

# **An investigation into the causes of the low share of women among corporate farm managers in Germany**

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**List of abbreviations**

BLUE	Best linear and unbiased estimators
e.G.	Eingetragene Genossenschaft
e.V.	Eingetragener Verein
Est.	Estimated
EU	European Union
FTW	Full-time workers
GbR	Gesellschaft bürgerlichen Rechts
GmbH	Gesellschaft mit beschränkter Haftung
GmbH & Co. KG	Gesellschaft mit beschränkter Haftung & Compagnie Kommanditgesellschaft
ha	Hectare
KG	Kommanditgesellschaft
LSU	Livestock units
OLS	Ordinary least squares
Par.	Paragraph
SD	Standard deviation

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## 1 Introduction

Population losses in rural areas and the general demographic trend towards an aging population and workforce are key reasons for the current shortage of specialists and executives in agricultural companies in Germany (e.g., BMELV 2008; VDL 2014). While technological progress continuously reduces labor demand, it cannot compensate for the natural reduction in the number of farm personnel due to retirement (e.g., FOCK et al. 2011; WINGE and WIENER 2009). Moreover, the demand for qualified management personnel remains high irrespective of rationalizations in the production process. Due to the particularities of the post-reunification era, an exceptional shortage of executives arises in large agricultural cooperatives and companies (hereinafter referred to as “corporate farms”) in the eastern part of Germany. This is due to the fact that it was predominantly the cohort of 35-45-year-olds from the middle management level of former socialist farms who took over the management in the early 90s. Many of these managers are now on the verge of retirement and will have to be replaced within the next few years (e.g., MÜBHOFF et al. 2013; WIENER et al. 2004).

Overall, 90% of the total 285,000 German farms are “Einzelunternehmen” (sole proprietorships; hereinafter referred to as “family farms”). On family farms, the owner of the farm is typically the manager, and family members contribute their services to the farm (STATISTISCHES BUNDESAMT 2011: 86). Family farm managers are actively involved in practical agricultural tasks, and the farm is preferably bequeathed to a family member (e.g., THOMAS and VIETH 2012; TIETJE 2004). However, due to the historic divide of Germany, there is a considerable difference between the structure of farms in Eastern and Western Germany. While only approximately 8% of all farms are located in Eastern Germany, 24% of the corporate (i.e., non-family) farms are located there (STATISTISCHES BUNDESAMT 2014a: 58-91). The situation is even more pronounced focusing only on cooperatives. 90% of all German agricultural cooperatives are located in Eastern Germany (STATISTISCHES BUNDESAMT 2014a: 111-127). In corporate farms, the succession decision may be described as a hiring (or appointing) decision, while the highest level executives are concerned mostly with managerial tasks. Moreover, corporate farms are commonly substantially larger than family farms, for instance, in terms of arable land and the number of employees (STATISTISCHES BUNDESAMT 2014b: 24).

Regardless of the type of farm, practitioners as well as agricultural associations report that replacements for retiring managers are increasingly hard to find (e.g., DEUTSCHER BAUERNVERBAND 2011; VDL 2014). At the same time, the share of women remains disproportionately low in the agricultural sector as a whole, and only a few women have



advanced to manager positions. A few figures illustrate the situation: First, only 11% of farmer apprentice positions are occupied by women (BLE 2013: 1). Second, 38% of the agricultural workforce is composed of women (STATISTISCHES BUNDESAMT 2014b: 24). Third, the share of farms managed by women amounts to a mere 9%, where the share of female farm managers in family farms and in corporate farms differs only marginally (STATISTISCHES BUNDESAMT 2014b: 399-415). This situation has hardly changed compared to the situation ten years ago (LINARES 2003). The gender distribution of agricultural science students, who constitute the main reservoir from which to recruit the next generation of farm managers, is entirely different. Regularly more than 50% of the graduates of agricultural science are female (STATISTISCHES BUNDESAMT 2013: 13). This raises the question whether the available pool of young graduates is fully exploited or whether women are still “somehow less addressed” when farm companies search for qualified staff to replace their retiring farm managers. Due to the supply shortage of farming specialists and executives, an unbiased consideration of women as candidates for farm management positions is not only a value-based normative “yardstick”. It is also an economic “must”, especially from a risk perspective, since the long-term provision of qualified management personnel is *the* key factor for the success of any business.

The discrepancy between qualified women and female farm managers gives rise to the question of what causes the low share of female farm managers in Germany. Empirical studies on this issue in various European countries contain ambiguous messages. On the one hand, some studies show that exclusively patriarchal farm succession patterns are diminishing in family farms in European countries (e.g., OTOMO and OEDL-WIESER 2009; GRUBBSTRÖM et al. 2014). On the other hand, other evidence suggests that gender-specific socializations continue to generate differences in the individual motivation to take up farming (e.g., GRUBBSTRÖM and SOOVÄLI-SEPPING 2012; ROSSIER and WYSS 2006; SCHMITT 1997). In corporate farming, barriers commonly described by the metaphor “glass-ceiling” may provide a second explanation as to why so few women have advanced to management positions in agriculture. Literature on the “glass-ceiling” identifies gender bias evaluation due to stereotyping or prejudice toward female leaders as one key barrier (e.g., JACKSON 2001; OAKLEY 2000).

Two requirements will have to be met if the share of female farm managers is to increase: First, the job conditions of farm manager positions must be made attractive for qualified female graduates in order to induce them to consider such jobs as relevant opportunities in their career decision. Given the apparent shortage of junior farm managers, the importance of the occupational choices made by qualified young women can hardly be overrated. Second, the decision-makers in charge of recruiting future managers need to “hunt for the best heads” without distracting gender bias.

## 1.1 Research focus and objectives

The overall aim of this study is to make a contribution to the understanding of the causes for the low share of women among farm managers in Germany. More precisely, we focus on the highest manager position in corporate farms, which entails predominantly managerial tasks and where the successor is commonly determined by a hiring (or promotion) decision. Conceptually, the empirical phenomenon of the low share of female farm managers can be understood as the result of a specific “supply behavior” (i.e., the career decisions made by women) and a specific “demand behavior” (i.e., the recruiting decisions made by the executives in place). For our study, two core research questions result from this conceptual perspective:

1. (Why) Are qualified women less inclined to become a corporate farm manager than qualified men?

For this part of the research, we focus on the comparison of female and male students of agricultural science. We limit ourselves to studying the subpopulation of agricultural science students since they represent the main and most qualified reservoir for junior corporate farm managers. The high share of female students and graduates in contrast to the low share of female farm managers give additional reason for raising our key research question.

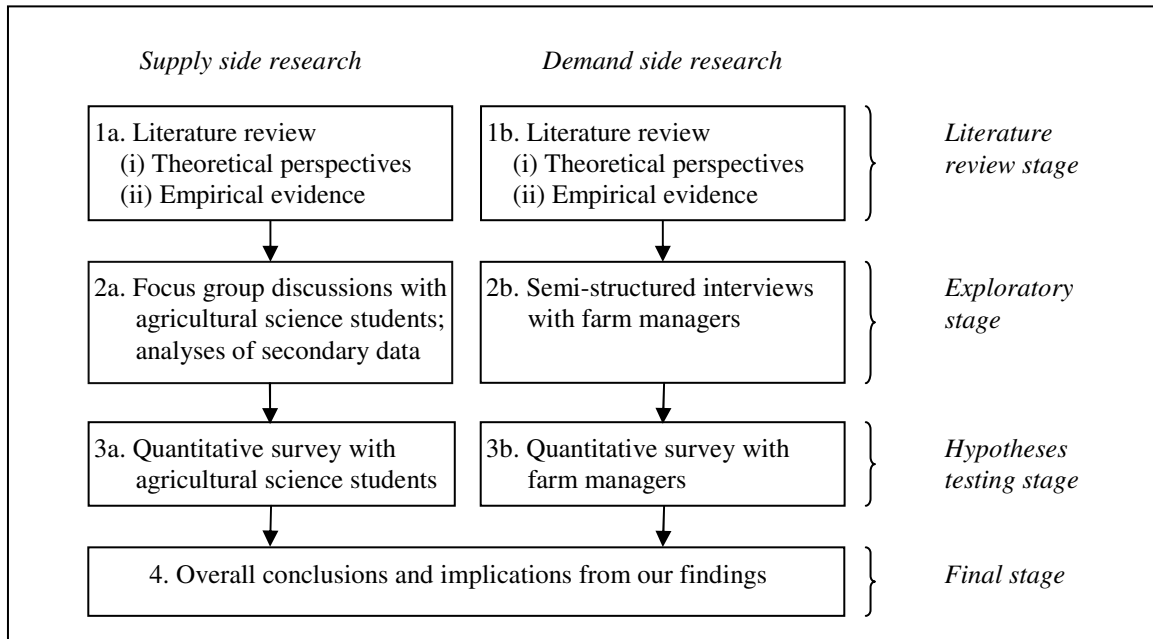
2. (Why) Are people in charge of hiring future corporate farm managers influenced by the gender of an applicant?

For this part of the research, we focus on current executives of Eastern German farms. We limit ourselves to studying this subpopulation because in comparison to the situation in Western Germany, the position of a corporate farm manager is relatively more common in Eastern Germany. Furthermore, in Eastern Germany the expected shortage of executives for corporate farms is particularly pronounced (e.g., KREYBIG et al. 2007; WIENER et al. 2004; WINGE and WIENER 2009).

## 1.2 Research design

In our attempt to answer the research questions, we divided the methodological approach for both the supply and the demand side into three separate main research stages each: (i) a literature review stage, (ii) a qualitative exploratory stage, and (iii) a quantitative hypotheses testing stage. Furthermore, our research design incorporated (iv) a common final stage (cf., Figure 1).

Figure 1 Research design



Source: own representation

In the first research stage (cf., Chapter 2), existing literature was reviewed and systemized. For the *supply side*, we summarized the theoretical arguments on the causes for gender-specific occupational choice by categorizing the arguments into the different levels of analysis they refer to. Furthermore, existing empirical evidence in the context of the occupational choice to become a corporate farm manager was reviewed. For the *demand side*, we summarized the theoretical arguments on why the gender of an applicant can be influential in a hiring situation. Again, this was done by categorizing existing arguments into the different levels of analysis they refer to. Then, we reviewed empirical evidence in the context of the succession decision of the farm manager position.

In the exploratory stage of the study (cf., Chapter 3), primary qualitative data was collected and analyzed. What is more, two secondary quantitative datasets were analyzed. More precisely, for the *supply side*, we collected and analyzed primary data in terms of seven focus group discussions with agricultural science students ( $n = 38$ ; 20 female and 18 male participants) of the Martin-Luther-University Halle-Wittenberg. Additionally, two secondary datasets were analyzed: One dataset was comprised of data obtained from agricultural science students from Lower Saxony ( $n = 225$ ; 137 female and 88 male participants); the other dataset was comprised of data gathered from agricultural science graduates of the Martin-Luther-University Halle-Wittenberg ( $n = 97$ ; 44 female and 53 male participants). For the *demand side*, we collected and analyzed primary data in terms of seven semi-structured interviews with farm managers ( $n = 7$ ; 4 female and 3 male participants) from family farms as well as agricultural companies in Eastern Germany.

