([Wood, 2013](#)) enacting their forceful influence over their suppliers (see [Mottner and Smith, 2009](#)).

But to leave our terminology there at “middle industries” would frustrate efforts to understand these widely-lamented dynamics. We sense a partiality on the part of agrifood scholars to defend the disappearing middle of farming, largely through pointing out ways to sidestep the “growing middle”—for example, through advocating CSAs, institutional buying, and locavorism, as a type of middle-man-less, direct form of exchange. We share some of that partiality, and that advocacy. But we worry that, when carried out with single-minded purpose, such a defense of the first farming middle can amount to a dismissal of the second one, rendering it analytically invisible and thereby giving scope for its further growth and consolidation. As well, such a defense valorizes the farm and the fork and the work that goes on at those two social sites, and denigrates the work that goes on in between as, at best, a necessary evil. This can also erase the labour and infrastructure that facilitates alternative forms of food exchange. All the while, much work has focused on agriculture and the middle-industries. Agrifood scholars have generated an invaluable body of work documenting changes in food industries and offering suggestions for

redirecting troubling trajectories. Giving these industries a full-bodied character and positioning them more fully within a popular food industry narrative can aid in these efforts and give greater heed to the work of scholars of the middle.

For the second middle does indeed do work of value, as well as work that controls value. We offer the concept of *conducers* to provide a language for understanding the work that lies between what producers do and what consumers do, and to add cohesion and conceptual weight to the actors involved in what might broadly be considered middle industries. Conducers participate in the food economy through *conduction*: transporting, processing, warehousing, advertising, retailing, cooking, serving, and more. To conduct is to “bring to a place; a particular condition, situation, a conclusion” (Oxford English Dictionary). The conductor brings food to a place (transportation), brings it to a particular condition through processing and cooking (transformation), and brings it to a situation and conclusion through warehousing, advertising, retailing, and serving (translation). Conducers redefine food physically, economically, and culturally, while coordinating consumers and producers. Indeed, the word “conducer” happily reflects this coordination through combining a root word found in consumer with a root word found in producer: *con*-meaning “together” with *duc*-meaning “lead”—or, in combination, to “lead together.”

But while conductors do work of value, worthy of the close attention of agrifood scholars, there is another meaning of the word conductor that is also apt for the argument we make here. Because of their role in the relationship between producers and consumers, the conductor is frequently the *conductor* of the orchestra of actions and actors that constitute the food economy. Conducers have great power accordingly. The shape of that power is not fixed. As [Kirschenmann et al. \(2008\)](#) articulate well in their work on the agriculture of the middle, it is a market *structure* problem, closely linked to the vertical integration of market players. In other words, rather than a problem of too many conductors and too much conduction, it is a problem of too little diversity, too much vertical and horizontal integration ([Heffernan, 1998](#)), and too many relations of dependency ([James et al., 2013](#)). In order to give greater heed to their activities and performative potentials, we would do well to give greater consideration to what values they *add* to food as well as *take* from it — plus how those values are generated, and how we might render those values more visible so that we may engage with them more knowledgeably and assertively.

In doing so, we build on a long history of a critique of the middle industries and its relationship to capitalist economies, and we attempt to add body to its analysis. Challenges to the capitalist penetration of agriculture have been long documented since [Kautsky \[1899\] \(1988\)](#) first considered the “agrarian question”. The climate, geographic bounds of production, labour requirements, long production times, and perishability of products prevent the full market governance of food. This is the foundation of the classic Mann–Dickinson Thesis, where the authors explain the persistence of family farms through the incompatibility between capitalist logics and agricultural production ([Mann and Dickinson, 1978](#), also see [Goodman and Redclift, 1985](#)). It is further elaborated by work on the rationalization of nature in food production ([Goodman and Redclift, 1991](#); [FitzSimmons and Goodman, 2005](#)) mechanization of farming ([Fitzgerald, 2003](#)), and more recently, on the financialization of farmland for large-scale investment ([Fairbairn, 2014](#); [Isakson, 2014](#)).

Conducers can be seen to capitalize on the conflicts between production and markets by developing elaborate storage technologies, processing food into novel new imperishable products, and managing supply and demand problems by moving commodities across vast spaces speedily and arranging them in particular symbolic worlds. These processes take advantage of the market

inefficiencies of food production and turn them into profit, but they also have a significant influence on what food is, where and when it can be consumed, and what kinds of information is being presented to consumers. Profits generated through this market-nature friction have been categorized by Goodman and Redclift (1994) as substitution and appropriation—taking organic agricultural processes and incorporating them into industrial processes, and replacing those natural processes with industrial ones, respectively. Together substitution and appropriation in food systems are associated with increased capital investments, through the form of heavy inputs and mechanization, and the various additions to the farm that can ensure that natural processes behave in predictable, efficient ways. While input providers such as fertilizer companies or farm equipment developers may not be conductors, demands for substitution and appropriation on the farm is often the product of conductors who require standardized commodities for processing, sorting, and retailing and work with these other actors. In practice, the networked relationships between conductors and input providers can be a powerful part of the practice of conduction. These alliances and their effects have been well documented in the poultry industry by Constance et al. (2013), in retail through the expansion of supermarket brands as documented by Dixon (2007), and the overall growth in food industry consolidation and integration by Howard (2016).

As Goodman and Redclift (1991) emphasize in their work that elaborates the distinction between substitution and appropriation, we would like add dimension to the variable forms that conduction can take and to emphasize the dual role that they play in both materially *and* culturally influencing the world of food. Conductors not only produce food, but in doing so, they participate in crafting an aesthetic and narrative world that has enduring effects on food practices and imaginations. In discussing the work that conductors do, we would like to draw attention to the multifaceted and dialogic role that conductors play in broader social relations.

In emphasizing the ways that conductors are active characters in the narratives of the food economy, we are also trying to offer alternatives to the image of food systems and supply chains. While these terms can be useful for illustrating movement and connections, they also carry connotations of inevitability, rationality, and lifeless machinery, as though actors related to food all have a natural function and linear sequence. Following the discursive pattern, food systems come to seem a bit like computer systems, solar systems, and education systems: theoretically bounded, integrated wholes with coherent organizing principles and aims. These images are useful for emphasizing relationships and the social generation of economic ethics and ideology, and have illuminated valuable aspects of political economy like food regimes (Friedmann and McMichael, 1989). Yet, researchers may habitually use the concept of a system when boundaries and coherence are less productive for thinking through a problem or imagining the ways out of it (Bland and Bell, 2007; Bell, 2005). We would like to have a term that characterizes these actors by what they do, rather than where they operate.

Furthermore, the concept of supply chains can seemingly simplify messiness and mask practices of power. That messiness of conduction is not incidentally streamlined: the very notion of supply chains is a conceptual tool, developed and consciously enacted by retailers as a market management strategy (Busch, 2007). We should be highly conscious of reproducing that normativity of systems thinking and supply chains, given that their enunciation in our theoretical frameworks continues an economic project originating in the sites we aim to critique.

In addition, we are concerned that the notion of a chain or flow of materials can render the co-creation of things invisible. Food is imagined and created collaboratively and dialogically when actors

interact. Wilkinson (2002) describes this process well in his discussion of functional products in the final foods industries: as a response to changing demand and the need to diversity production, and an increase in interest in the functional content of food, final foods industries are needing to position themselves via health function claims for products like yogurt. Here we can see conductors participating in the co-creation of a particular symbolic world along with a range of other actors.

To emphasize the types of relatedness and interdependencies underlying food production, some scholars have been drawing on assemblage theory (Carolan, 2013a; Lewis et al., 2016), and emphasize the need to think more creatively about food relations in order to enact a better food future (See Stock et al., 2015; Carolan, 2013b). To this work, we add the concept of conductors and conduction to help describe a particular form of action, and to draw attention to the ways that restaurants, food processors, retailers, suppliers, and transporters, among others, actively create food physically and culturally—transforming and translating it, not merely transporting it—in ways that are dynamic and embedded in time and place.

