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Agriculture, health insurance, human capital and economic development at the rural-urban-interface



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ABSTRACT

Human capital theory identifies investments in health and health care policy as critical components to building human capital, however, there has been little research critically examining how health insurance policy factors into broader workforce development initiatives in the farm sector. In the U.S., the Patient Protection and Affordable Care Act (ACA), signed into law in 2010, represents the first major attempt to restructure the U.S. health insurance system, yet there has been little research examining how the ACA will affect the farm sector. This article seeks to broaden approaches to agriculturally based economic development by qualitatively and quantitatively: 1) establishing health insurance as an issue directly tied to human capital in the food and agriculture sector; 2) benchmarking farmer health insurance knowledge, the link between health insurance and farm finances, individual and employer attitudes towards the ACA, and health insurance decision-making shortly after the implementation of the ACA, and; 3) contributing research findings that inform national and state efforts to develop human capital in the food and agriculture sector. Farmers in this national sample tended to be well-insured, largely due to off-farm employment. However, a meaningful numbers of farmers reported being uninsured or underinsured and explained how their own personal health is linked to the health of the farm operation. Farmer attitudes towards the ACA and anticipated impacts varied across gender, race and ethnicity; age groups; farm scale; farmers who employ non-family members and state policy environments. Overall attitudes towards the ACA are largely mixed and differences are shades of grey rather than outright extremes. Young and beginning farmers tended to have the most positive attitudes towards the ACA and were most vocal in connecting health insurance to the viability, growth and development of their farm.

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1. Introduction

A renewed interest in opportunities for economic development through food and agriculture has taken hold throughout the U.S., as evidenced by the growing number of buy local campaigns, farmers markets, food hubs, and over 200 local and state food policy councils (Winne, 2014). These efforts are both supported and led by varying non-profit, private and public agencies and institutions in an effort to increase the supply of local foods, create new forms of economic development, recruit new farmers and retain existing farm families on the landscape. To date, the policies and programs supporting these efforts have largely focused on building human capital in the agricultural sector through economic and structural development approaches that emphasize education, training and

funding for: market infrastructure, access to land, capital, technology, and production skills. There has been less attention focused on human capital needs related to health, job quality and the social infrastructure farm families and farm workers need to ensure a more vibrant and resilient farm economy (Gillespie and Johnson, 2010; Sureshwaran and Ritchie, 2011; Inwood et al., 2013).

Gillespie and Johnson (2010) note the majority of educational materials for farm management tend to emphasize financial and individual operator factors, with farm success or failure judged as a reflection of the decisions of the individual operator. However, farms and farmers are additionally impacted by the conditions of the social, economic and government systems in which they are embedded. This includes the health care system within which farmers and their households weigh policy and coverage options against other household and farm priorities. The U.S. is one of the only industrialized western countries without a publically financed universal health system. Critics of the U.S. health insurance system

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note the country spends more public dollars on health care than most other countries, yet sees poorer results on key health outcome measures such as life expectancy and prevalence of chronic conditions (Squires and Anderson, 2015). Advocates for health insurance reform emphasize the established link between health and economic growth and the positive connection between health status and worker productivity (López-Casasnovas et al., 2005; Howitt, 2005; Becker, 2007; Dillender, 2016). The Patient Protection and Affordable Care Act (ACA) signed into law in 2010 represents the first major attempt to restructure the U.S. health insurance system by requiring that most citizens and legal residents enroll in some form of public or private health insurance. The reforms introduced through the ACA are implemented at both the federal and state level and have implications for Americans' health, welfare, quality of life and economic trajectory; however, outside of Ahearn et al. (2014), there has been little research to understand how the changes brought through the ACA will impact farms, different types of farmers, or efforts to build human capital and create economic development through the food and agriculture sector.

Lobao and Meyer (2001) argue the farm population provides a rich laboratory for studying macro level policy impacts, large scale structural employment transformations, informal and household livelihood strategies, life course and family, and gendered divisions of labor. The ACA ties into this constellation of variables, as it will have both direct and indirect implications for the farm population's use of health insurance as related to life course, health status and quality of life. The reforms also affect labor market outcomes, reliance on non-farm income and employer based insurance, and raise new questions in relation to the gendered nature of farm work as families negotiate on- and off-farm roles and household needs (Liao and Edward Taylor, 2010; Bharadwaj et al., 2013). Studying these impacts dovetails with larger national policy concerns over a shrinking and aging farm population, concentration and consolidation in the farm sector and bifurcation of farm size that are counterbalanced by renewed interest in supporting young farmers, small and medium farms, local and regional food systems and wealth based approaches to rural development (Pender et al., 2012; Lyson et al., 2008; Williamson, 2014).

Farmers have largely been left out of major studies analyzing the impacts of the ACA due to sociologists' and economists' preoccupation with the urban formal sector of the U.S. economy and the tendency to separate the household from the farm enterprise. By ignoring farmers we miss understanding: 1) how health as a factor in human capital affects economic development in the food and agriculture sector, and 2) how large-scale policy changes impact populations engaged in alternative livelihood strategies and businesses, such as farming, that rely on multiple diversified income streams and unpaid household labor. Rural sociologists and scholars in the field of rural studies have a long history of integrating household factors as variables affecting enterprise growth and development, farm resiliency, and farm quality of life (Bennett, 1982; Salamon, 1992; Reinhardt and Barlett, 1989). This study builds on these traditions, integrating health insurance as a household level variable contributing to economic development, human capital and quality of life.

The Rural-Urban-Interface (RUI) is a complex landscape that includes both rural and urban land uses and is socially and economically connected to an urban core. Farmers at the RUI are affected by a variety of processes, including both global agri-food systems pressures and stresses from local non-farm urban-related development (Audirac, 1999; Clark et al., 2009). The proximity to an urban core provides greater market opportunities, off-farm employment options and easier access to health care. Agriculture at the RUI is characterized by high value, labor intensive production

and marketing systems—the majority of the nation's fruit, vegetable, nursery greenhouse and organic crops and the majority of direct sales come from RUI counties (AFT, 2002; Jackson-Smith and Sharp, 2008; Inwood and Clark, 2013). Given the increasing interest in economic development through food and agriculture, the RUI has been a target region for local food system infrastructure projects and beginning farmer programming. Understanding how health insurance reform affects the agriculture sector is particularly important at the RUI where farmers must weigh family, farm worker, farm enterprise and off-farm employment variables.

Using human capital theory, this article seeks to make three contributions. The first contribution is through the literature review, establishing health insurance as an issue integral to human capital in the food and agriculture sector. The second is to quantitatively and qualitatively benchmark RUI farmer health insurance use, knowledge, and attitudes shortly after the implementation of the ACA by specifically asking: 1) What is the link between health insurance and farm finances?; 2) What are farmer attitudes towards the ACA as individuals and employers?; 3) What kinds of health insurance decisions are farmers making? Recognizing farmers are a heterogeneous population, this exploratory research accounts for social diversity by comparing farmers across demographic and structural variables including: race and ethnicity, gender, age, farm size, and state policy context. Finally, this paper contributes research findings that can better inform national and state efforts to develop human capital in the food and agriculture sector.

2. Health insurance reform, human capital and wealth creation in the farm sector

Human capital is defined as the “productive wealth embodied in labor, skills and knowledge” and refers to the capabilities and potential of a person determined by their innate and acquired abilities that contributes to their economic productivity (Tan, 2014; Flora et al., 2016). Unlike physical and financial capital, people cannot be separated from their knowledge, skills, values or health; therefore, investments in education, training programs and health are also investments in growing human capital (Becker, 1993, 2007; López-Casasnovas et al., 2005). Tan (2014) notes that Human Capital Theory (HCT) is both an economic theory and an approach used to evaluate a range of human affairs and to design corresponding policy. In the economic and community development literature, HCT is strongly linked to growth, development and innovation, and has served as the justification for national and international investments in education and training programs. Citing the positive relationship between an individual's health status, level of well-being and productivity, and national growth rates, Becker (1993) argued investments in health care, nutrition and medicine should be integrated into HCT, and seen as compliments to expenditures in education and training. More specifically, Howitt (2005) notes healthier workers have an improved life expectancy and are more productive because of increased vigor, strength, attentiveness, stamina and creativity. Health status affects the rate of return from education investments. Healthier individuals are more efficient learners, are more creative and able to generate innovative ideas and technologies, and are better able to cope with stress and adapt to disruptive and stressful events (Howitt, 2005). This last point is particularly significant for the farm population, which is vulnerable to rapid changes in weather, growing conditions and labor and economic markets.