In the light of the findings from the first and second stage of the research, in a hypotheses testing stage quantitative survey data was collected and econometrically analyzed (cf., Chapter 4). To this end, for the *supply side* research we collected quantitative data from agricultural science students at six German universities ( $n = 273$ ; 135 female and 138 male participants). For the *demand side* research (cf., Chapter 4.2), we collected data from farm managers from Eastern Germany ( $n = 31$ ; 7 female and 24 male participants).

In our final stage of the research (cf., Chapter 5), we drew overall conclusions from our findings. Furthermore, implications for four target groups were drawn: for researchers who intend to investigate further into our research topic; for farm managers who are in need of a qualified successor; for female junior professionals who intend to become farm managers, and for policy makers who aim to mitigate recruitment shortages.

To conclude, it should be noted that our research design faced a few limitations: The observed phenomenon of the low share of female farm managers is clearly a result of the past behavior of the actors involved, i.e., the supply and the demand side agents. The presented research design for the empirical part of the study focuses on the present intentions of both sides. This entails two premises: First, as intentions to behave in a certain way do not necessarily translate into behavior, it is assumed that the stronger an intention is, the more likely is the act of carrying out this behavior (e.g., FISHBEIN and AJZEN 2010). Second, we assume that causal interrelations observed in this study also apply to the past (no discontinuity), i.e., determinants that shape future behaviors are also valuable for understanding past behaviors. Third, our research design focused on the micro-level of the phenomenon of the low share of women farm managers, i.e., we studied individual behavior. An alternative approach is to focus on the macro-level and study societal developments and phenomena. While both approaches may deliver valuable insights, our aim is to understand the individual-level behavior of supply and demand side agents. We understand that results from our positive and micro-level analysis are in particular valuable for identifying strategies that could be used to increase the share of female farm managers. This holds true regardless of whether an increase of female farm managers is viewed as a normative “yardstick” or as a strategy to mitigate the current recruitment problems in agriculture.

## 2 Theory and empirical evidence

In the following, we systematically review the theoretical perspectives that are helpful in order to understand whether and why gender may be relevant for becoming a corporate farm manager. Then, insights from published<sup>1</sup> empirical evidence are presented. We firstly look at gender-specific occupational choice and then at the influence of the applicant's gender on hiring choices. However, as gender is a sensitive and complex issue, we start this chapter with a brief note on "doing gender", aiming to position our research in the ongoing debate.

### 2.1 A note on "doing gender"

Over the past decades, the scientific interest in understanding the differences between women and men has increased. During this time, a whole interdisciplinary field of studies, the so-called "gender studies, has evolved, where gender is viewed as the central concept of analysis. Within this field, it is typically assumed that "gender" is socially constructed rather than biologically determined. Consequently, a clear distinction between the biological sex and the socially constructed gender is usually drawn (DEGELE 2008). It should be noted that no general agreement within the scientific community exists in how far gender-specific differences, in terms of behaviors, skills, attitudes etc., are truly biologically determined. The approach of empirical measurement applied in this study does not qualify to deliver any sort of conclusive answer to this question. Still, by addressing the issue of gender, this thesis automatically contributes to the scientific debate. Thus, we want to recognize that by analyzing and presenting gender-specific differences, both as *detected* in the supply side as well as *expected* from the demand side, from a social constructivist point of view, we already take part in the "doing gender" process. Consequently, one may argue that we are socially (re)constructing differences between women and men, and between femininity and masculinity. WEST and ZIMMERMAN (1987: 137), the two pioneers in the field of "doing gender", describe the process as follows: "doing gender means creating differences between girls and boys and women and men, differences that are not natural, essential, or biological. Once the differences have been constructed, they are used to reinforce the 'essentialness' of gen-

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<sup>1</sup> Empirical evidence can be subject to various biases. In the context of gender in particular confirmation as well as publication bias have been discussed (e.g., CROSON and GNEEZY 2009). Thus, it is often argued that primarily evidence is published, which confirms the hypothesis that gender is a significant and important variable (regardless of the concrete research question). Therefore, presented evidence has to be evaluated cautiously.

der". Nonetheless, for the supply side we assume that only by determining the causes for gender-specific differences in occupational choices one is able to intentionally and purposefully mitigate them.<sup>2</sup> For the demand side, we assume that only by detecting whether and why gender is relevant for hiring choice, one is able to counteract potentially discriminatory practices. By taking this point of view, where an intentional change of behavior is assumed to be possible, it is already implied that we reject the idea that gender-specific differences are purely biologically determined.

## 2.2 The supply side of the labor market: Gender and occupational choice

### 2.2.1 Theoretical perspectives on gender-specific occupational choice

Empirical evidence indicates that over the past decades women's occupational choices have diversified. Moreover, it has been noted that occupational choices are becoming decreasingly gender-stereotypical<sup>3</sup> (e.g., BLAU and KAHN 2000; FRANCIS et al. 2003). Nonetheless, marked differences in occupations taken up by women and men still exist (e.g., HEGEWISCH et al. 2010). Two academic disciplines have taken a special interest in explaining the supply side part of occupational decision: economics and social psychology. Theories typically differ both in their terminology and in their focus of analysis. Without claiming to give an exhaustive overview of all theories, in the following we aim to give a *systematic* overview. We do so by firstly distinguishing between the different levels of analysis found in the economic and social psychological literature. Thereafter, we summarize the central similarities and differences of the reviewed theories using a graphic representation of the identified levels of analysis.

#### *Economic approaches to explain gender-specific occupational choice*

From a decision-theoretic point of view, economists generally assume that occupational choices can be explained in the same way as any other (economic) choice: Individuals are utility maximizers and thus choose the occupation from which they derive the most utility. If one adopts a narrow conception of rational choice, utility presumably depends exclusively on the material outcome of occupational choices. However, it has been widely acknowledged within the behavioral economics literature that individuals form subjective expectations and that they may pursue a wide variety of goals. Many distinguished behavioral economists (e.g., AKERLOF and KRANTON 2000; FREY 1997; OSTROM 2005) suggest that individuals derive utility from both the material and the non-material outcomes of choices. Consequently, one may explain gender-specific oc-

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<sup>2</sup> We recognize that mitigation of gender differences in occupational choice is a normative goal, which may or may not be pursued by different societal agents.

<sup>3</sup> Gender (as well as any other type of) stereotypes are typically described to remain relatively stable over time. However, they can be subject to change. Changes are generally assumed to occur due to the presence of disconfirming information (POWELL et al. 2002).

cupational choice by gender-specific utility expectations from material and non-material outcomes of the occupations. The decision-theoretic definition of choice facilitates an operational understanding why (occupational) choices of women and men differ. However, HIRSCHAUER and SCHEERER (in print), point out that examination of only the expected utility gains of the individuals does not inform us on which real-life prior processes and present characteristics produce gender-specific differences in the expected utility from material and non-material outcomes. With regard to the analysis of these characteristics and processes in the context of occupational choice, three different levels of analysis may be discerned.

The first level of analysis focuses on gender-specific differences in the overall evaluation of the expected outcomes of occupations at a specific time under consideration. One may make a conceptual differentiation between two arguments: First, the *evaluations of the relevance of the expected outcomes* are assumed to be gender-specific. Second, women and men expect to obtain *different outcomes* of an occupation. With regard to the *evaluation of the relevance of outcomes of occupations*, scholars have argued that women and men pursue different goals in life (i.e., they differ in preferences). Specifically, it has been highlighted that women and men differ in their desire for labor force participation (e.g., MINCER and POLACHEK 1974; POLACHEK 1979). Women are assumed to be willing to forfeit monetary outcomes in order to have less (lifetime) working hours on the labor market. Or, as POLACHEK (1979: 144) summarizes: “[...] individuals will choose those occupations with the smallest penalty for their desired lifetime [labor force] participation”. With regard to differences *in the expected outcomes*, BECKER (1985), on the one hand, argues that the monetary outcomes of the same occupation can differ between women and men. More specifically, in many occupations men can expect to earn more than women. On the other hand, AKERLOF and KRANTON (2000) assume that the gender-specific non-material outcomes, in terms of discomfort or anxiety, can result from carrying out the same occupation. They argue, for instance, that being a nurse results in discomfort for men, but does not result in discomfort for women.

On the second level of analysis, scholars have pointed at gender-specific factors at the time under consideration which foster the gender-specific differences in the evaluation of outcomes of occupations. A total of three gender-specific factors are discussed: (i) human capital, (ii) household responsibilities, and (iii) self-identity. BECKER (1985) focuses on gender-specific difference in material outcomes due to differences in human capital and household responsibilities. With regard to differences in human capital, Becker assumes that men exceed women in their labor market-relevant human capital. He argues that the more human capital an agent has, the higher are the monetary outcomes of an occupation. With regard to household responsibilities, Becker assumes that the partner in a relationship who has more responsibility for household and childcare

(typically the woman) has a relatively lower amount of energy to spend on each hour of work on the labor market.<sup>4</sup> At the same time, the hourly wage is argued to be dependent on the energy that the agents allocate to the job. Consequently, women and men are assumed to differ in their monetary earning, even when the number of working hours and the human capital is kept constant. AKERLOF and KRANTON's (2000) focus on gender-specific difference in non-material outcomes of an occupation due to differences in self-identities. The two scholars assume that there are two types of social categories: "men" and "women". Agents are assumed to identify themselves with either of the two social categories. Prescriptions of appropriate behavior which determine the non-material outcomes of behavior exist for both social categories. As AKERLOF and KRANTON (2000: 716) summarize the argument: "Following the behavioral prescriptions for one's gender affirms one's self-image, or identity, as a 'man' or a 'woman'. Violating the prescriptions evokes anxiety and discomfort in oneself [...]." With regard to occupations, both scholars further assume that occupations are also associated with the social categories of "men" or "women". They conclude: "Female trial lawyer, male nurse, woman Marine – all conjure contradictions. [...] People in these occupations but of the opposite sex often have ambiguous feelings about their work" (AKERLOF and KRANTON 2000: 721-722). Consequently, non-material outcomes of occupations are argued to be gender-specific.

Going one step further upstream in the cause and effect chain, the third level of analysis is concerned with *past processes* that determine the gender-specific factors of the point in time under consideration. With regard to the evolution of market-relevant human capital, some scholars point at the possibility that (some) systematic differences in occupational relevant competencies may be biologically determined (e.g., CROSON and GNEEZY 2009).<sup>5</sup> However, the focus of theoretic reasoning lies on gender-specific learning experiences, which eventually cause gender-specific human capital at the point in time under consideration. For instance, BECKER (1985) argues that the traditional division of family labor, where the man is assumed to be the principle earner and the woman is assumed to be responsible for the housework, discourages women to acquire labor market-relevant human capital. REICH et al. (1973) assume that already pre-market schooling and the differences in the socialization of girls and boys by the families create differences in competencies. With regard to the formation of gender-specific self-identities, AKERLOF and KRANTON (2000) similarly assume that gender-specific sociali-

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<sup>4</sup> Becker leaves it open how the distribution of household responsibilities is divided between partners in the first place.

