

The Relational Geography in Newly Restructured, Consumptive Spaces: Developing a Model for Agricultural Geography of US Peri-Urban Areas

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Abstract

In recent decades, given globalization and capitalization trends, there was much theorizing about the current form and future direction of industrialized countries' agriculture. Recent shifts in the commodification, vertical integration, and division of labor of agriculture, along with land use dynamics in U.S. have influenced structural change in the industry. Farmers are evaluating and making decisions regarding the inputs to their business - land, labor and capital - to either proactively or reactively address their business goals in the face of their changing environment. Nowhere is this complex and varied landscape more obvious than in urban systems of industrialized countries. The peri-urban environment is the location of most intense post-industrial activity resulting in the greatest variety of socio-economic modes of production. The forces at play in this region are more complex and concentrated, partially as a result of the dynamics of land use, such as competition for land, increase in land prices, landscape fragmentation and other urbanization pressure. Theorists tell us that peri-urban farm households are changing their relationships to their commodity chain and to peri-urban areas to address these pressures and seek out new spaces, and respond to the opportunities that the peri-urban lifestyle provides. Being able to understand and explain farmers' responses to these changes is illustrative of where agriculture has been and where it can be expected to go in the US. Unfortunately agricultural geography models have not kept pace with the theories of agricultural change. This paper synthesizes recent theoretical insights from agricultural geography with new lines of inquiry in relational economic geography to propose a new and timely model for US peri-urban agriculture in an attempt to better understand these individual decisions in a broader system.

1.0 Introduction

US agricultural production has changed dramatically in the last few decades. Capitalist processes have infiltrated agriculture by substituting and appropriating inputs and outputs of the commodity chains where possible. Additionally, the increased pace of globalization has fundamentally altered the scope and scale of many of these commodity chains. Together, industrialization and globalization have moved capital off the farm and into upstream and downstream activities, and have caused prices to fall. In addition to these broad changes in the industry, urban decentralization is leading to land use changes outside most American urban areas. Therefore, peri-urban farmers have to contend with this price squeeze *and* the local ramifications of development patterns, meaning they have to compete with new users of a main input to production – land. As peri-urban farmers respond to these new circuits and spaces of accumulation, many find the competition in the market place and on the landscape reason to exit farming altogether. But the story of the peri-urban landscape is not that simple. Indeed, some producers are attempting to create opportunities in order to keep farming by addressing weaknesses in this reformulated agricultural system by changing their relationships to the system itself. The opportunities for agriculture to “localize” or develop into alternative agricultural systems are greater in peri-urban settings than in strictly rural areas because of the interaction of both urban and rural socioeconomic processes that occur in peri-urban settings. Therefore, peri-urban environments are the location of most intense post-industrial activity resulting in the greatest variety of socio-economic modes of production (Bryant and Johnston 1992).

Looking at the varied agricultural landscape of the US, particularly in peri-urban areas, it is clear that farms do not simply react to the forces of global capital, nor do local land market conditions necessarily dictate the use of land for agriculture. Rather, farmer adaptations reflect a relational space of global/local interaction, not determined a priori by an exogenous context beyond the farm household. Economic geographers tell us any economic actions (of firms, which include farm households) are situated and contingent (Bathelt and Gluckler 2003), including the actions of those farmers that would be seeking the aforementioned peri-urban opportunities. The geography of agriculture, therefore, is created by the relationships of the economic actors to their dualistic agency/structure context, at a particular point in time.

Traditionally, in agricultural geography, theoretical frameworks are applied to the landscapes of change to elucidate salient processes and to explain these economic actions. The tradition of agricultural geography models dates back to the early 1800s when agricultural geography was considered a subset of economic geography. For some time, agricultural geography models mirrored trends in agricultural geographic thought - from von Thünen's theory (1966: originally published in 1826) of profit maximizing firms and land rents, to structural and political economic models, to the models reflecting the “cultural turn”. But as economic contribution in industrial countries declined, so did interest in agricultural geography (Johnston, Gregory et al. 2000). Nevertheless, in the early to mid-2000s there was a resurgence of studies on farmer adaptation to changing conditions in the agricultural context (Daskalopoulou and Petrou 2002; Shucksmith and Herrmann 2002; Johnsen 2004; Lobley and Potter 2004; Smithers and Johnson 2004), however none offer a model that connects to the latest theoretical developments in agricultural geography. These current research themes provide a basis for farmer adaptation strategies, but only on the macro-level (Lobley and Potter 2004).

Hence, agricultural geography models have not kept pace with the transformations visible in US agricultural production. A more current framework is needed not only to explain how farmers may adapt and what the resulting geography will be, but also to provide a basis for validating new theories of agricultural change – to examine, indeed, if more recent adaptations are a result of farm household’s changing relationships over time. Unless agricultural geographers develop more timely and relevant models to apply theoretical insights, we assign ourselves to obscurity when applying knowledge to the landscape. It is imperative that we offer new approaches to continue discourse and debate over the geography of agricultural production.

This purpose of this paper is to offer a relational framework, adapted from recent work in economic geography, to re-inspire contemporary exploration of agriculture in the intensely competitive peri-urban landscapes. The relational framework consists of context, path dependence and agency. In short, these relations describe how the motivations of the farm household (agency) and their past choices and future plans (path dependency) compete with and/or are mediated by local and supra-local conditions (context). This proposed model attempts to explain how these relationships between the common elements of agricultural geography models (farm household, local and supra-local conditions) and interaction of the relationships themselves (agency, path dependency and context) can provide insight on how peri-urban farm household are positioned by current forces and/or how these farm households are positioning themselves. The focus on the relationships of context, path dependence and agency allows agricultural geography to emerge as global processes touch down on the local landscape, which is in turn utilized by economic actors over time.