In drawing attention to conductors, we also suggest that the consolidation and expanding power of the middle warrants more than objection and avoidance. Rather, we argue that we scholars should continue to concentrate on the variable power of conduction in our analytic work, and that food system activists would do well to engage this power in their advocacy work. Like the loss of diversity in farm sizes or crop genetics, the loss of conductor diversity means fewer options for farmers and consumers, and fewer options for those employed in conduction. The Missouri School has been particularly provocative in this area (Heffernan, 1972). Much of the work done by Heffernan and Hendrickson and their colleagues has been in documenting processes of consolidation and vertical integration in retail, meat, and dairy (Heffernan, 1972; Hendrickson et al., 2001, 2008; Hendrickson and Heffernan, 2007). Processors have accumulated massive power in the meat sector, having significant effects on producers and the viability of mid-sized farms, as well labour conditions and the ecological effects of food production (Hendrickson, 2015).

Moreover, the power of processors and their effects in meat is not just a function of a rational business ethic by firms. In *Every Twelve Seconds*, Pachirat (2011) illustrates how the industrialization of meat production is paired with general public unease with the spectacle of animal slaughter, generating a type of containment, control, and concealment in the culture of meat. It is this aspect of distaste and derision that can stigmatise conduction in ways that can exacerbate troubling aspects of food production.

The conditions of conduction laborers is connected to conduction and our dismissal of its value, increasingly visible with the recent global strikes over low wage work in fast food (Greenhouse, 2014; O'Connor, 2015), and controversies over meat processing that pose a threat to worker safety (Oxfam, 2015). Like the desire to expand the middle of farming, we believe much can be gained by horizontally expanding the middle in agrifood by increasing the number and type of conductors. Research has shown that the health effects of meat processing significantly differs between employers (Rosenbaum et al., 2014) and we can only wonder how these health conditions might change were consolidation in the industry reduced. Many new forms of conduction are emerging, but bringing them more critical attention and theoretical depth is warranted and necessary. Considering and valuing the practices of these conductors and their contribution to the food economy may help to increase the wellbeing of the millions employed in between farm and fork, and encourage innovation, health, sustainability, and justice in what and how we eat.

2. Farms and markets: A need for conducers and a critique of their devaluation

There is reason for the partiality agrifood scholars hold for the disappearing middle of farms. The vitality of rural life has long been a concern in the industrialized world, and much of this concern has focused on the effects of farm size and industrialized agriculture. The “Goldschmidt Hypothesis,” developed in the 1940s by Walter Goldschmidt, argued that there is an inverse relation between farm size and community wellbeing. Recent studies have shown similar results (Green, 1985; Lobao, 1990; Labao and Meyer, 2001; Lyson et al., 2001; Lyson and Welsh, 2005; Parker and Moore, 2008). If farms are few and far between, it is more difficult to maintain support services like schools, clinics, restaurants, and libraries that act as sites of neighboring and civic participation. This lack of sites for socialization can also impede innovation. Collaborative dialogue between farmers can facilitate problem-solving and the development of new techniques (Bell, 2004). A zero-sum game of survival between farmers, whereby success requires the consumption of one farm by another, deters this dialogue. Moreover, when few farms hold a market oligopoly or are obligated by retail contracts, there is little incentive or opportunity to attempt any new practices that might be socially, environmentally, or economically progressive. The food market is increasingly dominated by these contracts (Drabenstott, 1999; Howard, 2009) and the vertical integration of the food relations (Burch and Lawrence, 2007; Dixon, 2007; Constance et al., 2013), lessening producer power.

In other words, the problem of contemporary food and agriculture is in large measure a problem of conduction, and how power is exercised through it. This is nothing new to agri-food scholars, but in practice, critiques of conduction are often expressed through strategies of avoidance. But how much reform can be accomplished through merely dodging conduction? Proponents of smaller-scale agriculture have surely had some success in advocating for local food (Kloppenborg et al., 1996; Nabhan, 2002) and alternative markets (Kloppenborg et al., 2000; Gale, 1997, 2000; Cone and Myhre, 2001). These more direct forms of economic activity have grown over the past decade and have become viable for a broad range of producers and consumers. This work has been profoundly useful for scholars and food activists, but at the same time, consolidation of conduction has continued and major corporations based on conduction have increased in size and have continued their profitability. Their profitability actually rose during the Great Recession, at least in the United States. In 2006, *Fortune* magazine ranked food services as the thirty-first most profitable industry sector in the US with 6.9 percent profits, and ranked food production as the forty-eighth most profitable sector with 1.3 percent profits. But as the recession unfolded, their position increased considerably. At the height of the recession in 2008, food services rose to nineteenth at 9.3 percent and food production rose to ninth at 15.9 percent. The comparative profitability of these sectors has since moderated, but their staying power across the recession indicates the centrality of their position, especially when money is tight – the usual opportunity for consolidation and monopolization. In tandem, the growth of large farms that feed those consolidated structures of the middle has continued apace.

We also do a disservice to food analysis by ignoring the ways that local and direct-marketed food also depends on conducers. Community-supported agriculture often uses organizations with web-space and databases that link urban consumers with a farm. Farmers’ markets are organized by people and often have a long institutional history involving many non-farm personnel. Community kitchens, food co-operatives, foraging networks, canning clubs, food hubs, home kill abattoirs – these are all conducers that simply look different from the characters in our dominant food

narrative, and so they get relegated to the background. It would be analytically (and perhaps politically) useful to bring them to the forefront, not as special cases or counter-examples, but as actors doing the same type of activity as fast-food restaurants, large food processors, and supermarkets, but in importantly different ways.

Some of this work has been undertaken with a growth in discussion around “food hubs.” While there are a range of definitions, these are generally understood as sites where producers and consumers meet for more direct forms of exchange (Horst et al., 2011). These food hubs provide an alternative form of food circulation, and may be grounded in more participatory and community-oriented forms of food circulation and include small, local businesses. This body of work too may benefit from the language of conduction, particularly as a way to move away from a dichotomy between mainstream, industrial food processes and direct marketing. Food hubs have been described as a hybrid of these two systems (Cleveland et al., 2014; Izumi et al., 2010), and while positioning them in this way carries analytic advantages, it may also be useful to think of their activities as an assertively distinct form of conduction positioned amongst an array of others.

These smaller conducers need recognition, as well as regulatory and institutional support. Food hubs, for example, may struggle to find appropriate physical and economic infrastructures (Cleveland et al., 2014). Similarly, alternative processes may confront regulations designed for large, industrial food actors. In her review of meat processing regulation introduced in BC, Canada, McMahan (2011) discusses how increasingly stringent regulation of meat slaughter had the effect of reducing small abattoirs supplying local communities, while also promoting a dominant industrial food ideology. In 2010, and in response to the collapse of smaller scale slaughter and its public critique, those policies were changed and a new licensing system was created that recognized more diverse forms of food production and their particular contribution rural and remote food networks (Miewald et al., 2013). This case demonstrates the ways that recognizing the work of conducers can be productive and enabling. Moreover, there is an ever-increasing range of conducers emerging between local craft processors and distributors and large vertically integrated ones, and these too should be given adequate attention and recognized as possible agitators for more radical change.

Research suggests that the possibilities for alternatives are hindered by conducers, but can also be enabled by them. In Guthman’s (2004a) work on conventionalizing organic agriculture in California, she found that much of the inevitability of organic cooptation by big industry lay in the rigidity and political power of, to use our terminology, mega-conducers. In the context of California food production, much of the food value is created off-farm through farm inputs or processing and agglomerated buyer firms, and that context played a particularly forceful role in the re-shaping of organics to suit large-scale production, derailing it from its agrarian roots (Guthman, 2004b). However, the California context is not universal, and since the publication of Guthman’s *Agrarian Dreams*, there is much to suggest that organics have unfolded differently elsewhere (Rosin and Campbell, 2009; Campbell and Rosin, 2011; Guthman, 2004b; Lockie and Halpin, 2005). In New Zealand, for example, Campbell and Rosin (2011) describe how the political-economic landscape and character of agri-business has shaped the nature of contracts in organics and opened up space for greater grower power. The growth of organics and the diverse practices that have followed exemplify how variable conduction is, and how some forms of conduction could actually be an asset to food activists.

