

“Exurban Farming in the Current Market: Past Effects, Future Possibilities”

Jill Clark and Elena Irwin

Center for Farmland Policy Innovation (<http://cffpi.osu.edu>)

Exurban Change Program (<http://exurban.osu.edu>)

Ohio State University

October 16, 2009 – Prepared for the Baldwin Center Inaugural Symposium

POINTS TO CHEW ON

Farming at the Rural-Urban Interface – The Current Reality

- Industrialization of the food system has resulted moving dollars off the farm, up and down the commodity chain, leaving farmers to compete for increasing smaller profit margins.
- Globalization of the food system has resulted in changes in the actors and their control of the commodity chain, and an increase in the scope, scale, and speed of movement in the system.
- Many exurban places have been among the fastest growing areas in the US over the last several decades. From 1982-1997, U.S. population grew by 17 percent, while the amount of urbanized land grew by 47 percent.
- Because of rampant “growth machine,” and resulting exurbanization in the 1990s and the early 2000s, exurban farmers content with both new consumers of the countryside *and* the dynamics of the global industrialized food system.
- Classic theory tells us that exurban farmers should exit the business. But the story is not that simple....

Underlying Causes of Exurbanization

- At an individual level, household preferences for larger houses and lots and rising household incomes have driven the demand for new residential development in exurban areas.
- Perceived urban disamenities have traditionally pushed households out of central cities, leading to a downward spiral of a shrinking tax base in cities and central city decline over time as more middle and upper income households moved out and left an increased concentration of poverty, low quality schools and inferior city services.
- While individuals have freely chosen to move outer suburban and exurban areas, these choices have been heavily shaped by economic conditions and government policies that have favored outward urbanization over increased urban densification (ex. subsidization of road building and of homeownership).
 - Subsidization of homeownership acted as an income subsidy that unintentionally tilted the playing field towards outward development.
- The lack of planning controls or land use regulations in exurban and rural areas contributed to the low-density, fragmented pattern of development.
- Exurban growth is associated with several kinds of so-called “externalities” that have led to underpriced housing. As a result, new residential housing is underpriced by the market, which leads to its overconsumption by households.
- Government lack of regulation of new innovations in the financial markets in the 1990’s led to an increase in credit availability and riskier loans, including loans to so-called subprime borrowers who assumed riskier adjustable rate mortgages.

- Rising home prices and easy credit increased demand for housing which fueled a tremendous housing market bubble.

Back to Exurban Farming...

- During the boom-time of exurban development, the US experienced rapid farmland loss and structural change in the industry.
 - Farm structure change is a polarized process. Farms are getting bigger, more concentrated and specialized, grossing more dollars, engaged in more complex management. Fewer farms are responsible for the majority of production. But at the same time, hundreds of thousands of new farms began operation. These farms are smaller, the operators are younger and often derive their livelihood from additional off-farm sources.
- Since that time, the nation has continued to experience steady, but not quite as dramatic, reductions in farmland.
- Despite the decrease in overall rates of farmland loss, previous exurbanization and farmland losses have lasting implications for local industry.

The Current Crisis

- With the housing bubble burst came a drop in housing prices combined with rising interest rates which made refinancing increasingly difficult and, as the easy initial terms expired, borrowers were saddled with higher interest rates and mortgage payments. Foreclosures rose sharply beginning in 2006-2007.
- A commodity price bubble was created following the collapse in the housing bubble. The price of oil nearly tripled from \$50 to \$140 from early 2007 to 2008.
- Unemployment levels have risen to a 26-year high as of September 2009, which has reinforced the downward spiral of loan defaults and home foreclosures.
- The current crisis has resulted in a large oversupply of houses on the market. This will keep housing prices low in many markets across the U.S. and will depress new development in suburban and exurban areas.

Long-term Demographic, Technological, Market and Policy Trends

Many long-term trends may affect future demand for exurban residential development:

- Changing demographic trends suggest that future demand for housing will be more diverse, reflecting the growing diversity of household types and preferences in the U.S. and the increasing footloose status of retiring baby boomers.
- Long-term changes in demographics suggest traditional households with children is changing. Household size has declined; the number of households without children has increased; the proportion of non-family households has increased; and both men and women are marrying for the first time at a later age on average. Households without children are choosing disproportionately to live in downtown areas of central cities.
- This will not eliminate the demand for new suburban and exurban housing, but will certainly lessen it. It may also increase demand for housing in more remote areas, including remote rural areas that have coastal areas, mountains and other high-valued natural amenities.

- Improvements in fuel efficiency and expanded use of IT are likely to reduce the bonds of geographical space and enable households and firms to be even freer in their location decisions. Without transportation costs to enforce proximity, these technological advances could spur sprawl to an even greater geographical extent than what is typical of today.
- However, other forms of technological innovation are likely to encourage clustering, e.g., among higher-ordered businesses that will use IT as a complement to face-to-face interactions rather than as a substitute.
- The factors that fueled the growth machine of the 1990's are unlikely to return in the foreseeable future. Credit markets will be more heavily regulated to protect against future financial crises. Income growth is projected to stagnate. In some, but not all, areas of the country, undeveloped land will be in greater demand as an input into alternative energy, environmental pollution and local agricultural markets. This will raise the cost of development and dampen supply of new residential land in at least some exurban areas.
- Policies to reduce greenhouse gas emissions will raise the cost of gasoline and electricity, both of which are likely to dampen demand for large houses in exurban areas. Further, Nelson (2008) forecasts a future surplus of 22 million large-lot homes (houses built on a sixth of an acre or more) by 2025—that's roughly 40 percent of the large-lot homes in existence today. We believe this prediction is extreme, but nonetheless, the market value of this type of housing is likely to fall over time in the short to medium run as the market adjusts to the current oversupply of exurban houses and the increased costs of living in a large exurban house.
- Given the lull in development activity, governments are taking the opportunity to pro-actively plan for future growth and change. Balanced growth policies that restrict the supply of new exurban development are likely to achieve their goal of protecting more natural lands, but may also unintentionally serve to bid up the value of existing exurban development if some households continue to place a premium on this type of living. Given the oversupply of this housing, this outcome is unlikely to be universally the case. However, restrictions on new development in exurban areas will bid up the value of existing exurban development with high quality amenities (either urban or natural or both).

