




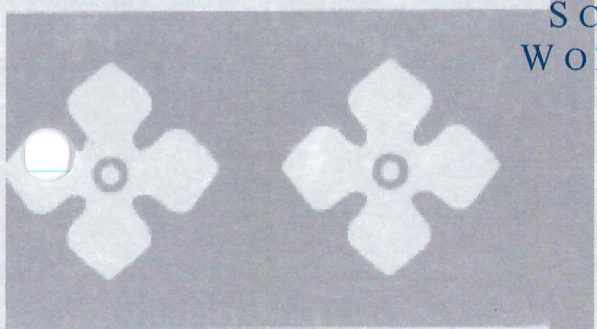
# Women Farmers in Developed Countries: A Literature Review

By  
Jennifer Ball\*



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## WOMEN FARMERS IN DEVELOPED COUNTRIES: A LITERATURE REVIEW

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Abstract: Very little research into women farmers in developed countries has been produced by economists, but much of what has been studied by scholars in other disciplines has economic implications. This article reviews such research produced by scholars in any discipline to provide a summary of what we know about women farmers in developed countries, and to illustrate what economists still need to contribute. Such discoveries will be important not only for their insights into the agricultural industry in developed countries, but also because they will inform, and be informed by, research on women farmers in developing countries.

In social sciences such as sociology, anthropology, gender studies, and rural studies, a large body of research exists regarding women farmers in developed countries. This is not the case in the field of economics, in which there is relatively little research focusing on women farmers in developed countries, although a vast literature regarding women farmers in developing countries has been produced (see Croppenstedt, Goldstein and Rosas 2013; Doss and McDonald 1999; Peterman, Behrman and Quisumbing 2010; Quisumbing 1996; and Quisumbing and Pandolfelli 2010 for literature reviews). With few exceptions, when women are the unit of analysis in economic studies on agriculture in developed countries, it is in their role as consumers or farm wives rather than as principal farmers. One might suggest this is because the agricultural sectors in these countries are not large, and/or because there are so few women farmers in developed countries. Yet the combined value of agricultural output of high-income countries is substantial at about one fifth the world's total (World Bank 2017), and women have become a larger percentage of farmers in many of these countries in recent decades (European Commission 2016; Hoppe and Korb 2011; Statistics Canada 2017). In addition, women farmers in these countries are more highly represented in fast-growing agricultural markets such as organic, local, direct-to-market, and farm tourism (Brandth and Haugen 2011; Sumner and Llewelyn 2011; Trauger 2004). Thus, it is puzzling that economists are not paying more attention to women farmers in developed countries.

Although few economists have studied women farmers in developed countries, much of the literature from other disciplines has economic implications and should shape future research

in this area. This article reviews the economic research produced by scholars in any discipline to provide a summary of what we know about women farmers in developed countries, and to illustrate what economists still need to contribute. Such discoveries will be important not only for their insights into the agricultural industry in developed countries, but also because they will inform, and be informed by, research on women farmers in developing countries. There are parallel trends in farming in developed and developing countries, such as the increasing percentage of women farm operators, the decrease in the number of men farming, the decrease in average farm size, and the lower use of inputs among women. Exploring the extent to which these trends have similar causes and effects will enhance the research on women farmers in both developed and developing countries.

There are at least three complications in narrowing the scope of this survey. First, there is the question of what distinguishes a woman *farmer* from a *worker* or a *helper*. In early research on farm women, Pearson (1979) suggests four ideal types based on both the amount of farm work and decision making provided by farm women: *independent producers*, *agricultural partners*, *agricultural helpers*, and *farm homemakers*. For the purposes of this survey, *farmers* will be defined as in Gasson (1980), in which the categories *independent producers* and *agricultural partners* are combined into one of *farmers*. Still, the question of who is a *farmer* versus an *agricultural helper* can be difficult, though the difference is perhaps clearer in higher income countries due to the finer distinction between family and paid labor, and the greater degree of specialization that generally exists in these economies. Given this, it can still be difficult to categorize a woman in a developed country who, for example, works as many or more hours on the farm than her male partner but who says her partner makes the major decisions. The second complication concerns how to distinguish economic research from

sociological, rural studies, or other social science research. Clearly there is substantial overlap, but not all research regarding women farmers is economic; therefore, for the purposes of this survey, economic research will be defined as that pertaining to occupations and work, education and government policy, and differences in men's and women's choices and outcomes related to their farms. Finally, few studies focus solely on women farmers as opposed to farm women; therefore, this review includes many articles about farm women in general, but to the extent possible discusses findings regarding women farmers specifically.