<sup>5</sup> It should be noted that despite the large number of scientific publications on the topic of competencies, the research is still characterized by conflicting concepts. Neither terminology nor definitions of central terms such as competencies, skills, capabilities, or qualifications have been unanimously agreed upon (e.g., GRZEDA 2005). Without going into the details of this scientific discourse, we want to clarify that throughout this thesis we use the listed terms synonymously.



zation leads to the internalization of behavioral prescriptions. Furthermore, the authors point out that prescriptions on which occupations are associated with the category “man” or “woman” can change over time in society, as can the behavioral prescriptions for women and men. Policy measures or social movements, for instance, are argued to lead to a gradual change in occupational prescriptions.

#### *Social psychological approaches to explain gender-specific occupational choice*

Social psychological theories on gender-specific occupational choice follow an interdisciplinary approach, where the prime interest is the interaction between social influences and cognitive processes. We can systematically summarize these theories by identifying three principally different levels of analysis.

The first level of analysis focuses on the decision parameters that are argued to lead to gender-specific occupational choices at the point in time under consideration. Scholars typically assume that gender-specific occupational choice results from differences in the “*self-efficacy beliefs*” (e.g., ECCLES 1994; CORRELL 2001; HACKETT and BENZ 1981; LENT et al. 1994) and/or *differences in the evaluation of the congruency of the outcomes of occupations and occupational objectives* (e.g., ASTIN 1984; ECCLES 1994; GOTTFREDSON 2002). Going back to BANDURA (1977), *self-efficacy beliefs* are evaluations regarding one’s own skills and capabilities. Scholars assume that self-efficacy evaluations of occupationally relevant tasks significantly and substantially influence women’s and men’s occupation choice. As HACKETT and BENZ (1981: 328) argue: “Low self-efficacy expectations may prevent a person from attempting to perform a task even if he or she is relatively certain that performance of that task would lead to desired outcomes”. With regard to the evaluations of the *congruency of the outcomes of occupations and occupational objectives*, there are different assumptions on which set of occupational objectives individuals truly have. For instance, ASTIN (1984) assumes that all individuals seek to satisfy three sets of need via an occupation: survival, pleasure, and contribution needs. She argues that women and men differ in their evaluation in how far outcomes are able to meet these needs. GOTTFREDSON (2002) argues that individuals’ central objective is to affirm their self-concept with their occupations. Self-concepts refer to “one’s view of oneself - of who one is both publicly and privately” (GOTTFREDSON 2002: 88). At the same time, individuals are assumed to hold images of occupations, which include assumptions on the cost and benefits of the occupation as well as the perception of the “masculinity” or “femininity” of the position. Gottfredson argues that individuals prefer to carry out the occupation which is the most compatible with their self-concept. Other scholars have argued in favor of additional and/or different types of occupational objectives. However, a comprehensive compilation of all possible occupational goals faces the difficulty to avoid duplications and inconsistencies. Regardless of which set of occupational goals scholars consider, the common denomi-

nator is that women and men are assumed to differ systematically in their perception of in how far the outcomes of occupations meet the individual's occupational objectives.

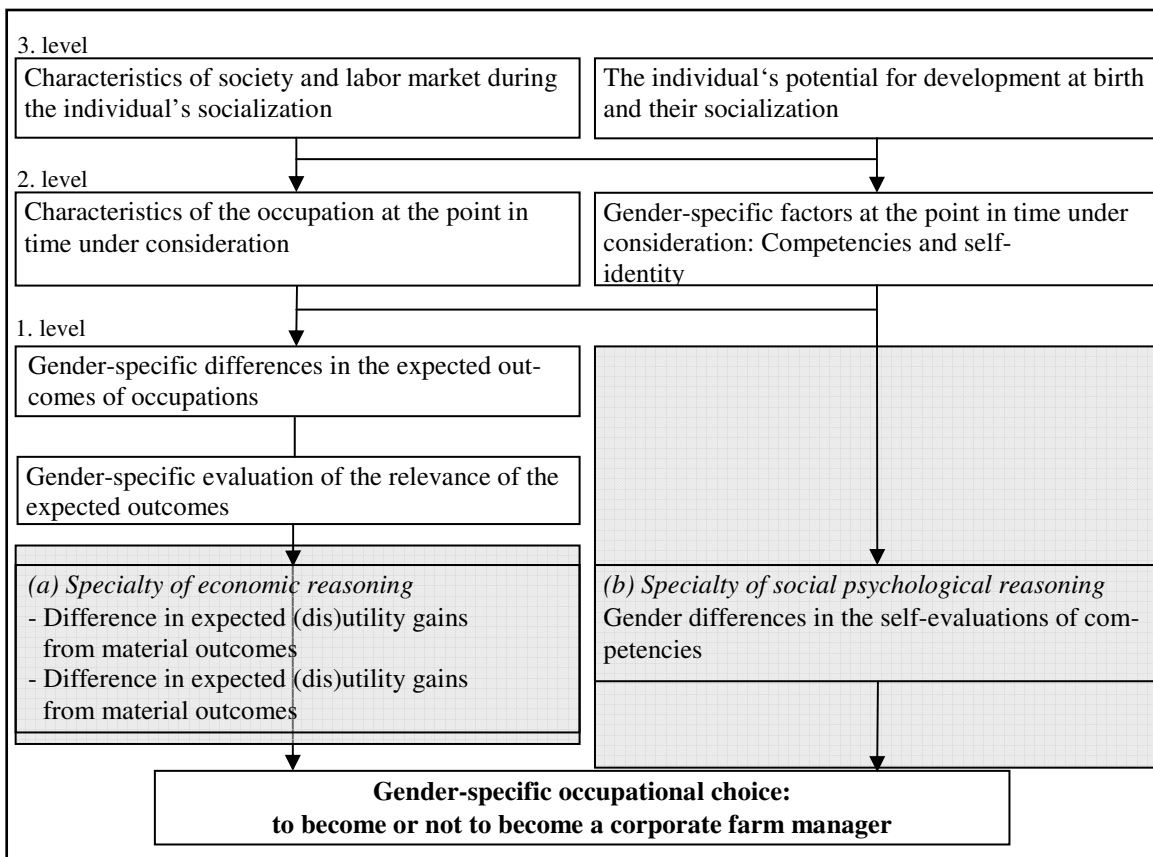
A second level of analysis focuses on the gender-specific factors in the point in time under consideration, which are assumed to foster, on the one hand, the gender-specific differences in self-efficacy beliefs and, on the other hand, the expectations in how far the outcomes of occupations meet the individual's objectives. With regard to gender-specific differences in self-efficacy beliefs, three different determining factors are discussed: First, it is argued that differences in *de facto* competence may exist (HACKETT and BENZ 1981). Second, gender-specific self-identities and, third, the behavior of others (e.g., role models) may lead to gender-specific evaluations competencies, even when *de facto* competencies are kept constant (e.g., CORRELL 2001; HACKETT and BENZ 1981). Concerning gender-specific differences in the expectations in how far occupations are able to meet individuals' objectives, gender-specific self-identities are commonly argued to be the decisive factor. While scholars use different terminology, the quintessence is that women and men are assumed to have distinctly different perceptions of what behaviors are appropriate and desirable for them (e.g., ASTIN 1984; ECCLES 1994; GOTTFREDSON 2002).

The third level of analysis focuses on differences in the socialization processes of women (girls) and men (boys). One may categorize processes within gender-specific socialization either in terms of stages in life (e.g., early childhood, school age, young adulthood, adulthood) or by the types of social influences (e.g., family, teachers, peers, media) (e.g., ASTIN 1984; HACKETT and BENZ 1981). It would go beyond the scope and intent of this subchapter to list all existing arguments on why and which gender-specific socialization processes are argued to be important for eventually determining occupational choices. It should be sufficient to note that, on the one hand, gender-specific learning experiences and, on the other hand, the behavior of others (e.g., role models, verbal persuasion of others) and the social development lead to the formation of gender identities as well as gender-specific differences in *de facto* competencies.

#### *Combining and contrasting the economic and the social psychological approaches on gender-specific occupational choice*

Figure 2 provides a systematic but necessarily simplified overview of the central commonalities and differences of the presented reasoning on gender-specific occupational choice.

Figure 2 Levels of analysis in the process leading to gender-specific occupational choice



Source: own representation

In both disciplines, the first level of analysis is concerned with the decision rationale of individuals at a specific point in time. Moreover, in both disciplines, gender-specific differences in the evaluation of expected outcomes are argued to determine gender-specific occupational choices. Indeed, economic and social psychological scholars mostly assume that individuals pursue *multiple goals* with their occupational choice. The positions of scholars differ, however, with regard to the set of goals identified to be important drivers of gender-specific occupational choice. This is true already within each individual scientific discipline. A further idea that can be found in both disciplines is that a conceptual distinction between the expected outcomes and the individual's evaluation of the relevance of the expected outcomes is argued to be useful. Two distinct differences between the two scientific disciplines may be detected: First, economists are concerned with the systematic evaluation of behavioral outcomes in terms of (dis)utilities (cf., Figure 2 box a). In contrast to this, within the social psychological disciplines, no common decision-theoretic point of view may be detected. Second, a concept that is explicitly only discussed in social psychological literature is the self-evaluations of one's own competencies (cf., Figure 2 box b). As explained, in social psychological literature it is assumed that self-efficacy evaluations can influence occupational choice even if individuals assume that carrying out the occupation would lead to desired outcomes.

Although the terminology differs, on the second level of analysis in both disciplines we find two common gender-specific factors which are argued to determine the factors on the first level of analysis: the individuals' self-identity and competencies at the time under consideration. In both disciplines, gender-specific self-identities are assumed to determine the expected outcomes of occupations. However, a marked difference can be detected with regards to competencies: In economics, the focus of explaining gender-specific differences in occupational choice lies on differences in *de facto* competencies leading to differences in the *expected outcomes of occupations*. In social psychological literature, both gender-specific differences in *de facto* competencies (in combination with gender-specific differences in self-identities) are assumed to lead to differences in the *expected outcomes of occupations* as well as the *self-evaluation of competencies*.

The third level of analysis is concerned with differences in the socialization processes of women (girls) and men (boy). This level is mainly discussed in social psychological literature. However, in both disciplines processes and external influences are highlighted, which are assumed to lead to gender-specific differences in competencies as well as the formation of gender-specific identities. Looking at the processes on the third level of analysis allows for a reconstructive understanding of how gender-specific differences, in the decision variables in the time under consideration, have evolved.

In conclusion, we want to highlight two issues: First, it must be noted that the presented levels of analysis can be divided into smaller sections. The key difficulty lies in avoiding duplications and incoherencies when listing the numerous levels of analysis. However, Figure 2 clearly shows why scholars argue that occupational choice should be viewed as a path-dependent process rather than a one-time choice (e.g., ÖZBILGIN et al. 2005; WATT 2010). In more economic terminology, we may summarize with the words of HALL (1971: 53): "one could view a career history as a stochastic process in which a choice at a given time could be given a certain probability on the basis of the person's previous choices and present circumstances". Second, the cited literature on occupational choice does make a systematic distinction between occupational choice and occupational *intention*. More specifically, cited sources do not conceptualize the importance of employer in an application, respectively hiring, situation. Most occupational choices depend on the behavior of both the supply and the demand side agents. One may consequently argue that the cited literature is concerned with occupational *intentions*, but omits to explicitly state so.<sup>6</sup>

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<sup>6</sup> Unless it is assumed that the occupational choices under consideration are completely under the control of the individuals in question.