Focusing more intently on conducers is important given the vitality of alternative food movements and the structural impediments or opportunities they sometimes encounter. The difficulty of

scaling-up has emerged as a central topic (Mount, 2012; Beckie et al., 2012; Bloom and Hinrichs, 2011; Friedmann, 2007), and one that relies substantially on the role of conducers. Friedmann (2007) for example, uses educational institutions in Ontario, Canada as a way to illustrate how public food distributors can aid the expansion of alternative agriculture. These types of organizations can sometimes fall outside our analyses as outliers, but they are outliers precisely because they are enacting practices outside the conventional pattern of food relations, which can bring our attention to the ways that conventional conducers do things too. Levkoe et al. (2016) suggest that this inattention to the university as a site of food industry participation enables a scholarly inattention to labour issues in middle industries. Academic institutions can participate substantively in modelling new food relationships, these authors argue. Along similar lines, we suggest that attention to conducers and their role in substantially changing food relations would benefit from more critical attention and theoretical depth.

Thus, our aim is to highlight and analyze the role of conducers. In doing so, we advocate for an expansion of conduction horizontally, growing the number and diversity of those involved in the middle. The loss of mid-sized processors and retailers not only hurts rural communities, but may also make it difficult to see what is happening in the conduction of food, as an absence of diversity can reduce points of comparison and moments of friction that render activities more critically and publicly visible. As it stands, much of the work on conduction considers how their actions affect other food actors. Along these lines, the work of Hendrickson and Heffernan (2002) illuminates the hourglass shape of the industry and the effects felt by farmers, while Burch and Lawrence (2007) have done work on retailers and the increasing control they exert on other actors along the food chain. Recent literature in this area draws our attention to the role the “growing middle” plays in shaping broader relations in food production. The concept of conduction provides additional theoretical language to articulate, critique, and change this role.

3. Theorizing conducers: what it is to conduce

In this section, we develop a theoretical understanding of practices, performativity, and politics, of conducers and conduction. Building on this approach and drawing further insights from the “new institutionalism,” from assemblage theory, and from holon agroecology, we suggest that conducers have an advantage due to their role in food and the dependency of other actors on that role. These approaches help to draw out the enactive, dynamic, and relational aspects of food production, as we elaborate in the following sections. As part of their practices, conducers enact principles of the food economy, transforming ideas about the economy into the material realities that other actors in food face. They *practice* principles of food into institutional reality. At the same time, they *perform* food, and bring various social and material actors together to bring types of food into a food culture repertoire. They are also largely responsible for the narration of their processes in ways that shape discourses around food, the *politics* of food, and the future direction of the industry.

3.1. Conduction as practice

Conducers do not simply occupy spaces and operate machinery in the food industry, but build relationships, norms, and formal and informal rules through their practices. They shape the range of possibilities in food, in both the present and importantly, the imagination of the future. We use institutionalism to focus on conduction as practices that reverberate out to other aspects of food production, and enact ideas into realities.

The earliest institutional economic sociology suggested that economic actors work with perceived opportunities and constraints, and orient their actions to conventions of practice and habit, and this idea remains central to the institutional approach. The pragmatist Thorstein Veblen (1899, 1904) is often considered the founder of institutionalism, along with John R. Commons and Wesley Mitchell. Veblen wanted to build economic theory that accounted for the past and explained the cumulative aspects of economic change. He was as much concerned with formal rules as with habits of thought and behavior that organize the imagination of an economic actor. Veblen, in part, wanted to explain inertia. If the range of possible actions is shaped by a vision of the formal and informal principles of the economy, which is always a vision of the past, innovation and adaptation can be slow.

We suggest that conduction, as a broad practice of transporting, transforming, and translating commodities, both reflects and recreates institutions in ways that reproduce dependency on them. The iterations between individual conducers and broader organizing bodies such as regulations or informal habits of practice, creates a kind of “spirit of conduction” that persists over time. Importantly, this spirit influences what is considered to be possible and reasonable, so that it becomes difficult to conceptualize a truly new way of doing things. Changing the conducers is a particularly important aspect of changing food relations.

Conducers are those who build market ideals into food economies. By practicing particular economic principles, they create infrastructures and consumer expectations that require forms of conduction that reflect those principles. As a result, their activities become integral to food cultures, seemingly inescapable, and highly rational. Take, for example, the processing of apples by packing-houses. Packinghouses transform apples into something that is exchanged more easily and competitively on a larger market by using cold storage and advanced sorting technologies (Legun, 2015, 2016). Apples are shipped from farms and immediately placed into cold spaces that are sealed and precisely monitored so that they exit the facility, 6 months after being stored, having barely aged (Thompson, 2010). This allows apples as a commodity to decouple from seasonality, and emerge on grocery store shelves at any time of the year, and it also enables apples from an ever-increasing catchment of growers to compete on price (Legun, 2015). The price of sorting technology, which can reach millions (see Courtney, 2014), also means that they can only be afforded by third parties such as packing-houses or very large growers and grower corporations who run a lot of apples. Packhouses and the ease with which they can sort large volumes of apples into precise aesthetics categories, increasing the number of growers who can compete with each other along those aesthetic parameters and allowing for the specifying of visual cues in the supermarket (Legun, 2016). In short, packinghouses produce market ethics of supply and demand and price competition through their real material practices. In doing so, they also produce the conditions of their necessity. Those practices shape how apples are transformed into a commodity, and how they relate to other commodities in the marketplace. The same argument could be made for meat processors who reproduce cultures of sterility and concealment, and final food industries who assemble functional foods and contribute to norms of responsible consumption while contributing to massive research and development infrastructures.

3.2. Conduction as performance

Recently, work within economic sociology and institutional analysis has focused more intently on materials. Part of this attention has developed out of actor-network theory, and particularly the work of Michel Callon (2006). He proposes a

performativity approach to the economy, whereby economic actions occur interactively and collaboratively, with the incorporation of various heterogeneous materials. Performativity opens up opportunities to consider the role of ecology in the architecture of the food industry, and the actions that conductors perform. Food comes from plants and often requires considerable transformation that is learned and developed over time. New foods sometimes require a significant amount of manipulation and narration in order for them to become socially and culturally part of food practices. They need to be translated into a local cultural food lexicon.

The performance of conduction creates food as food, by physically altering it to enable particular kinds of consumption, but also generating the narratives that foster particular practices of eating. For example, bananas were not just transported from tropical growing regions to North America, but the banana, as a large, yellow fruit, eaten raw or baked into a pie, is the product of conduction. The Gros Michel variety, popular in the early twentieth century, was large and yellow, and created many of the standards that would shape the future characteristics of what North Americans think of bananas. “The success of Gros Michel also reflected the interests and perceptions of shippers” (Soluri, 2002: 389) suggests. The material realities of shipping combined with the ecology of the banana significantly contributed to how bananas were created in the food lexicon:

Early traders relied on wind-powered schooners to haul bananas from tropical production zones to northern latitude markets. In the American trade, the fruit bunches traveled “naked” with only minimal padding; “climate control” was limited to a few vents. Consequently, shippers sought a banana variety that could best withstand the rigorous journey from farm to market.

As Soluri (2002) elaborates the variety that was chosen was the Gros Michel, which would later be dropped due to its susceptibility to disease, but was replaced by a similar variety that would fill the cultural shoes it had created among consumers. The variety became popular because it could be eaten fresh and packed into lunches during a time when healthy food was being promoted to mothers. In fact, when the Gros Michel variety could no longer be produced because of the Panama disease, the companies tried to introduce the Lacatan variety instead, which did not take due to the smaller size, smaller bunches, and different color. Ultimately the Cavendish variety succeeded the Gros Michel due to its proximity to the aesthetic ideals of its predecessor and resistance to disease (for a fuller elaboration, see also Soluri 2005). Needless to say, bananas that were savory, furry, or needed to be cooked clearly didn’t make it to mainstream North American markets, despite their popularity elsewhere. Bananas, as large, sweet, yellow fruit in their own packages, were created through the performance of conduction.