### **Occupations and Work**

This category of economic research regarding women farmers in developed countries, focusing on occupations and work, is the largest; it comprises several sub-categories due to the varied nature of the scholarship.

#### *Recognizing women farmers*

Among the earliest research on the topic of women farmers in developed countries was that which sought primarily to document women's work on farms. These studies were responses to the underreporting and undervaluing of women's agricultural contributions in both developing and developed countries that had been demonstrated by researchers in the 1970s (Boserup 1970; Huffman 1976; Palmer 1977). As statistical data on women farmers were lacking in quantity and detail (O'Hara 1994; Smith 1985; Williams 1992), ethnographies such as Pearson's (1979), Gasson's (1980), and Sach's (1983) focused on small numbers of farm women in order to provide detailed descriptions of their roles and backgrounds. A main purpose of these projects was to illustrate the roles women fulfilled on their farms, including the role of farmer (rather than farm helper or homemaker). Another key question was one of occupational choice; that is, whether any generalizations were possible regarding the backgrounds and characteristics of

women who were farmers. Pearson (1979) observes that in the Colorado county from which she drew her sample, independent producers tended to be widows, and agricultural partners had been relieved of their household duties by other family members. In a sample of women farmers from Kentucky, Ohio, and Indiana, Sachs (1983) also finds that widows and single women took on more farm roles than did married women, except when the married woman's husband had no farm experience. And Gasson (1980) notes, in her sample of women farmers in southern England, most had decided to work in agriculture and had agricultural training before they married farmers, and this was not typical of farm helpers or homemakers.

Other early studies analyzed any available data pertaining to women farmers in Australia (Farquharson 1980), England (Gasson 1981), Canada (Smith 1985), the United States (Kinsey 1987), and Ireland (Fahey 1990), although a lack of such data and their questionable reliability are mentioned by all of these scholars as obstacles to their research. Kinsey (1987, p. 15) notes "the 55 percent of farm women who considered themselves to be one of the 'main operators' of their farm did not report their occupations as 'farmer', but 'farm helper.'" Similarly, Smith (1985, p. 176) contends, "Under-reporting or under-valuing are practices that cannot be changed by altering census practices alone; these practices may await changes in the perceptions of those reporting or valuing the contributions of women." And Fahey (1990) suggests Irish women were becoming less likely to report their occupation as farmer or farm helper and more likely to report it as homemaker due to the change from a household to a non-household occupational structure. As many scholars point out, this gendered conceptual separation of public and private, work and family, market and home, and non-household and household spheres has had detrimental effects on the recognition and documentation of farm women's work (Alston 1995; Garcia-Ramon and Canoves 1988; Haney and Knowles 1988; O'Hara 1994; Rosenfeld 1985; Shortall 1999;

Whatmore 1991). Nevertheless, these studies found a non-trivial percentage of women farmers in the existing data, from about 5% of all farmers in the United States (Kinsey 1987) to about 10% in the European Economic Community (Gasson 1981).

### *Types of agricultural products*

A change in the types of agricultural products being grown or raised, such as those categorized as value-added<sup>1</sup>, has the potential to affect the gender mix of farmers in a country, area, or market. Several studies explore the sustainable paradigm as potentially less gendered than traditional farming, and therefore perhaps more attractive to women. The evidence, according to this research, is mixed. While it is clear that women are more likely than men to operate organic farms (Sachs 2006), Vail (1982) observes that a sample of organic farms in Maine generally conforms to a pattern of male dominance, in that women continue to perform the housework as well as farm and off-farm work, and men predominate in the major decisions on the majority of farms. Similarly, in Ontario, Canada, Hall and Mogyorody (2007) find most organic farms continue to have a traditional gendered division of labor, although the authors note that organic farmers with more alternative orientations (for example, being less profit oriented and hiring less wage labor) appear to be more interested in gender equality than those with conventional orientations. In an additional study focusing on Ontario, Sumner and Llewelyn (2011) agree that, for similar reasons, organic agriculture has not substantially advanced women's empowerment in the industry.