In line with HCT's focus on education and training, efforts to build human capital in the food and farm sector have predominantly focused on job creation, formal education, knowledge and labor market skills. Health has primarily been addressed through

farm safety and agro-medicine initiatives that are peripheral and tangential to efforts to create economic development through food and agriculture. In a HCT framework, investments in health, medical care and health care policy are seen as compliments to education and training programs (Becker, 2002; Flora et al., 2016). A comprehensive HCT approach requires a focus on worker health, quality of life, community institutions and job quality; all of which can affect the ability to attract, retain and develop the workforce (Green and Haines, 2012; Pender et al., 2012). This holds true in the agriculture sector, yet health, health care policy and the concept of job quality have been notably absent from efforts to create economic development through food and agriculture. Job quality includes development and deployment of skills, engagement, representation and participation in decision-making, job security, wages and benefits (Cooke et al., 2013; Findlay et al., 2013). In the U.S. there is a positive correlation between availability of health insurance and better job quality, as workers typically obtain health insurance and other benefits through employers. Jobs that lack such benefits can cause hardship and financial difficulty for working families. In the U.S., the amplified debates over health care reform reflect the growing trend of self-employment and part-time, temporary work limiting the ability of workers to access affordable, comprehensive health insurance (Findlay et al., 2013). At the 2004 meeting of the Organization for Economic Cooperation and Development (OECD) Health Ministers, Frenk (2004) highlighted the need for universal health insurance policies in high-income countries such as the United States, citing two reasons. The first is the predominance of employer-based health insurance constrains worker mobility and labor markets because health insurance is not portable. The second reason is a health care system based on out-of-pocket expenditures is inequitable, exposing whole populations to additional cost burdens that limit development and perpetuate the disease and poverty gap. Citing the link between growth, income, investment and employment as indicators of an economic system, Frenk (2004) simultaneously argued that investments in health and the design of health financing policies must be addressed in terms of the interaction between health and the economy.

Access to affordable health care and health insurance is particularly significant for the farm population, as farming ranks among the most dangerous occupations in the U.S. (Center for Disease Control and Prevention, 2013; National Institute for Occupational Safety and Health (NIOSH), 2010; Bureau of Labor Statistics (BLS), 2011). Farmers, their family members, and farmworkers are exposed to numerous health, environmental and safety hazards and are at high risk for fatal and nonfatal injuries and illnesses (OSHA, 2013). In 2011, the injury rate for agricultural workers was over 40 percent higher than the rate for all workers (BLS, 2011), resulting in lost-work time injuries and permanent impairment (CDC, 2013). The health and safety of farm families impacts both their quality of life and also the economic viability of the enterprise. If an operator, family member or employee is unavailable due to a health problem from accident or illness, it can have serious negative repercussions for production, marketing and management; the ability for farmers to manage a health problem and recover is dependent on their access to care (Gillespie and Johnson, 2010; Zheng and Zimmer, 2008).

Nationally, the cost of health care has been cited as a significant problem for farmers and creates a major barrier to job creation and the ability to farm full-time (Ohio Rural Development Partnership, 2006; Mishra et al., 2012; Shute, 2011; Vermont Farm to Plate, 2011). Partially as a result of off-farm work, farmers are more likely to have health insurance than the general population; only 9.3 percent of farm operator households are uninsured, compared to 15.7 percent of the general population (Ahearn et al., 2014).

Employment-based insurance is the primary source of coverage for farm families; households reporting no off-farm work are the least likely to be insured and most likely to purchase insurance through the private market (Ahearn et al., 2014). Whitaker and Slesinger (2002) found that farmers paid more than three times as much in health insurance premiums as wage and salary workers, and twice as much as other self-employed business owners, often for policies with high deductibles. Studies have consistently found farm families without off-farm work have a greater reliance on individual market health insurance policy and pay more than those obtaining benefits through an off-farm job (Jones et al., 2009; Mishra et al., 2012; Ahearn et al., 2014). Many of these health insurance products were catastrophic health insurance plans which carry high deductibles (often as much as \$10,000) and consequently often limit the amount of health care sought. Therefore, farmers with catastrophic health insurance coverage are more likely to go without preventative care than individuals who receive their health insurance through the employer-based market. The 2007 Health Insurance Survey of Farm and Ranch Operators in the Midwest found that, while most respondents had health insurance, one in five had outstanding debt from medical bills, and one in four reported health care expenses contributed to their financial problems (Lottero et al., 2007).

Farmers at the RUI are both similar to and different from more rural remote farmers. Both groups must contend with global and national agriculture policies, but RUI farmers also need to factor high land costs into their business model. By their geographic location, RUI farm families have a wider range of occupational and labor market opportunities that provide household income, cash flow for the farm and options for employer sponsored health insurance plans compared to rural remote farm families. However, in a 2007 pre-ACA study of farmers at the RUI, Inwood (2015) found 66 percent of commercial RUI farmers surveyed identified the cost of health insurance as the most serious problem for their farm business—more significant than the cost of land, inputs or market conditions. Farm families reported both workers' compensation and the cost of health insurance as limiting the number of full-time employees the farm can employ, and therefore limiting growth in labor-intensive horticultural operations and direct marketing. Family labor may be limited as many operators or their spouse often have an off-farm job for health care benefits (Ahearn et al., 2013): nationally 52 percent of all operators identified having a different primary occupation other than farming (NASS, 2014). Off-farm health care benefits can relieve the farm from insurance expenses and reduce the stress of "what might happen" from an injury or illness. On the other hand, keeping an off-farm job decreases time and energy available for farming and marketing (Sharp and Smith, 2005), and sometimes creates the need to hire additional part-time laborers who do not receive health benefits. This reality complicates initiatives to create a new economy based on food and agriculture that offers high-quality jobs and enhances employer and employee quality of life. Applying asset-based workforce development frameworks to farm policy provides a useful lens to examine common issues across workplaces such as how the availability and cost of health insurance affects both the ability of new farmers to enter agriculture and the ability of existing farm families to grow or even maintain viability.

2.1. U.S. Health insurance reform and the farm sector

The health care reforms ushered in through the ACA are posited to remove job lock, stimulate entrepreneurship, benefit small businesses and increase the overall health status of the American population. Arguments for the ACA cite studies projecting the ACA will stimulate entrepreneurship, create an estimated 25,000

additional new businesses each year, and that the number of self-employed individuals will increase by 1.5 million (Ydstie, 2014). While employer-based health insurance plans are still available, under the ACA, access to high-quality, subsidized health insurance coverage is no longer exclusively tied to employment. The ACA established health insurance exchanges (also known as Marketplaces) that opened in 2013, allowing individuals to shop for and compare health insurance plans on one website (Dillender, 2016). The self-employed have access to guaranteed non-group insurance coverage and financial assistance for its purchase through federal or state based health insurance exchanges or through Medicaid (a joint federal and state health insurance program for individuals and families with limited income and resources that some states have expanded to a wider range of income levels under the ACA) (Kaiser, 2016b). Older adults are eligible for Medicare, a federal health insurance program for individuals aged 65 or older that is not tied to income or employment status. Both Medicaid and Medicare were established as federal programs in 1965 (Centers for Medicare and Medicaid Services, 2016).