3.3. Conduction as politics

Institutional economics in recent years has seen a much greater focus on the interests that become embedded in institutions, a trend in the theory of economic sociology known as “new institutionalism.” Fligstein (2002) uses the term “conceptions of control” to describe the ways that ideas about how the market works can serve to stabilize the privileged positions of powerful market actors. The literature has increasingly considered the role of narratives in affecting the operation of economic life and in shaping the political character of markets. Conductors practice and perform food, influencing the infrastructures of production and the cultural definitions around food, but through those processes, conduction is also narrates its own activities, which is a political act with political

implications.

We could continue with another banana. The banana is not just grown, transported to a supermarket, and consumed at discrete and unconnected moments, but it involves the collaboration of a variety of actors who participate in the story of the fruit. These collaborative actions are held together by stories that normalize those practices. As Bland and Bell (2007) suggest in their work on holon agroecology, all food involves a narrative to hold actors together, guiding them in coordinating their actions. This approach contrasts systems thinking that may focus so heavily on interconnectedness that it thwarts our vision for change. Holon agroecology draws our attention to the stories that hold materials and practices together, making active subjects of the storytellers and emphasizing the unfinalizability of agrifood relations. For bananas, the story involves the health claims of throwing a crescent shaped yellow fruit into a backpack, and eating it for lunch. Ad campaigns, using such devices as the Chiquita Banana song (1949), created this narrative and explained what the banana was and what cultural practices would go along with consumption:

I’m Chiquita banana and I’ve come to say
 Bananas have to ripen in a certain way
 When they are fleck’d with brown and have a golden hue
 Bananas taste the best and are the best for you
 You can put them in a salad
 You can put them in a pie-aye
 Any way you want to eat them
 It’s impossible to beat them
 But, bananas like the climate
 Of the very tropical equator
 So you should never put bananas
 In the refrigerator
 Bananas are a solid food
 That doctors now include
 In babies’ diet
 And since they are so good for babies, I think we all should try it
 Si, si, si, si, si

In the 1950s, suppliers, parents, kids, and farmers all performed this banana narrative in their activities, thereby enacting its politics (for a thorough discussion of the evolution of the banana industry, see Soluri 2005). The story being told naturalizes the relations between the consumer and producer culture by having a stereotypical Spanish character translating the food, while describing the food as though its use resides inherently in the properties of the bananas species, rather than the coordinated efforts of actors who chose a particular type of banana to cultivate for a particular consumer market. Having the character communicate these messages also removes the company as the storyteller, and having a character intended to represent the origin country tell the narrative suggests that bananas are a natural product of the region, rather than a crop created and grown under manufactured conditions with an export agenda. This removes the labor from the process. There is an anti-politics of conduction, wherein the transformation and narration of food adopts a disembodied, mechanistic spirit despite the labor and assertive agency of actors involved. We dwell on this point later in

the paper as a foundational critique of our current culture of conduction.

4. Critical conduction for contemporary agri-food industries

4.1. Reshaping conductor practices

Conducers practically play a bridging role in the food industry connecting consumers and producers, and defining their relationship. In network theory, Burt (2004) discusses structural holes as the gaps between networks. When those gaps are filled, the one who bridges the two is a broker of information and thus a wielder of power. James et al. (2013) have discussed how networks, and the number of exchange relationships between distinct actors, has a relationship to dependency and power. Retailers, for example, have control over what food fills the store and how it is presented, while also communicating those preferences to farmers by dictating what products are desired and what price consumers will pay (Lawrence and Burch, 2007). Sustainable agriculture activists may create more connections between producers and consumers to circumvent some of the power beholden to conductors, but this may not actually decrease consolidation in the middle.

Network analysts suggest that the power of those positioned in a structural hole dwindles as more connections are made (Buskens and van de Rijt, 2008), and we suggest that this could be the case for conductors. Conducers transform food and are also brokers of food, and revenue is generated through this brokering position. They influence what passes materially between producers and consumers, and transform the shape of what is exchanged, influencing the conditions of exchange as well as the symbolic cultural world in which the goods exchanged are given value. The streaming of food from producers to consumers is lucrative, and ever more lucrative in a global economy connected by discourses of geographic comparative advantage. Hendrickson et al. (2008) discuss this middle-industry positioning and form of control in their discussion of firms as “nodes of power.” By looking at these nodes, they parse out conditions which lead to the accumulation of power, including the shift to private food governance on the part of large retailers, and, importantly, the informalization of global labour.

Cynicism aside, brokerage need not be a bad thing for the food industry. Burt (2004) has suggested that people that bridge structural holes are more likely to have good ideas, partly because they have access to information from distinct groups and may escape the homogeneity of being wholly embedded in one closed network. Along these lines, conductors have access to information from producers and consumers, and conduction—whether processing, distributing, or retailing—could play a valuable role in changing the dynamics of food production. Managing the movement of food and money is a vital exercise of coordination. However, within some realms of conduction, actors are highly homogenous, and much of their work currently involves standardizing purchasing to create the types of commensuration that increases competition among producers creating relationships of dependency (James et al., 2013) and generating wealth for shareholders.

4.2. A few large look-alikes and performing rationalization

The ability for conductors to broker relationships is both perpetuated and complicated by the dwindling number of conductors, their increasing size, and use of highly restrictive contracts for suppliers. To electrify the conduction metaphor, everything is increasingly passing through the same wires in the same circuits of the economy. If you are a hog farmer, you face an industry where just 4 companies control 66 percent of the processing and distribution (Hendrickson and Heffernan, 2007). In beef, four companies

control 83 percent of the processing and distribution, and in broiler chickens, 53 percent. At the retail end, we face a situation in which, as of 2006, 5 companies control essentially half of food sales: 48 percent. Sysco alone estimates to have 17% of the food service market in the US and Canada, which means 17% of all the money spent by all restaurants and cafeterias on food supply apparently went to Sysco.

Food processing, marketing, and retail is being dominated by a decreasing number of firms, and this has led to a highly constrained form of conduction, and repetitive style of conductor performance. According to Sexton (2000), the increased control of a few firms over the market means that they are able to set the price of food purchasing and retail, enabling them to garner most of the profit. Moreover, in his work on consolidation, Howard (2016) elaborates on this anti-competitive aspect of oligopoly by suggesting that large firms benchmark their practices and performance against their peers and set their prices based on what peers are doing, rather than internal performance or external signals. This can be seen to create a circular, mutually reinforcing food culture amongst large firms, and due to their power, the culture of the food sector as a whole. For the meat packing industry, research has shown that the oligopolistic market control has lead packers to be largely non-competitive in both the prices they pay for animals and the prices at which they sell (Azzam and Pagoulatos, 1990). The results are significant market power at both livestock purchasing and meat selling, and the production of a seemingly inescapable singularity of meat production possibilities. Dixon (2007) has described the ways that supermarkets have now become an authoritative power within the food industry, so that they can set the moral compass to dictate what other industry actors *should* do and why. Because these conductors are structurally privileged, they are also able to create structural privilege, informing the economic and cultural interests that thread through food industries.

The tendencies for firms to become highly similar within a market has been explained, in part, by what economic sociologists have called *institutional isomorphism* (Dimaggio and Powell, 1983). If a firm becomes dominant in a market, and is highly successful, others will often pick up similar practices and forms of organization. Once you have a couple of large firms taking a big market share, the other firms linked to them, or the other components of the firm's network or assemblage, will adjust their practices to meet the specific needs of those larger firms, and they may also be highly successful economically so that similar industries start to mimic their actions. Ritzer (1983, 1998) gave an early modern elaboration of this process with his McDonaldization thesis, while similar processes are being observed with Walmart (Fishman, 2006). These businesses are so large that their decisions and the forms of organization they choose to adopt has massive reverberations in all aspects of food culture and exchange. As a result, it becomes economically impossible to deviate from dominant forms of economic practices, because the various relationships throughout the industry have made that deviation economically inefficient. Practices that are function of institutional organization become rational and efficient, even if they have undesirable environmental and social consequences.