To lay the foundation for my proposed model, I first provide a brief description of the changing space and scales of US agriculture. Next, I offer an image of agriculture in a peri-urban context. With these two background stories, I then review theories of agricultural geography in the face of scale and place restructuring. Then the history and evolution of agricultural geography models is examined. Next, I provide my model in an attempt to make agricultural geography models current. Finally, discussion is offered and conclusions are drawn.

2.0 Changing Spaces and Scales of US Agriculture – the Agricultural Context

In the late 1920s, the mode for agricultural production began to change from mainly subsistence-to-market to industrial agriculture (Bowler 1992). Capital penetration into agriculture has resulted in increased labor productivity (or higher output per unit input of labor), technological innovation in agricultural inputs and machinery, crop specialization and the appearance of large farm corporations (Roberts 1996), as well as innovations in plants and animals (Gardner 2002). As a consequence, the value added from “off-farm” sectors both up- and downstream in the commodity chain, such as gene selection and seed production industries or manufacturing of products using industrial labor, is greater now in the overall commodity chain (Whatmore 2002), resulting in farmers competing for increasing smaller profit margins. Farmer strategies to compete in a capitalist restructuring of agriculture have included reducing dependence on nature (e.g., using high-technology inputs to offset the effect of unpredictable weather conditions), and increasing market size and value of products through further industrialization (Whatmore 2002).

The structure of farms, themselves, changed as a result of industrialization. Farms became larger, grossed more dollars and had increasingly complex management. Overall the number of farms went down, output increased and production became more concentrated and specialized. Farmers are now older, work off-farm more and rent more land (Gardner 2002; Hart 2003).

Furthermore, vertical integration has become the norm in select agricultural systems, changing the position of farmers within the production process. Vertical integration occurs when firms specialize in more limited aspects of production and increasingly coordinate with other firms upstream or downstream in the commodity chain so that the inputs, production, processing, marketing and sales are centrally controlled by new corporate actors, for instance through transnational partnerships (Hendrickson and Hefferson 2002). The increasing concentration and ownership control in the food system has necessitated tightly connected networks and relationships (Hendrickson and Hefferson 2002). As a result, several large food chain clusters have emerged where ownership and decision-making are standardized throughout the system.

More recently, the actors and socioeconomic processes of the post-fordist age have generally restructured and rescaled beyond local and regional spaces, resulting in *globalized* industrial production. The agricultural industry, while having unique characteristics of its own – such as relying on biophysical land process and animal and plant development, and biological timelines of production – has not been left behind. Agricultural capital has spread and re-concentrated. While some commodities, such as sugar, have in essence been global in terms of a market for centuries (Friedland 2004), this more recent, pervasive globalization has resulted in the massive international mobility of capital (and to a certain extent, labor), a change in the actors and their control of the commodity chain, and an increase in the scope, scale, and speed of exchange. Interestingly, one of the main inputs to the agricultural system is fixed – land – which makes the examination of agriculture that much more fascinating.

These major shifts in the production, marketing and management of agriculture have not necessarily resulted in an irrevocable homogenization of the landscape. Countervailing agricultural systems have also evolved both in resistance to these outside forces, but also as a way to create local opportunities. Despite the strength of global market forces, agriculture is still articulated unevenly across the landscape for many reasons. Foremost, agriculture is not always a purely capitalistic venture for farming households. The opportunities and constraints are different for each farm decision-making unit, as not only the constitution of each farm's basic components of land, labor and capital vary, but the current system of economic and social relations in which each farm is engaged differs dramatically. As a result, some farmers choose to engage in the globally competitive agriculture regime, while others choose to create new spaces of engagement out of either necessity or a desire to reframe their farm's sphere of competition.

2.1 US Agriculture in the Peri-Urbanization Context

Nowhere is this complex and varied agricultural landscape more obvious than within urban systems of industrialized countries. Peri-urban areas are continually incorporated into the urban region through urbanization of formerly agricultural or other undeveloped areas located

beyond suburbia (Fulton, Pendall et al. 2001; Heimlich and Anderson 2001; Irwin and Bockstael 2006). Increasingly, peri-urbanization results in low-density, non-agricultural, urban-dependent development (Clark, McChesney et al. 2005). This type of development results from many processes which often act in tandem: increasing household income, flight from perceived urban ills like pollution, traffic and crime, social reproduction (e.g., chasing the “American Dream”), local land use regulations, and improved transportation (Mieszkowski and Mills 1993; Pendall 1999; Fulton, Pendall et al. 2001; Shumway and Otterstrom 2001; Carruthers 2003). Therefore, farmers in peri-urban areas also have to contend with the realities of urbanization and the new consumers of the countryside.

With the restructuring of the countryside come both opportunities and obstacles. Peri-urbanization results in new potential users for agricultural land and thereby new competition. As middle-class residents consume rural space in the countryside, they reinforce the commodification of that space and place leading to two structural challenges for farmers attempting to reposition themselves in the peri-urban area (Marsden et al. 1996). These challenges are: (1) **the scale**: supra-local processes that are weakening their economic position within the food system; and (2) **the place**: local processes of increased competition for land. With increased competition for land come higher land prices, more non-farm neighbor conflicts, and more regulation. New opportunities also arise. For example, urbanization can bring new customers for direct markets and increased traffic for related farm businesses. From a peri-urban perspective, agriculture is incorporated into the urban system in several new ways: as a backdrop for non-farming peri-urbanites country lifestyle, as a traditional sense of place, or as a player in the new place-based relationships through local food markets or the local land market.

2.2 Theories of Agricultural Geography in the Face of Scale and Place Restructuring – A Context Beyond Industrialization and Globalization

In order to comprehend this diverse new landscape, we need to understand better not only the current structure of agriculture in peri-urban areas, but more importantly how these new spaces and scales of industrialized and globalized economic processes affect farmer adaptations in peri-urban areas. Recent shifts in the broad economic structure of agricultural markets, along with the changing faces and lifestyles prevalent in US peri-urban areas, have influenced the pattern of structural change in the agricultural industry. New production strategies and adaptations arise to address the pressures and the opportunities that the advanced capitalist economies provide, and to respond to larger markets.