Farmers may benefit from the ACA in two ways. First, as self-employed entrepreneurs and small businesses, farm families have more options for health insurance than the high-deductible catastrophic plans or plans tied to off-farm employment. Second, income and not assets determine the subsidies individuals and families are eligible for in the Marketplace (Andrews, 2013), a provision that decouples the farm family from the assets of the farm enterprise and addresses the “land rich, cash poor” conundrum farmers often face.

Farmers must simultaneously negotiate the health insurance landscape from two different perspectives. The first perspective, “farmer and family,” involves health insurance decision-making for themselves and their families. Nearly 80 percent of the 2.1 million farms in the U.S. do not hire labor; instead, labor is provided fully by the operators and family members (Ahearn et al., 2014). The farm enterprise often includes family members of varying ages, many of whom do not qualify for Medicare (available to individuals over 65) and will be affected in some way by the ACA (Ahearn et al., 2014). Family farms are complex entities as family members may be employees and/or part owners. The position of the farm family along its life course can impact farm enterprise structure, in addition to the different types of health concerns farm families may face (Bennett, 1982; Elder, 1985, 1992; Gasson and Errington, 1993). Farm families are dynamic entities: they negotiate the social relationships of production and work within the context of the farm wives', husbands' and children's life cycles, family cycles and farm cycles. Within these contexts, families must address the costs and risks associated with childbirth, chronic and acute illness, accidental injury and death.

The second perspective is “farmers as employers” where farmers determine if and how to offer health insurance to their employees. A healthier workforce with less turnover can help decrease production costs from training new workers and may help increase farm profitability. One-third of the U.S. agricultural workforce is classified as hired farmworkers, representing 1,063,000 documented farm workers, with 54 percent employed year-round, 19 percent employed seasonally and 27 percent defined as non-employee contract workers (ERS, 2015). Farmworkers and laborers have historically earned the lowest reported salaries, with mean annual salaries ranging from \$20,020 for documented field workers to \$45,690 for first line supervisors (Bureau of Labor Statistics, 2014). Documented farmworkers are insured through workers compensation for on-the-job injury, but few farm workers are offered health benefits (Ahearn et al., 2014). Additionally, contract workers who are hired through a third party are not covered by workers compensation and are financially responsible for their

own injuries and health.

Under the ACA, employers must only provide health insurance if they have 50 or more full-time employees (penalties and fines for mid-sized businesses that employ 50 to 99 full-time workers and fail to provide coverage to workers was delayed until 2016).¹ Ahearn et al. (2014) calculate that fewer than one percent of farms (1582 farms) will be affected by the employer mandate; these are large labor-intensive farms raising fruit, nuts, berries, greenhouse and nursery crops. These farms are primarily located in the western region of the country, and more than half are classified as nonfamily farms. They employ 29 percent of all full-time employees in the agricultural sector, accounting for 22 percent of all labor expenses in the farm sector, a value equal to \$5 billion. It is not yet clear how the employer mandate will affect grower hiring decisions, or how farmers not mandated to provide health insurance will assist their workers in navigating health insurance options available in their state.

While the ACA is a federal law, there is a great deal of flexibility and variation in how states implement the policy. State implementation varies in three areas: 1) in-state expansion of Medicaid; 2) investment and support of health insurance navigators, and 3) operation of health insurance Marketplace exchanges as a Federally-Facilitated Marketplace (FFM), State-Partnership Marketplace (SPM), or State-Based Marketplace (SBM) (Kaiser Family Foundation, 2016b). Currently 31 states plus Washington, D.C. have expanded Medicaid, an additional three states are debating expansion, and 16 states have decided not to expand Medicaid (Kaiser Family Foundation, 2016a,b). Although at the federal level the ACA only requires employers with 50 or more employees to provide health insurance, states can layer their own policies onto federal mandates. For example, Vermont employers are required to provide health insurance if they have four or more full-time employees (FTE) or pay a fine per employee (VT Health Vermont Health Connect, 2015). Additionally, in Vermont there are three different definitions of seasonal labor that can be applied to calculating a FTE, which has direct and sometimes confusing implications for employer reporting requirements.

States also vary by the structure of their ACA Navigator program. The Navigator program awards federal funding to organizations to assist individuals in identifying health coverage options through the Marketplace, completing eligibility and enrollment forms, and to provide free referral support for people who have complaints or grievances (HealthCare.Gov, 2015.). Although every state has funded ACA Navigators, not all consumers are aware of their presence or how to access them. Across states there has been a great deal of variation in approaches to outreach, education and enrollment activities. Additionally, the majority of resources and efforts have been directed towards urban populations—the National Advisory Committee on Rural Health and Human Services cautions there may not be enough resources to reach the rural uninsured (HRSA, 2014). The political climate in each state influences their policy implementation and outreach efforts. For example, some states (e.g., Georgia and Arkansas) have extended navigator roles beyond those entities that received federal funding, while other states (e.g., Ohio, Missouri, and Pennsylvania) restrict information that a navigator can provide to a consumer, such as advice about how to select from among specific health plans (Zomorrodian et al., 2013). Additionally, there have been no assessments of how well

¹ Small employers with less than 25 employees who provide insurance and pay average annual wages of less than \$50,000 may qualify for a tax credit of up to 50% of the total cost of the insurance. In 2016 employers with less than 100 employees can purchase lower cost insurance through the health insurance marketplace (i.e., SHOP) (Ahearn et al., 2014).

navigators are trained to deal with complex family farm systems. The labor structure of many farms is complex, often including immediate family members, in-laws, cousins, and hired non-family members. Farmers must make decisions about health insurance within a complex web of emotional, moral, legal and financial criteria. The intersection of federal and state policy in combination with varying outreach and education outreach leads to a policy landscape that can be challenging for individuals, families and businesses to navigate.

Little is known about farmer attitudes towards the ACA and the degree to which they differ from the general population. Since 2010, every three months The Kaiser Family Foundation has been polling general public attitudes towards the ACA. While unfavorable views still outnumber favorable attitudes, overall public opinion on the ACA has shifted over time to a more positive outlook. Attitudes further vary when results are disaggregated by demographic characteristics including age, insurance status, gender, race and ethnicity, and party affiliation (Kaiser Family Foundation, 2016a,b). Parallel to the general population, the farm population is highly diverse, with varying perspectives shaped by individual cultural and historical experiences (Salamon, 1992; Chiappe and Flora, 1998; Trauger et al., 2008; Barbieri and Mahoney, 2009). American farmers and ranchers may operate large, medium or small farms; they may be multi-generation or first-generation producers. Recognizing the heterogeneity of farmers, demographics collected by the U.S. Census of Agriculture identify how farmers vary by age, gender, race, ethnicity, and number of years farming. These differences reinforce the need to understand how attitudes vary across farm and non-farm, and within farm populations.

3. Methods

To answer the exploratory research questions (*What is the link between health insurance and farm finances? What are farmer attitudes towards the ACA as individuals and employers? What kinds of health insurance decisions are farmers making?*), this analysis

combines qualitative field research and closed-ended survey methodologies. This approach provides a more in-depth examination of the data to develop a comprehensive understanding of the lived experience of health insurance among small and medium farms at the RUI (Tashakkori and Teddlie, 2003). The data for this article come from a larger project examining how succession, family goals and motivations affect farmer persistence and growth at the RUI. A subset of the farmer interview and survey included questions on health insurance.