Other scholars are more sanguine about the relationship between sustainable agriculture and women farmers. Wells and Gradwell (2001), interested in why two-thirds of CSA growers in Iowa are women, interviewed women CSA growers and found that values generally associated with women, such as care for the community and environment, are more strongly validated by

the CSA culture than by conventional agriculture. A study of women CSA growers in Washington State (Jarosz 2011) and a case study focusing on a goat dairy farm run by three women (Finan 2011) similarly focus on care, and point out that women involved in alternative agriculture often explicitly trade economic gain for engaging in caring practices. Providing another perspective, Trauger's (2004) interviews with women farmers in the sustainable agriculture community of Central Pennsylvania suggest women may be attracted to sustainable farming less because of their values, and more because they are able to "do the work" associated with these models of production (p. 299). The author observes that most of the farm work these women do—growing fruits and vegetables, raising small livestock, selling at markets—is consistent with women's roles on conventional farms, and she posits it is the redefining of these duties as those of a farmer—rather than of a farm wife—that is transformative about the alternative agricultural community. This redefinition provides women a space in which they are acknowledged and respected as farmers, and supports their self-representation, both occupational and physical, as farmers (Trauger 2004).

On value-added agriculture more generally, Trauger, Sachs, et al. (2010) point out in their study of women farmers in civic agriculture<sup>2</sup> that the majority of their interviewees (women farmers in Pennsylvania) connected their decisions to engage in civic agriculture to their gender. In addition to providing benefits to their communities by offering on-farm education, a place for community events, or a locality-based food system, many of these women made the delivery of such benefits integral to their definition of business success. While the researchers recognize that they did not interview men and therefore cannot say definitively from their data that women farmer's attitudes differ from men's, their findings are consistent with other research offering possible answers to the question of why women farmers appear to be particularly interested in

alternative agriculture (Trauger, Sachs, et al. 2010). Finally, Wright and Annes (2016) studied women farmers engaged in value-added agriculture in Michigan, and report that these types of agricultural activities provide unique opportunities for women's empowerment. However, the authors also consider the extent to which these activities rely on traditional women's roles (gardening, cooking, hosting, etc.) and income either from a husband or from a prior career, and therefore suggest women's empowerment through these means may be limited (Wright and Annes 2016).

#### *Farm income*

Long term changes in farm income for reasons such as economic crisis or secular decreases in relative prices of agricultural products also have the potential to affect the gender mix of farmers in developed countries. Bock (1994) and Ventura (1994) report that a need for additional income by many farm households in Italy has resulted in women becoming a larger percentage of principal farm operators as they take primary responsibility for the farm when their husbands take off-farm work. These authors also discuss how women farmers often also supplement their families' incomes by engaging in new on-farm entrepreneurship such as producing value-added products and services. Bock (2004) also focuses on this type of entrepreneurship as an income-supplementing strategy for farm women in the Netherlands. While about half of the enterprises in this study were not agricultural in nature (e.g., childcare or off-farm projects), the other half were primary production activities, in essence redefining these women as principle operators.

In the United States, however, the economic downturn that most severely affected the Midwest in the 1980s did not appear to increase women's activities on farms there, according to a large study conducted by Lobao and Meyer (1995). In fact, these authors find farm women were more likely to increase their off-farm work due to the crisis, rather than increase their work

on the farm. Alston and Whittenbury (2013) come to similar conclusions in their smaller study of Australian farmers regarding climate change and gender relations in agriculture; they also report that by working off the farm, many women are not just moving physically away from the family farm, but they are also moving away from their commitment to it.

### *Occupational choice and identity*

Several studies focus on women's occupational choices or identities in the context of agriculture. A study of Norwegian farmers (Haugen 1990) finds that many women farmers are changing from a traditional to a professional approach to farming. Younger women farmers are more likely than older women farmers to have chosen to become farmers (as opposed to becoming one by marriage), pursued more education, been involved in professional networks, and invested in research and development, among other differences. No such differences were observed between older and younger male farmers. In later research based on two large surveys, also in Norway, Bjorkhaug and Blekesaune (2007) disagree. They find no evidence of increased professionalization of the field, and instead show there has been a movement toward one-person (as opposed to family) farms in recent years. The authors posit that as members of a household specialize in on-farm or off-farm occupations, women would be more likely to work the farm if they had more education, interest, and connections in agriculture. Therefore, Bjorkhaug and Blekesaune (2007) argue, it is the trend toward one-person farms that better explains the differences between older and younger women farmers.