From the first agricultural geography models until the mid-1990s, academics have theorized how economic processes, obstacles and opportunities, tied to the inputs and outputs and locations of farms, determine the form and function that agriculture takes across the landscape. Geographers’ recent re-engagement with agricultural geography, however, takes different theoretical avenues than many of these traditional theories (Winter 2004; Bathelt 2006; Cook 2006), which all have a unique signature in peri-urban areas. More recent theorization examines **counter-industrial** movements, like organic production (Guthman 2003); **alternative agricultural systems**, which attempt to utilize spaces and places globalization has left behind, including resistance to the changing scale of agriculture and **localization** through strategies such as shortening the commodity chain or local branding (Suryanata 2002; Allen, Fitzsimmons et al.

2003; Renting, Marsden et al. 2003; Winter 2004); **alternative networks** that reconstruct the commodity chain (Whatmore and Thorne 1997; Winter 2004); the potential of **new rural development** that attempts to capitalize on local agriculture for economic development through non-productive aspects of the farm (van der Ploeg 2000; Renting, Marsden et al. 2003).

Specifically in regards to peri-urban areas, the production of both agricultural and nonagricultural products is being pulled into larger urban markets. No longer does the countryside consist of rural markets and commodity production; it must also be seen as a site of consumption. This **consumptive countryside** (Marsden 1999) reflects the activities of new users who are reconfiguring these areas for residential and recreation uses. Frameworks that seek to provide some explanation for the externalization of the countryside have been applied specifically to agriculture, including the **post-productivist regime** (Ilbery and Bowler 1998) and the more recent framework of **multifunctionality** (Wilson 2001; Bohnet, Potter et al. 2003; McCarthy 2005) that allows for both productive and nonproductive local uses of farmland. Finally, **ecological modernization** has been offered as an alternative theoretical framework to post-productivism and multifunctionality, which re-embeds ecology in the sphere of economic decision-making (Marsden, Munton et al. 1996; Evans, Morris et al. 2002; Marsden 2004).

All of these recent theories of agricultural geography change (above), by definition, rely on the changing relationships between the farm household and the community (local), or within the commodity chain (supra-local), or both. For example, to capture urban opportunities through new rural development involves a changing relationship between the new local market and the farm household. Further, the localization of the commodity chain is clearly an adjustment of vertical relationship in the commodity chain.

These current research themes provide a basis for certain farmer adaptation strategies, but only on the macro-level. Lobley and Potter (2002) contend that the most recent “macro-thinking” research (and, to a certain extent, normative research) about the future of land use and agriculture is not tested with empirical evidence. There is a growing need to address aspects of newly theorized consumption (Marsden, Munton et al. 1996) and how producers choose to manage their operations in light of recent trends (Wilson 2001; Winter 2004). While there is a documented move this direction (Roche 2003) there are no current models of agricultural geography that place farmers relationships centrally.

3.0 Agricultural Geography Models

Agricultural geography models help explain the variation in form, function and structure of farming. In addition, many dynamic models allow for a better understanding of how farm households¹ may adapt to changing conditions. For decades, academics relied mostly on the neoclassical model. And if indeed this model provided an explanation of the current geography,

¹ This discussion is going to focus on the very broad understanding of the family farm household, recognizing that within “family farm household” there are many modes of production – from small to large farms, from retiree farms to hobby farms to full-time farms. In 2004, the overwhelming majority of US farms, 98 percent, were classified as family farms by the USDA Economic Research Service. A family farm is defined businesses that are organized in proprietorships, partnerships, or family corporations that do not have hired managers. Hoppe, R. A., P. Korb, et al. (2007). Structure and Finances of U.S. Family Farm Report, 2007 Edition. Economic Information Bulletin Number 24. Washington, DC, ERS/USDA.

then one could simply start and stop by examining homo economicus and her pursuit profit maximization. For peri-urban areas, homo economicus' rational action (which is of course accompanied by full and relevant information) coupled with a simple peri-urban land market optimization model and the agricultural landscape could be used to explain as well as predict future trends. However, as Ilbery (1985), points out in his agricultural geography text, these models have been widely criticized. 'Satisficer models', which take into account farmers motivations and attitudes (Ilbery 1985), were offered as one alternative, but even these types of models cannot fully explain agricultural geography.

A wealth of research has told us that economic actions are situated and contingent processes (Bathelt and Gluckler 2003). As evidence, farms continue to exist in peri-urban areas when they no longer should, were profit the sole or even primary motive of the farm household. Agriculture, as an industry, is complex because the farm household behaves differently than many other types of firms. Two main schools of thought exist on why farm household may be different than other types of firms: family farm households are oriented toward a range of goals, not simply profit maximization or firm survival, and therefore respond differently to economic stimuli; there is no separation of ownership, management and labor in the firm/farm household (Reinhardt and Barlett 1989). We are then left to ask *how* peri-urban farm household's economic actions are situated and *in what ways* are they contingent upon place and changing scales of the industry?

As mentioned earlier, despite a dearth of recent theoretical attention to farm change, there has been a revival of sorts, in particular, with typological studies of agriculture. Why this revival? Perhaps it is because there is a marked change in the context (global/local struggle, counter-industrial, new rural economic development, etc.) of agriculture and new questions are arising regarding farmer adaptation and the new geography of agriculture.