### 2.2.2 Empirical evidence on the gender-specific intention to become a corporate farm manager

To our best knowledge, no study specifically addresses the questions of whether and why qualified women and men want (or do not want) to become corporate farm managers. However, empirical evidence is present in two related contexts: the occupational intention to become a family farm manager and the occupational intention to become a (non-agricultural) business manager. Findings are presented and discussed in the following.

#### *The occupational intention to become a family farm manager*

If the occupational choice is understood as the occupation that individuals carry out, abundant empirical evidence suggests that the choice to become a family farm manager is gender-specific. For instance, in Germany approximately 9% (STATISTISCHES BUNDESAMT 2014b: 399) of German family farms are run by women. However, as family farms are predominately passed on from parents to children, the occupational choice cannot be explained exclusively by children's intention to become farm managers. Focusing then only on the question whether and why the *intention* to become a family farm manager is gender-specific, three branches of literature may be identified.

The first branch of literature focuses on how gender-specific socialization leads to gender-specific intentions to take over the farm. Most of these studies suggest that sons and daughters are differently involved in the family farm business (e.g., DUMAS et al. 1995; GRUBBSTRÖM and SOOVÄLI-SEPPING 2012; MELBERG 2008; SCHMITT 1997; ROSSIER and WYSS 2008). Studies report that parents confront their sons and daughters with different tasks: Sons are typically taught all tasks relevant for being able to take over the farm, whereas daughters are frequently excluded from agricultural work and are more involved with household duties (e.g., LECKIE 1996). Furthermore, there is evidence that daughters' interest in practical agriculture work is less encouraged and supported by parents (e.g., ROSSIER and WYSS 2008). The differences in the socialization processes are argued to lead to differences in competencies, which in turn is assumed to influence the inclination of daughters to become family farm successors. Some more recent evidence on European family on-farm socialization, however, indicates that farm socialization is becoming less gender-specific. GRUBBSTRÖM et al. (2014) shows in her study that the tradition to raise only the sons as the successors is being increasingly challenged, and daughters are equally included in on-farm work.

The second type of literature focuses on the question which outcomes are important drivers of gender-specific intentions to take over the family farm at a specific point in time. First insights are provided by a study on Swiss farm children by MANN (2007). Mann finds that daughters are significantly less inclined to take over the family farm than sons. What is more, the intention of male and female study participants to become

a successor is significantly and positively influenced by three common outcomes: (i) the prospect of doing practical work, (ii) the prospect of working together with their parents, and (iii) the wish to take over the farmhouse. Compared to male participants, female participants, on average, evaluate these outcomes as substantially less positive. One may consequently and cautiously conclude that women participants are less inclined to become family farm successors (i) because they evaluate the prospect to do practical work less positively, (ii) because they evaluate the prospect to work with their parents less positively, and (iii) because they are less inclined to take over the farmhouse. Furthermore, Mann finds that some determinants are gender-specific as they are significant for female participants and not for male, and vice versa. For instance, the enjoyment of working with animals significantly and positively influences only participating women's intentions to take over the family farm. The perceived variety of tasks, which the farm successor has to carry out, significantly and positively influences only participating men's willingness to become the farm successor. These findings may be interpreted as supportive evidence that women and men differ in their evaluation of the relevance of the expected outcomes of occupations. Overall, Mann's findings indicate that focus on expected material and non-material outcomes of the farm manager position is helpful for understanding gender-specific occupational intentions at a specific point in time.

The third branch of literature focuses on a reconstructive understanding on why women have intended to take up the position of the family farm manager. A quantitative study by OEDL-WIESER and WIESINGER (2010) focuses on women farm managers in Austria. The top three reasons for becoming a family farm manager are found to be (i) the enjoyment of working in nature and with animals, (ii) the interest in agriculture, and (iii) advantages concerning retirement pensions and social security insurances. A number of further empirical studies focus on women family farm managers in the United States. Here, the increase of female farm managers has been linked to an increase of demand of niche products produced with non-conventional, small-scale agricultural practices (BALL 2014). Indeed, various scholars have connected women farmers with non-conventional and less intensive farming practices such as organic, local, or civic agriculture (e.g., FINAN 2011; KAZAKOPOULOS and GIDARAKOU 2003; TRAUGER 2004; TRAUGER et al. 2010). BALL (2014) finds that one reason for the relatively larger share of women farmers in non-conventional farming is that women have a preference for this type of production methods. Concerns about the environmental and health aspects of growing food are found to foster this preference. However, due to the lack of inclusion of male family farm managers, we cannot conclude whether the findings from this branch of literature are truly gender-specific.

*The occupational intention to become a business manager*

Comparably to the situation in agriculture, abundant empirical evidence suggests that the occupational choice to become a business manager is gender-specific. Depending on the definition of the manager position as well as the type of business, the share of women in German top manager positions, for instance, ranges from 3% to 31% (BMFSFJ 2010: 7). Empirical research specifically investigating the intention to become business or organization managers, suggests that women are, on average, less inclined to take up such positions (e.g., MINER 1974; STEVENS and BRENNER 1990; VAN VIANEN and KEIZER 1996). With regard to the question why gender-specific differences in the intention to become a farm manager exist, two different foci of literature may be detected.

The first branch of empirical literature is concerned with the relationship between gender roles and the evaluation of the expected outcomes of the occupation. The basic idea of these studies is that an individual must exercise a number of different social roles in order to be a manager. Participants are not directly asked whether they want to become a manager; instead, the so-called "Miner Sentence Completion Scale" is used. Here, the inclination to be a manager is rather indirectly determined by asking a set of questions (40 in total) related to individual inclination to fulfill different roles.<sup>7</sup> Participants are asked to complete sentences, and consequently all positive responses are added up; they are assumed to reflect participants' inclination to manage. By following this approach, most published studies conclude that a gender-specific difference in the inclination to manage exists.<sup>8</sup> A meta-analysis by EAGLY et al. (1994) indicates that women are less inclined to become business managers because women are less inclined to fulfill the predominantly masculine-defined behavioral expectations associated with the role of a business manager. As EAGLY et al. (1994: 151) summarize "masculine in the sense that the majority of the qualities it requires are male-stereotypic". One may cautiously conclude that this branch of literature supports the assumption that gender-identity influences the evaluation of outcomes of occupations, which, in turn, causes a gender-specific difference in the inclination to manage.

VAN VIANEN and KEIZER (1996) specifically focus on the influence of self-efficacy evaluations and outcome expectations on the intention to manage. The two authors use reflective variables to measure the intention to become a manager. While the study is carried out in two different organizations, only in one organization women are found to be significantly less inclined to become business managers. Focusing on this organization, results from a multiple regression analysis indicate that both outcome expectations

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<sup>7</sup> The measurement instrument was developed by the psychologist J.B. Miner. For more detailed information on this measurement tool as well as an appraisal, see e.g., BRIEF et al. (1977).

<sup>8</sup> Several studies do not find gender differences in the inclination to manage, e.g., CHEN et al. (1997). One may speculate that the indicated possibility of a publication bias may be one reason for the abundance of studies indicating a gender-specific difference.

and self-efficacy evaluations are significant predictors of participant inclination to manage. The latter is found to be the most influential predictor. Furthermore, the participating men show significantly higher self-efficacy evaluations. At the same time, no significant gender-specific difference in the self-efficacy evaluations can be detected in an organization where no gender-specific difference in the inclination to manage exists. The two authors consequently argue that self-efficacy evaluations are a central factor determining the gender-specific difference in the intention to manage. The study does not include any variable intended to objectively measure *de facto* competencies. Thus, one cannot conclude whether self-efficacy evaluations are, in turn, caused by differences in the *de facto* competencies or exist even when competencies are kept constant.

In conclusion, most of the presented empirical literature suggests that the occupational intention to become a farm manager may indeed be gender-specific. Concerning the question why gender-specific differences exist, findings depend very much on the scientific background of the scholars.

## 2.3 The demand side of the labor market: Gender and hiring behavior

### 2.3.1 Theoretical perspectives on the importance of an applicant's gender for the hiring decision

It is widely recognized within the scientific community that the applicant's gender can influence hiring decision of employers. Several theories in economics and social psychology aim to explain why this can be the case. In order to establish an analogy to the theoretical perspectives presented in the supply side research, we first distinguish the different levels of analysis which can be detected in both disciplines. We do so for each discipline separately. We then summarize the central similarities and differences of the two disciplines using a graphic representation of the identified levels of analysis.

#### *Economic approaches to explain the importance of the applicant's gender for the hiring decision*

Three central levels of analysis may be identified in the economic approaches to explain why the applicant's gender can be influential for the hiring choice. While already inducing a normative connotation, economic scholars typically refer to the act of differentiating between applicants on the basis of gender as "discrimination". As with occupational choice, economists generally assume from a decision-theoretic point of view that employers are utility maximizers and thus make a hiring choice which is expected to maximize their utility.

On the first level of analysis, scholars have put forward two central arguments why the gender of an applicant can influence hiring decisions: First, employers perceive men and women to be systematically different in their productivity. Consequently, they ex-



pect to derive different utilities from the *material outcomes* of hiring a man or a woman (e.g., ARROW 1971; BECKER 1971; PHELPS 1972). Second, employers' expectations with regards to the utility derived from the *non-material outcomes* of hiring a man or a woman may differ. For the latter, two arguments may be identified: On the one hand, BECKER (1971) assumes that employers expect to derive (dis)utility from the contact with individuals of a different sex, race etc.<sup>9</sup> AKERLOF and KRANTON (2000), on the other hand, argue that specifically a male employer may expect disutility for hiring a woman due to "a loss in male identity when women work in a man's job (AKERLOF and KRANTON 2000: 732)". ARROW (1971) explains that the notion that non-material outcomes can influence hiring decisions involves the concept that personal characteristics, such as gender or race, are valued on the market, even when they are unrelated to the productivity of a worker. Thus, the employer is assumed to be willing to forfeit material benefits in order to avoid disutility from non-material outcomes.

The second level of analysis is concerned with factors which are assumed to determine employers' expectations concerning the material and non-material outcomes of hiring a man or a woman. With regard to the expectations of the *material outcomes*, the so-called "statistical discrimination" theories (e.g., ARROW 1971; PHELPS 1972) state that employers have imperfect information on the "true efficiency" of employees. This is because the efficiency of an employee is often only completely determined *after* the employment decision. To avoid sunken investment costs caused by employing a less qualified worker, employers want to assess the productivity of the worker *before* the employment. To this end, employers refer to their, what ARROW (1971) denotes as, "perception of reality". This perception reflects employers' preconceptions of the average distribution of productivity within different and easily distinguishable groups of workers (e.g., female vs. male workers). According to BECKER (1971), the perception of reality can be categorized as "ignorant" when the true efficiency of the employee is misjudged. PHELPS (1972), however, argues that even if individual level decisions due to a general discriminatory rule, e.g., to only employing male workers, the employment decision can still maximize the expected utility of an employer. This holds true as long as the investment cost for inquiring more information on the applicant is "sufficiently" high and employers expect female workers to be less efficient at least half the time. Furthermore, ARROW (1971) argues that the perceptions on the distribution of efficiency may also "correct" in a sense that real life differences in the productivity of two groups of workers may exist. This is because the levels of accumulated human capital may systematically differ between groups of workers.