Recent Food and Farming Trends

- Many food and farming system trends exemplify ways of reinventing producer-consumer-*community* relationships.
- Urban agriculture/gardening is becoming an important community development tool.
- “Ag in the Middle” is a movement that seeks to provide small and medium size producers a comparative advantage in profitable markets through the development of value chains.
 - Many small and mid-size farms may produce too much for direct markets while generating insufficient production to effectively compete in the coordinated and corporate-dominated commodity markets.
 - Farms located at the rural-urban interface are particularly ripe to engage in value chain development given their proximity to markets.
- “Civic agriculture” is a commitment of both producers and consumers and their community to create local sustainable food system. Agriculture is considered a key part of the community.

Growing Exurban Farms

- The trends above suggest that the way for to grow farms in exurbia is for farm households to change their relationships with the community and within the food system. Farmer adaptations, simply, are strategies for deploying resources to respond or pro-act in changing conditions.

- Some of the general strategies include engaging in alternative agricultural systems, alternative networks, counter-industrial movements, business stacking, and the potential of new rural development.
- My research shows that farmers making positive urban-oriented adjustments are twice as likely to have growing businesses than farmers who do not make these adjustments. Conversely farmers engaging in negative urban-oriented adjustments, were almost twice as likely to be in decline. Farmers that are expecting to grow in the future are more likely to be increasing the number of distinct commodities produced, sales of product directly to consumers, and on-farm (value-added) processing of farm products.
- If adaptation equals success, why doesn't every exurban farm household adapt?
 - The farm family may feel they cannot change their operation because of the types of contractual relations they are in or the previous investments they made that have set them on a path. Some farm households simply do not rely on the farm as a main source of income and therefore they are not motivated to make adjustments.
- But the biggest barrier to adaptation is the notion that there are 'real farms' and 'fake farms' affects the options that farmers perceive are available to adapt to changing conditions.
- Likewise, another impedance for entrepreneurial farmer adaptations may be what the local community considers to be agriculture.

My talk today uses this above "Points to Chew On." These points are elaborated upon in Sections 1 and 2. My talk also reviews the points of discussion highlighted in Section 3.

1.0 FARMING AT THE RURAL-URBAN INTERFACE – THE CURRENT REALITY

Farming in the United States (US) has changed dramatically in the last few decades into a dynamic, globalized food system. Farm families operating in the exurbs must manage these changes, but are also confronted with the very localized reality of exurban growth. The classic theory of the impermanence syndrome (Berry 1978) would say that these farmers would exit agriculture. But the story of the exurban landscape is not that simple. The following white paper summarizes these global and local challenges and recent trends, and how farm household can reposition themselves to capitalize on these challenges.

1.1 Global Reality – Industrialization/Globalization

In the late 1920s, farming began to change from mainly subsistence-to-market to industrial agriculture (Bowler 1992). Trying to gain more profits 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, more of the food dollars left the farm and moved both up- and downstream in the commodity chain. **This results in farmers competing for increasing smaller profit margins.** For example, a wheat farmer can expect to receive about six cents of each dollar spent on a loaf of bread—approximately the cost of the wrapping. Furthermore, processes like "vertical integration" have become the norm in some areas of the industry (such as poultry), 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 (Hendrickson and Hefferson 2002).

More recently, agricultural systems (production, marketing, management, etc.) have generally restructured and rescaled beyond local and regional levels, resulting in globalized industrial production.

Some commodities, such as sugar, have had global markets for centuries (Friedland 2004). But this new and more pervasive globalization of the food system 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 movement in the system. Land, however, is still one of the main inputs to the agricultural system and this input is geographically fixed, which does have implications for farming addressed in the next section.

1.2 Local Reality – Exurbanization

Because land is a geographically-fixed resource, farming in exurban areas is more complex and varied. Exurban 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). Therefore, **farmers in exurban areas also have to contend with the realities of urbanization and the new consumers of the countryside.**

Consider more recent trends in demographics, consumer preferences, technology, markets and governance with recent shocks in oil prices and the housing market, and the future story of growth and change is not so clear. This section reviews the trends and causes of exurbanization, leaving us with questions about the future of exurban growth and the implication of past growth.

1.2.1 Past Trends in Exurbanization

Many exurban places have been among the fastest growing areas in the U.S. over the last several decades. According to Brown et al. (2005), the conterminous United States had less than 1% of land at urban densities (less than one house per acre) and about 5% at exurban densities (between 1 and 40 acres per house) in 1950; however, by 2000, these densities had grown to nearly 2% and 25% respectively. This expanded urbanization has not been matched by population growth however. **From 1982-1997, U.S. population grew by 17 percent, while the amount of urbanized land grew by 47 percent.** In fact, over the past 20 years, the per capita amount of land consumed for new housing has nearly doubled (Heimlich and Anderson, 2001).

1.2.2 Underlying Causes of Exurbanization

Personal preferences, changing economic conditions and government policies have all spurred the transformation of many rural areas into exurban regions. **At an individual level, household preferences for larger houses and lots and rising household incomes have driven the demand for new residential development in exurban areas.** In addition, there is substantial evidence that many households place a premium on adjacent or nearby open space amenities, including pasture, forested land and other undeveloped landscapes. Finally, demand for exurban living has been reinforced by certain disamenities that many households traditionally associated with central cities, such as higher crime and the lower school quality. **These urban disamenities have traditionally pushed households out of central cities, leading to a downward spiral of a shrinking tax base in cities and central city decline over time as more middle and upper income households moved out and left an increased concentration of poverty, low quality schools and inferior city services.**

While individuals have freely chosen to move outer suburban and exurban areas, these choices have been heavily shaped by economic conditions and government policies that have favored outward urbanization over increased urban densification. It is well established that government policies have distorted the costs associated with suburban land development. Primary among these are the government's **subsidization of road building and of homeownership** through federal income tax policy. Cheap gas prices have accompanied this extensive road system for most of the time that cars and trucks

have been transportation mainstays, making it relatively inexpensive to live farther out and commute to an urban or suburban workplace.