3.1 The Evolution of Agricultural Geography Models

To examine the evolution of explaining the geography of agriculture, this section reviews, in chronological order, the main markers and contributions of agricultural geography models (without an exhaustive review of each model). In summary, agricultural geography model evolution often reflected agriculture's context (subsistence-to-market, industrialization, globalization, etc) and broader thinking in human geography. These models began as deterministic, neo-classical models and then overtime developed into positivist, behavioralist, structural, political economic, and modified political economic perspectives. The factors used in models have progressed from examining location relative to the city, to incorporating land markets, to allowing for direct and indirect influences of urbanization, to separating urban and non-urban influences, to permitting both positive and negative urban influences. Urbanization goes from a deterministic and exogenous factor to a very complex factor that encourages entrepreneurialism. Influences are also categorized as local and widespread, and external and internal to the farm. Other more recent model characteristics include multi-scalar models, models with feedbacks, models allowing for multiple adaptations, and models that recognize that the region/place is historically important. Finally, an overall movement has resulted in the farm household as being central, and most recently the recognition of the dualistic farm/household lifecycle as being key to understanding the geography of production. It is noteworthy that the

models stop short of examining the changing relationships of farm households to agricultural system, which is critical to understand the newly theorized geography of production (as outlined in Section 2.2).

Early models of agricultural geography (or models for short) were mainly deterministic in nature. The classic spatially deterministic model stems from von Thünen in 1826. Distance to an urban market determined what type of production would be taking place, with the most perishable market items located closest to the market and so forth (von Thünen 1966: originally published in 1826). This geography reflected gradients in economic rents, but only for agriculture. This model assumed no urban competition for land in peri-urban areas. Sinclair (1967) offered a model that incorporated both the urban and the rural markets, thereby recognizing that urban fringe land market pressures would promote the highest and best use of land. Both the urban and agricultural markets bid up land rents. For agriculture, this competition led to more intensive and profitable production occurring closer to cities and more land-extensive and lower net value crops located in less competitive landscapes (Sinclair 1967).

Since Sinclair (Furuseth and Pierce 1982), almost all of agricultural geography models incorporate the forces of population growth and the restructuring of the countryside, but several evolutions of agricultural geography models have taken place. These models do not represent a decisive break with the past, because some central elements of many of the models are carried through from model to model, but modifications have taken place that reflect the changing understanding of agriculture's relationship to its space.

In 1973, Bryant expanded agricultural models to allow for farms growing or raising different commodities to have varying types of responses to urbanization. Utilizing a case study of Paris, Bryant argued that only certain types of agriculture are negatively affected by urban development (Ilbery 1985). He also recognized urbanization as not just the direct effect of the physical conversion of land, but also indirect effects of neighborhood changes. He builds on these ideas in 1981 in another article on the Paris region (Bryant 1981). Bryant draws from Sinclair with the "anticipation" of urbanization. This model includes several "value for agriculture" curves that combined the type of agriculture with expected responses to varying degrees of urbanization (Bryant 1973). Bryant responds to critiques of Sinclair by arguing that the conditions under which an individual farmer has to make a decision and the perspective each farmer has of the market needs to be taken into account. Even though farms are systematically affected by level of competition introduced by urbanization, their individual attitudes cause variance and therefore heterogeneity of responses.

Next, Berry (1978) made very notable contributions with his study of the dairy sector. He also acknowledges that there are both direct and indirect effects of land conversion from agriculture. Berry contributed the notion that there is a difference between *local* indirect effects (land idled because of nearby development) and *wide-spread* indirect effects (changes in the types of farming attributes, the declining status of the farmer, urban spillovers, passive land speculation), which combine with local (such as nearby farmland idling) and widespread (effects felt across a county) influences. Urban relationships now appear to be more complex.

Bryant, Russwurm et al.'s (1982) model reflects these complexities by introducing multiple scales in their models. Focusing on peri-urban areas, Bryant, Russwurm et al. (1982) coined the concept of the "city's countryside". While their model is still somewhat deterministic in nature, they are the first to explicitly introduce the notion of metropolitan/urban forces specific to peri-urban areas (market effect, alternative employment allows for capital to substitute for labor on the farm, urban development pressure) and non-metropolitan/non-urban specific forces (tech change, changes in living standards, interregional competition political decision). In addition, their model allows for regional and environmental variations, including soil resources. Even with these advances in explaining agricultural geography, models still could not explain why farms remained in areas that long ago should have succumbed to the market.

A major evolution of agricultural geography models was the introduction of the concept of farmer agency (Johnston and Bryant 1987), corresponding with a new interest in behavioralist models. Johnston and Bryant (1987) incorporated several levels of factors that influence adaptation that result in linking adaptation to decisions made by individual farm households. Non-local, local and farm-based factors feed into the evaluation by the decision-maker. The resultant decisions feed back into both farm-based factors and local factors, and the evaluation by the farm decision-maker. This model allows the farm decision-maker to be the agent and affect and shape local conditions, which are considered by the authors as exogenous factors. They recognized that farmers may react in different ways to influences and that they may also be proactive. This model also hypothesized that urbanization can have both positive and negative effects on operations and farmers therefore may initiate positive, negative or adaptive changes to their operations. Johnston and Bryant (1987) are some of the first authors to explore how adaptations can occur to keep farms viable in peri-urban areas. Urbanization is not longer viewed as a unidirectional, deterministic force.

At the same time, Bowler and Ilbery's (1987) research really opened up agricultural geography to be more than just outside influences processed by the farm household for decision-making. While not an agricultural geography model in the traditional "locational" sense, they argued that traditional approaches have ignored how farms are part of the larger food supply system of inputs, processing, distribution, consumption – the entire food chain must be examined to understand agriculture. In essence, they allow for a political economic approach to explaining agricultural geography. Bowler and Ilbery (1987) examine the economic, societal and political structures within which the food chain operates. Their political economic model could help explain the apparent uneven development, allowing for geographical and historical specificity – this initial regional uniqueness is important to understand the spatial ramifications of the agricultural restructuring process.