This research is based on 654 farmer surveys and ninety interviews with farmers in five RUI agricultural regions in the United States. The five case study locations include counties within the Core Based Statistical Areas (CBSA) of Burlington, VT; Columbus, OH; Honolulu, HI; Miami-Fort Lauderdale-Pompano Beach, FL; and one Combined Statistical Area: Portland-Lewiston-South Portland, ME (Fig. 1). The study areas were selected based on the following criteria: 1) located at the RUI (counties in the top four categories of the USDA's ERS Urban Influence Codes (Parker, 2003)), 2) exhibited a healthy agricultural sector (in the top quartile of U.S. agricultural sales during 2007), 3) represented different commodity histories and geographic regions (one study area in each of the four different regions of the U.S.); 4) had a higher than regional average percentage of small and medium size farms to assure the existence of a meaningful population of farms of interest, and 5) had a higher than regional average presence of farmer diversity measured by women, minority, and beginning farmers. Additionally, while case study states were not chosen for their health insurance policy context, the five states vary by their decision to expand Medicaid and the type of health insurance Marketplace implemented (Table 1). Vermont and Hawaii both have a long history prior to the ACA of implementing policies and programs designed to increase rates of health insurance and access to health care (Buchmueller et al., 2011; Fox and Blanchet, 2015), while the political leadership in Ohio, Florida and Maine have been more resistant to implementing and promoting the reforms brought through the ACA (Yaccino, 2013; Jaffe, 2014; Associated Press, 2015).

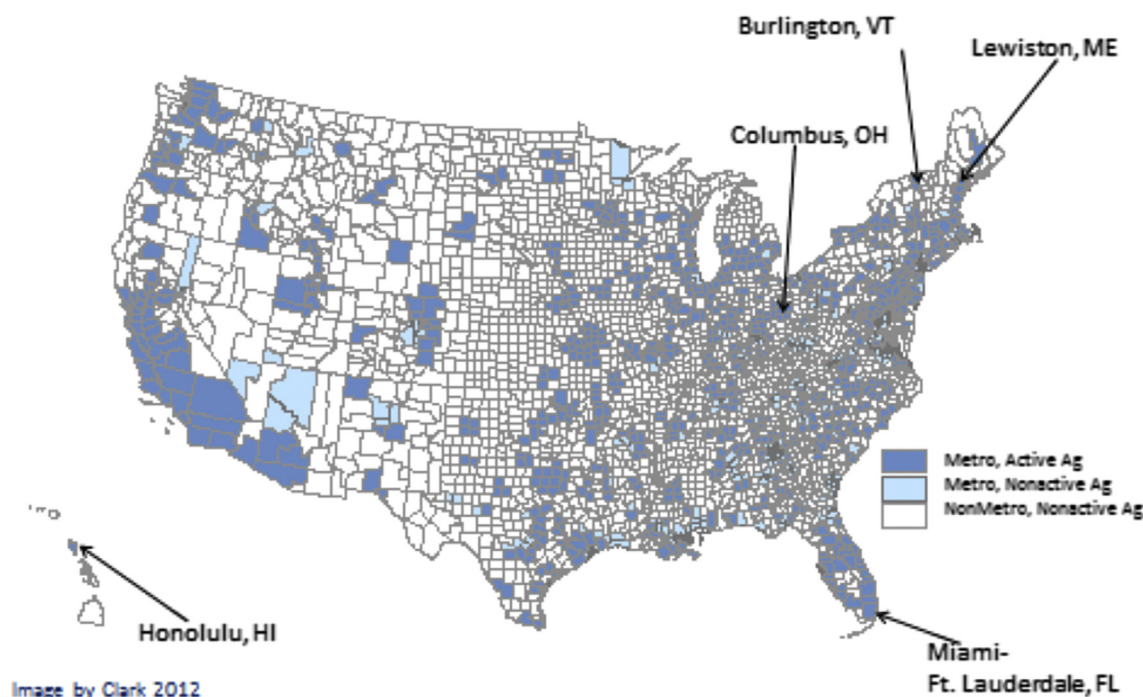


Fig. 1. RUI case study sites.

Table 1
Case study state policy environment: Medicaid expansion and marketplace organization.

State	Medicaid	Marketplace
Vermont	Expanded	State
Maine	Not Expanded	Federal
Ohio	Expanded	Federal
Florida	Not Expanded	Federal
Hawaii	Expanded	State

The research was conducted in three phases. In the first phase, published data sources, on-line resources, and telephone interviews with local agricultural extension agents and key informants were used to become more familiar with the agricultural and farm policy context in each site. In the second phase, occurring in 2011, team members travelled to each case study site to conduct in-person interviews with farmers utilizing a snow ball sampling methodology (Lofland and Lofland, 1995). The farm operator interviews were designed to examine the farm household decision-making, gender roles, opportunities for the next generation, motivations for farming and business development. Researchers asked one open-ended health insurance question, probing if and how the family obtained health insurance and how health insurance affected the farm enterprise. The 90 farmer interviews were coded and analyzed with NVivo software, used to identify and map patterns in qualitative data (Bazeley and Richards, 2000; Gibbs, 2002; Richards, 1999). In 2014, the final phase was completed with a mail survey sent to 2000 farms across the sites. Following a tailored Dillman design, respondents received advanced letters, reminder postcards and multiple mailings of the survey packet, and the first survey had a one-dollar bill incentive attached to the survey (Dillman, 2007); the response rate was 43.5 percent. The survey covered basic personal and household demographics, motivations for land use, succession plans and farm structure. A detailed battery of health insurance related questions asked respondents about health insurance rates, health insurance literacy, availability of health insurance for employees, and attitudes towards the ACA. To account for the social heterogeneity of farmers, the same issues and attitudes are analyzed by the following demographic and structural variables: insurance status, race and ethnicity, gender, age, farm size, presence of farm workers, and state policy context. Data were analyzed with SPSS v. 21. To assess significance across sub-groups within the data set, the following tests were run: t-tests, chi-square and one-way ANOVA. Post-hoc comparisons were assessed with the Tukey HSD test; significance levels reported at the 0.05, 0.01 and 0.001 levels.

3.1. Respondent demographics

The 90 farmers in the qualitative sample were predominantly male (63.4%) compared to female (36.6%) and had an average age of 54.6 years. There was a variation in farming experience, including multi-generation farmers (45.5%), first generation farmers (48.2%), and beginning farmers (farming ten years or less) (17%). While the majority of qualitative interviews were with White farmers (58.3%), the sample was more diverse than the general farm population with a significant number of Asian farmers (15.7%), Black or African American (7.4%), White Hispanic/Latino (4.6%) and multi-racial (13.9%).

The 654 survey respondents were analyzed quantitatively. Table 2 compares survey sample demographics to the national farm population. In this sample, the average age of farmer respondents is 54.7 (median 56), slightly younger than the national average, 58.3 years (NASS, 2014). This sample had a higher proportion of

beginning farmers (27.2%) compared to the national farm population (18.0%). The sample was fairly evenly split between multi-generation farmers (48.5%) and first-generation farmers (51.5%) who identified they had no prior familial farming background. There were slightly more male respondents (59.1%) compared to females (40.9%). Parallel to the national farm population, the majority of respondents were white (84.1%); however, there was a higher number of respondents identifying as Asian (6.5%), Islander (1.1%), and other/more than one race (7.1%) compared to the national farm population. The gender, ethnic and racial composition of this sample reflects our study design, which intentionally included more diverse RUI counties.

This study purposefully sampled small and medium farms at the RUI. Respondents reporting farm sales less than \$10,000 were classified as Hobby Farms (21.0%); nationally 56.5 percent of farms fit this category. 39.6% of farms in the sample were classified as Small farms, with reported sales between \$10,000 and \$99,999. During the study period, USDA changed the definition of a medium-sized farm from \$100,000–\$249,999 in gross sales to \$250,000–\$500,000 in gross sales. To account for this change, farms reporting sales between \$100,000 to \$499,999 were categorized as Medium, which represented a quarter of the sample (26.0%). A relatively small portion of the study sample reported sales greater than \$500,000; these farms were classified as Large (13.4%). Farmers at the RUI are more likely to participate in higher value, more labor-intensive production and marketing systems oriented to regional urban customers than more rural remote farmers (Inwood and Clark, 2013). Respondents reflect our purposeful sampling of these types of farmers, with a higher than national percentage of farmers engaged in vegetables, fruit and nut production (49.4%), nursery greenhouse (25.2%), dairy (11.9%), value-added production (26.4%) and direct sales (88.4%), while having fewer farmers engaged in more extensive production systems such as livestock (28.0%) and grain (8.4%) compared to the national farm population. Overall, compared to the national farm population averages, this sample was slightly younger, more likely to be a beginning farmer, more demographically diverse across gender, ethnic and racial demographics, had a higher number of small and medium farms, and was more likely to be engaged in more intensive production and marketing systems.