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<sup>9</sup> Hiring decisions based on expected utility are denoted by BECKER (1971) as "nepotism". Hiring decisions based on expected disutility are denoted as "discrimination". Becker assumes that discrimination rather than nepotism is the reason for differentiating between applicants based on their characteristics unrelated to productivity (e.g., gender, race).

Concerning the factors which foster employers' expectations regarding the (dis)utility derived from *non-material outcomes*, BECKER (1971) speculates that employers' expectation may depend on the geographical location, the time period, and the personality of the employers under consideration. AKERLOF and KRANTON (2000) view employers' identity as the decisive factor.

The third level of analysis focuses on those past processes that are assumed to determine the decision parameters of individuals at the point in time under consideration. With regard to the processes which lead employers to adopt a "perception of reality", ARROW (1971) suggests that employers who have acted in a discriminatory manner in the past may acquire such perceptions of the distribution of productivity in the society which justify their acts. As ARROW (1971: 28) summarizes "[...] if individuals act in a discriminatory manner, they will tend to acquire or develop beliefs which justify such actions. Hence, discriminatory behavior and beliefs in different abilities will tend to come into equilibrium". Concerning the formation of self-identities, AKERLOF and KRANTON (2000) assume that gender-specific socialization leads to the internalization of gender-specific behavioral prescriptions.

#### *Social psychological approaches to explain the importance of the applicant's gender for the hiring decision*

When focusing on social psychological approaches to explain why the gender of an applicant can influence hiring choices, two principle levels of analysis may be detected.

On the first level of analysis, those factors which are assumed to lead to hiring decisions being influenced by the applicant's gender are identified. The first factor is prejudice against women leaders, which is conceptualized in the "role congruity theory" by EAGLY and KARAU (2002). The theory explicitly focuses on the manager position. Prejudices are assumed to take two forms: prejudices in the form of less favorable evaluations of women's competencies for the leadership position and prejudices in the form of less favorable evaluations of the women's actual leadership behavior. A second and partly coinciding factor discussed in social psychological literature is the so-called "in-group favoritism" (e.g., BROWN 2000; SHERIF 1966; TAJFEL and TURNER 1979). It is assumed that so-called "in-groups" and "out-groups" exist. The in-group is the group that individuals identify themselves with, whereas the out-groups are all other groups. Generally, it is argued that members of the in-group are preferred over members of out-groups. At the same time gender is a key characteristic defining the membership of a group. The difference between the in-group favoritism and prejudice, as conceptualized by EAGLY and KARAU (2002), is that in-group favoritism is assumed to only lead to a preference for a male applicant when the person hiring is a man himself. Following EAGLY and KARAU (2002), all people can have the tendency to prefer a male applicant for the manager position.

Within the role congruity theory, the second level of analysis focuses on the perception of gender and leader roles which are assumed to determine people's prejudice against female leaders. Gender and leader roles are assumed to pertain to so-called descriptive and prescriptive norms of behavior. According to EAGLY and KARAU (2002), descriptive norms are expectations regarding the *actual behavior* of women, men, and leaders. Prescriptive norms are expectations regarding the *ideal behavior* of women, men and leaders. The majority of descriptive and prescriptive expectations are argued to concern so-called "communal" and "agentic" attributes. Communal attributes are described to be primarily concerned with the well-being of other people (e.g., being helpful, kind, or caring). These kinds of attributes are typically descriptively and prescriptively attributed to women. Agentic attributes are explained to be assertive, controlling, and confident tendencies. They are typically descriptively and prescriptively attributed to men. At the same time, agentic attributes are primarily descriptively and prescriptively ascribed to leaders.<sup>10</sup> Consequently, the female gender role is assumed to be less congruent with the leader role, which leads to prejudice against women as leaders.

With regard to the causes of in-group favoritism, two different factors are discussed in social psychological literature. The social identity theory, as pioneered by TAJFEL and TURNER (1979), states that the central reason for in-group favoritism is rooted in the psychological need of individuals to have a positive self-identity. It is assumed that self-identities are highly dependent on social comparison on the basis of group membership. It is assumed that individuals strive to view themselves as positive by means of distinguishing themselves from other, more negative, groups. In contrast, realistic (group) conflict theory assumes that in-group favoritism occurs, due to conflicts over limited resources (e.g., money or power). In-group favoritism is assumed to arise as a consequence of competitions in zero-sum games over resources (CAMPBELL 1965).

*Combining and contrasting the economic and the social psychological approaches to explain why the gender of an applicant can influence hiring choices*

Figure 3 provides a systematic, yet again simplified, overview of the levels of analysis on why the gender of an applicant can influence the hiring decision.

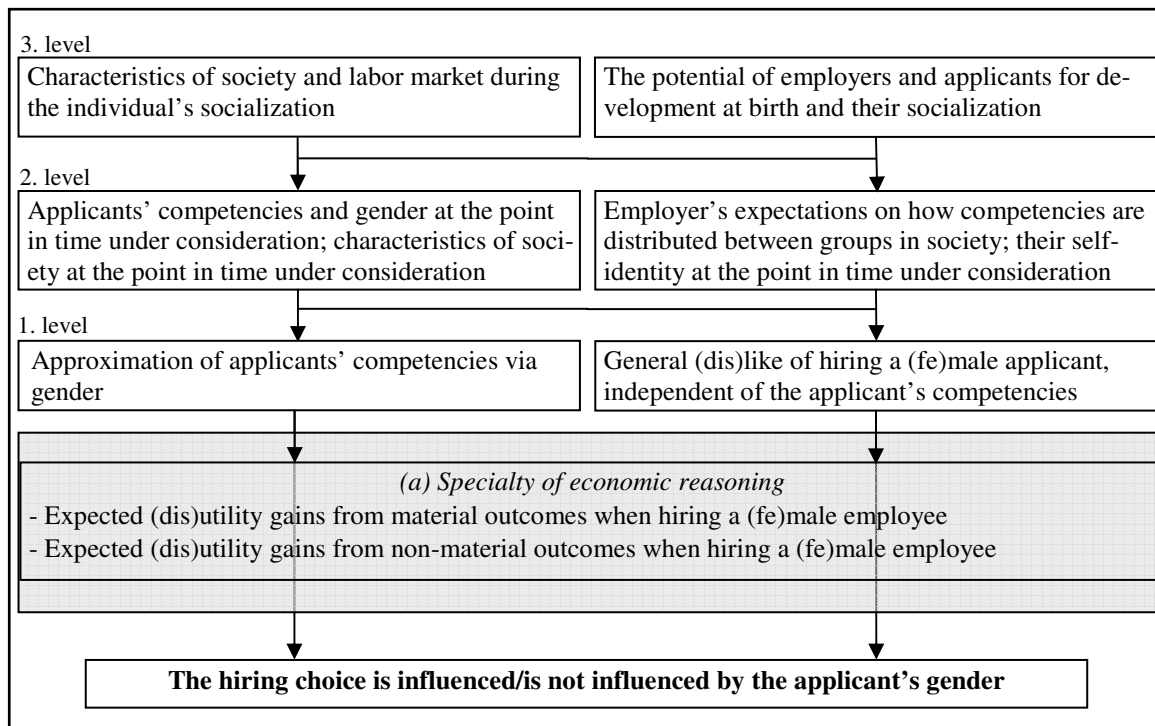
While the terminology in economic and social psychological literature differs, one may argue that the essential meanings of the factors on the first level of analysis are very similar: On the one hand, in both disciplines employers are assumed to have a tendency to approximate competencies of an applicant by gender. On the other hand, employers are assumed to have a general (dis)like of hiring a certain gender regardless of the ap-

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<sup>10</sup> EAGLY and KARAU (2002) argued that in contrast to top leadership positions roles, middle and lower management roles are connected to greater human relations skills and direct supervisions skills (i.e., communal attributes). Thus, the incongruity between leader roles and female gender roles are more pronounced at higher levels of management.

plicant's competencies. Gender is not assumed to influence the hiring decision when employers neither have the tendency to approximate competencies via gender nor have a dislike of hiring an applicant of a certain gender. A particularity that economists are concerned with is the systematic evaluation of material and non-material behavioral outcomes in terms of (dis)utilities (cf., Figure 3 box a).

Figure 3 Levels of analysis in the process leading to hiring choices being influenced by gender



Source: own representation

On the second level of analysis lie factors which are assumed to determine employer's tendencies to approximate competencies by gender and their preferences regardless of the competencies of the applicant. With regard to the employers' tendency to approximate competencies, we find that in both disciplines employers are assumed to refer to their perception of how competencies are distributed between different groups in society at the point in time under consideration. However, several ideas can only be found in one of the two scientific disciplines. For instance, in the economic literature offers the idea that the approximation of competencies by gender can be an efficient way to evaluate competencies. This is assumed to hold true as long as investment cost for inquiring more information on the applicant exceeds the losses from the misjudgments of the applicant. It is further assumed to be an efficient way to evaluated competencies, when in reality the distribution of competencies differs between women and men. The idea that approximation competencies via gender may occur because employers feel the need to have a positive self-identity can be explicitly found only in social psychological literature. Consequently, employers view other groups as being less competent regardless from their *de facto* competencies. Many such dissimilarities may be detected. A com-

plete listing of these, however, would be a meticulous exercise with little practical implications.

The third level of analysis is concerned with the processes and characteristics of the past which determine the decision parameters of individuals in a specific point in time. However, this level is hardly elaborated in the cited literature.

To avoid conceptual misunderstandings resulting from the everyday use of the term “discrimination”, in the following we will restrain from using the term. Instead, we will refer to those two factors from the first level of analysis that are assumed to lead to hiring choices influenced by gender: (i) the approximation of applicant's competencies via gender and (ii) a preference with regard to the applicant's gender, regardless of the applicant's competencies.

### 2.3.2 Empirical evidence in the context of deciding on the successor of the farm manager

To the best knowledge of the author, no study specifically addresses the questions of whether and why gender is important for the hiring decision of a corporate farm manager. Analogously to the procedure carried out in the supply side research, we present published empirical evidence in the following two related situations: (i) evidence in the context of family farms and (ii) evidence in context of non-agricultural businesses.