In 1991, Hart introduced his Peri-Metro Bow Wave as a model to explain the dynamics of peri-urban areas. This "Bow Wave" of competition and contradictory activities occurs where the least intensive urban uses of land are steadily displacing the most intense rural uses (Hart 1991). This model takes the anticipation of development from Sinclair and makes this model more dynamic, suggesting a changing agricultural landscape over time.

Next, Bryant and Johnston (1992) introduced a much more complex geography model and a farmer decision-making model that specifically made entrepreneurialism possible. In this

model, Bryant and Johnston (1992) diversify potential adaptations by recognizing that different modes of production utilize land, capital and labor differently, under different management systems, and therefore have varied adaptations. Utilizing a general political economic approach, they consider individual farms as a system within a societal context. Their model explores how farms can enjoy links with the urban industrial complex, and suffer from it as well, making the case why post-industrial entrepreneurialism is greatest in the city's countryside. In their model, urbanization affects the form (land uses), function (reasons for land uses) and the structure (interrelationships).

Beauchesne and Bryant's (1999) model focuses on the interaction of actors and builds in the concept of "filters." Local and regional forces are "filtered" at all scales. The scales of greatest influence depend on the place. In their model, the peri-urban area is a social construction of the actors locally and regionally in the socio-cultural, political, economic and biophysical contexts. Therefore, the effect of forces are not predictable because it depends on the interplay of the actors involved (Beauchesne and Bryant 1999). Actors act within contexts. This is in part what Evans (2007) refers to a "modified political economic" approach. A modified political economic approach is a culturally informed analysis versus a more structural political economic analysis. A purely political economic approach, Roberts (1995) argues, leaves out the ability to act between scales.

Until very recently, models only allowed for singular outcomes; they did not allow for multiple adaptations to occur on the same farm. Instead, the models showed multiple "pathways," of which a farmer would take only one (Ilbery and Bowler 1998). Smithers and Johnson's (2004) model allows for multiple strategies to be taken at one time on the same farm. Their model resembles in many ways the Johnston and Bryant (1987) model in that the decision maker is the farm household, although Smithers and Johnson (2004) focus on the duality of the farm business/household and the lifecycle of the farm household. External factors work at the multiple scales and feed into family farm decision-making. In turn, farmers' adaptations feed back into external conditions.

Despite the strides made in identifying and framing what influences peri-urban agricultural geography, it is not clear that modeling farm change has kept pace with current agricultural theory. With the latest theories in agricultural geography (which encapsulates post-industrialism, post-productivism, multifunctionality and the later ecological modernization, and consumptive countryside), we do not have any prominent agricultural geography models that demonstrate specifically how farmers' relationships with their current context affects their ability to adapt in peri-urban areas over time. In short, we cannot understand how farmers' can or cannot change their local and supra-local contexts to address new peri-urban opportunities without knowing what their relationships are to that context in the first place.

4.0 Relational Peri-urban Agricultural Geography Model

In order for us to understand the varied ways in which farmers adapt, a more current model needs to address how the motivations and organization of the farm household and their past choices and future plans (what creates the landscape) compete with and/or mediated by local and supra-local influences that may result in the forms of production that are suggested by the

latest theories of alternative food systems and networks, multifunctional strategies and new rural development. To address this gap, I build from previous models to develop a relational peri-urban agricultural adaptation model that attempts to address these shortcomings. Next, I provide the theoretical framework for my model.

4.1 Theoretical Framework - Relational Economic Geography

Previous models have outlined the general model components and the basic factors associated with peri-urban agricultural geography. What is still needed is a framework to enable the examination of changing relationships in this era of global/local spatial interactions and peri-urban restructuring. The following section describes the theoretical framework that can be used to examine these relationships and to allow for the validation of the changing nature of these relationships as theorized by recent concepts, such as ecological modernization, post-industrialization, and the consumptive countryside.

Bathelt (2006) provides an elegant conceptual framework for understanding economic processes that is particularly relevant to understanding the dynamics that underpin farmer adaptation, resulting production and, hence, agricultural geography. His “relational thinking” conceptualizes economic geography from a spatial perspective by examining contextuality, path-dependence and agency. This theoretical framework recognizes the role of agents who actively shaping their environment, but whose actions are contingent upon relationships.

Relational geography is not a new concept. This type of theorizing of space and scale dates back in the 1980s (Bathelt 2006), mainly in economic geography. The economic geographer, Michael Storper (1993; 1997), used relational geography to demonstrate how localized production systems continue to play a decisive role in the global economy despite improvements in communication (Bathelt and Gluckler 2003). Working from Michael Storper’s work, Bathelt and Gluckler (2003) develop their own framework for emphasizing the organization of the firm and the evolution of economic process in differing contexts. Their relational geography model is an open system, which allows for a socially-constructed, actor-centered and process-oriented geography that recognizes past configurations of geography, but is not limited to that geography (Bathelt and Gluckler 2003).

In the past, agricultural geography models tend to treat space as an exogenous variable. However, the latest theories of the agricultural context (ecological modernization, post-industrialization, consumptive countryside) rely on space being malleable. To update agricultural geography models and their use of space, Massey’s (1984) conception of space is considered in the aforementioned relational context. She argued that there is no purely spatial process, but social processes that happen in space. By recognizing the agent and their relationships, provides ability for agents to affect their own environments. But space still has a role for understanding opportunities and constraints (Boggs and Rantisi 2003). This relational view does not allow space to be an independent variable, which can be theorized apart from economic action (Bathelt and Gluckler 2003). The result is a view of space that can explain how an economic agent may struggle and either successfully or unsuccessfully achieve the desired new formation of space. Bathelt and Gluckler’s (2003), and later from Bathelt’s (2006), relational framework as context, path dependency and agency, along with Massey’s (1984)

conception of space, I believe, provides an elegant and efficient lens for understanding agricultural geography.