Occupational choice is the direct focus of two studies. Mann (2007) modifies a model of family firm succession to apply it to family farms in Switzerland. He finds in his sample of women aged 14 to 35 who are living on their parents' farms that young women are substantially less likely than young men to be interested in succeeding their parents in farming. Young women

tended to agree to a lesser extent than young men to statements reflecting what Mann (2007, p. 440) called “the positive aspects of farming,” such as a preference for working with one’s parents, doing practical work, working outdoors, and working with animals. These factors (along with the existence of an attractive farmhouse) were the the most important determinants of whether a young woman was interested in taking over her parents’ farm. The author suggests, however, that these attitudes may be affected by parental inclination to delegate more responsibility to their sons than to their daughters on the farms.<sup>3</sup>

In a study exploring the reasons for the increase in women farmers in the United States, Ball (2014) adapts Reskin and Roos’ (1990) model of changes in the gender composition of occupations to examine both demand- and supply-side shifts that affected the gender mix of farmers in Kansas. Using USDA (2007) data and interviews with women farmers, the author finds three main reasons for the increase in the percentage of farmers that are women: an increase in niche (or value-added) products, a trend toward smaller farms, and a change in societal attitudes toward women farmers. The greater representation of women farmers in production of niche products on smaller, less profitable farms leads the author to suggest that the gender integration of the occupation of farmer, at least as it has been historically understood, may continue to be incomplete.

Finally, two studies consider how occupational identities are changing among women in agriculture. Bryant (1999) develops a typology of farming identities from the analysis of interviews with farmers in South Australia. Six occupational identities in relation to the farm emerge based on respondents’ answers to questions regarding their work and farms. Traditional farmers/farm wives and new traditional farmers, for example, tended to equate their work with physical farm duties, while new traditional farmers recognized as productive many tasks that

would traditionally be considered housework. New traditional farmers were also less reliant on gender roles in the delegation of farm tasks. Respondents categorized as other types saw their jobs as primarily related to supervision and planning (managerial type) or risk taking (entrepreneurial type), as examples. Most women in this sample identified as farmer's wives or new traditional farmers, but the author illustrates that a substantial portion of farmers (both men and women) identify as one of the less traditional occupational types. This "detraditionalization" of farming identities, as Bryant (1999, p. 243) refers to it, has occurred in part due to conceptual changes of gender in society, and in farming in particular.

Brasier et al. (2014) find that farm women's identities are also shifting in the northeastern United States. Data from a large survey of farm women, asking them to choose as many roles and identities as describe them (such as farmer/producer, farm wife-domestic partner, off-farm worker, etc.) were analyzed with respect to roles, identities, tasks, and decision-making on the farm. A notable finding is that nearly 50% of their sample chose farmer/producer as a role and an identity, suggesting an increase in the number of farm women considering themselves farmers, and/or underestimates by other researchers due to restricted choices of occupational roles and identities.

As can be seen, significant research on occupations and work as they relate to women farmers has been produced, yet economists still have much to contribute in this area. For example, studies such as those on farm succession (Kimhi and Nachlieli 2001; Mishra, El-Osta and Shaik 2010), farm exit (Dong, et al. 2016; Breustedt and Glauben 2007), and motivations for farming (Howley 2018; Howley, Dillon and Hennessy 2014), illustrate that topics regarding occupations and work are important in agricultural economics, yet possible differences in women and men farmers in these areas have yet to be explored.

## **Education and Government Policy**

The overt and implicit messages girls and women receive regarding their role in farming, both during their education and through interactions with government programs, clearly affect their choice to enter farming, their satisfaction in the occupation, and their probability of success.

Several studies explore these topics.

### *Education*

Themes regarding agricultural education for women in developed countries include access to and use of it, its value and effectiveness, the extent to which it challenges or reinforces gender stereotypes, and potential improvements to it. Shortall (1996) notes that few women are enrolled in agricultural college in Northern Ireland, where the agricultural education system for farm families has two types of programs: one focusing on farmers and the other focusing on farmers' wives. Women are permitted at the meetings for farmers, but in fact these meetings are attended overwhelmingly by men. There are benefits as well as drawbacks to the segregation of men and women in the meetings, Shortall (1996) acknowledges, but she points out that even where women are satisfied with separate meetings, they are often dissatisfied with the focus of education being on their traditional concerns, and many express a preference for also receiving information about farming issues that are traditionally considered men's. Clearly this system reinforces the traditional gender-based division of labor.

A study of women farm apprentices by Schmitt (1998) comes to a similar conclusion regarding vocational schools in Western Germany, where there are two apprenticeship tracks for those wishing to enter farming: an agricultural apprenticeship and a rural home economics apprenticeship. While there is no prohibition against women participating in agricultural apprenticeships or men taking apprenticeships in rural home economics, in practice these classes

are highly segregated by gender, with only about 8% of the agricultural apprenticeships being held by women and virtually no men holding rural home economics apprenticeships (Schmitt 1998). Schmitt (1998) suggests several reasons for this segregation, including the history of a system based on traditional roles for women and men in agriculture, the process by which one gains access to a particular vocational school track (by securing an apprenticeship first), and discrimination occurring in classes when teachers or other students express views based on gender stereotypes.