#### *Gender and the succession choice in family farms*

Most empirical evidence from Europe indicates that parents prefer a son over a daughter as a successor (e.g., GRUBBSTRÖM and SOOVÄLI-SEPPING 2012; MOXNES JERVELL 1999; SCHWARZ 2004). Looking at the farm succession patterns in Northern Germany, TIETJE (2004: 116) summarizes the situation with his pointed remark: “das Geschlecht des Hofnachfolgers [spielt] keine Rolle [...], Hauptsache es ist männlich.”<sup>11</sup> The family farm is preferably handed down from the father to the son, ensuring that the farm is managed and controlled by a male member of the family (e.g., ROSSIER and WYSS 2008; ŽUTINIC and GRGIC 2010). Whether the succession choice at a specific point in time is rooted in the belief that sons are more capable of running the family farm or whether preferences for a male successor are unrelated to the approximation of competencies is mostly not explicitly addressed in the cited literature. However, some empirical evidence suggests that parents evaluate sons and daughters to have different competencies and typically view sons to be more capable of running the family farm (e.g., HEGGEM 2014). Other empirical data from Europe, however, indicates that the gender of the child has started to lose some of its importance in determining the family farm successor. OTOMO and OEDL-WIESER (2009) find in their study that in Austria is

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<sup>11</sup> A possible translation of the quote is: “the gender of the farm successor is not important, all that matters is that it is masculine”.

has become increasingly important for the succession decision of parents that children show interest in taking over the family farm. The same is suggested by the results from a study on Swedish family farm succession by GRUBBSTRÖM et al. (2014). At the same time, the children's development of interest (which may eventually lead to occupational choice of the supply side) is primarily reported to be dependent on gender-specific socialization (i.e., demand side behavior). Here, the difficulty to untangle the supply side and the demand side in the case of the family farm succession becomes evident.

#### *Gender and the hiring choice of a business manager*

Proceeding to the hiring or promotion decisions of managers in a business, a number of studies indicate that male applicants are preferred for the manager position (e.g., GORMAN and KMEC 2009; LYNESS and JUDIESCH 1999).<sup>12</sup> Two foci in the empirical literature may be identified.

Most empirical studies focus on the approximation of competencies by gender. Most evidence may be taken as supportive evidence that men are assumed to be more competent as managers than women. The persistent empirical finding that leadership abilities are predominately prescribed to men was coined by Schein as the "think manager - think male" phenomenon (e.g., SCHEIN and DAVIDSON 1993; SCHEIN 2001).<sup>13</sup> Some empirical evidence, however, indicates that perceptions on women's competencies as managers are slowly changing as the share of female business managers increases (e.g., DUEHR and BONO 2006). Still, the vast majority of empirical findings lead to the conclusion that the "think manager - think male" phenomenon is prevailing, especially among males. For instance, findings from POWELL et al. (2002) suggest that although managerial stereotypes place less emphasis on masculine characteristics (as compared to earlier studies), a successful manager is still described chiefly as possessing predominantly masculine features. This finding is further supported by KOENIG et al. (2011), who find that leader stereotypes are primarily masculine defined. Moreover, JACKSON (2001) finds in her study with female middle managers in organizations that participants view stereotypes with regard to women's competencies as a key barrier for women to reach the highest-level manager positions.<sup>14</sup>

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<sup>12</sup> Some empirical evidence also indicates that the attribute of gender can also work to women's advantage, rather than to their disadvantage (e.g., POWELL and BUTTERFIELD 1994).

<sup>13</sup> It should be noted that most of the reviewed studies have examined the "think manager - think male" phenomenon by using convenience samples (i.e., mostly students). Thus, one must be careful to generalize from empirical findings that people in charge of hiring managers also take the male gender as a proxy for desired competencies.

<sup>14</sup> Indeed, it has been noted that in contrast to top management positions, relatively more women can be found in middle and lower management positions. The empirical phenomenon has led some scholars to assume the existence of the so-called "glass ceiling", which has been defined by the FEDERAL GLASS CEILING COMMISSION (1995: 4) as a "unseen, yet unbreachable barrier that keeps minorities and women from rising to the upper rungs of the corporate ladder, regardless of their qualification or achievements."

Some empirical evidence suggests that a preference for a male manager independent of the approximation of competencies is also possible. The existence of so-called “old boys’ network” is found to be one of the key reasons ensuring that top business management positions are transferred from man to man (e.g., DAVIES-NETZLAY 1998; JACKSON 2001). The network is commonly described as an informal social system, from which all women as well as powerless men are excluded. Within this social system, friendships as well as reciprocal favors are found to ensure that top power positions are transferred within the network. Some recent findings indicate that women in top management have a positive influence on the female representation in lower-level managerial positions (KURTULUS and TOMASKOVIC-DEVEY 2012). This can be interpreted as the first indication that a women’s network is also evolving.

In conclusion, most of the presented empirical literature suggests that the hiring choice in question may be influenced by the gender of an applicant. Cited evidence supports the theoretical predictions that employers approximate competencies via gender *and* prefer a male applicant, regardless of the evaluation of competencies.

#### 2.4 Combining the supply and the demand side of the labor market

From our literature review we may conclude that reasons for the low share of female farm managers may indeed stem both from the supply and the demand side of the labor market. Focusing on the decision rationale of agents in a specific point in time, we find that literature suggests that one central factor is considered by both the supply and the demand side agents: the perception of competencies. Table 1 depicts categories under which one may subsume the presented theoretical and empirical literature on the importance of the perceptions of competencies in occupational and hiring choice situations.

*Table 1 Possible supply and demand side agents’ perceptions of competencies*

	Supply side	Demand side
<b>Case 1: Women and men possess equal competencies</b>		
Perception that women are more or equally qualified	1a	2a
Perception that women are less qualified	1b	2b
<b>Case 2: Women possess more competencies than men</b>		
Perception that women are more qualified	3a	4a
Perception that women are equally or less qualified	3b	4b
<b>Case 3: Women possess fewer competencies than men</b>		
Perception that women are more or equally qualified	5a	6a
Perception that women are less qualified	5b	6b

Source: own representation

Case 1 depicts the situation where women and men possess equal competencies for the farm manager position. Case 2 depicts the situation where women are more qualified than men. Case 3 depicts the situation where women are less qualified than men. From cited theoretical literature it follows that when both the supply and the demand side agents share the perception that women are equally or more (in Case 2, only more) qual-

ified than men, a focus on differences in competencies cannot deliver any insights on the reason for the low share of female farm managers. This holds true regardless of the *de facto* competencies of women and men (1a + 2a, 3a + 4a, 5a + 6a). Any combination of the perception of competencies does deliver insights, where either the supply or the demand side agents view women to be less qualified than men (1a + 2b, 1b + 2b, 1b + 2a, 3a + 4b etc.). To the best knowledge of the author, no empirical study has yet focused on the importance of competencies in hiring situations while simultaneously considering both the supply and the demand side. However, the presented empirical literature does deliver insightful partial pictures. As we have seen, some evidence exists that women and men differ in their self-evaluation of their qualification to be(come) a manager. However, *de facto* competencies are not considered. Consequently, we cannot conclude whether women incorrectly self-evaluate their qualification as lower (1b, 3b) or do so correctly (5b). What is more, some studies on gender-specific specialization processes of farm children suggest that women may indeed be less qualified than men. In these studies, however, perceptions of competencies are not considered, and thus we cannot conclude whether perceptions also differ (5a or 5b). With regard to the demand side, ample empirical evidence shows that women are evaluated to be less qualified for the (farm) manager position. However, whether these evaluations are based on preconceived and erroneous opinions (2b, 4b) or a correct assessment in a given situation (6b) is also not explicitly discussed.

To conclude, one may deduct an overwhelming amount of hypotheses on what causes the low share of women corporate farm managers in Germany from the literature presented in Chapter 2. In order to narrow our focus of attention to a manageable and insightful set of hypotheses, in the following chapter we present exploratory evidence, which has been helpful in deciding on the main aspects of our quantitative research.



### 3 Exploratory research

In this chapter we analyze three datasets comprised of information obtained from supply side agents and one dataset with data from demand side agents. The respective four sub-chapters are structured as follows: First, the surveys as well as their research aims are introduced. Then, the collected data as well as the respective method of analysis are briefly described. Finally, the results are presented and discussed. We close this chapter with a summary of the key findings and the implications we draw with regard to our further empirical research process.

#### 3.1 A first investigation into the supply side of the labor market

##### 3.1.1 Primary evidence: (Why) Are qualified women are less inclined to become farm managers than qualified men?<sup>15</sup>

As a first step of the exploratory stage of the supply side research, we conducted seven semi-structured focus group discussions. Participants were agricultural science students of the Martin-Luther-University Halle-Wittenberg. The exploratory study took place in the summer of 2012. The aim of the study is to gain first primary insights into our two central research questions of whether and why qualified women are less inclined to become farm managers than qualified men.<sup>16</sup>

##### *Method and data*

Study participants were recruited at agricultural lectures at the Martin-Luther-University in Halle. The purpose of the focus group discussions was presented to students, and consent and support for the discussions has always been voiced by the respective university lecturer. The central goal of the sample selection process was to secure that both male and female students take part in the study. This proved to be no difficulty: A total of  $n = 38$  students (20 female and 18 male) participated in three all-female, three all-male, and one mixed focus group discussion. To determine the number of completed focus group discussions, we collected data until the point of saturation was reached, i.e., no further insights were gained from additional discussions (KRUEGER and CASEY

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<sup>15</sup> Large parts of the exploratory study are included in the following publication:

LEHBERGER, M., HIRSCHAUER, N. (2014): What causes the low share of female farm managers? An explorative study from Eastern Germany. *Jahrbuch der Österreichischen Gesellschaft für Agrarökonomie* 23: 111-120.

<sup>16</sup> In this exploratory stage, we decided not to systematically differentiate between corporate and non-corporate farm manager positions as yet. Consequently, in this subchapter we use the term "farm manager".

2000). By choosing the lectures in which we presented our project, we ensured that students focusing on animal production, plant production, as well as agricultural economics and social sciences participated in our focus group discussions. The sample is not statistically representative of the pool of agricultural science students neither in Germany nor in Halle. However, this was also explicitly *not* the intent of the sampling method as results are used as exploratory evidence.

Before the focus group discussions took place, a question guideline was developed. To improve the questions of the semi-structure focus group discussions, a pretest was carried out with a selected group of agriculture students. Subsequently, the questions were refined. The resultant guideline of questions is presented in Table 2. The focus group discussions were divided into three main parts: First, students discussed their perceptions on the reasons for the low share of female farm managers in Germany. Second, students were asked which qualifications are necessary for being a farm manager and whether any gender-specific (dis)advantages with regard to the qualifications exist. Third, students were questioned about their personal experience with on-farm work and their personal career plans. In particular, students were asked whether and why they consider (or do not consider) being a farm manager as a career option. Students were additionally asked to write down a list of factors preventing and motivating them to become a farm manager.

*Table 2 Guideline for the semi-structured focus groups discussions*

Part	Questions
1.	(i) Currently approximately 10% of farm managers are female. What do you think are the reasons for this relatively low share of women in the farm manager position? (ii) To what extent do you believe it to be more difficult for women to become farm managers?
2.	(i) What competencies and personal qualifications are necessary for a farm manager? (ii) Do you believe that gender-specific advantages and/or disadvantages may exist concerning these competencies and personal qualifications?
3.	(i) Did you grow up on a farm or do you have relatives that own or work on a farm? If so, have you helped with the agricultural work? (ii) In your personal opinion: Please list incentives and disincentives which motivate or demotivate you to become a farm manager.