4. Results

Similar to the overall farm population, this sample of farmers was well insured, with 81.5 percent reporting health insurance coverage obtained for themselves and their families through either individual policies purchased in the Marketplace, off-farm employers, Medicaid or Medicare (Table 3). Some individuals chose multiple health insurance plans indicating they may be sourcing insurance through multiple policies, or they themselves were unclear of their insurance coverage. Of the 18.5 percent of farmers who were uninsured, they resided in Maine (33.6%), Ohio (20.2%), Vermont (20.2%), Hawaii (15.1%) and Florida (10.9%), the majority were 51–64 years old (53.9%), followed by 36–50 (29.6%), and 18–35 (13.0%). At the age of 65, individuals are eligible for Medicare, so the low rates of uninsured in this category (3.5%) reflect the high number of farmers in this age bracket enrolled in Medicare.

Farmers reported insurance coverage through individual market plans and through employers. One hog producer explained, "We're a member of the Farm Bureau because we can get medical coverage through them." The importance of off-farm work, especially female family members working off-farm for benefits, was a theme repeated through the interviews. As one farmer explained, "A farmer needs a wife who works for the government to get their health insurance."

Table 2
National farm population and survey sample population demographics.

	National Farm Population (n = 2,109,303)	Survey Sample (n = 654)
Average Age	58.3	54.7
Age Group (%)		
18–35		10.6
36–50		22
51–64		46.3
65 plus		21.1
Beginning Farmers (%)	18	27.2
Multi-Generation (%)	48.5	
First-Generation (%)	51.5	
Male (%)	86.0	59.1
Female (%)	14.0	40.9
Race and Ethnicity (%)		
American Indian/Alaska Native	1.8	1
Asian	0.6	6.5
Black or African American	1.6	0.2
Native Hawaiian or Other Pacific Islander	0.1	1.1
White, Non-Hispanic/Latino	92.2	81.1
White, Hispanic/Latino	3.2	3
Other/more than one race	0.5	7.1
Value of Sales (%)		
Less than \$10,000	56.6	21.0
\$10,000 to \$99,999	25.0	39.6
\$100,000 to \$499,999	11	26.0
\$500,000+	7.4	13.4
Farm Type (%)		
Vegetables, Fruits, Nuts, Orchard	8.4	49.4
Livestock	37.8	28
Nursery/Greenhouse	2.5	25.2
Dairy	7.8	11.9
Grain	23.9	8.4
Value-added	4.5	26.4
Direct Sales	6.9	88.4
Employees Part or Full Time		49.8
RUI Region State (%)		
Vermont		23.5
Maine		22.9
Ohio		24.3
Florida		12.8
Hawaii		16.4

Table 3
Health insurance rates and health care expenses.

	Self %	Spouse %	Child %
Self-Insurance Agent Health Exchange	32.7	27.8	14.6
Self Off farm Employer	30.3	34.2	17.6
Medicaid	9.6	7.8	7.3
Medicare	20.7	14.5	2.6
	93.3		
Percent of Income Spent on medical, dental and vision care in 2013			
0–10%	50.3		
11–25%	36.5		
26–50%	9.0		
51–100%	1.1		
Medical Debt Affects Credit	5.3		

Farmers, recognizing the inherent risks in their profession, saw the value of paying for health insurance even as costs increase. One female farmer in Central Ohio explained that although health insurance cost “goes up 25 percent every year ... you have to have insurance. We have a risky job.” Despite the increases in cost, health

insurance is viewed as an investment in the farm’s human capital. Because of the variability in the quality of health insurance plans, even those with health insurance coverage stressed the importance of off-farm employment with comprehensive insurance plans. One couple explained:

"{He} didn't have a job, so we had catastrophic, I mean for the longest time, when he was in grad school and when I was working on the other farms, we just had catastrophic health insurance. And then when he started to get real jobs, he was able to put me on his health insurance. We still have to pay for it, but it's definitely a discounted rate."

First generation farmers discussed challenges associated with both cash flow and health insurance more frequently than multi-generation farmers, and emphasized how the need for off-farm work takes time and energy away from the farm. One first generation farming couple in which the wife works off-farm explained: "Yes she would love to work full-time on the farm, but you have to work one full-time job for insurance, and we're still making improvements and paying the mortgage." In contrast, older farmers reported coverage through Medicare and through supplemental insurance policies.

Interviews also included farming families who could not afford to buy health insurance. Many expressed concern about the danger of their work and the need for more preventative medicine that individual market policies have not covered. An uninsured farmer explained, "We both try to take very good care of ourselves. We're cautious. It's something that I know we both probably ought to have, but I can't afford it. Not by the time I pay my mortgage, taxes, vehicle insurances, gas, the feed that I buy for the animals, there's not a whole lot left at the end of the day." Some farmers identified relying on alternative care, such as acupuncture and chiropractic care, or bartering and trading with local doctors for medical care. Both the survey and qualitative data demonstrate the variation in health insurance status and how farmers access health insurance and health care.

4.1. Health insurance and farm finances

Arguments for comprehensive health insurance cite the link between medical debt and decreased financial well-being (Hammel et al., 2016). Half of the sample (50.3%) reported spending less than ten percent of their income on health care, just over a third (36.5%) spend between 11 and 25 percent of their income, and ten percent of the sample spent more than 26 percent of their income on health care (Table 3). The mail survey asked respondents if they owed money for any health care services. The vast majority (82.1%) of respondents did not report any medical debt, and very few (5.3%) said that medical debt affects their credit. The survey did not assess if the presence or absence of medical debt was due to being well insured or because individuals are not seeking health care because of financial concerns or limitations. A small proportion of respondents (10%) reported worrying that medical debt could lead to their farm being foreclosed on; 41.9 percent do not worry. Almost half of all respondents (48.1%) had a mixed opinion or were unsure if medical debt could lead to farm foreclosure, indicating there are more nuanced views and uncertainty among respondents in regards to how health care issues impact farm viability. Farmers vocalized how their personnel health is linked directly to their economic viability. One livestock farmer explained: "You can't get sick. We can't ..., you know if you get sick, that's it, you know your business is gone. You can't afford to get sick."

4.2. Medicare eligibility and farm finances

Health insurance is available to all Americans over age 65 through Medicare; 24 percent of all U.S. farm families have at least one member eligible for Medicare (Ahearn et al., 2014). A comparison of farmers eligible for Medicare and those who are not

(ages 18–64) was conducted in our sample to understand how Medicare affects farm finances and health services. Farmers not eligible for Medicare (34.0%) were significantly more likely to report not treating an illness or injury in the last five years due to cost, compared to 16.7 percent of those who were Medicare eligible ($p = .001$). Likewise, farmers not eligible for Medicare (18.1%) were more likely to report owing money for health care services, compared to only 6.8 percent of those who were Medicare eligible ($p = .001$). The change in insurance options along the life course was a theme salient in the farm interviews. Older farmers who had relied on health insurance through off-farm employers were able to switch to Medicare when they turned 65, and discussed the program in positive terms.