Shortall (1996) and Schmitt (1998) discuss how educational systems reflect broader societal inequalities, and this is also illustrated by Leckie (1996) in her research exploring information transfer within families during the girlhoods of Canadian women farmers. While the older men and women in the farmers' lives, as well as family composition (especially the presence or lack of brothers), influenced their interests and choices regarding farming, there also appeared to be a "mystique" surrounding more technical aspects of farming and an implied "myth" that only men could be proficient at these tasks (Leckie 1996, p. 320). Moreover, this mystique carried over to educational systems outside the family, resulting in segregated children's agricultural clubs that further reinforced the exclusion of girls from important agricultural information (Leckie 1996).

Further developing and applying a framework for analysis of agricultural training suggested by Liepins and Schick (1998), Trauger, Sachs, et al. (2008) analyze information gained by conducting focus groups with members of the Pennsylvania Women's Agricultural Network through the lenses of seriality/intersectionality, discourses of embodiment, and agency through social networking to explore women farmers' educational needs. For example, regarding seriality/intersectionality, these participants expressed a need for education in topics that are

relevant to their actual roles on farms, which are often nontraditional. Needs related to discourses of embodiment include education about large equipment operation, maintenance, strategies, and alternatives. Finally, it was clear that these women farmers preferred a method of information transfer that relied on the knowledge of other farmers (men and women) in a more hands-on format that allowed for networking, instead of a top-down, disempowering approach exemplified by Power Point presentations (Trauger, Sachs, et al. 2008).

A related project surveyed women who were either members or event participants of the Pennsylvania Women's Agricultural Network to assess their educational needs (Barbercheck, et al. 2009). Findings confirm those from the focus groups (Trauger, Sachs, et al. 2008) that women farmers in Pennsylvania wanted training in a variety of topics, including equipment operation and maintenance, and that they preferred workshops and demonstrations to presentations as a method of information transfer. Another important insight from this study is that, when asked about impediments to their farms' success, the most common answer given by these women farmers was "women producers not being taken as seriously as men" (Barbercheck, et al. 2009, p. 6).

In another article in this series exploring the educational experiences of women farmers, Trauger, Sachs, et al. (2010) conducted interviews with extension educators to determine how the programming offered to women farmers is affected by the educators' perceptions of and assumptions about the farmers. Applying Freire's notion of authenticity (Freire 1973), the authors find that educators define some types of farmers and farming as "authentic" and others as "inauthentic" (Trauger, Sachs, et al. 2010). Authentic farming includes production, ownership, and conventional methods, while inauthentic farming includes home and farm management, helper or employee status, and organic or other unconventional methods. This influences the

programming educators offer to farmers, which can be exclusionary toward women as women are more likely to be categorized as “inauthentic” (Trauger, Sachs, et al. 2010). In addition, this study makes the point that extension educators’ knowledge of women’s roles on farms is based on what the educator observes, and therefore when the educators do not observe many women farmers (due at least in part to irrelevant programming) the educators have inadequate knowledge of what women do on farms. This results in a reinforcing cycle of programming based on the perceived needs of a small percentage of farm women, who are then the women most likely to use the programming and be observed again by educators (Trauger, Sachs, et al. 2010).

Kiernan et al. (2012), in the last in this series on extension services for women farmers in Pennsylvania, focus on the assessment of two goals of the Pennsylvania Women’s Agricultural Network (WAgN): education and networking. Through analysis of surveys conducted at WAgN events, the researchers find that the programming offered has been successful in increasing women farmers’ knowledge on a variety of topics and in helping women farmers build networks. In addition, because women attend these events as much for the connections they hope to make as for the educational subject matter, suggestions for marketing extension services to women are offered (Kiernan, et al. 2012).

In Australia, research by McGowan (2011) summarizes literature that suggests women are underserved by extension programs although the education providers claim the services offered are gender neutral. By ignoring barriers to women’s participation and not considering their particular needs, the program designers fail to reach a significant proportion of farmers and farm managers (McGowan 2011). Suggestions for improving women’s participation in extension

programs, such as understanding women's roles on farms and involving women in the planning of programs, are also proposed in this study.