Source: own representation

The focus group discussions lasted between 30 and 60 minutes and were afterwards transcribed verbatim. The discussions were carried out within the university setting. In order to analyze the collected data, KRUEGER and CASEY's (2000) focus group data analysis was applied. Consequently, categories of comments relevant for the research questions were identified and classified according to their content. For the evaluation of the importance of the categories, attention was paid to four key factors: extensiveness, frequency, specificity, and emotion. Extensiveness is understood to be the amount of times something has been said by different participants. Frequency is the absolute number of times something is said, i.e., it also includes repetitions by a participant. The extensiveness and frequency of comments within a category are counted and can be com-

paratively easy traced intersubjectively. For determining the extensiveness of comments subsumed under one category, the manually written lists of factors preventing and motivating students to become a farm manager were analyzed (cf., Table 4). To assess the frequency of comments, the verbatim transcriptions were analyzed (cf., Table 5). In order to evaluate the specificity and emotions displayed within a comment, again the verbatim transcriptions were analyzed. The importance assigned to categories due to the latter two factors is more difficult to justify for the researcher. In order to establish a basic level of intersubjective traceability, the choice of cited translated quotes of participants was guided by those two criteria. The verbatim German quotes may be viewed in Appendix 1. The overall analysis focuses on the comparison of the comments of female and male study participants.

Table 3 provides a brief description of focus group participants. Participating women were, on average, between 22 and 23 years old. Participating men were, on average, 23 years old. 26 of the students were bachelor students, the remaining 12 were enrolled in a master's program of agricultural science.

*Table 3 Description of the focus group participants*

Sex	Mean age (SD)	Focus of the interviewees' study program
F (20) <sup>a)</sup>	22.2 (3.0)	Agricultural economics and social sciences (10), animal production (3), plant production (1), no focus yet (6)
M (18) <sup>a)</sup>	23.0 (1.9)	Agricultural economics and social sciences (8), animal production (2), plant production (7), no focus yet (1)

Source: own data and calculations, 2012; <sup>a)</sup> Numbers in brackets indicate the number of participants.

*(Why) Are qualified women less inclined to become a farm manager than qualified men?*

The analysis of the focus group discussions indicates that male students are, on average, more enthusiastic and determined to become a farm manager. Almost all interviewed male students do consider becoming a farm manager as a viable and realistic career option. In contrast to this, the majority of female students have not yet made up their mind about their career plans. The analysis of the focus group data indicates that female and male students share many beliefs on the motivating factors for becoming a farm manager. For example, the long working hours are mostly evaluated to be a drawback of the job (cf., Table 4). Also, most students consider the autonomy as an incentive for becoming a farm manager. However, gender-specific differences in the frequency, extensiveness, specificity, and emotionality of the comments regarding the motivating factors for becoming a farm manager can be detected. We discuss four central categories: (i) the compatibility of family life and being a farm manager, (ii) the evaluations of own competencies, (iii) the anticipated enjoyment of being a farm manager, and (iv) concerns about the autonomy and the responsibility of the occupation.

*Table 4 The three most listed (dis)incentives for becoming a farm manager (extensiveness)*

	Female subsample		Male subsample	
	Incentives <sup>a)</sup>	Disincentives <sup>a)</sup>	Incentives <sup>a)</sup>	Disincentives <sup>a)</sup>
1.	Autonomy and Responsibility (14)	Working hours (11)	Interest in the variety of tasks (13)	Working hours (9)
2.	Interest in the variety of tasks (9)	Lack of self-efficacy (7)	Autonomy and Responsibility (10)	Autonomy and Responsibility (6)
3.	Money (5)	Lack of interest in the variety of tasks (4)/Work-family conflict (4)	Flexibility of working hours (4)	Stress (4)/Lack of interest in the variety of tasks (4)

Source: own data and calculations, 2012; <sup>a)</sup> Multiple answers were possible. The numbers in parentheses indicate the amount of listings by *different* participants. Consequently, the maximum of listings per (dis)advantage is determined by each subsample size (female subsample = 20, male subsample = 18).

Regarding the emotionality, frequency, and extensiveness of comments, female students consider the job's incompatibility with having a family as the central disadvantage (cf., Table 4 and Table 5):

*"I simply think that the problem women have with the farm manager position is that they have to decide between having a job and a family. If you assume that a farm manager has to have experience and therefore is a little older, it gets critical for a woman, because she has to decide whether she wants this position or she wants to have a child."*  
[B3]

In contrast to being a key topic for female students, only few of the male interviewees mention the aspect of compatibility of family and career as an obstacle in becoming a farm manager. In fact, most male students appear to be unconcerned about the issue of family and work compatibility and only comment on inquiry to this issue:

*"I would start with being financially secure at first and after that I would start considering the family. [...] It is difficult to say, I haven't thought about that [compatibility of family and being a farm manager], but actually you are right."* [G1]

These findings support empirical studies which indicate that predominately women perceive active parenting and leadership positions to be incompatible (e.g., LIFF and WARD 2001). At the same time, the findings support the economic perspective that gender-specific differences in occupational choice are due to differences in preferences concerning the duration of the labor force participation, i.e., preferences concerning material outcomes.

*Table 5 The three most verbally stated (dis)incentives for becoming a farm manager (frequency)*

	Female subsample		Male subsample	
	Incentives (n = 36) <sup>a)</sup>	Disincentives (n = 44) <sup>a)</sup>	Incentives (n = 26) <sup>a)</sup>	Disincentives(n = 31) <sup>a)</sup>
1.	Autonomy and Responsibility (17)	Family-work conflict (14)	Interest in the variety of tasks (12)	Autonomy and Responsibility (9)
2.	Interest in the variety of tasks (10)	Lack of self-efficacy (11)	Autonomy and Responsibility (11)	Working hours (5)
3.	Money (4)	Working hours (7)/ Money (7)	Money (2)	Money (4)

Source: own data and calculations, 2012; <sup>a)</sup> Multiple answers were possible. The numbers in parentheses indicate the sum of comments by participants, including repetitions on an individual level.

The second category where gender-specific differences can be found in the group of students is the self-efficacy evaluations, i.e., the self-evaluation of their competencies. For female participants, a lack of self-efficacy beliefs, in one or another aspect of the job, is the top second listed (cf., Table 4) and verbally discussed (cf., Table 5) disincentive for becoming a farm manager. The students agree in general that it is difficult to acquire all competencies that a farm manager needs solely through university studies and internships. However, while the majority of male students grew up on a farm, only a minority of female students share this experience. In accordance with previously presented theoretical considerations and findings, the results suggest that on-farm socialization is gender-specific and induces male descendants rather than female descendants to study agriculture. Helping on a farm from an early age is evaluated as an advantage difficult to catch up with:

*"It is more difficult than for someone who grew up with it. Who stood in the stable from the age of six and knows how everything is done. Than coming in and saying: okay, I have to look at all of this. I think that if you have the will and the interest to deal with it, then you can manage to do so. But it is more difficult and it will always be more difficult."* [C6]

Female students' comparatively low interest in the tasks of a farm manager may also be connected to their lower level of practical experience: social psychological theories on occupational choice highlight that positive self-efficacy beliefs are achieved by successfully carrying out a task; this, in turn, positively influences interest (e.g., LENT et al. 1994). Furthermore, in one of the all-female focus groups the lack of sufficient practical and/or professional skills is emotionally discussed to be a reason for not feeling qualified to become a farm manager. Besides self-efficacy beliefs concerning competencies in practical agriculture, also the lack of self-efficacy in terms of being able to assert oneself in the male-dominated sphere on farms is emotionally discussed primarily by female participants:

*„[...] and [another disincentive is] that women are often not taken seriously."* [C3]

None of the male students displays serious doubts about their practical or professional skills.

A third category where pronounced gender-specific differences between female and male students are identified is the anticipated enjoyment of being a farm manager (i.e., procedural utility). Considering the extensiveness of comments by male students, enjoying the task to manage a farm is the core motivation for wanting to become a farm manager. Typically, male students further display a high amount of passion when speaking about the job:

*"[It is] a calling rather than a job."*[F1]

In contrast, fewer female students express the belief that they would enjoy working as a farm manager. However, the key distinction is the difference in the amount of emotions displayed by female and male participants. The relatively few participating women who speak passionately about the job are mostly also the ones who state that they intend to become farm managers.

To give a complete picture, a fourth distinct gender-specific difference in the evaluation of incentives and disincentives of becoming a farm manager can be detected: Whilst no female participant verbally expresses or lists the autonomy and responsibility as a disincentive, for male participants it is one of the key disincentives in terms of frequency and extensiveness of comments (cf., Table 4 and Table 5). This finding indicates that concerns about the autonomy and the responsibility of a farm manager may not be viewed as a reason for qualified women to be *less* inclined to become farm managers than qualified men.

In conclusion, it must be noted first that results of this qualitative study must be interpreted with caution: group discussions may be susceptible to a thoughtless reproduction of stereotypes or prevailing opinions in present debates. Nonetheless, our exploratory findings from the supply side indicate that male students are indeed more inclined to become a farm manager than female students. This finding of gender-specific difference in occupational choice is in accordance with the presented theoretical reasoning as well as most of the discussed published evidence. Concerning the question *why* gender-specific difference exists, we find that our primary evidence is mostly in accordance with two hypotheses: First, our findings indicate that differences in self-efficacy evaluations are pivotal for explaining gender-specific differences in the intention to become a farm manager. Secondly, differences in the evaluation of expected outcomes appear to be powerful for explaining the gender-specific difference in the inclination to become a farm manager. Specifically, we find that gender-specific difference in the evaluation of working hours and the procedural utility may explain part of the difference in the inclination to be(come) a farm manager.

### 3.1.2 Secondary evidence: Are agricultural science students' occupational preferences and prospects gender-specific?

The empirical evidence presented in the following derives from a secondary dataset. The online survey was developed and carried out by the Department of Agricultural Economics and Rural Development of the Georg-August-University Göttingen in the summer of 2011. One of the main aims of the survey was to derive suggestions on how to increase the attractiveness of agricultural occupations. To this end, agricultural students, employees in- and outside of agriculture as well as agricultural entrepreneurs were surveyed on their perception on agricultural occupations. For the supply side research of this thesis, the questions intended for the agricultural science students proved to be insightful as students were surveyed on their occupational preferences, goals, and prospects. The only gender-specific difference that was presented by the authors of the survey was that male participants had a significantly higher salary claim with regard to an occupation in agriculture (MUBHOFF et al. 2013). The two central research questions for the analysis of the secondary dataset in our research context were as follows: First, we wanted to gain insight into the question whether agricultural students' occupational preferences and goals are gender-specific. Secondly, we wanted to shed light on the question whether gender-specific differences exist in the perceptions on occupational prospects.

#### *Data and method*

The online survey was targeted primarily towards people living in Lower-Saxony. Study participants were informed about the survey via emailing lists of several Landwirtschaftskammern (chambers of agriculture). To raise the rate of participation, premiums with an aggregated value of 1,500€ were awarded. Focusing on the participating agricultural science students, a total of  $n = 225$  students (137 female and 88 male participants) completed the online survey. Participating students were, on average, between 23 and 24 years old. The sample is not statistically representative for the entire pool of agricultural science students in Germany. Consequently, results are taken as preliminary evidence.