The federal income tax housing subsidy has promoted suburbanization by providing more purchasing power to potential homeowners, who in turn fueled demand for residential development. This increase in demand translates into an increase in new residential development in areas where land for development is plentiful (suburbs and exurbs), but largely serves to raise the price of residential housing in areas where the supply of new land for development is limited (cities). **Thus this income subsidy unintentionally tilted the playing field towards outward development.** For example, Persky and Kurban (2003) estimate that the income effect of this subsidy, which was distributed disproportionately to suburban residents due to higher homeownership rates and incomes and housing values in the suburbs, led to 20% more consumption of urban land in the outer Chicago area from 1989-1996.

In addition to government subsidies that lower the private cost of suburban land, outward growth has been aided by the **lack of planning controls or land use regulations** in most outer suburban and exurban areas. Other than federal regulations on wetlands and, habitat areas for endangered species or other targeted protected lands, the supply of rural land for development has been relatively unconstrained in most areas of the U.S.

Exurban growth is associated with several kinds of so-called “externalities” that have led to underpriced housing. As Brueckner (2000) details, the full benefits of open space land, which would include the value of its aesthetic and ecological benefits for example, are not reflected in agricultural or rural land prices. The market only reflects the private costs of developing rural land and thus prices undeveloped land too low. In addition, the cost of providing local public services, including public utilities, roads and schools, are not reflected in the private costs and development. This is because these costs are typically largely borne by the local public jurisdiction and, unless impact fees or some other such policy is already in place, they are not reflected in the price of new housing. As a result, **new residential housing is underpriced by the market, which leads to its overconsumption by households.**

Lastly, the role of credit markets cannot be overlooked, particularly in explaining the recent housing boom of the 1990’s and early 2000’s. **Government lack of regulation of new innovations in the financial markets in the 1990’s** (e.g., hedge funds and investment banks that were not subject to the same regulations as depository banks) **led to an increase in credit availability and riskier loans, including loans to so-called subprime borrowers who assumed riskier adjustable rate mortgages.** The proportion of subprime loans rose from below 10% to 20% in 2004 (Harvard University, State of the Nation’s Housing 2008 Report). Rising housing prices gave banks and borrowers confidence that prospective homeowners could assume more difficult mortgages and refinance later at more favorable terms. As a result, mortgages were easy to obtain and consumers assumed unprecedented debt. **The increased demand for housing led to rising housing prices, which in turned reinforced the easy availability of credit and which fueled a tremendous housing market bubble.**

These factors—individual tastes for large homes and open space; government policies that heavily favored suburban and exurban living and land development; and the availability of cheap credit and land—provided the basis for the **“growth machine” of the 1990’s and early 2000’s in which undeveloped land was allocated to new urban development at unprecedented rates.** Nowhere was this more prevalent than in exurban areas. Figure 1 shows the trends in population and building permits of single family residential homes respectively. Residential growth in exurban areas mirrors the trends in urban and suburban areas with the exception of the large rates of increase in the 1990’s. This coincides with the timing of easy credit and cheap land that led to tremendous long-run growth in the housing market over this period of time. Take another look at Figure 1. **Notice the precipitous drop in the past**

ten years of exurban population. These next sections cover the recent crises and recent trends in underlying causes of exurbanization that may change the outlook of exurbia.

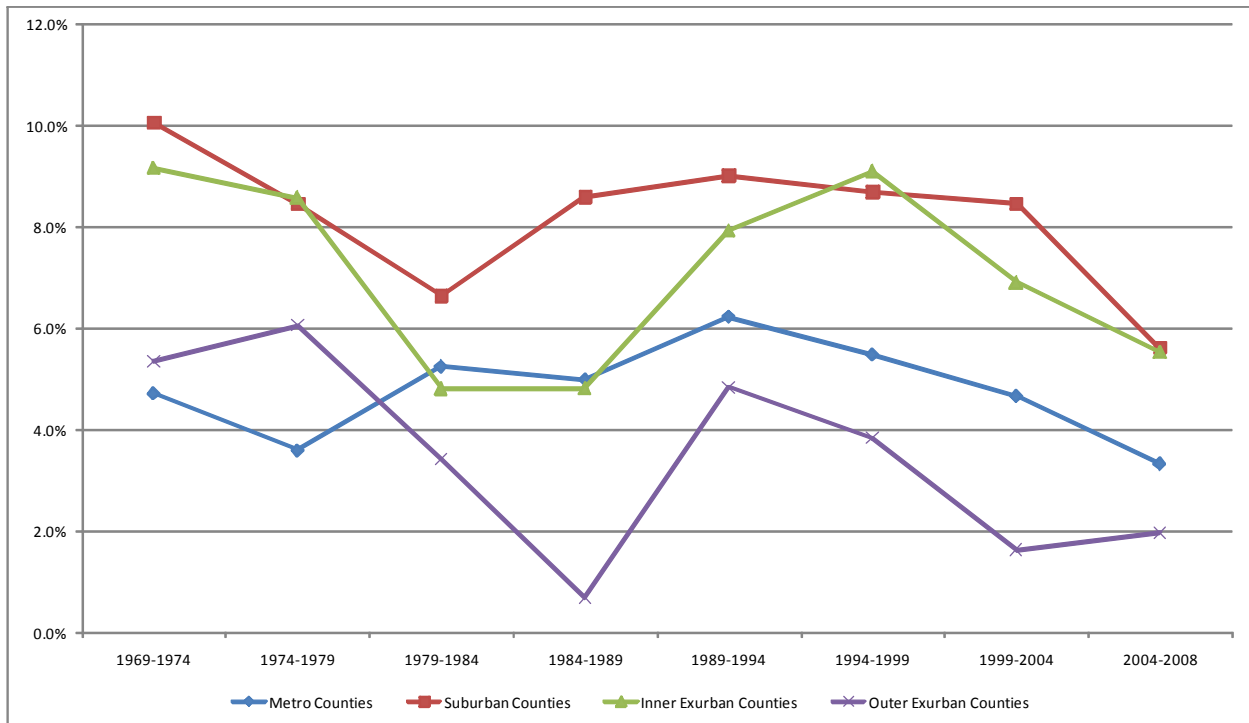


Figure 1. Percent Change in Population Growth, 1969-2008

1.2.3 The Current Crisis

We now know that the tremendous rise in housing prices in the U.S. reflected a **housing market bubble** that peaked in about 2005-2006. The subsequent drop in housing prices combined with rising interest rates made refinancing increasingly difficult and, as the easy initial terms expired, borrowers were saddled with higher interest rates and mortgage payments. As a result, **loan defaults and foreclosures rose** sharply beginning in 2006-2007. A **commodity price bubble was created following the collapse in the housing bubble**. The **price of oil nearly tripled from \$50 to \$140 from early 2007 to 2008**. This rise in oil prices may be in part attributable to shifts in global financial markets as investors pulled out of the U.S. housing market and sought to invest in other commodities. A number of other demand and supply factors, including world geopolitical events (such as war in the Middle East) and natural disasters (such as Hurricane Katrina), also likely contributed.