Results from a survey of Illinois participants in Annie's Project, an extension program aimed at increasing farm women's proficiency in the areas of marketing, financial planning, human resources, legal issues, and production, finds the program was effective, with the biggest gains occurring in knowledge of financial risk (Heins, Beaulieu and Altman 2010). Similar findings resulted from analysis of a national survey participants in 14 states (Schultz, et al. 2017). These respondents reported the largest knowledge gains in the area of legal issues, but the largest percentage (28%) of farmers reported their goal for applying new knowledge was in the area of finances. The study also reports a positive relationship between how much a woman reported she learned in the course and to what extent she thought the best education practices were implemented (Schultz, et al. 2017).

#### *Government support*

In the European Union, the Common Agricultural Policy (CAP) required from 1997 for the purposes of farm benefit eligibility that a farm must have a registered farmer allocating 50% or more of their labor hours to farming. In Greece, Safilios-Rothschild (2003) finds because most small farmers who were men held full-time off-farm jobs, many families chose to register the farm in a woman's name after 1997. The author also finds the willingness to register the woman as the primary farmer was positively associated with her integration in the farm. Women who were the registered farmer were more likely to perform traditionally male tasks, make important decisions regarding the farm, report that they were likely to continue farming, and plan on passing farm land on to daughters as well as sons (Safilios-Rothschild 2003). These findings have implications for the survival of small farms in Greece.

Gidakou et al. (2008) explore the effects on young women in West Macedonia of the “young farmer” program under the CAP in the European Union. This program is aimed at attracting and retaining young people to rural regions and farming, but previous research suggests young women have been participating in the program for reasons of unemployment and the need to supplement family farm income, and not to increase their involvement on their farms (Gidakou 1998). Therefore, the participation of most young women in the program was nominal and male family members continued to be the principal farmers. However, Gidakou et al. (2008) focuses on women who report they used the program support to invest in and become more actively engaged on the farm. While these women often entered the program for the same reasons most women did, they reported becoming the main decision maker on the farm, or at least an equal with a male family member, after being named principal farmer. They also were likely to invest personal funds into their farms, and expressed a need for more agricultural training (beyond the 150 hours required to be involved in the program). These women farmers indicated a general satisfaction with their participation in the program (Gidakou et al. 2008).

Two articles explore the gendered aspects of government support of farms in Italy. Adinolfi and Capitanio (2009) analyze the relationship between the gender of the farm manager and the life-cycle stage of the farm to the survival of family farms in the Lazio region. Using a business demographics approach, they find that the “birth rate” is higher and the “death rate” is lower for farms managed by women (new farms are more likely to be started by women and farms managed by women are less likely to fail) and that farms are more likely to change from being managed by a man to being managed by a woman than the opposite. Therefore, areas that have a greater percentage of women farm managers are more likely to have growth in the number of farms (Adinolfi and Capitanio 2009). The authors also find that on average, women

apply for smaller amounts of funding for their farms from government programs, leading to the conclusion that women farmers underconsume such support (Adinolfi and Capitanio 2009).

Chiappini and De Rosa (2011) come to a similar conclusion for Italy in general. While they find a slightly higher percentage of women farmers apply for and receive government support compared to men farmers, they also find that the average amount of funds received by women is substantially smaller than that received by men. The authors also note women are more likely than men to use the funds for environmental and sustainability projects, suggesting women may be more focused on maintaining their farms for future generations (Chiappini and De Rosa 2011).

#### *Other government policies*

In addition to education and government farm support, other government policies and regulations can have effects on women farmers specifically. For example, McMahon (2011) illustrates a gendered aspect of food regulation. The author's case study is that of regulation in British Columbia, Canada that centralized meat production and disadvantaged small-scale producers. Because women tend to operate smaller farms, to the extent such policies favor large-scale producers, they will impose disproportionate costs on women farmers. McMahon (2011) points out that ignoring the gendered aspects of policies is one of the ways by which women are marginalized in farming.

Several articles discuss the importance of legal and professional recognition of married women farmers for the purposes of access to vocational training, land ownership, and social security coverage (Alston 1998; O'Hara 1994; Overbeek 2003). These studies do not focus specifically on women farmers but rather farm women, however these findings have implications for policy as it develops, often perpetuating the historic marginalization of women.

As with research regarding occupations and work, a significant amount of scholarship about education and government policy related to women farmers in developed countries also exists. Yet again, there is still much for economists to discover on these topics. Regarding education and extension, current studies focus on women farmers' experiences and preferences, but the effects of such human capital accumulation on their productivity and income has yet to be explored. On government support and regulation, there is little research overall regarding women's access to support or differential effects of regulation on women's farms in developed countries, and apparently none that has been conducted in the United States. This is especially surprising given the lawsuit against the USDA alleging discrimination by gender that was settled in 2011 (United States Department of Agriculture 2018).