4.3. Health insurance knowledge

The Kaiser Family Foundation polls Americans on their health insurance literacy, asking, "Do you feel you have enough information about insurance and health care to understand how it will impact you personally" (Kaiser Family Foundation, 2016a,b). Replicating this question in the mail survey, close to half of farmers in this sample said yes (46.6%) which is less than the general population (56.0%); just under a third said no (30.8%), also less than the general population (41.0%); 17.4% said they were unsure and 5.2% said not applicable. The relatively high number of respondents indicating they have enough information about health insurance may reflect the high rates of off-farm employer insurance. Purchasing health insurance and accessing health care can be a convoluted and complex process. Combining the respondents who said they did not have enough information about health insurance or were unsure equaled about half the sample (48.2%), however but less than a quarter (22.5%) had spoken to a navigator or were planning to seek financial advice on health care (24.7%). Financial advice is particularly relevant to farmers, as many of the subsidies available through the Marketplace and Medicaid eligibility guidelines are based on income taxes and a comprehensive cost accounting of assets and net versus gross income. Additionally, respondents were fairly evenly split in their response to the question, "If you are eligible, will you enroll in the Expanded Medicaid program." Responses were Yes (26.0%), No (29.1%), Unsure (23.9%), and Not Applicable (20.9%). Of those farmers who said they would enroll in an Expanded Medicaid program, a third (35.0%) were from Maine and Florida, states that had not expanded Medicaid. It is unclear whether these respondents knew that expanded Medicaid was currently available or unavailable in their state, or if they would like to enroll in the program when it became available.

4.4. Attitudes towards the ACA

Farmers were asked how they anticipated the ACA would impact their farm and family. The survey included a series of questions asking how the new health care law will: benefit the family; benefit the employees; reduce the need for benefits through an off-farm job; enable the expansion of the farm operation; reduce financial stress; create more of a paperwork headache; create more unnecessary government intervention. Responses ranged from Strongly Disagree to Strongly Agree on a five-point Likert scale. Farmers were also asked a question directly from the Kaiser Family Foundation Poll: "The Affordable Health Care Act (ACA) was signed into law in 2010. Given what you know about the law, do you have a generally favorable or unfavorable opinion of it?" Responses ranged from Very Unfavorable to Very Favorable on a seven-point Likert scale.

A baseline analysis of the aggregated mean attitudes of all respondents is presented in Table 4. Farmers in this sample had an overall mixed opinion of the ACA. However, they tended to have

Table 4
Mean attitudes toward the ACA by select demographics.

	Total		Male		Female		White		Not-White	
N	654	S.D.	380	S.D.	263	S.D.	510	S.D.	114	S.D.
ACA Benefit Family	2.66	1.28	2.56	1.24	2.83	1.31	2.69	1.29	2.63	1.20
ACA Benefit Employees	2.72	1.21	2.64	1.27	2.83	1.27	2.73	1.22	2.78	1.20
ACA Reduce Need for Off-farm job	2.38	1.14	2.33	1.12	2.45	1.17	2.37	1.51	2.47	1.09
ACA Allows Expansion	2.21	1.11	2.14	1.18	2.31	1.13	2.19	1.10	2.34	1.13
ACA Reduces Financial Stress	2.35	1.23	2.28	1.27	2.45	1.27	2.33	1.22	2.46	1.23
ACA Increases Paperwork	3.3	1.28	3.36	1.30	3.22	1.22	3.28	1.29	3.35	1.16
ACA Increases Gov't Intervention	3.3	1.46	3.41	1.43	3.15	1.48	3.30	1.48	3.31	1.35
Opinion of ACA	3.68	2.11	3.44	2.08	4.04	2.10	3.73	2.15	3.55	1.92

more negative attitudes towards the anticipated impacts of the ACA. Many did not believe that the ACA will benefit their family and employees, or that it will allow them to expand their farm operation, reduce their financial stress or reduce their need to access benefits through an off-farm job. Attitudes were mixed when asked if the ACA would create more of a paperwork headache and create more unnecessary government intervention. A multivariate analysis was run to disentangle farmer attitudes to the ACA across demographic and structural characteristics.

Gender, Race and Ethnicity. The Kaiser Family Foundation statistics have found that females and minorities generally have more positive attitudes to the ACA compared to men and whites (Kaiser Family Foundation, 2016a,b). While the attitudes exhibited by both groups tended to be mixed, this trend was apparent in this sample as well (Table 4). However, no statistically significant differences between male and female or between white and non-white were found in this sample.

Life Course and Generational Differences. The Kaiser Family Foundation statistics report stronger support for the ACA among younger Americans, particularly those in the 18–29 year-old range (Kaiser Family Foundation, 2016a,b). This pattern holds true in this sample as well: younger farmers in the 18–35 year age group were observed to have an overall more positive attitude toward the ACA compared to farmers in other age categories (Table 5). Young farmers (ages 18–35) had, on average, a much higher opinion of the ACA compared to older farmers, and were significantly more positive than farmers older than 65 (*md* .828). Younger farmers were significantly more likely to believe the ACA will benefit their family compared to farmers aged 51–64 (*md* 0.601) and those over age 65 (*md* 0.578). Younger farmers were also significantly more likely to believe the ACA will reduce their need for an off-farm job for benefits compared to farmers aged 51–65 (*md* 0.448). Although not significant, compared to other age groups, younger farmers were more mixed in their belief that the ACA will benefit their employees and reduce their need to obtain benefits through an off-farm job compared to older farmers in other age groups.

These quantitative differences may be related to life cycle factors: farmers in the 18–35 and 36–50 age categories are more likely

to be in their child bearing years and therefore to prioritize current or future family health and medical needs. In interviews, younger farmers identified the biggest struggle with health insurance coverage was related to their young children. Families prioritize health insurance coverage for their children. Farmers without employer-based health insurance are sometimes able to cover children through their state-run Children's Health Insurance Program (CHIP); these are means-tested programs and parents qualify based on income. In these scenarios, the parents themselves often remain uninsured or underinsured. Farm families reported feeling trapped in order to qualify for these programs, identifying the need to juggle income and employment, with many deferring job opportunities offering extra income that could assist with cash flow and farm development but would make them ineligible for health insurance benefits for their children. A diversified organic farmer in Vermont shared, "I decided not to take an extra off-farm job last year because the added income would have benefited the farm, but would have made us ineligible for Doctor Dynasaur [the state's CHIP Program]." The quantitative and qualitative data reflect generational differences and life course effects that intersect with business needs; together these influence farmer attitudes towards, use of and need for insurance.

Farm Scale. Farmer attitudes toward the ACA significantly differed across farm size (Table 6). Large-scale farmers were significantly less likely to believe the ACA would benefit their family compared to Hobby (*md* -0.605), Small- (*md* -0.760) and Medium-scale farmers (*md* -0.595). Medium farmers were significantly more mixed in their opinion that the ACA would benefit employees compared to Hobby farmers (*md* 0.457). Small farmers were significantly more likely to have a mixed opinion that the ACA would reduce their need for an off-farm job compared to Large farmers (*md* 0.502). Large farmers were significantly less likely to believe the ACA would allow their farm to expand compared to Small farmers (*md* -0.546). Additionally, Large farmers were significantly less likely to believe the health care reforms would help reduce their financial stress compared to Hobby (*md* -0.460), Small (*md* -0.579) and Medium (*md* -0.436) farmers. In regards to government regulation, Large farmers were significantly more

Table 5
One-way ANOVA of attitudes by age.

	18–35	36–50	51–65	65 plus		P value
ACA Benefit Family	3.15	2.79	2.55	2.57	**	0.003
ACA Benefit Employees	3.18	2.69	2.63	2.71	*	0.016
ACA Reduce Need for Off-farm job	2.75	2.41	2.31	2.30	*	0.033
ACA Allows Expansion	2.46	2.27	2.15	2.13		0.168
ACA Reduces Financial Stress	2.55	2.39	2.31	2.31		0.499
ACA Increases Paperwork	3.15	3.24	3.34	3.36		0.631
ACA Increases Gov't Intervention	2.97	3.31	3.3	3.45		0.205
Opinion of ACA	4.33	3.68	3.62	3.5	*	0.057

Significant differences among samples according to Tukey LSD. **p* < .050, ***p* < .010, ****p* = .000.

Table 6
One-way ANOVA of attitudes by farm size.