4.2 Proposed Agricultural Geography Model

My proposed model entails three components that have three relationships, and each of these relationships is in turn interrelated. The main components (the shaded areas of Figure 1) are the essential elements that have evolved over time (Section 3.1) and include the following: **place/local conditions and interactions**, such as land use policies, local political support, social infrastructure, land markets, neighbors, historic economic conditions, agro-ecology and agricultural infrastructure; **scale/supra-local conditions and interactions**, such as biophysical, climatic, political and economic conditions, commodity markets, state and national regulations and policy; and the **farm household** as the decision-making unit, including the farm and household lifecycles, goals, attributes, presence of a successor, farming philosophy, organizational structure and the biophysical and locational aspects of the farm. I broadly use “place/local” and “scale/supra-local” because the place and scale will depend on the relationship that farm has, for instance, because of differing engagement in commodities and markets. These three spheres/components overlap because they are not always mutually exclusive. This model is open, including feedbacks, utilizing a culturally-informed political economy approach, and allowing for multiple adaptations to be happening on the same farm at one.

The three model components (place/local conditions, scale/supra-local conditions, and farm household) are situated within a set of relations: context, path dependency and agency. These three relations are represented in *italics* in Figure 1. The rest of this section describes these three sets of relations in conjunction with the three model components.

Farm households, the economic agents of interest here, are situated in the center of the model (Figure 1), in a particular **context of relations** and therefore operate under certain institutional and cultural conditions (Bathelt 2006). For my proposed model, the scales of the relations are contingent and take two forms. The first form is the **commodity chain, or network**, that operates both at the scale/supra-local and place/local level. Each farm household will have a set of relations regarding inputs and outputs that may extend across place, vertically along scale, or both. The length and configuration of these relationships along place and scale varies. The length depends on the degree to which capital has infiltrated and appropriated aspects of the commodity chain, variations often having to do with the biological differences in the crops in production, processing, overall markets, power relations in the chain, and state policy (Page 1996). Power relations vary in the commodity chain and the position of the farmer in the chain will likely affect the ability to adapt in certain ways (Stræte 2004). For example, distant relationships exist in industrialized agri-food systems that are concentrated in certain region and certain commodities (Whatmore 2002), such as poultry. However, a direct farm-to-consumer operation will have a different set of place and scale relationships.

The second form that context takes is the relations **between the farmer and the community** (place/local) which can be social networks, customer/producer relations, neighbor relations, community/farmer relations, farmer’s use of local resources and the like. As Page (1996) points out, industries do not locate in places as a response to exogenous factors, they

create and recreate these places at the same time as internally adjusting to conditions. In previous economic geography research, the role of the region has a prominent place in understanding the processes that occur within it. Massey (1984) explains how contemporary restructuring is shaped by the accumulated sediment of regional and local history, and presumably the position of the actor in this sediment. Geography of activity is “always in the process of becoming” (Massey 1999). As a result, spaces are produced. The farm household’s relations to place are critical if indeed farms are moving towards some of the idealized forms taken on in the consumptive countryside or through new rural development, or attempting to localize their commodity chain.

By examining a farm household relational context, the spaces and places that are primed for peri-urban types of adaptations and production are brought forward. Therefore, the way that space affects farmers can only be considered within the context of that farmer’s social and economic relationships to place and to scale, within the commodity chain and the community. Peri-urban space therefore is seen as relational, not only absolute and/or relative. The relational model enables us to get beyond the de-emphasis of the actor in both structural and political economic models.

To understand better farm structural change over time, it is important to be aware of how previous relationships mediate future relationships. One of these relationships is the way that resources have been allocated in the past, as they affect options for future allocations. Previous rounds of investment affect how farmers adjust in different contexts (Evans 2007). Bathelt (2006) uses path-dependency to describe this concept – how past decisions and relationships affect, but do not dictate, future decisions and relationships. In Figure 1, path dependency is represented by how the relations take form at t , $t-1$ and $t+1$. This time-dependent thinking is reflected in several of the latest articles detailing research on farmer adaptations by examining past adaptations and their relationship with future adaptations (MacFarland 1996; Shucksmith and Herrmann 2002; Lobley and Potter 2004). Path dependency also enables the introduction of feedbacks in an open system, therefore allowing for a full exploration on how the farm household (and its agency) and the farm household’s relationship to place and scale can change over time.

Finally, the concept of agency brings relational space to the forefront. Viewing space as only absolute or relative pre-empts agency. While both absolute and relative space are integral components of geography, it is relational space that influences produced geographies the most as production processes constitute, and are constituted by relations. In agricultural geography, agricultural spaces are produced, reinforced and transformed by farmers and non-farmers.

In general, the relationship between agency and context is considered borrowing from Giddens (1984) theory of structuration and Murdoch (2006) thoughts on post-structuralism. Peri-urban US agricultural geography cannot be explained by the sum of all micro-level activity and it cannot be explained simply by the whims of global capital. It is evident that farm households are not unequivocally mowed over by the global industrialization of the agricultural sector and at the same time it is clear farm households do not have the ability to act entirely outside this sector. The actions of farmers reproduce structures, but these structures are dynamic and not outside of the individual. Farmer actions have the contextuality of time and space.

Therefore, actions cannot be a result of the underlying structure (as structure theory would propose), but depend on the relationships established between subjects and objects in the system (Murdoch 2006). It is fully recognized that power relations in the context can marginalize some farm households (Massey 1985), explaining why the amount of agency is variable between farm households. Simply put, agency is the ability to change context and therefore the context affects the amount of agency. Agricultural spaces, in a reading through this my model, do not exist without farmers; it is the necessary condition for the production of these spaces.