By late 2008, the crisis in the housing market had expanded to other parts of the economy and freezing credit markets led to a global financial crisis that continues today. The sharp drop in global economic activity has led to a rapid decline in demand for oil and oil consumption fell by 5.5% in the U.S (Department of Energy, February 2009). Moreover, **unemployment levels have risen to a 26-year high of 9.8% as of September 2009, which has reinforced the downward spiral of loan defaults and home foreclosures**. As of the second quarter of 2009, approximately 9.3% of all U.S. prime loans were either delinquent or in foreclosure (www.calculatedrisk.blog).

1.2.4 Long-term Demographic, Technological, Market and Policy Trends

The current crisis has resulted in a large **oversupply of houses on the market**. Ed Glaeser, Harvard University professor of economics, estimates that we currently have an oversupply of one million new housing units on the U.S. housing market (*USA Today*, March 2009). This will **keep housing prices low in many markets across the U.S. and will depress new development in suburban and exurban areas**. However, once the economy works its way through this housing stock, what is likely to happen in the longer run? Are we likely to see a return to business as usual and renewed growth in the market for new suburban and exurban housing? Or are there other longer term changes at work that are more likely to ameliorate or eliminate these historical trends? To consider this, we briefly discuss longer term changes in the demographic, economic, technology and policy factors that historically contributed to sprawl:

Demographic factors: Household formation determines the long-run demand for housing along with changes in the life cycle of households (e.g., rising incomes, children turning school-aged, children leaving). Demand for exurban housing is driven by traditional families with school-aged children and households with a taste for larger-lot, lower-density housing. **Long-term changes in demographics suggest traditional households with children is changing. Household size has declined from an average of 3.4 to 2.5 between 1950 and 2008; the number of households without children has increased from 31 to 40 percent from 1990 to 2008; the proportion of non-family households (defined as households comprised of legally unrelated people, e.g., roommates or unmarried partners) has increased from 12 to 34 percent between 1950 and 2008; and both men and women are marrying for the first time at a later age on average.**¹ While the smaller household size suggests an increase in the long run demand for housing over time, many of these other changes suggest that this increased demand will not necessarily be concentrated in suburban and exurban housing markets. Without the constraints of inferior school quality, non-family households and **households without children are choosing disproportionately to live in downtown areas of central cities** (for example, Birch 2006). Recent survey and demographic trends research shows that aging baby boomers, now approaching retirement age, are seeking out both urban living and rural living with high natural amenities. Younger generations, including Generation X and Y (the so-called “Echo Boomers”), are more ethnically diverse than any other previous generation in the US. In sum, changing demographic factors point to an increasing diversity of household types and preferences, a shift that will be reflected in current and future housing demand.

Technological factors: The fuel efficiency of cars and trucks in the U.S. has remained remarkably constant over the last couple of decades, e.g., since the late 1980’s, the average miles per gallon of U.S. cars has hovered right around 23. However, the **recent energy crisis and renewed political commitment to energy efficiency and carbon emissions reduction signal future changes in fuel efficiency standards**. In March 2009, the National Fuel Efficiency Policy was signed by President Obama, establishing new national fleet mileage rule for cars and light trucks that will shift from about 25 miles per gallon now to 35.5 miles per gallon by 2016. The practical effect of the new national standard will be a car and truck fleet almost 40 percent more fuel-efficient than it is today. Investment in alternative vehicle technologies is also on the rise. Major funding by the U.S. government for the development of battery and electric/hybrid vehicle technology has been recently announced. These **policy efforts are expected to jumpstart large-scale supply of electric and hybrid vehicles with vastly superior fuel efficiency**. For example, the Chevrolet Volt, currently scheduled to begin production in late 2010, is an extended-range electric vehicle is expected to achieve city fuel economy of at least 230 miles per gallon.

¹ These statistics are from the U.S. Census Bureau Current Population Survey, March 2009.

A second major technological factor is the continued development and use of information technologies (IT) for both business and personal communication. Increased reliance on IT as a substitute for face-to-face communication has enabled more workers to work remotely and has fostered more footloose households who are able to live farther away from their workplaces. On a larger scale, it has also fostered the globalization of manufacturing and services. However, other evidence suggests that it has also fostered the clustering of certain firms in closer geographical proximity to each other (Sohn et al., *Geographical Analysis*, 2002).

Markets factors: The **recent housing crisis and global financial crisis has resulted in a dramatic tightening of credit markets**, which is likely to loosen somewhat over time, **but unlikely to return to the days of easy credit that spurred the housing market bubble in the 1990's**. In addition, there is some indication that the current recession may dampen real income growth and wealth creation for years to come. The State of the Nation's Housing Report by Joint Studies for Housing Studies of Harvard University (2009) reports that real median household incomes in all age groups under 55 have not increased since 2000 and that, for the first time in at least 40 years, there is a chance that the real median household income for these age groups will be lower at the end of the decade than at the start. The **current glut of housing supply, tighter credit markets and stagnating household income all suggest that the suburban and exurban housing market boom of the 1990's is unlikely to repeat itself for years to come.**

In addition, it is likely that the demand for undeveloped land in rural and exurban areas will rise over time. This is due in part to alternative energy production, such as biofuels and wind, which require extensive quantities of undeveloped land as an input into their production processes. In addition, local and federal policies offer new incentives for using land as a sink for environmental pollution. For example, new markets for carbon emissions and nutrient trading rely on the absorption capacity of natural land to reduce carbon emissions and nutrient loading to water bodies respectively. Finally, awareness of and demand for local foods has increased in the very recent past. Sustained interest and demand for local foods may also bid up the opportunity cost of developing agricultural land. In sum, the **increasing demand for undeveloped land as an input into these new alternative energy, environmental and local food production processes will bid up the cost of "raw land" to developers and thus is likely to reduce the incentives for supplying new exurban housing.**

Policy factors: Although at this writing the national energy bill has yet to be finalized and signed into law, it is clear that a new national energy law is imminent. Currently H.R. bill 2454, the American Clean Energy and Security Act of 2009 (also called the Waxman-Markley energy bill) has passed the House of Representatives and is awaiting a vote in the Senate. The Senate has its own version, which approved by the Senate Energy and Natural Resources Committee in June 2009, and at this point it is unclear what version is most likely to become law. Currently a "cap and trade" system of regulating carbon emissions is under serious consideration and is the centerpiece of the Waxman-Markley bill. Regardless, any limit of carbon and other greenhouse gas emissions will raise production costs and is likely to at least be partially passed on to consumers. **Consumers can expect to pay more for products that are energy-intensive or otherwise highly polluting in their production process.** This includes the residential electricity and **gasoline**, which relies on highly polluting oil refineries.