	Hobby	Small	Medium	Large		P value
ACA Benefit Family	2.71	2.87	2.70	2.11	***	0.000
ACA Benefit Employees	2.46	2.78	2.92	2.56	*	0.014
ACA Reduce Need for Off-farm job	2.31	2.56	2.40	2.05	**	0.008
ACA Allows Expansion	2.17	2.40	2.19	1.85	**	0.002
ACA Reduces Financial Stress	2.39	2.50	2.36	1.93	**	0.004
ACA Increases Paperwork	3.1	3.06	3.55	3.73	***	0.000
ACA Increases Gov't Intervention	3.06	3.06	3.47	3.91	***	0.000
Opinion of ACA	3.79	4.01	3.65	2.87	***	0.000

Significant differences among samples according to Tukey LSD. * $p < .050$, ** $p < .010$, *** $p = .000$.

likely to agree the ACA increases government intervention compared to Hobby (md 0.857) and Small (md 0.857) farmers. Medium farmers were also more likely to believe that health insurance reforms were a greater intrusion of the government compared to Small farmers (md 0.411).

The overall opinion of the ACA ranged widely across farm scale, Small farmers were the most mixed in their opinion. Large farmers had a significantly lower opinion of the ACA compared to Hobby (md -0.926), Small (md -1.141), and Medium (-0.778) farmers. The differences across farm scale are reflective of the different impacts the ACA has for the self-employed, those with off-farm employer based insurance and the mandates for small versus large employers.

The Farmer as Employer. Half of the respondents (49.8%) reported employing full or part time non-family farm labor. The number of employees ranged from one to 140 part time employees and one to 165 full time employees. Farmers with employees were significantly more likely to be mixed in their opinion that the ACA would benefit employees and would increase paperwork demands compared to those with no employees ($p = .000$, $p = .041$) (Table 7).

Nationally, the agriculture sector is the least likely to offer employees health insurance; some of the farmers in this study were actively offering health insurance benefits. In the quantitative sample, just under ten percent (9.5%, $n = 64$) of farmers reported they offered health insurance to their employees. The vast majority of these farmers are in Hawaii (62.5%), followed by Vermont (12.5%); less than ten percent of respondents in Florida (9.4%), Maine (9.4%) and Ohio (6.3%) offered employees health insurance. The majority of these farms represented labor intensive production systems, including vegetable/fruits/nuts (53.1%) and nursery greenhouse (35.9%), and were engaged in value-added production (32.8%) in comparison to commodity grain farming (6.3%). Respondents offering health insurance to employees reported production systems that included organic (10.9%), grass-based (12.5%), season extension (12.5%), hydroponic (4.6%) and free range (10.9%). Of the respondents who offered health insurance to employees, 61 percent reported they were self-insured through an agent and/or a health insurance exchange. These results may reflect the desire to

retain skilled labor on intensive and value-added operations. Investing in skilled labor by offering comprehensive benefit packages can enhance job quality and create the conditions for a healthier workforce, which in turn can increase the productivity and vibrancy of the operation.

Interviews also revealed that some farmers offered health insurance because morally it is the “right thing to do.” One dairy farmer paid his employees a salary in the \$30,000 to \$40,000 range and provided a comprehensive suite of benefits. He explained, “all employees should get housing, health insurance, time-off for appointments and vacations ... just as I would like to see for myself and my family.” Other farmers knew employees were obtaining benefits through Medicaid. Some farmers did not want to expand their operations because they felt they couldn’t adequately compensate their employees in terms of both salaries and benefits.

Many voiced frustration over their inability to offer health benefits to their employees and their families. Farmers recognized that health benefits were important to employee health and welfare and that healthier employees can invest more time and energy into their work. A number of farmers identified offering health insurance options to their employees as a future goal.

Farmers described how the cost of health insurance influences hiring decisions and expansion decisions. Expansion often requires hiring additional employees; farmers indicated that the cost and paperwork associated with health insurance plans and worker’s compensation created disincentives and dissuaded them from expanding. Agri-tourism and on-farm sales are promoted as economic diversification strategies for farmers at the RUI. However, when farmers were asked about the opportunities they saw for farm growth, one couple shared they had thought about adding on a bakery or coffee shop, but, in addition to high costs needed for food safety and health department standards, they would also need full time help and would have “health care liabilities.” Instead, they were favoring staying at their current size to “avoid taxes, health care, headaches and employees.” Interviews with farmers also brought out the tensions, misunderstandings and uncertainty over how health insurance and reforms brought through the ACA would affect employees and farm expansion. For example, a dairy farmer

Table 7
Attitudes by farmer as employer.

	Employees Full or Part time	No Employees		P value
N	319	322		
ACA Benefit Family	2.69	2.67		0.836
ACA Benefit Employees	2.92	2.48	***	0.000
ACA Reduce Need for Off-farm job	2.42	2.34		0.449
ACA Allows Expansion	2.21	2.21		0.940
ACA Reduces Financial Stress	2.32	2.39		0.513
ACA Increases Paperwork	3.40	3.19	*	0.041
ACA Increases Gov't Intervention	3.35	3.24		0.341
Opinion of ACA	3.79	3.59		0.230

Significant differences among samples * $p < .050$, ** $p < .010$, *** $p = .000$.

in Maine was worried the ACA would require him to provide health insurance to his two farm workers; he did not realize he was exempt from the requirement because he had less than 50 employees. Many farmers were in a “wait and see” period and felt unsure of how the ACA would affect their business and employees.

Across States. Results from the One-Way ANOVA found respondent attitudes significantly varied by state, reflecting the unique policy and political environments characterizing each state Table 8. Overall, farmers in this sample did not believe the ACA would benefit their family, with responses ranging from disagree to mixed. Farmers in Vermont were significantly more mixed compared to respondents in Florida (*md* 0.582) and Ohio (*md* 0.539), while farmers in Maine were significantly more likely to be mixed compared to the more negative attitudes prevailing among respondents in Florida (*md* 0.684) and Ohio (*md* 0.640). Respondents were also skeptical that the ACA would benefit their employees. Farmers in Ohio were significantly more negative than farmers in Vermont (*md* -0.417), while farmers in Maine were significantly more mixed in their attitudes compared to farmers from Ohio (*md* -.493). Farmers were also skeptical about whether the ACA would reduce their need to keep an off-farm job for benefits, with farmers in Vermont, Maine and Hawaii significantly more mixed in their opinion compared to farmers from Ohio (*md* 0.382, *md* 0.400, *md* 0.488).

Farmers in Ohio and Florida were more skeptical that the ACA would reduce their financial stress compared to farmers in Vermont, Hawaii and Maine. Maine was significantly more mixed compared to Ohio (*md* 0.538). Farmers were fairly skeptical that the ACA would influence the ability of their enterprise to expand. Farmers in Maine were mixed in their opinion compared to Ohio (*md* 0.416). Across states, farmers were mixed in their belief that the ACA would increase paperwork demands, with Hawaii significantly more likely to believe so compared to Maine (*md* .509). Farmers in Maine were less likely to believe the ACA represented more unnecessary government intervention compared to respondents in Florida (*md* -0.740) Hawaii (*md* -0.581).

Both Vermont and Hawaii, states with historically high rates of health insurance and progressive health insurance policies, had mixed attitudes toward the ACA. This finding may reflect that the ACA diminished or eliminated some popular state level health insurance programs in Hawaii and Vermont, representing a step backwards for some in these states. However, Vermont was significantly more positive toward the ACA compared to Ohio (*md* 0.682). While Maine did not expand Medicaid and has been reluctant to implement the ACA, farmers in this state had a significantly higher opinion of the ACA compared to respondents in Florida (*md* 1.142) and Ohio (*md* 1.149), two states that similarly resisted or have been slow to expand Medicaid.

The overall negative attitudes in Florida and Ohio may reflect the political climate in each state. Both states have federally run Marketplaces; Florida has currently not expanded Medicaid and

Ohio was slow to adopt the Medicaid expansion provision and provides limited navigator services. As a state, Vermont has been held up as a national leader for proactively reforming its health care system, and Hawaii has a historically strong commitment to progressive health insurance and health care reform programs and policies. The lack of large-scale support for the ACA and more mixed attitudes may reflect that for some states the ACA can create policy conditions that diminish the effectiveness of state programs. Farmers in Maine exhibit the most positive attitudes towards the ACA compared to all other states in the sample. Maine has a federally facilitated Marketplace and is the only state in New England, and one of the few states in the Northeast, that has not expanded Medicaid. The more positive attitude reflected by farmers in Maine may indicate a disconnect between prevailing attitudes and political leadership.