Under concentrated organizational conditions, innovation declines. The size of those large firms and their position at the top of the hierarchy mean that they are highly unlikely to engage in any innovation and experimentation, for fear that they may lose their foothold (Sexton, 2000). In the food industry, it seems that the increasing dominance of these few firms create a lot of rigidity and stagnation, while we see little diversity or dynamism, even amongst smaller firms whose options are limited by the institutional environments espoused by these giants. Importantly, as agri-food increasingly undergoes financialization as farmland,

supermarkets, and processors are purchased by investment funds, the logics of shareholder value and efficiencies increasingly dominate operations while further removing those actors from the narratives of conduction (see [Burch and Lawrence, 2013](#); [Isakson, 2014](#)). Other actors involved in an oligopolistic food industry become privy to this monologue of the conductors, as [Howard \(2016\)](#) so aptly illustrates, who are themselves restricted in their ability to engage in the types of dialogue and variability of practices that can be so economically and environmentally productive ([Carolan and Bell, 2003](#); [Bell, 1998](#); [Bell et al., 2008](#)). Attempts to engage with conduction critically are subverted by the perpetuation of a narrative of absence, in which the activities of conductors become veiled behind characterizations of processing, transporting, retailing, and increasingly funding, as the inactive shuffling of materials.

4.3. A Narrative of absence and the Erasure of labor

Narratives in food hold relationships together and coordinate actions through time and space. If we look at the narratives of conduction in our present food system, they are unique, in that they perpetuate dominant logics and ideals within the capitalist economy while maintaining a persona of invisibility. The absence of real conduction from food narratives can seemingly neutralize activities and craft them as apolitical. These narrative practices are not reserved for large producers, either. [Guthman \(2008\)](#) discusses how CSAs and farmer's markets often engage in subtle cultural cuing that marks these alternative spaces as white, while professing to craft a market space that is colorblind, open to all, and apolitical except in their aims to expand alternative food. The farmer's market, as a type of conduction, is framed as a vehicle for exchange rather than a productive body. If farmer's markets are more than gathering sellers and buyers, but actually creating a market space with a market ethic and market participants, it makes sense to consider where the market is being located and who is being coordinated.

It is easy to think of conductors as machines, simply responding to whims of a broader trending society or guided by the profit imperative, and therefore not worthy of our attention. It is easy to think that changing conductors is a matter of changing consumption or production, the conditions to which conductors respond. This sentiment is aided by audit societies ([Campbell and Le Heron, 2007](#); [Power, 1997](#); [Strathern, 2000](#)). Standardized information about food, appearing in symbols, statistics, and certifications, also erases conduction work. These tools seemingly grant consumers a lens into the material properties of the food and the conditions of its origin, but there is less information available about the context in which it was conducted. Nutritional charts and stories about the source farms suggest that the communities that shipped, packed, processed, and sold the food are less important than the number of calories, the spray regime, or generational history of the farmers. Such an approach is highly problematic. Not only does it undermine any opportunities to critique conductors by erasing variation and agency from their activities, but it also makes those employed in conduction invisible.

Many of the jobs associated with conduction are underpaid, undesirable, and often unsafe. [Dillard \(2008\)](#), for example, has shown that wages paid to slaughterhouse workers have been declining as the scale of companies employing those laborers has increased. The physical risks associated with the work have also increased, as laborers have to keep up with increasing demand ([Oxfam, 2015](#)). The average slaughterhouse worker makes less than \$22,000 a year, and has to make five cuts every fifteen seconds ([Dillard, 2008](#): 2–3). Meat packing has become considerably less desirable over the past two decades, as industrialization has led to

deskilling as machines replace much of the labor, and slaughterhouses seek to conceal and contain the undesirable realities of animal killing ([Pachirat, 2011](#)). Similarly, fast food employment uses highly unskilled labor and usually offers the minimum wage.

Many of the laborers involved in these jobs are also invisible in popular food narratives, in part because they are often immigrants and becoming more visible may be dangerous. Meat-packing has become increasingly reliant on immigrants ([Broadway 1990, 2007](#); [Stull, 1990](#)), as the managers struggle to retain workers in an industry so prone to high turnover ([Grey, 1999](#)). Women and minorities are often over-represented in fast-food jobs ([Ritzer, 1998](#)) and yet they are often characterized as entry jobs for ambitious teenagers. Yet those employed in “entry level” fast food jobs, particularly minorities, do not necessarily move up a ladder to successful careers in greener pastures ([Newman, 2006](#)). Meat production and fast food are perhaps the places where the most attention has focused on labor conditions, while there appears to be a dearth of information on those employed in other forms of food processing. While dialogue around working conditions may appear in critiques of discrete industries, without a broader theoretical framework around middle-industry workers overall, it may be difficult to turn that dialogue into an actionable agenda. The concept of conductors aims to shift attention away from working conditions as isolated events and instead shift our vision to conduction narratives more substantially. If conductors are largely invisible conduits for food, then the laborers merely supply the invisible hands that it passes through.

The narratives around conduction, which are largely narratives of absence and invisible labor, inhibit the ability to consider other narratives or even recognize others that presently exist. Instead, the singularity of these narratives goes unchecked. The risk of oligopoly in conduction means that there is little need for firms to distinguish themselves, and compel the public to demand better working conditions, or better environmental practices or better prices for farmers. As a result, while consumption practices increasingly reflect cultural and moral preferences, the conduction of consumer products has become increasingly rationalized and utilitarian, which significantly limits their market power.

5. Concluding with conduction optimism

In an age of a disappearing middle in farms, and a consolidating but expanding middle in conductors, the future seems bleak. Introducing the concept of conduction is not an attempt to incite desperation, but instead a call to optimism. Conductors, we have suggested, hold a position of power, but they also often participate in the activities, performances, and politics of food unseen. This is particularly true of those that aren't considered ‘middle-men’ because they escape our contemporary imaginations of industrial agrifood. In other words, half the battle may be won by recognizing the work being currently done by middle industries, whose growing voice in the background increasingly forms a strong and central chorus. The other half may be won by changing the narrative around conduction and engaging with those conductors whose work is progressive and imaginative. The time is ripe to attend to conduction.

Large-scale industrial agriculture has been the focus of much critical attention in the public and academic worlds. The growth of organic, fair trade, and local food movements have provided some alternatives to the mainstream food industry. While there has been some discourse around large processors and retailers, there has been less critical engagement with the agrifood middle than with producers and consumers. Producers and consumers are diverse and dynamic and sites where actors are culturally embedded and hold decision-making power. Conductors seem to be a more

abstract, mechanistic category of food actors who are either industrial, artisanal, or non-existent. We have offered the words conductor and conduction to add some layers to their character, in the hopes that we can make them more visible and to create some dynamism and complexity, while also suggesting that there are patterns in conduction that may help simplify the field and enable us to productively pick them apart.

This complexity can help to recognize and judge differences between conductors. Despite monopolization, and indeed in part because of it, there are other ways to live in a capitalist world. There may be Walmart and Sysco and Smithfield and General Mills, but there are also nonprofits, cooperatives, trusts, and commons. There are also family-owned businesses, which may operate with quite a different set of priorities than shareholder-owned businesses. And there is also government. These actors can help transform the food relations and expand the narratives in the industry to include more diverse interests and encourage innovation.

Multiplying the number and variety of conductors can be as productive as multiplying the number and type of farms. [Stevenson and Pirog \(2008a,b\)](#) make similar claims in their work on values-based supply chains. While we might resist the idea of “supply chains,” we embrace the notion that actors in these middle industries add value to food, and their contribution could be more recognized and their diversity applauded where it exists. We agree with Stevenson and Pirog that conductors would do well to recognize their positions of power and engage in practices that cultivate more dialogic relationships where food narratives can be constructed together. Not only would a dialogue harness the advantage of bridging between industry actors, but it might also create more innovative ideas, more cogent problem-solving, and a more equitable distribution of the food dollar.