Environmental concerns over climate change, land conversion and ecological degradation have spurred renewed interest among local communities in sustainable development. And with the **given slow-down in home construction, communities feel they have more time to be proactive with planning and development.** Many local communities are enacting policies to foster a more sustainable lifestyle for their residents, e.g., by encouraging alternative forms of transportation, redevelopment of vacant or

declining urban areas and incentivizing use of current infrastructure. Local and statewide initiatives also focus on preservation of open space and balanced growth policies that identify priority areas for urban growth and direct new growth to these areas and away from areas identified as conservation and open space protection areas. While a variety of planning tools and policies are being implemented to achieve these goals, many focus on restricting the development of sensitive, agriculturally productive or otherwise valuable rural land.

1.2.5 A Return to Normal? Implications of Recent Trends

Table 1 summarizes the various demographic, technological, market and policy factors and their likelihood in either promoting or hindering future sprawl. We find that many of these factors are likely to moderate either the demand or supply of this form of development while others may foster it.

Specifically:

- Changing demographic trends suggest that future demand for housing will be more diverse, reflecting the growing diversity of household types and preferences in the U.S. and the increasing footloose status of retiring baby boomers. **This will not eliminate the demand for new suburban and exurban housing, but will certainly lessen it.** It may also increase demand for housing in more remote areas, including remote rural areas that have coastal areas, mountains and other high-valued natural amenities.
- Improvements in fuel efficiency and expanded use of IT are likely to reduce the bonds of geographical space and enable households and firms to be even freer in their location decisions. Without transportation costs to enforce proximity, these technological advances could spur sprawl to an even greater geographical extent than what is typical of today. However, other forms of technological innovation are likely to encourage clustering, e.g., among higher-ordered businesses that will use IT as a complement to face-to-face interactions rather than as a substitute.
- **The factors that fueled the growth machine of the 1990's are unlikely to return in the foreseeable future. Credit markets will be more heavily regulated** to protect against future financial crises. **Income growth is projected to stagnate.** In some, but not all, areas of the country, undeveloped land will be in greater demand as an input into alternative energy, environmental pollution and local agricultural markets. This will raise the cost of development and dampen supply of new residential land in at least some exurban areas.
- Policies to reduce greenhouse gas emissions will raise the cost of gasoline and electricity, both of which are likely to dampen demand for large houses in exurban areas. In fact, some speculate that **the exurbs are the future slums of America, e.g., Nelson forecasts a future surplus of 22 million large-lot homes (houses built on a sixth of an acre or more) by 2025—that's roughly 40 percent of the large-lot homes in existence today (Leinberger 2008).** We believe this prediction is extreme, but nonetheless, the market value of this type of housing is likely to fall over time in the short to medium run as the market adjusts to the current oversupply of exurban houses and the increased costs of living in a large exurban house.
- Balanced growth policies that restrict the supply of new exurban development are likely to achieve their goal of protecting more natural lands, but may also unintentionally serve to bid up the value of existing exurban development if some households continue to place a premium on this type of living. Given the oversupply of this housing, this outcome is unlikely to be universally the case. However, **restrictions on new development in exurban areas will bid up the value of existing exurban development with high quality amenities** (either urban or natural or both).

	Underlying causes likely to <i>promote</i> sprawl	Underlying causes likely to <i>hinder</i> sprawl
Demographics	For some households: growing pull of natural amenities in rural areas	Increasing diversity of household types
Technology	Continued IT advances and greater fuel efficiency	Some alternative forms of transportation
Markets	Renewed economic growth; Increasing demands for undeveloped land	Stagnate income and tighter credit markets; oversupply of housing; long-term increases in gas prices
Policies		Carbon reduction policies and increased land use regulations

Table 1. Underlying causes likely to both promote and hinder sprawl

1.3 Past Farmland and Farm Structure Changes

As covered in Section 1.2.2, a tremendous amount of large-lot, fragmented development occurred in exurbia in the mid and late 1990s. During this time, many places in the US experienced rapid farmland loss and structural change in the industry. Below are some statistics from an American Farmland Trust report that succinctly portrays the farmland loss during that time.

- **Every single minute of every day, America loses two acres of farmland.** From 1992-1997, we converted to developed uses more than six million acres of agricultural land—an area the size of Maryland.
 - **We lost farm and ranch land 51 percent faster in the 1990s than in the 1980s.** The rate of loss for 1992-1997, 1.2 million acres per year, was 51 percent higher than from 1982-1992.
 - **We're losing our best land—most fertile and productive—the fastest.** The rate of conversion of prime land was 30 percent faster, proportionally, than the rate for non-prime rural land from 1992-1997. This results in marginal land, which requires more resources like water, being put into production.
 - **Our food is increasingly in the path of development.** 86 percent of U.S. fruits and vegetables, and 63 percent of our dairy products, are produced in urban-influenced areas.
- American Farmland Trust
Farming on the Edge Report: What's happening to our farmland?
<http://www.farmland.org/resources/fote/default.asp>

Since that time, the nation has continued to experience steady, but not quite as dramatic, reductions in farmland. Between 1997 and 2002, and again between 2002 and 2007, farmland acreage loss nationally was at 1.7%. During that time, the nation saw a 3.6% **increase** in number of farms. Of course, the landscape varies dramatically across the nation. Contrary to the national trend, Virginia has experienced a slight drop in the number of farms and a more dramatic decrease in farmland between 2002 and 2007 – 6%. **Despite the decrease in overall rates of farmland loss, previous losses have lasting implications for local industry.** For example, with less farms and farmland, communities are less able to support the infrastructure needed for a vibrant farm industry.