### **Comparisons of Women and Men Farmers and their Farms**

While several studies compare the characteristics, farms, outcomes, and decision making of women and men farmers in developed countries, there are important topics not yet examined in this area that would be best researched by economists.

#### *Characteristics and outcomes*

Tigges and Rosenfeld (1987) define "independent farmers" as those who lack the regular labor of a spouse, and compare the characteristics and outcomes of these farmers to other farmers, and also compare the characteristics and outcomes of women independent farmers to those of men independent farmers. The authors find that women independent farmers had lower incomes than other farmers, but this was not true for men independent farmers. Also, among independent farmers, married and unmarried women farmers had similar farm incomes, but married men had higher incomes than unmarried men. It was the presence of a spouse, rather than her farm labor, that was associated with higher incomes for men independent farmers, but further analysis

reveals this was likely a function of life-cycle stage rather than of marriage itself (Tigges and Rosenfeld 1987).

Two reports based on agricultural censuses separated by almost 30 years include comparisons of women and men farmers and their farms in the United States (Hoppe and Korb 2013; Kalbacher 1985). From the earlier report to the more recent, some differences between women and men farmers remain consistent, such as women running smaller farms and earning lower incomes than men. Women also continue to be more likely to be full owners of their farms, older than men farmers, and less likely to work off-farm than men (due primarily to the women's older age). Trends emphasized in the later report include the growth in the number and percentage of farms run by women, the increase in the number of younger women entering farming (narrowing the age and off-farm work gaps since the earlier period), and women farmers' higher education levels compared to men farmers' (Hoppe and Korb 2013). Other differences between women's and men's farms noted in the literature include the types of products grown or raised (Finan 2011; Trauger 2004), and the apparent focus on incentives other than profit- or income-maximization by women farmers (Ball 2014; Trauger, Sachs, et al. 2010). The latter difference is implied by data that show a decrease in the number of men's farms in sales categories with negative returns over time, whereas increases in the number of women's farms occur in all sales categories (Hoppe and Korb 2013). Women who continue to farm long term with negative returns clearly prioritize something other than income from the farm, such as passing the farm to an heir, the farm lifestyle, or environmental protection.

Using a sample of farms with sales over \$100,000, Zeuli and King (1998) confirm earlier findings regarding the differences between men and women farmers in the types of products grown or raised, farm incomes, education levels, total acreage farmed, land tenure, and other

characteristics. However, in this sales category of farms, women's farms were larger on average than men's farms, and men and women farmers were about the same age. A main conclusion of this study is that after accounting for farm size and type, little of the difference between men's and women's farm incomes or profitability can be attributed to gender (Zeuli and King 1998).

In a study of farmers in Norway, Haugen and Brandth (1994) find that younger women farmers are more like their male counterparts when compared to older women and men farmers. Younger female farmers are more likely to own or manage larger farms, use the latest farming technology, have vocational agricultural training, and be members of a union, for example. However, young women farmers still have lower farm incomes and these incomes remain less important to their families than their husband's. Younger women also continue to be responsible for most of the household and childcare work, which leads the authors to conclude that the influx of young women into farming does not challenge the masculinist tradition of the industry (Haugen and Brandth 1994).

#### *Decision making*

Two economic studies examine decision making by men and women farmers. Cunningham, et al. (2008) compare the marketing strategies of women wheat farmers to those of men farmers in Oklahoma. Women farmers in this study made fewer trades and held their wheat longer, which resulted in their receiving an average of 1.4 cents per bushel less than men farmers. The authors illustrate that frequent trading is consistent with risk-aversion in this context, although they posit it is probably men's enjoyment of trading, rather than their wish to avoid risk, that accounts for their higher number of trades (Cunningham, et al. 2008).

Zepeda and Castillo (1997) explore the roles of husbands and wives in technology adoption on dairy farms in Wisconsin.<sup>4</sup> Of the three models of technology adoption estimated--

conventional, unitary household, and bargaining--the bargaining model best explains adoption using these researchers' data. Findings also include that education level, size of farm, and profit motive are positively associated with technology adoption, as are (in the bargaining model) joint decision making (as opposed to decisions being made by the husband) and women's wages. Possible explanations for the relationship between women's wages and technology adoption include the labor saving aspect of technology (allowing the woman to concentrate on off-farm work) or perhaps women's greater bargaining power due to higher wages—although women were no more likely to favor adoption than were men (Zepeda and Castillo 1997).