Agency then does not refer to the intentions people have in doing things, but their ability to act in the first place. Agency also means that the farmer could have acted differently. Examining the representation of agency in my proposed model, I have designed the model so that a portion of the farm household is overlapped by the local/supra-local contexts and a portion of it is not. The portion of the household that is not overlapped, and therefore, not constrained by context or path dependency, represents agency – the proactive strategies that result in adaptation. The portion of the household that is within the overlapping context is the part of the farm household that is reactive to the context within which it operates. In part, the amount of agency, one could argue, would depend on the level of subsumption (or level of capitalist appropriation) of the farm household (Whatmore, Munton et al. 1987). Therefore, adaptation in peri-urban areas can be a reaction and or a realized intention or a combination of the two (Giddens 1984). The overall farm household as conceptualized here enables us to move toward what Evans (2007) calls the modified political economic approach. It is important to note that the amount of agency is not constant over time or between farmers.

Agency's relationship with path dependence is the ability to deviate from the path if the farm household desires to begin on a new path. Conversely, relationships over time also affect the amount of farm household agency because farmers are working with predetermined resources and relationships. The context (both local and supra-local conditions) determines the path at a point in time and context, itself (in my model this is the commodity chain and community), can change over time irrespective of agency. Finally, the interaction of the farm household in its supra-local and local conditions with this relational framework enable explanation of any farm adaptation, and therefore resulting production in US peri-urban areas. To recognize the dynamics of the model and the path dependency, these adaptations and resulting production then feedback into all three components.

4.3 Model Discussion

All three components (farm household, local context and supra-local context) and the three relations in the framework do and will vary between farm households over time. These shapes and lines in Figure 1 are not meant to be neat and clean, nor suggest that there is no struggle between the farm household and the local and supra-local conditions. In fact, the struggle between the three components, and therefore the adjustment in the overlap of the components, defines the level of agency and the possibility for adaptation in peri-urban areas over time.

For example, Figure 2 demonstrates (in a hypothetical manner) one way in which these relationships may vary between farms over time. Figure 2A illustrates a farm with the least

amount of agency: the greatest vertical (or supra-local) relations and the least place (or local) relations. This farm household becomes more subsumed by its vertical relations over time and therefore, the level of agency and the relations with local conditions are reduced. Figure 2C illustrates a farm household with the greatest amount of agency, the least influence from supra-local conditions and the greatest relations in place. Over time, this farm is able to make recently theorized peri-urban adaptations because of the level of agency. As a result, agency is increased and so are local relations. Supra-local relations are decreased. Figure 2B is in between 2A and 2C. This farm remains stable over time.

Thus, Figure 2 illustrates that some farm households have a greater ability to adapt in peri-urban areas than other farms. That ability is demonstrated through agency. Agency is mediated by relations between the farm household and local and supra-local conditions (or its context) and the history, or path dependence, of these relations.

5.0 Conclusions

In the past several decades, US farmers' relationships to the industrialized agri-food system have changed, with the farmer, in general, becoming just one part of a much larger, more transnationally-controlled commodity chain. Industrialization and globalization have shifted power and capital up and downstream in the chain. Nowhere is this clearer than in the struggles and adaptations in peri-urban areas where industrial processes cause a price squeeze at the same time as global processes touch down in a competitive land market. But new opportunities offered through the recent changing agricultural contexts (such as ecological modernization, post-industrialization, the consumptive countryside, and the like) are perhaps obtainable by peri-urban farmers as a mode of firm survival. Economic geography shows us that economic actions are situated and contingent, and, therefore, to take advantage of these opportunities, farm households need to both want to, and be able to, change their relationships, over time both in their local and supra-local contexts.

The relational geography framework (used in conjunction with the farm household and the local and supra-local conditions) is a step toward reconciling the global and industrial agri-food system and the political economic relationships within which the farm is positioned, the local peri-urban backdrop and its associated competition, and the decision-making processes of the farm household, in order to explain the current peri-urban agricultural geography. While new theories are offered regarding farm households taking advantage of the spaces and places left behind by industrialization or globalization and/or taking advantage of a peri-urban location, this does not mean there has been a total shift from the global industrial system of western countries. Farmers work within current markets unless they can make alternative linkages (Goodman and Watts 1997). Therefore, using this model we may ask if farm household are making these linkages and adaptations, and, if so, how. This model can be used as a validation framework for these linkages and adaptations.

Further, the relational model provides us with a way to address two of the dualisms that have plagued human geography: local/global and agent/structure. This model enables one to avoid deterministic representations of scale by focusing on relationships. A particular scale cannot be said to have a particular influence without examining the relationship to both the local

conditions and the farm household. In the model offered in this paper, agency is the most critical component of this model because the agent is the only component of the model that can change the relationships to the farm in a way to take advantage of these used spaces and places mentioned earlier. Peri-urban adaptations are fundamentally about changing these relationships, if indeed those relationships change as theorized. Of course, as demonstrated in the model, the political economic context, and limitations developed from past farm household choices, can constrain agency. What makes some farms more capable of making strategic adaptations? As Straete (2005) found in his research, “nimble” farms can innovate easier. He found autonomy to be critical for entrepreneurialism. In the relational model, this nimbleness is represented by the portion of the farm household that represents agency, in other words, the portion of the farm household that is not encumbered by its local and supra-local conditions.

In essence, the model offered here does not prioritize any one component, e.g., the political economy of the particular commodity, in isolation. One simply cannot separate the farm household from its context of local and supra-local conditions to understand the type of production that results from the farm. Agricultural geography is determined through this open system.

Finally, this model borrows from economic geography. Agricultural geography was long considered a foundational subset of economic geography, providing the valuable contributions through the first models of agricultural economic activity (Fitzsimmons 1986; Johnston, Gregory et al. 2000). Over time, agricultural exceptionalism² set in. Because of this “exceptionalism”, agricultural geography has, arguably, become marginal (Marsden, Munton et al. 1996). Economic geography can help get agricultural geography beyond questions of land use (Marsden, Munton et al. 1996) and focus back on the agent of change. Conversely, by examining agriculture through an economic geography lens, I provide an opportunity for economic geographers to explore global/local relationships in an industry at the extreme global/local locus. Because a primary input to agriculture is land, farming is rooted in place (Page 1997).