The Organic Valley Coop is, for example, making some excellent steps in this direction. Organic Valley offers 45 percent of its profits back to its farm members, 45 percent back to its employees, and 10 percent back to the community. Many, if not most, of these employees are conductors, driving the trucks, organizing the processing, operating the storage and handling, and they share in the profits too. In the words of George Siemon, their CEO, “Organic Valley is a social experiment disguised as a business.” As the producers of organic valley meld into the conductors, and establish more horizontal relationships with more marketing actors, the hourglass warps into a much different figure, changing the structure of power and profit. Because Organic Valley dairy farmers garner greater control over the conduction of their products, they are able to keep the farm-gate price up. Even organic dairy farmers who are not associated with Organic Valley are able to contest the prices set by other conventional wholesalers ([Guptill, 2008](#)). Having a diversity of options diffuses the concentration of power from the narrow waist of the hourglass of conduction.

Yet Organic Valley cannot be our token dairy alternative, just as co-operatives cannot be our sole alternative to giant oligopolistic firms. Moreover, there needs to be a way to critically evaluate Organic Valley not just as a contrast to more dominant model. Indeed, many of our recent pinnacles of food system reformation, such as fair trade and organics, are confronted by the Walmart's and McDonald's, and their revolutionary vision tempered and eroded ([Jaffee and Howard, 2010](#)). In the face of these challenges, we propose that there is a politics to our optimism. Just as we need to be selective in our applause and poised for critique, we also need to recognize the enactment of difference when it exists and the labour being performed. Moreover, we need to do so in conjunction with the scholarly work that does point out problems with new, alternative food ventures and patterns of their eventual incorporation into mainstream, capitalist agriculture. Our optimism is not to replace critical realism. We only suggest that we need to consider

what new conductors like Organic Valley *do*: what institutions and norms do they foster and what technologies do they employ? How does conduction happen in Organic Valley, and what types of conduction might be encouraged or constrained in the future? What have these conductors materially set down in food industries that we can analytically pick up, even if their particular projects ultimately fail?

The messy middle in agriculture could be the focus of many academic questions, and we hope that the concepts of conductors and conduction can provide some clear and meaningful language to their consideration. There are also questions that need to be asked about conduction and the role it plays in maintaining existing relations in the food economy, as well as how it may be a catalyst for broader changes in the industry. If we want to change the ways people can farm or the ways they can buy food, conversations about those desires need to include a critical discussion about conductors. Our aim is not only to help these discussions, but to join colleagues whose work on processors and retailers has added such valuable insights to contemporary debates about food. Like them, we believe that these industries are key players in the food industry, and a greater emphasis on conductors and conduction would benefit critical approaches to the food industry in the future.

Acknowledgements

We would like to thank the anonymous reviewers for their insightful and thought-provoking comments on the paper. We would also like to thank Madeleine Fairbairn and Zenia Kish for their comments and critique on earlier drafts.

References

- Azzam, A.M., Pagoulatos, E., 1990. Testing oligopolistic and oligopsonistic behaviour: an application to the us meat-packing industry. *J. Agric. Econ.* 41, 362–370.
- Beckie, M.A., Kennedy, E.H., Wittman, H., 2012. Scaling up alternative food networks: farmers' markets and the role of clustering in western Canada. *Agric. Hum. Value* 29 (3), 333–345.
- Bell, M., 1998. The dialogue of solidarities or why the lion spared androcles. *Sociol. Focus* 31 (2), 181–199.
- Bell, M., 2004. *Farming for Us All: Practical Agriculture and the Cultivation of Sustainability*. Pennsylvania State University Press.
- Bell, M., 2005. The vitality of difference: systems theory, the environment, and the ghost of parsons. *Soc. Nat. Resour.* 18 (5), 471–478.
- Bell, M.M., Lyon, A., Gratton, C., Jackson, R.D., 2008. Commentary: the productivity of variability: an agroecological hypothesis. *Int. J. Agric. Sustain.* 6 (4), 233–235.
- Bland, W.L., Bell, M.M., 2007. A holon approach to agroecology. *Int. J. Agric. Sustain.* 5 (4), 280–294.
- Bloom, J.D., Hinrichs, C.C., 2011. Moving local food through conventional food system infrastructure: value chain framework comparisons and insights. *Renew. Agric. Food Syst.* 26 (01), 13–23.
- Broadway, M., 1990. Meatpacking and its social and economic consequences for Garden City. *Urban Anthropol.* 19, 321–344.
- Broadway, M., 2007. Meatpacking and the transformation of rural communities: a comparison of Brooks, Alberta and Garden City, Kansas. *Rural Sociol.* 72 (4), 560–582.
- Burch, D., Lawrence, G., 2007. Supermarket own brands, supply chains and the transformation of the agri-food system. *Int. J. Sociol. Agric. Food* 13 (1), 1–18.
- Burch, D., Lawrence, G., 2013. Financialization in agri-food supply chains: private equity and the transformation of the retail sector. *Agric. Hum. Value* 30 (2), 247–258.
- Burt, R., 2004. Structural holes and good ideas. *Am. J. Sociol.* 110 (2), 349–399.
- Busch, L., 2007. Performing the economy, performing science: from neoclassical to supply chain models in the agrifood sector. *Econ. Soc.* 36 (3), 437–466.
- Buskens, van de Rijjt, 2008. Dynamics of networks if everyone strives for structural holes. *Am. J. Sociol.* 114 (2), 371–407.
- Buttel, F., 1983. Beyond the family farm. In: Summers, G.F. (Ed.), *Technology and Social Change in Rural America*. Westview Press, Boulder, Colorado.
- Buttel, F., LaRamee, P., 1991. The “disappearing middle”: a sociological perspective. In: Friedland, W., Busch, L., Buttel, F., Rudy, A. (Eds.), *Towards a New Political Economy of Agriculture*. Westview Press, Boulder, pp. 151–169.
- Callon, M., 2006. What does it mean to say that economics is performative? In: MacKenzie, Muniesa, Siu (Eds.), *Do Economists Make Markets? On the Performativity of Markets*. Princeton University Press, Princeton, pp. 311–357.
- Campbell, H., Le Heron, R., 2007. Supermarkets, producers and audit technologies: the constitutive micro-politics of food, legitimacy and governance. In: Burch,