Looking closer at the US Agricultural Census, we see **polarized processes**. Farms are getting **bigger, more concentrated and specialized, grossing more dollars, engaged in more complex management. Fewer farms are responsible for the majority of production.** But at the same time, **hundreds of thousands of new farms began operation.** These farms are **smaller, the operators are younger and often derive their livelihood from additional off-farm sources.**

2.0 RECENT FOOD AND FARMING TRENDS

Recent food and farming trends are responding to both the dual conditions of our global, industrial food system and previous patterns of residential growth, and a reconsideration of food as part of the agricultural production system and not just a purchase commodity from the grocery store. The following section covers some of these food system trends (food and health, food and social justice, food and place-making, etc) and the on-farm adaptations taking place in recent years.

2.1 Food System Trends

Macro food and farming system trends exemplify ways of reinventing producer-consumer-*community* relationships. The following sections describe urban-oriented trends in urban agriculture, agricultural-oriented trends in mid-level value chains, and a trend that is both urban and agriculturally driven, civic agriculture.

2.1.1 Urban Agriculture/Gardening

Urban farming isn't new, of course. What is new is its growing influence as a **community development tool**. As of late, urban agriculture has focused on addressing urban food insecurity by providing access to fresh, affordable food (CFSC 2003). Therefore, urban agriculture is often an urban-driven initiative. Ad hoc gardening organizations, health advocates, and university extension programs exist in most major cities. These community-organized efforts promote new farmers on new urban small spaces. The USDA has focused on funding these efforts since 1996, with the Community Food Projects Competitive Grant Program. The Community Food Security Coalition provides support and technical assistance and has documented many of these innovative projects.

Another more recent trend in urban agriculture and gardening is the city planners are seriously considering how food systems can be a part of a city's function. For example, researchers with the American Planning Association say they recently have fielded more questions about city livestock ordinances than almost any other issue².

2.1.2 Ag in the Middle

Ag in the Middle is a movement that seeks to provide small and medium size producers a comparative advantage in profitable markets through the development of value chains. Consolidation and concentration in the retail, processing and distribution sector have created power imbalances in the marketplace that have left small and medium sized farms increasingly vulnerable (Stevenson and Pirog 2008). Midsize farms make up the largest share of working farms and account for the largest use of farmland, but also operate closest to the edges of profitability and viability (Kirschenmann et al. 2008). Likewise, access to markets has been a significant hurdle for small and medium farms. It is difficult for smaller-scale operations to break into larger grocery stores, chain restaurants and institutions due to their procurement systems, price point, volume requirements and need for year round supply (Perrett 2007).

² National Public Radio. 2009. All Things Considered. Aired January 10.

The lack of infrastructure to support the aggregation, processing and distribution of small and medium farm products has been a persistent challenge for the local food system movements.

In local food system development, direct marketing initiatives have been one strategy for small and mid-size farmers to service markets that larger farms do not. **However, many small and mid-size farms may produce too much for direct markets while generating insufficient production to effectively compete in the coordinated and corporate-dominated commodity markets** (Lyson et al. 2008). A new strategy for aggregating, processing and distributing products produced by small and medium farms is to employ value chains which “are long term networks of partnering business enterprises working together to maximize value for the partners and end consumers (Stevenson and Pirog 2008, p120).” The defining feature of agriculturally-based mid-level value chains is that they operate at a regional level that include mid-size regional farmers and mid-sized independent regionally-based processors and distributors who both cooperate and compete to achieve economies of scale and marketplace advantages.

Farms located at the rural-urban interface are particularly ripe to engage in value chain development given their proximity to markets. Further, Farms at the rural-urban interface produce just under half (49.6%) of total agricultural crop sales, and account for 79% of US fruit production and 68% of the nation’s vegetable production (Butler and Maronek 2002; Jackson-Smith and Sharp 2008).

2.1.3 Civic Agriculture – Embedding food in Place

Civic agriculture, as proposed by Lyson (2004), is an integrated urban and farm driven movement. The relationship of the community to farming is through the concept of civic agriculture, which is the embedding of local agriculture and food production in the community. In other words, **civic agriculture is a commitment of both producers and consumers and their community to create local sustainable food system.** The act of food production can be “place building” (Feagan, 2007) founded on relationships of trust between producers and the community aimed towards a more holistic integration of people in place (Delind, 2002, 217). Civic agriculture can provide a platform for **common goals** in a particular production space. Lyson further provides six characteristics of civic agriculture: **Agriculture is considered a key part of the community** versus a site producing commodities that are shipped elsewhere, farmers are concerned with quality, rely on local and sight specific knowledge, forge more local, direct market links, and have less capital-intensive and land extension production systems.

2.2 On-Farm Trends

The macro trends in Section 2.1 **suggest that the way for to grow farms in exurbia is for farm households to change their relationships with the community and the food system.** Moreover, for those farmers who are experiencing both the global and local pressures, some may turn attempt to adapt the food system and local environment to their farm, or adapt their farm to take advantage opportunities present in exurbia. **Farmer adaptations, simply, are strategies for deploying resources to respond or pro-act in changing conditions.**

The following are some of the different types of adaptations (these examples do overlap):

- **alternative agricultural systems**, which attempt to operate in ways that the global system cannot. This includes 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). Examples include value-added processing on the farm, selling directly through farmers’ markets, on farm market, local outlets such as grocery stores or restaurants.

- **alternative networks** that reconstruct the commodity chain (Whatmore and Thorne 1997; Winter 2004) to create advantageous relationships for the farmer. Examples can include cutting out “middle-men,” working with new players that are outside the global industrial system, and developing new “value-based” relationships (described later) such as chef-grower networks;
- **counter-industrial** movements, like organic production or developing alternative enterprises utilizing integrated pest management systems, producing specialty crops (Guthman 2003);
- **business stacking**, wherein farm families stack complimentary businesses that build off each other’s production systems, all on the same farm, as one system or individual enterprises (Inwood 2009). Succession plays a critical role in enterprise adaptation and persistence in exurban areas and this adaptation is one way of dealing with limited land supply and the need to grow the business. Examples include value-added farm businesses or additional types of new rural development described below; and,
- 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). This includes engaging in natural resource programs, such as the Wetlands Reserve Program, Grasslands Reserve Program, the Conservation Reserve Program, and so forth. Or, farmers may bring customers directly on the farm for agritainment or agri-tourism. Examples include pick-your-own, hay rides, mazes, pumpkin patch, picnics, petting zoo, Christmas trees, and events (such as tours, workshops & seminars, festivals). The creation of ancillary on-farm businesses can supplement or replace food production income. These can include bed and breakfasts, cabins and camping, service and repairs of farm equipment, exploiting non-food products from the farm (craft wood, fuel wood), hunting, fishing, and windmills.