Comparisons of women and men farmers and their farms is the category of research to which economists likely have the most to contribute. Cunningham, et al. (2008) and Zepeda and Castillo (1997) are examples of the types of studies one might expect to find when exploring the topic of women farmers in developed countries, yet clearly few have been produced. Moreover, at least two important topics are almost entirely absent from this literature, both of which have been extensively researched regarding women farmers in developing countries: access to and use of resources by women farmers compared to men farmers, and the productivity of women's farms compared to that of men's farms.

A very few studies reviewed in this article discuss differences or changes in land inheritance laws or traditions (Mann 2007; Overbeek 2003; Shortall 1999), but largely missing from the literature is research that focuses on women farmers' access to and use of basic resources—land, labor, and physical or financial capital. In the United States, for example, women's farms are smaller and less indebted than men's (Hoppe and Korb 2013), and similar observations about women's farms in developing countries have led to a large quantity of research regarding women farmers' access to resources there (Henn 1983; Deere 1983; Agarwal

1994; Carney 1992; Hare, Yang and Englander 2007; Mudege 2008; Peterman, Behrman and Quisumbing 2010). Similarly, research on productivity differences in women's and men's farms in developing countries is a topic widely studied (Moock 1976; Nankumba and Kalua 1989; Quisumbing 1996), yet parallel research focusing on farms in developed countries appears to be almost if not entirely absent from the literature. While the findings regarding farms in developing countries vary, many of these studies illustrate that any productivity differences in farms run by women and men are accounted for by disparities in access to and use of resources (Deere 1983; Agarwal 1994; Peterman, Behrman and Quisumbing 2010). Differences in productivity and access to and use of resources are closely related, and research on these topics focusing on women and men farmers in developed countries is also needed.

### **Conclusions**

Issues surrounding women farmers in developed countries have been studied extensively by social scientists such as sociologists and anthropologists in the past few decades, but they have been the focus of few economic studies. This article catalogues existing literature that has economic findings or implications regarding women farmers in developed countries, and shows where economists should continue to contribute to the research. As examples, agricultural economists find topics such as differential access to resources and productivity differences by gender important in developing countries, so there can be little doubt that these areas are worth researching in developed countries as well. There are also many agricultural economic subjects of interest in developed countries, such as farm succession, motivations for farming, and the productivity effects of human capital accumulation that would be more completely researched if their gendered aspects were considered. Finally, such research into women farmers in developed

countries will be important for its own findings, and also for purposes of comparison with findings regarding women farmers in developing countries.

<sup>1</sup> Value-added agriculture is “the process of differentiating the raw agriculture product or commodity” (Wright and Annes 2016, 552), and includes processing raw products into other goods (pies, jams, etc.); organic, local, or other certification labeling; direct-to-consumer marketing (farmer’s markets, community-supported agriculture (CSA), farm tourism, etc.); or other cases in which “producers receive price premiums for melding raw commodities with socially desirable attributes” (553).

<sup>2</sup> Trauger, Sachs, et al. (2010) describe civic agriculture as the “building [of] local markets... designed to promote community social and economic development” (44).

<sup>3</sup> Mann’s (2007) article is included in this review although it does not have as its focus current women farmers. It is relevant, however, as it addresses potential women farmers and occupational choice.

<sup>4</sup> In Zepeda and Castillo’s (1997) sample, each farm is owned by a husband and wife. The article is included in the review because the farms that employ joint decision making could be considered women’s farms.

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<sup>1</sup> Value-added agriculture is “the process of differentiating the raw agriculture product or commodity” (Wright and Annes 2016, 552), and includes processing raw products into other goods (pies, jams, etc.); organic, local, or other certification labeling; direct-to-consumer marketing (farmer’s markets, community-supported agriculture (CSA), farm tourism, etc.); or other cases in which “producers receive price premiums for melding raw commodities with socially desirable attributes” (553).

<sup>2</sup> Trauger, Sachs, et al. (2010) describe civic agriculture as the “building [of] local markets... designed to promote community social and economic development” (44).

<sup>3</sup> Mann’s (2007) article is included in this review although it does not have as its focus current women farmers. It is relevant, however, as it addresses potential women farmers and occupational choice.

<sup>4</sup> In Zepeda and Castillo’s (1997) sample, each farm is owned by a husband and wife. The article is included in the review because the farms that employ joint decision making could be considered women’s farms.