- Lawrence (Eds.), *Supermarkets and Agri-food Supply Chains: Transformations in the Production and Consumption of Foods*. Edward Elgar, MA, pp. 131–153.
- Campbell, H., Rosin, C., 2011. After the 'organic industrial complex': an ontological expedition through commercial organic agriculture in New Zealand. *J. Rural Stud.* 27 (4), 350–361.
- Canning, P., 2013. USDA Economic Research Service-ERS Food Dollar Series Allows an In-depth Look at Farm Level Components of the US Food Dollar. Extracted March 3, 2016 from: <http://www.ers.usda.gov/amber-waves/2013-july/ers-food-dollar-series-allows-an-in-depth-look-at-farm-level-components-of-the-us-food-dollar#.VteqHceA1Hh>.
- Carolan, M., 2013a. Doing and enacting economies of value: thinking through the assemblage. *N. Z. Geogr.* 69 (3), 176–179.
- Carolan, M., 2013b. Final word: putting the "alter" in alternative food futures. *N. Z. Sociol.* 28 (4), 145.
- Carolan, M., Bell, M., 2003. In truth we trust: discourse, phenomenology and the social relations of knowledge in an environmental dispute. *Environ. Value* 12, 225–245.
- Cleveland, D.A., Müller, N.M., Tranovich, A.C., Mazaroli, D.N., Hinson, K., 2014. Local food hubs for alternative food systems: a case study from Santa Barbara County, California. *J. Rural Stud.* 35, 26–36.
- Cone, Cynthia Abbott, Myhre, Andrea, 2001. Community-supported agriculture: a sustainable alternative to industrial agriculture? *Hum. Org.* 59, 187–197.
- Constance, D.H., Martinez-Gomez, F., Aboites-Manrique, G., Bonanno, A., 2013. The problems with poultry production and processing. In: James (Ed.), *The Ethics and Economics of Agrifood Competition*. Springer, Netherlands, pp. 155–175.
- Courtney, R., 21 February 2014. Washington apple growers invest in technology. *Wash. Times*. Extracted June 20, 2014 from: <http://www.washingtontimes.com/news/2014/feb/21/washington-apple-growers-invest-in-technology/?page=all>.
- Dillard, Jennifer, 2008. A Slaughterhouse nightmare: psychological harm suffered by slaughterhouse employees and the possibility of redress through legal reform. *Georget. J. Poverty Law Pol.* XV.
- Dimaggio, Powell, 1983. The iron cage revisited: institutional isomorphism and collective rationality in organizational fields. *Am. Sociol. Rev.* 48 (2), 147–160.
- Dixon, J., 2007. Supermarkets as new food authorities. In: Burch, Lawrence (Eds.), *Supermarkets and Agri-food Supply Chains: Transformations in the Production and Consumption of Foods*. Edward Elgar, Cheltenham, UK: Northampton, MA, pp. 29–50.
- Drabenstott, M. (November 8, 1999) New futures for rural America: the role for land-grant universities. In: William Henry Hatch Memorial Lecture. Presented to the Annual Meeting of the National Association of State Universities and Land-Grant Colleges, San Francisco.
- Fairbairn, M., 2014. 'Like gold with yield': evolving intersections between farmland and finance. *J. Peasant Stud.* 41 (5), 777–795.
- Fishman, C., 2006. *The Wal-Mart Effect: How the World's Most Powerful Company Really Works—and How It's Transforming the American Economy*. Penguin.
- Fitzgerald, D.K., 2003. *Every Farm a Factory: The Industrial Ideal in American Agriculture*. Yale University Press.
- FitzSimmons, M., Goodman, D., 2005. Environmental narratives and the reproduction of food. In: Castree, Braun (Eds.), *Remaking Reality: Nature at the Millennium*. Routledge, pp. 193–219.
- Fligstein, N., 2002. *The Architecture of Markets: an Economic Sociology of Twenty-first-Century Capitalist Societies*. Princeton U Press, Princeton NJ.
- Frank, S.D., Henderson, D.R., 1992. Transaction costs as determinants of vertical coordination in the US food industries. *Am. J. Agric. Econ.* 74 (4), 941–950.
- Friedmann, H., 2007. Scaling up: bringing public institutions and food service corporations into the project for a local, sustainable food system in Ontario. *Agric. Hum. Value* 24 (3), 389–398.
- Friedmann, H., McMichael, P., 1989. Agriculture and the state system: the rise and decline of national agricultures, 1870 to the present. *Sociol. Ruralis* 29 (2), 93–117.
- Gale, F., 1997. Direct farm marketing as a rural development tool. *Rural Dev. Perspect.* 12 (2). USDA.
- Goodman, D., Redclift, M., 1994. Constructing a political economy of food. *Rev. Int. Political Econ.* 1 (3), 547–552.
- Goodman, D., Redclift, M., 1985. Capitalism, petty commodity production and the farm enterprise. *Sociol. Ruralis* 25 (3–4), 231–247.
- Goodman, David, Redclift, Michael, 1991. *Refashioning Nature: Food, Ecology and Culture*. Routledge, London.
- Gray, J., 2000. The common agricultural policy and the re-invention of the rural in the European community. *Sociol. Ruralis* 40 (1), 30–52.
- Green, G., 1985. Large-scale farming and the quality of life in rural communities: further specification of the Goldschmidt hypothesis. *Rural Sociol.* 50 (2), 262–274.
- Greenhouse, S., 4 September 2014, B3. Hundreds of fast-food workers striking for higher wages are arrested. *N. Y. Times*.
- Grey, M., 1999. Immigrants, migration, and worker turnover at the Hog Pride Pork packing plant. *Hum. Org.* 58 (1), 16–27.
- Guptill, A., 2008. Exploring the conventionalization of organic dairy: trends and counter-trends in upstate New York. *Agric. Hum. Value* 26 (1,2), 29–42.
- Guthman, J., 2004a. *Agrarian Dreams: the Paradox of Organic Farming in California*. University of California Press, Berkeley.
- Guthman, J., 2004b. The trouble with 'Organic Lite' in California: a rejoinder to the 'conventionalisation' debate. *Sociol. Ruralis* 44, 301–315.
- Guthman, J., 2008. "If they only knew": color blindness and universalism in California alternative food institutions. *Prof. Geogr.* 60 (3), 387–397.
- Heffernan, W.D., 1972. Sociological dimensions of agricultural structures in the United States. *Sociol. Ruralis* 12 (2), 481–499.
- Heffernan, W.D., 1998. Agriculture and monopoly capital. *Mon. Rev.* 50 (3), 46–59.
- Hendrickson, M.K., 2015. Resilience in a concentrated and consolidated food system. *J. Environ. Stud. Sci.* 5 (3), 418–431.
- Hendrickson, M., Heffernan, W., 2002. Opening spaces through relocation: locating potential resistance in the weaknesses of the global food system. *Sociol. Ruralis* 42 (4), 347–369.
- Hendrickson, M., Heffernan, W., 2007. *Concentration of Agricultural Markets*. Retrieved on 5 June 2016 from: <http://civileats.com/wp-content/uploads/2009/05/2007-heffernanreport.pdf>.
- Hendrickson, M., Heffernan, W.D., Howard, P.H., Heffernan, J.B., 2001. Consolidation in food retailing and dairy. *Br. Food J.* 103 (10), 715–728.
- Hendrickson, J., Sassenrath, G.F., Archer, D., Hanson, J., Halloran, J., 2008. Interactions in integrated US agricultural systems: the past, present and future. *Renew. Agric. Food Syst.* 23 (04), 314–324.
- Hobbs, J.E., 1996. A transaction cost approach to supply chain management. *Supply Chain Manag. Int. J.* 1 (2), 15–27.
- Horst, M., Ringstrom, E., Tyman, S.K., Ward, M.K., Werner, V., Born, B., 2011. Toward a more expansive understanding of food hubs. *J. Agric. Food Syst. Commun. Dev.* 2 (1), 209–225.
- Howard, P.H., 2009. Visualizing consolidation in the global seed industry: 1996–2008. *Sustainability* 1 (4), 1266–1287.
- Howard, P.H., 2016. *Concentration and Power in the Food System: Who Controls what We Eat?* Bloomsbury Publishing.
- Isakson, S.R., 2014. Food and finance: the financial transformation of agro-food supply chains. *J. Peasant Stud.* 41 (5), 749–775.
- Izumi, B.T., Wright, D.W., Hamm, M.W., 2010. Farm to school programs: exploring the role of regionally-based food distributors in alternative agrifood networks. *Agric. Hum. Value* 27 (3), 335–350.
- Jaffee, D., Howard, P.H., 2010. Corporate cooptation of organic and fair trade standards. *Agric. Hum. Value* 27 (4), 387–399.
- James Jr., H.S., Hendrickson, M.K., Howard, P.H., 2013. Networks, power and dependency in the agrifood industry. In: James, H. (Ed.), *The Ethics and Economics of Agrifood Competition*. Springer, Netherlands, pp. 99–126.
- Kautsky [1899], K., 1988. *The Agrarian Question*. Unwin Hyman.
- Kirschenmann, F., Stevenson, G.W., Buttel, F., Lyson, T.A., Duffy, M., 2008. Why worry about agriculture of the middle? In: Lyson, T.A., Stevenson, G.W., Welsh, R. (Eds.), *Food and the Mid-level Farm: Renewing an Agriculture of the Middle*. The MIT Press, Cambridge, MA, pp. 3–22.
- Kloppenborg, J., Hendrickson, J., Stevenson, G.W., 1996. Coming in to the foodshed. *Agric. Hum. Value* 13, 33–42.
- Kloppenborg Jr., J., Lezberg, S., DeMaster, K., Stevenson, G.W., Hendrickson, J., 2000. Tasting food, tasting sustainability: defining the attributes of an alternative food system with competent, ordinary people. *Hum. Org.* 59 (2), 177–186.
- Labao, L., Meyer, K., 2001. The great agricultural transition: crisis, change, and social consequences of twentieth century US farming. *Ann. Rev. Sociol.* 27, 103–124.
- Lawrence, G., Burch, G., 2007. Understanding supermarkets and agrifood supply chains. In: Burch, Lawrence (Eds.), *Supermarkets and Agri-food Supply Chains: Transformations in the Production and Consumption of Foods*. Edward Elgar, Cheltenham, UK: Northampton, MA, pp. 1–28.
- Legun, K.A., 2015. Club apples: a biology of markets built on the social life of variety. *Econ. Soc.* 44 (2), 293–315.
- Legun, K., 2016. Ever-redder apples: how aesthetics shape the biology of markets. In: Le Heron, Lewis, Campbell, Carolan (Eds.), *Biological Economies: Experimentation and the Politics of Agri-food Frontiers*. Routledge, London, pp. 127–140.
- Levkoe, C.Z., McClintock, N., Minkoff-Zern, L.-A., Coplen, A.K., Gaddis, J., Lo, J., Tendick-Matesanz, F., Weiler, A.M., 2016. Forging links between food chain labor activists and academics. *J. Agric. Food Syst. Commun. Dev.* 129–142.
- Lewis, N., Le Heron, R., Carolan, M., Campbell, H., Marsden, T., 2016. Assembling generative approaches in agri-food research. In: Le Heron, Lewis, Campbell, Carolan (Eds.), *Biological Economies: Experimentation and the Politics of Agri-food Frontiers*. Routledge, London, p. 1.
- Lobao, L., 1990. *Locality and Inequality*. SUNY-Albany Press, Albany, NY.
- Lockie, S., Halpin, D., 2005. The 'conventionalisation' thesis reconsidered: structural and ideological transformation of Australian organic agriculture. *Sociol. Ruralis* 45 (4), 284–307.
- Lyson, T., Welsh, R., 2005. Agricultural industrialization, anti-corporate farming laws and rural community welfare. *Environ. Plann. A* 37, 1479–1492.
- Lyson, T., Torres, R., Welsh, R., 2001. Scale of agricultural production, civic engagement, and community welfare. *Soc. Forces* 80 (1), 311–327.
- Lyson, T.A., Stevenson, G.W., Welsh, R., 2008. *Food and the Mid-level Farm: Renewing an Agriculture of the Middle*. MIT Press.
- Mann, S.A., Dickinson, J.M., 1978. Obstacles to the development of a capitalist agriculture. *J. Peasant Stud.* 5 (4), 466–481.
- McMahon, M., 2011. Standard fare or fairer standards: feminist reflections on agri-food governance. *Agric. Hum. Value* 28 (3), 401–412.
- Miewald, C., Ostry, A., Hodgson, S., 2013. Food safety at the small scale: the case of meat inspection regulations in British Columbia's rural and remote communities. *J. Rural Stud.* 32, 93–102.
- Mottner, S., Smith, S., 2009. Wal-Mart: supplier performance and market power. *J. Bus. Res.* 62 (5), 535–541.
- Mount, P., 2012. Growing local food: scale and local food systems governance. *Agric. Hum. Value* 29 (1), 107–121.