2.3 Growing Farms in Exurbia

A team of researchers from Ohio State University and Utah State University³, including myself, have worked over the past few years examining farm household adaptations at the rural-urban interface. My own work focuses specifically on the geography of farm success and farm household relationships to the food system. In short, my findings support the statement in Section 2.2 that farmers who are able to change their relationships with the food system to take advantage of changing global and local conditions are much more likely to have growing businesses.

One way to look at changing relationships are to examine specific farmer adaptations. For example, farmers making **positive urban-oriented adjustments** are twice as likely to have growing businesses than farmers who do not make these adjustments. This includes **selling more products directly to consumers, raising new crops or livestock to sell to new urban customers, adjusting marketing strategies to sell to new urban customers, or shifting to crops or livestock that generates more sales per acre**. Conversely farmers engaging in negative urban-oriented adjustments, were almost twice as likely to be in decline. These adjustments include **selling off lots for non-farm development, avoiding new investments in the farm operation or idling land or leaving it fallow**. Adaptations made to improve neighbor relations did not appear to have a relationship with business growth or decline. These adjustments included whether or not a farmer had changed crop spraying activities, change tillage, planning or harvesting practices to avoid bothering neighbors, and changed manure storage or management.

³ <http://cffpi.osu.edu/agadapt.htm> - “Agricultural Adaptation at the Rural-Urban Interface: Can Communities Make a Difference?”

Farmers that are expecting to grow in the future are more likely to be **increasing the number of distinct commodities produced, sales of product directly to consumers, and on-farm (value-added) processing of farm products.**

One of the most interesting findings of my research is that sheer measures of the distance of a farm to urban areas did not help to predict farm business success, but perception of development pressure was significant.

If success equals adaptation, why doesn't every exurban farm household adapt? First, it is critical that the farm household feel they need to adapt and second, what do they consider to be their options? Farm households may not feel they need to adapt for several reason. Foremost, the **family may feel they cannot change their operation because of the types of contractual relations they are in or the previous investments they made that have set them on a path.** Next, **some farm households simply do not rely on the farm as a main source of income and therefore they are not motivated to make adjustments.**

By far, the biggest impedance to adaptation is what farmers consider to be farming in the first place. Over and over, farmers with operations that grow/raise the regional traditional commodities that I interviewed would point to farms in emerging markets or emerging methods of farming (organic, direct market, community supported agriculture) and label them as "hobbies" for "weekend warriors." **This notion that there are 'real farms' and 'fake farms' affects the options that farmers perceive are available to adapt to changing conditions.** If you do not consider certain types of production, "farming," than that type of production will not be an option for adaptation. This is perhaps why entrepreneurial adaptations tend to be done by younger farmers who have less of a family history of farming.

Another impedance for entrepreneurial farmer adaptations may be what the local community considers to be agriculture. Several farm families I interviewed found that when they wanted to adapt their business, zoning ordinances stood in the way. In one case, a wholesale tree business was not considered to be agriculture. In another case, a farm family wanted to build a barn from which they could sell Christmas trees and were told that direct sales is not agriculture by their local planners. Finally, an orchardist wanted to develop value-added activities for his apple farm and the township trustees did not consider the value-added activities to be a part of what is considered "farming."

3.0 CONSIDER THIS....

Is Sprawl Dead?

- Or are these recent major market shocks (mortgage and oil crises) just blips in the sprawling trend line? Are we scripted to repeat the rebound from the 1970s and early 1980s that translated into the dramatic exurban growth in the 1990s?
- Will the long-term trends (demographic, market, policy and technology) play a large enough role to alter exurban housing markets?
- Is unfettered sprawl a thing of the past?
- What do we do with the glut of exurban housing? *Are exurbs the next slums?*
- Will we have "selective sprawl" and new forms of sprawl (ex: so-called "rurbia") in the future?
- Even if exurbanization were to slow and alter in its pattern, existing patterns of sprawl are persistent over time. What is the legacy of the built environment and the implications for farming?

Can Exurban Farms Survive?

- How can communities and consumers support the changing consumer-producer-community relationships? and support farmers repositioning themselves in the commodity chain? Can and will communities and consumers support farmer adaptation in exurban areas?
- Are communities and farmers willing to broaden the long-held concepts of what constitutes agriculture (ex. energy production, localized production systems, mobile processing, on-farm value-added activities, and other aspects of alternative systems)?
- Is it possible to build the necessary infrastructure to support farmer adaptations and local/regional food systems that allow for better producer-consumer-community relationships?
- Can adaptive exurban farms be profitable? Or will exurban farming households rely, as recent statistics show, on outside incomes? And does that matter?
- Who is the next exurban farm generation? How can a new generation be encouraged to enter into agriculture? Our research indicates that many entrepreneurs at the rural-urban interface will not be from farm families. What do “new farmers” mean for the continuation of the American family farm ideal?

CAN CRISIS = OPPORTUNITY?

- “A crisis is a terrible thing to waste.” - Paul Romer, economist
- Will changing consumer preferences, energy considerations, and land use policy, coupled with new food system interest, prompt us (on a large scale) to rethink how farming and development can co-exist?
 - Will the necessary community leadership come forward? Are they willing to work cross-jurisdictionally for balanced growth and land protection? Are consumers willing to play an active role?
- Is civic agriculture doomed to be a niche? Is a food system paradigm shift on a large scale possible? Now that food systems are attracting more attention from a broad constituency (from health and nutrition, to social justice, to smart growth, to foodies, etc), can we use the strength of diversity to make this shift?
- Can the Baldwin Center for Preservation Development play a role in civic agriculture’s integrated place-making movement?
 - What can we learn from the Baldwin Center for Preservation Development about new farm relationships and new development patterns?