The purpose of this paper was to re-inspire contemporary exploration of agriculture in the intensely competitive peri-urban environment. The new approach that is offered for explaining agricultural geography is a relational geography framework, using a lens from agricultural geography’s first home – economic geography. The proposed model provides insights on how peri-urban farm households are positioned by current conditions and/or how these farm households are positioning themselves within those conditions. The focus on the relationships of context, path dependence and agency allows agricultural geography to emerge as global processes touch down on the local landscape, which is in turn reconfigured by economic actors over time.

² Agricultural exceptionalism is the assumption that manufacturing and service sectors are more complexly structured, and agriculture is in contrast made up of small producers acting in near-perfect competition Fitzsimmons, M. (1986). "The New Industrial Agriculture: The Regional Integration of Specialty Crop Production." Economic Geography 62(4): 334-353..

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Figures

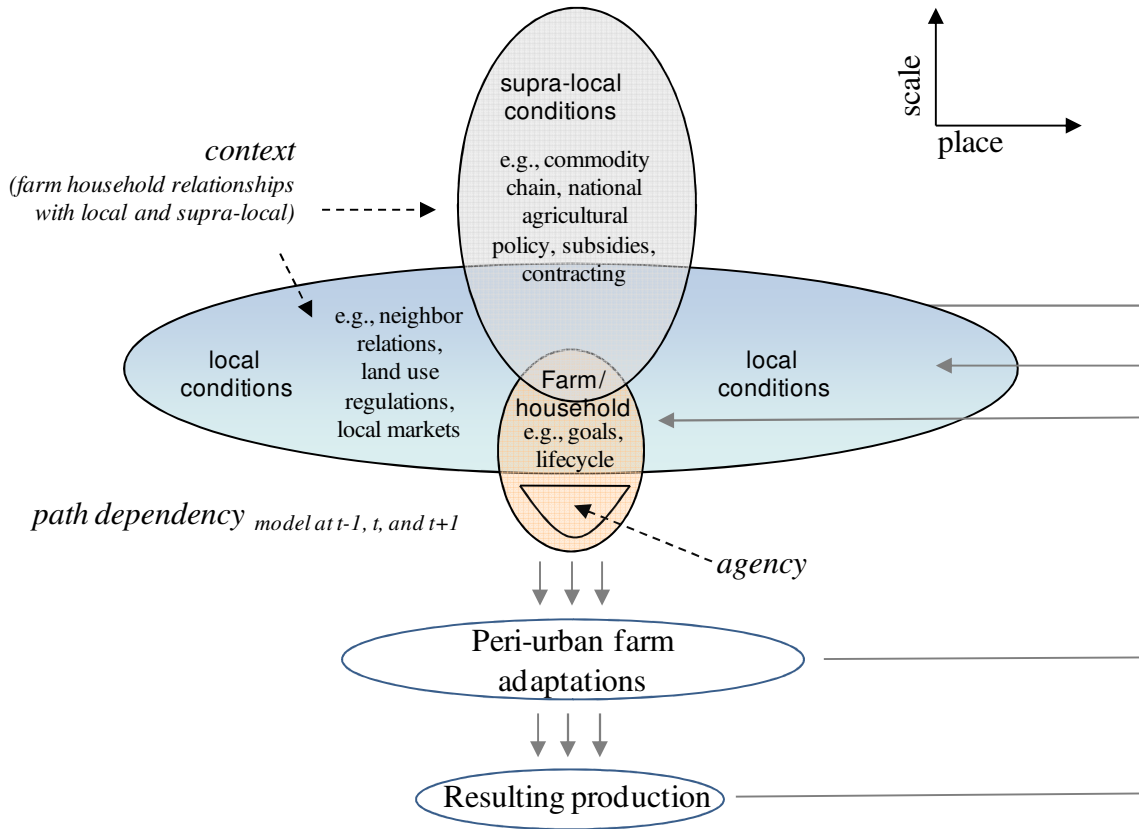


Figure 1. Relational Peri-urban Agricultural Geography Model

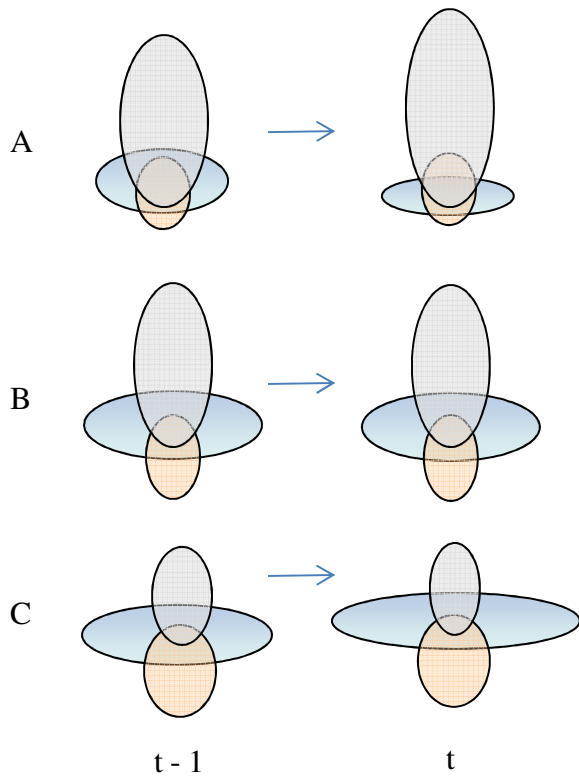


Figure 2. Farm Household, Local and Supra-local Conditions within a Relational Framework

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