- Nabhan, G., 2002. *Coming Home to Eat: the Pleasures and Politics of Local Foods*. Norton, New York.
- Newman, K., 2006. *Chutes and Ladders: Navigating the Low-wage Labor Market*. Harvard University Press, Cambridge, MA.
- O'Connor, C., 9th November 2015. Fast food workers plan Tuesday strikes in 270 Cities, Vow to take \$15 wage to Voting Booth. *Forbes*. Extracted from <http://www.forbes.com/sites/clareoconnor/2015/11/09/fast-food-workers-plan-tuesday-strikes-in-270-cities-vow-to-take-15-wage-to-voting-booth/#7319376c247d>.
- Oxfam, 2015. *Lives on the Line: the High Human Cost of Chicken*. Retrieved June 10, 2016 from: <https://www.oxfamamerica.org/livesontheline/>.
- Pachirat, T., 2011. *Every Twelve Seconds: Industrialized Slaughter and the Politics of Sight*. Yale University Press.
- Parker, J.S., Moore, R., 2008. Conservation use and quality of life in a rural community: Goldschmidt's findings revisited. *South. Rural Sociol.* 23 (1), 235–265.
- Power, M., 1997. *The Audit Society: Rituals of Verification*. Oxford University Press, Oxford, UK.
- Ritzer, G., 1983. The "McDonaldization" of society. *J. Am. Cult.* 6 (1), 100–107.
- Ritzer, G., 1998. *The McDonaldization Thesis*. Sage Publications, Beverly Hills, CA.
- Rosenbaum, D.A., Mora, D.C., Arcury, T.A., Chen, H., Quandt, S.A., 2014. Employer differences in upper-body musculoskeletal disorders and pain among immigrant Latino poultry processing workers. *J. Agromed.* 19 (4), 384–394.
- Rosin, C., Campbell, H., 2009. Beyond bifurcation: examining the conventions of organic agriculture in New Zealand. *J. Rural Stud.* 25 (1), 35–47.
- Sexton, R.J., 2000. Fellows address: industrialization and consolidation in the US food sector: implications for competition and welfare. *Am. J. Agric. Econ.* 82 (5), 1087–1104.
- Soluri, J., 2002. Accounting for taste: export bananas, mass markets, and Panama disease. *Environ. Hist.* 7 (3), 386–410.
- Soluri, J., 2005. *Banana Cultures: Agriculture, Consumption, and Environmental Change in Honduras and the United States*. University of Texas Press, Austin, p. 186.
- Stevenson, G.W., Pirog, R., 2008a. Values-based Supply Chains: Strategies for Agrifood Enterprises of the Middle. *Food and the Mid-level Farm: Renewing an Agriculture of the Middle*, pp. 119–143.
- Stevenson, G.W., Pirog, R., 2008b. Values-based supply chains: strategies for agrifood enterprises of the middle. In: Lyson, Stevenson, Welsh (Eds.), *Food and the Mid-level Farm: Renewing an Agriculture of the Middle*. MIT Press, pp. 119–145.
- Stewart, H., 2006. How Low Has the Farm Share of Retail Food Prices Really Fallen? *USDA Economic Research Report 24*. Retrieved April 1st, 2012 from: <http://ddr.nal.usda.gov/bitstream/10113/18048/1/CAT30979578.pdf>.
- Stock, P.V., Carolan, M., Rosin, C., 2015. *Food Utopias: Reimagining Citizenship, Ethics and Community*.
- Strathern, M., 2000. *Audit Cultures: Anthropological Studies in Accountability, Ethics, and the Academy*. Routledge, London.
- Stull, D.D., 1990. I come to the garden: changing relations in Garden City, Kansas. *Urban Anthropol.* 19, 303–320.
- Thompson, A.K., 2010. *Controlled Atmosphere Storage of Fruits and Vegetables*. CABI, Wollingford, UK.
- Veblen, T., 1899. *The Theory of the Leisure Class*. MacMillan, New York.
- Veblen, T., 1904. *The Theory of Business Enterprise*. Scribners, New York.
- Wilkinson, J., 2002. The final foods industry and the changing face of the global agro-food system. *Sociol. Ruralis* 42 (4), 329–346.
- Wood, S., 2013. Revisiting the US food retail consolidation wave: regulation, market power and spatial outcomes. *J. Econ. Geogr.* 13 (2), 299–326.