5. Conclusions

In a HCT framework, health is a driver of human capital, and health is tied to the ability to access care—in the U.S. context access to care is tied to health insurance and is seen as a metric of job quality (Findlay et al., 2013). While the number of policies and programs centered on creating economic development through food and agriculture at the RUI has been growing, there has been little discussion or research critically examining how investments in human capital, particularly those related to health, affect intended policy and program. This article seeks to broaden approaches to agriculturally-based economic development at the RUI by: 1) establishing health insurance as an issue directly tied to human capital in the food and agriculture sector; 2) benchmarking RUI farmers' use of, knowledge about, and attitudes towards health insurance and the ACA and 3) providing a research base, accounting for the social diversity and heterogeneity of farmers, to inform national and state efforts to develop human capital in the food and agriculture sector.

In this sample, farmers were well-insured and accessing health insurance plans through a variety of off-farm employer, Marketplace and government insurance policies. While medical debt was not an overriding issue, most likely due to the high rates of insurance, a meaningful number of farmers reported being uninsured and described how their own personal health is linked to the health of their farm operation, thereby reinforcing the connection between health, human capital and economic development at the farm level. Nearly half of all respondents in this sample reported they did not have enough information about health insurance and health care, and were not actively seeking out navigators and tax accountants who might be able to assist them. Farmers with employees were more likely to believe the ACA would increase paperwork demands and were mixed as to how much it would benefit their employees. Scholars and activists who study farm labor have highlighted the poor working conditions and abuses of the

Table 8
One-way ANOVA of attitudes by case study state.

	Vermont	Florida	Maine	Ohio	Hawaii		P Value
ACA Benefit Family	2.90	2.32	3.00	2.36	2.57	***	0.000
ACA Benefit Employees	2.82	2.32	2.89	2.40	2.76	*	0.016
ACA Reduce Need for Off-farm job	2.49	2.19	2.51	2.11	2.56	**	0.004
ACA Allows Expansion	2.17	2.05	2.44	2.02	2.39	**	0.007
ACA Reduces Financial Stress	2.41	2.19	2.63	2.09	2.42	**	0.004
ACA Increases Paperwork	3.30	3.49	3.02	3.31	3.53	*	0.020
ACA Increases Gov't Intervention	3.29	3.65	2.91	3.34	3.49	**	0.003
Opinion of ACA	3.85	3.17	4.32	3.17	3.70	***	0.000

Significant differences among samples according to Tukey LSD. **p* < .050, ***p* < .010, ****p* = .000.

farm worker (Holmes, 2013). This study was able to highlight and identify farmers who offer their employees' health insurance and were implementing less exploitive farm worker models. Labor-intensive and value-added farms have an acute need to retain highly skilled labor, and in this sample, some farmers are using health insurance as an incentive to keep employees and also because they see it as morally the right thing to do. The broad recognition that healthier employees are more productive employees aligns with a HCT approach that integrates health and health care into economic development. At the same time, more farmers would like to offer their employees health insurance but are unable, due to cost and perceptions of burdensome paperwork. These real obstacles underscore the structural challenges national health care policy presents to creating a more vibrant agricultural sector that simultaneously invests in human capital and offers both farmers and farm workers high-quality jobs.

Farmer positionality influences an individual's perspective, priorities, health, economic and household needs. While there were significant differences in attitudes towards the ACA across age groups, farm scale, farmers who employ non-family members and state policy environments, overall farmers' attitudes are largely mixed and differences are shades of grey rather than outright extremes. This uncertainty may speak to the lack of information farmers have about specific health reform policies, or a "jury is still out" mentality—waiting to understand how reforms will affect farmers' insurance options through an off-farm employer or policies available in the Marketplace, as well as mandates they may be forced to comply with as employers. The notable exceptions to this trend in the data were Large-scale farmers, who had disproportionately negative attitudes towards the ACA. Young farmers and farmers from Maine were significantly more supportive of the ACA and the benefits they believed would stem from the reforms.

Attitudes are subjective, are influenced by environment and cultural shifts, and they change over time. This survey was a snapshot of RUI farmers' attitudes in the early phases of the ACA. For a more comprehensive understanding of the issues, future research should examine the nuances of why attitudes vary across farm scale, and how these attitudes correlate with attitudes towards other types of human capital investments. Additionally, future research should expand sampling to a wider range of farmers at the RUI and compare those at the RUI to more rural and rural-remote farmers. Repeated measuring of attitudes and farm issues over time can provide a more comprehensive understanding of long-term impacts and attitudes.

Data from the 2012 Census of Agriculture demonstrate that despite efforts to invest in beginning farmers, the population is aging—less than six percent of farmers are under 35 years of age, and only ten percent are between ages 35–44 (Katchova, 2015). Beginning farmer programming has been age-blind, focusing on issues related to land access, production skills, and credit. These programs are vital, but the results from this study point to the need to more comprehensively address health insurance needs as a factor in building human capital in the farm sector. A broader HCT approach in the agriculture sector should take into account the health insurance and health care needs of young farm families who must simultaneously weigh the need for off-farm employment in light of children's health care needs, with capital and labor needs in the early start-up phase of the enterprise. The need to address social and age-specific household needs has been championed by the Young Farmer Coalition. The group, which was able to successfully demonstrate the negative impact college debt has on young and beginning farmers, advocates for a loan forgiveness program for farmers in New York State (Young Farmer Coalition, 2016; Nechaman and Dinah, 2016) and provides a model for addressing institutional and household issues, such as health

insurance, that impact farm persistence and growth, particularly for younger farmers.

Health insurance needs and individual health care policy options change along the life course as farmers age, particularly when an individual turns 65 and becomes eligible for Medicare. To address these nuanced needs, Extension programming could better incorporate health insurance needs and planning through a HCT framework into whole farm planning for all types of farmer clientele. A broader integration of household needs like health insurance would more holistically address human capital development and increase the resilience of vulnerable operations as families navigate production, marketing and household challenges.

While differences across gender, race and ethnicity were not significant in this study, the nuanced variations indicate the need for a more comprehensive study and analysis of the intersection of social diversity, health insurance policy and economic development in the agricultural sector. In particular, an issue not explored in this study is how the ACA will influence gender roles on the farm. Farm families have historically pieced together household income and health insurance benefits through a variety of on- and off-farm employment strategies, often locking them into off-farm employment in order to juggle family and enterprise needs, reducing overall quality of life and wellbeing. Farms have historically relied on women to support the farm through unpaid household and farm labor and through formal paid work including off-farm employment that provides health insurance, retirement and broader benefits to the family (Lobao and Meyer, 2001; Sachs, 1996). The growth in the number of women farmers, particularly at the RUI, and the introduction of insurance options no longer tied to an employer raise new questions about the evolving role of women in agriculture. Future research should continue to probe the implications of ACA on on-farm and off-farm work decisions of farm operators and their households, and how it influences farm entry and exit and farm structure.

Finally, this research focused only on farm operators, and did not examine how health insurance reforms brought through the ACA will impact broader food system economic development initiatives that encompass the whole food chain. A broader discussion and understanding of how health insurance reforms will affect individuals at all levels in the food system—food system entrepreneurs; food hub, processing, distribution and retail workers; the staff members of organizations who champion and implement food system programs and policies—is needed in order to understand the quality of jobs being created and how health insurance affects human capital in the broader food and agriculture sector. Health and health insurance ties into human capital both at and beyond the farm gate. Medical, health and food systems advocates point to the link between food and human health—it is just as imperative to understand how our health care system affects the health, quality of life and economic well-being of our food producers.

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