REFERENCES

- Allen, P., M. Fitzsimmons, et al. (2003). "Shifting Plates in the Agrifood Landscape: The Tectonics of Alternative Agrifood Initiatives in California." *Journal of Rural Studies* 19: 61-75.
- Berry, D. (1978). "Effects of Urbanization on Agricultural Activities." *Growth and Change* July: 2-8.
- Birch (2006). “Who Lives Downtown” from *Urban and Suburban America: Evidence from the 2000 Census*, Berube, Katz and Lang, eds.
- Bowler, I. R., Ed. (1992). *The Geography of Agriculture in Developed Market Economies*. New York, NY, John Wiley and Sons, Inc.
- Brown DG, Johnson KM, Loveland TR, Theobald DM. (2005). “Rural land use trends in the contemporaneous United States 1950-2000.” *Ecological Applications* 15(6): 1851-1863.
- Breuckner JK. (2000). “Urban Sprawl: Diagnosis and Remedies.” *International Regional Science Review*, 23(2): 160-171

- Butler, L.M. and D.M. Maronek. 2002. "Urban and agricultural communities: opportunities for common ground." CAST Task Force Report No. 138 (May). Ames, IA: Council on Agricultural Science and Technology.
- Community Food Security Coalition (CFSC). 2003 "Urban Agriculture and Community Food Security in the United States: Farming from the City Center to the Urban Fringe" CFSC. October.
- Delind, L.B. (2002). "Place, Work and Civic Agriculture: Common Fields for Cultivation." *Agriculture and Human Values*. 19(3): 217-224.
- Feagan, R. (2007). "the Place of food: Mapping Out the "Local" in the Local Food Systems." *Progress in Human Geography* 31(1): 23-42
- Friedland, W. H. (2004). "Agrifood Globalization and Commodity Systems." *International Journal of Sociology of Agriculture and Food* 12(1): 17-28.
- Fulton, W., R. Pendall, et al. (2001). *Who Sprawls the Most? How Growth Patterns Differ Across the U.S. Survey Series*. Washington DC, Center on Urban & Metropolitan Policy, The Brookings Institution.
- Gardner, B. L. (2002). *American Agriculture in the Twentieth Century*. Cambridge, Harvard University Press.
- Guthman, J. (2003). "Fast Food/Organic Food: Reflexive Tales and the Making of 'Yuppie Chow'." *Social and Cultural Geography* 4(1): 46-58.
- Heimlich, R. E. and W. D. Anderson (2001). *Development at the Urban Fringe and Beyond: Impacts on Agriculture and Rural Land*. U. E. R. Service: 88.
- Hendrickson, M. K. and W. D. Hefferson (2002). "Opening Spaces through Relocalization: Locating Potential Resistance in the Weaknesses of the Global Food System." *Sociologia Ruralis* 42(4): 347-369.
- Inwood, S. (2008). *Sustaining the Family Farm at the Rural Urban Interface – A Comparison of the Farm Reproduction Processes among Commodity and Alternative Food and Agricultural Enterprises*. Human and Community Resource Development. Columbus, Ohio State University. PhD.
- Irwin, E. G. and N. E. Bockstael (2006). "The Spatial Pattern of Land Use in the U.S." In *A Companion to Urban Economics*. R. J. Arnott and D. P. McMillen. Boston, Blackwell Publishers.
- Jackson-Smith, D. and J. Sharp (2008). "Farming in the Urban Shadow: Supporting Agriculture at the Rural-Urban Interface." *Rural Realities* 2(4): 1-12.
- Kirschenmann, Fred, G. W. Stevenson, Frederick H. Buttel, Thomas A. Lyson and Mike Duff. (2008). "Why Worry about the Agriculture of the Middle?" In T.A. Lyson, G.W. Stevenson, and R. Welsh (Eds.), *Food and the Mid-level Farm: Renewing an Agriculture of the Middle*. Cambridge, MA: MIT Press.
- Leinberger, C. B. (2008). "The Next Slum?" *Atlantic Monthly*. March. Available: <http://www.theatlantic.com/doc/200803/subprime>
- Lyson, Thomas A. 2004. *Civic Agriculture: Reconnecting Farm, Food and Community*. Medford, Massachusetts: Tufts University Press, 136 pp.
- Lyson, Thomas A., G.W. Stevenson, and R. Welsh. 2008. *Food and the Mid-level Farm: Renewing an Agriculture of the Middle*. Cambridge, MA: MIT Press, 296 pp.
- Perrett, Allison S. 2007. "The Infrastructure of Food Procurement and Distribution: Implications for Farmers in Western North Carolina." Prepared for the Appalachian Sustainable Agriculture Project. Available: www.asapconnections.org/special/research/Reports/Infrastructure%20of%20Distribution%20Final.pdf (accessed 8/6/9).
- Persky, J. and H. Kurban. (2003). Do federal spending and tax policies build cities or promote sprawl? *Regional Science and Urban Economics* 33: 361-378.
- Renting, H., T. K. Marsden, et al. (2003). "Understanding Alternative Food Networks: Exploring the Role of Short Food Supply Chains in Rural Development." *Environment and Planning A* 35: 393-411.

- Roberts, R. (1996). "Recasting the 'Agrarian Question': The Reproduction of Family Farming in the Southern High Plains." *Economic Geography* 72(4): 398-415.
- Sohn J, Kim TJ, Hewings GJD. (2002) "Information technology impacts on urban spatial structure in the Chicago region." *Geographical Analysis* 34: 313-29.
- Stevenson, Steven and Rich Pirog. 2008. "Values-Based Supply Chains Strategies for Agrifood Enterprises of the Middle." In T.A. Lyson, G.W. Stevenson, and R. Welsh (Eds.), *Food and the Mid-level Farm: Renewing an Agriculture of the Middle*. Cambridge, MA: MIT Press.
- van der Ploeg, J. D. (2000). "Revitalizing Agriculture: Farming Economically as Starting Ground for Rural Development." *Sociologia Ruralis* 40(4): 497-511.
- Whatmore, S. and L. Thorne (1997). "Alternative Geographies of Food." In *Globalising Food: Agrarian Questions and Global Restructuring*. D. Goodman and M. J. Watts. London, Routledge.
- Winter, M. (2004). "Geographies of Food: Agro-Food Geographies - Farming, Food and Politics." *Progress in Human Geography* 28(5): 664-670.