The questionnaire was divided into four parts: The first part was concerned with socio-demographic data of study participants. In the second part, students were asked questions on their occupational preferences and goals as well as their perceived occupational opportunities. Students were asked to indicate their answer mainly on Likert-typed items ranging from completely disagree (= 0) to completely agree (= 4).<sup>17</sup> The third part was concerned with participants' reactions to fictional job offers within agricultural

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<sup>17</sup> In order to establish a uniform method of coding for the thesis, we partly recoded the secondary dataset. Thus, the numbers in parentheses refer to our method of coding and not the original coding practice.

business. Students were to indicate the salary which they would request for agricultural jobs. The conditions of the fictional jobs (with regard to the average working hours, the regular daily working hours, the number of weeks working overtime, the number of vacation days, the location of the farm, the working task) were systematically altered. The last part was a quiz covering general question on agriculture.

Our data analysis focused on the second part of the questionnaire. Students were to indicate their occupational preferences and goals as well as their perceptions on occupational prospects. The method of data analysis took place as follows: The sample of  $n = 225$  participating students was divided into two subsamples: women and men. All answers relevant for our research questions were compared. If measured on a Likert-type item, differences were tested with a two-tailed two-sample t-test. Those differences which proved to be significant are presented in the following.<sup>18</sup> Throughout this thesis, our quantitative data analysis approaches are based on the assumption that variables which are measured with the help of a Likert-type item can be analyzed as if they were quasi-metric. While it has been noted that, in a narrow understanding, assessments on upper and lower bound psychometric scales represent ordinal data (JAMIESON 2004), we assume, in accordance with much of the literature concerned with the analysis of Likert-type data (e.g., CARIFIO and PERLA 2008; NORMAN 2010), that parametric methods can be used to gain robust results.<sup>19</sup>

#### *Are occupational preferences and goals gender-specific?*

Table 6 gives a descriptive overview of participants' answers concerning their preferred field of work.

*Table 6 Gender-specific preferences with regard to fields of work*

	Female subsample		Male subsample		Total sample	
	n		n		n	
Preferred field of work (respondents)	136	100.0%	88	100.0%	224	100.0%
Agricultural business	36	26.5%	50	56.8%	86	38.4%
Up- or downstream of an agricultural business	80	58.8%	28	31.8%	108	48.2%
Outside of agriculture	3	2.2%	1	1.1%	4	1.8%
Undecided	17	12.5%	9	10.2%	26	11.6%

Source: own calculations based on data collected in 2011 by the Department of Agricultural Economics and Rural Development of the Georg-August-University Göttingen (cf., MUBHOFF et al. 2013).

Participating female students are considerably less inclined to work at an agricultural business. While over a half of male participants desires to work at an agricultural busi-

<sup>18</sup> We only present *significant* gender differences, as we assume that gender-specific differences in evaluations which do *not* prove to be statistically significant most likely also do not deliver insights into the question why the occupational choice to become a farm manager is gender-specific.

<sup>19</sup> To confirm this assumption, we cross-verified all our Chapter 3 calculations with non-parametric Wilcoxon-Mann-Whitney tests. Results from the tests lead to identical statistical interferences with regard to the significance of the presented gender-specific differences in answers.



ness, merely around a quarter of the female participants indicate a wish to do so. The majority of women participants prefers to take up an occupation up- or downstream of the agricultural business.

Table 7 gives an overview on significant gender-specific differences in preferences and goals with regard to agricultural occupations.

*Table 7 Gender-specific preferences and goals with regard to agricultural occupations*

	Female subsample			Male subsample			Differences in mean p-value <sup>b)</sup>
	n	Mean <sup>a)</sup>	SD	n	Mean <sup>a)</sup>	SD	
Being disturbed by noise at the workplace	130	2.1	1.0	87	1.6	1.0	0.000***
Importance of work not including demanding physical tasks	130	1.8	0.9	87	1.6	0.9	0.073*
Importance of presence of child care centers in the area	126	2.6	1.2	86	2.3	1.2	0.062*
Willingness to do overtime on weekdays	129	3.2	0.8	87	3.5	0.7	0.026**
Willingness to do overtime on weekends	129	3.0	0.9	87	3.3	0.8	0.021**
Enjoyment of handling modern technology	130	2.7	0.9	87	3.4	0.8	0.000***

Source: own calculations based on data collected in 2011 by the Department of Agricultural Economics and Rural Development of the Georg-August-University Göttingen (cf., MUBHOFF et al. 2013). <sup>a)</sup> Calculated means of replies result from answers given on a Likert-type item ranging from completely disagree (= 0) to completely agree (= 4). <sup>b)</sup> Level of significance (two-tailed two-sample t-test):  $p < 0.01 = ***$ ,  $p < 0.05 = **$ ,  $p < 0.10 = *$ .

Participating women are significantly (i) *more* disturbed by loud noises at the workplace, (ii) *more* concerned about demanding physical work, and (iii) *more* concerned about the availability of child care facilities in the area. Furthermore, female participants are significantly (i) *less* willing to work overtime on weekdays, (ii) *less* willing to work overtime on weekends, and (iii) feel *less* enjoyment when handling modern technology. The findings of participating women being *less* willing to work overtime and *more* concerned with the availability of child care facilities may be interpreted as further indication of women being *more* concerned about time management conflicts, i.e., work-family conflicts. With regard to results concerning the noise disturbance, the physical work, and the enjoyment of handling technology, we may speculate that qualified women are less inclined to work in practical agriculture because they anticipate to derive less procedural utility from these occupations. In conclusion, findings suggest that the inclination to work in practical agriculture is gender-specific because gender-specific differences exist concerning occupational preferences.

#### *Are there gender-specific differences in perceptions on occupational prospects?*

Participating students were asked to evaluate their chances to obtain an occupation, considering they have completed agricultural education. Students were to evaluate the situation with regard to three contexts: prospects to receive an occupation (i) within agriculture, (ii) outside agriculture, and (iii) on a long term basis. Table 8 provides an overview of participants' responses.

*Table 8 Gender-specific prospects to obtain an occupation with an agricultural education*

	Female subsample			Male subsample			Differences in mean p-value <sup>b)</sup>
	n	Mean <sup>a)</sup>	SD	n	Mean <sup>a)</sup>	SD	
Good prospects to obtain an occupation in agriculture	130	3.1	0.8	83	3.6	0.5	0.000***
Good prospects to obtain an occupation outside agriculture	129	2.1	0.9	83	2.6	0.8	0.000***
Good prospects to obtain an occupation on a long term basis	130	2.8	0.8	82	3.2	0.6	0.001***

Source: own calculations based on data collected in 2011 by the Department of Agricultural Economics and Rural Development of the Georg-August-University Göttingen (cf., MUBHOFF et al. 2013). <sup>a)</sup> Calculated means of replies result from answers given on a Likert-type item ranging from completely disagree (= 0) to completely agree (= 4). <sup>b)</sup> Level of significance (two-tailed two-sample t-test):  $p < 0.01 = ***$ ,  $p < 0.05 = **$ ,  $p < 0.10 = *$ .

The results give two important insights: First, both female and male agricultural science students are more optimistic to receive an occupation within agriculture than outside agriculture. Second, participating women are significantly less optimistic to receive an occupation with their education with regard to all three contexts. From a theoretical perspective, one may, on the one hand, speculate that the findings indicate that female participants feel less qualified than male participants to obtain an occupation in general (i.e., they have lower self-efficacy evaluations). On the other hand, one may speculate that female and male students differ in their evaluation of their personal control over the decision to obtain an occupation due to, for instance, anticipated discrimination.

In conclusion, results from the analysis of the secondary dataset suggest that qualified women are less inclined to work in practical agriculture than qualified men. The results suggest that gender-specific differences in the preferences concerning material as well as non-material outcomes of occupations do exist. Furthermore, results indicate that qualified women evaluate their chances to obtain an occupation less optimistically than qualified men. However, no insights on the reasons why women are less optimistic can be detected.

### 3.1.3 Secondary evidence: What are agricultural science graduates' experiences with regard to obtaining a (farm manager) job?

The secondary dataset analyzed in the following derives from an agricultural graduate survey, which was carried out by the Agribusiness and Farm Management Group of the Martin-Luther-University Halle-Wittenberg. The main aim of the graduate survey was to detect areas where the agricultural science study program may be improved. To this end, agricultural science graduates were surveyed in the spring of 2009. For the supply side research of this thesis, two parts of the survey proved to be insightful: On the one hand, graduates were to evaluate the importance of numerous attributes for receiving an occupation. On the other hand, graduates were questioned about their preferred occupation as well as their performed occupation after graduation. However, gender-specific differences were not analyzed by the authors of the survey. Thus, the two guiding ques-

tions for our data analysis were: First, do agricultural science graduates evaluate the attribute of gender to be important for receiving a job and are evaluations gender-specific? Second, are female graduates less likely to become farm managers?

#### *Data and method*

The pen-and-paper survey was sent out via postal service to agricultural science graduate of the Martin-Luther-University Halle-Wittenberg. A total of 858 agricultural science students graduated between the 1992 and 2008. The survey was sent to all graduates whose the addresses were available to the university. In total, 347 questionnaires were sent out via mail, leading to a total sample size of  $n = 97$  graduates (44 female and 53 male participants). The sample is not statistically representative of the entire pool of agricultural graduates in Germany. Furthermore, the vast majority of 77% of the participants were graduated between 2000 and 2008; thus, the results emphasize the perceptions and experience of more recent agricultural science graduates (WAGNER 2009).

The questionnaire consisted of five parts: The first part was concerned with general information on graduates' course of study. Predominantly nominal-scaled items as well as open questions were used. In the second part, graduates were asked on their application process and their occupational preferences after graduation. Again, mostly nominal-scaled items as well as (semi-)open questions were used. The third part of the questionnaire was concerned with the first as well as the current occupation of graduates. Primarily normally-scaled items were used. Furthermore, one set of questions was concerned with participants' evaluation of the importance of certain personal characteristics as well as qualifications with regard to receiving the first and the current job. Participants were to indicate their answers on Likert-typed items ranging from "very unimportant" (= 0) to "very important" (= 5).<sup>20</sup> The fourth part was concerned with participants' evaluation of their study program. Predominantly (semi-)open questions were used. The last part of the questionnaire was composed of questions covering participants' socio-demographic parameters.

The data analysis of the secondary dataset took place as follows: The sample of  $n = 97$  graduates was divided into two subsamples: women and men. Those answers of female and male graduates' which are relevant for our research questions were compared. If answers have been measured on a Likert-type item, differences were tested with a two-tailed two-sample t-test. If answers have been measured on a nominal scale, the Pearson's  $\chi^2$  test was applied to determine the significance of gender-specific differences in responses.

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<sup>20</sup> To establish a uniform method of coding for the thesis, we partly recoded the secondary dataset. The numbers in parentheses refer to our method of coding and not the original coding practice.

*Do agricultural science graduates evaluate the attribute of gender to be important for receiving a job? Are the evaluations gender-specific?*

Table 9 gives an overview of gender-specific evaluations of the importance of eleven selected attributes for receiving an occupation.<sup>21</sup>

*Table 9 Gender-specific evaluations of the importance of selected characteristics for receiving a job*

		Female subsample			Male subsample			Difference in mean p-value <sup>b)</sup>
		n	Mean <sup>a)</sup>	SD	n	Mean <sup>a)</sup>	SD	
Personal attributes	First Job	42	4.4	0.9	52	4.5	0.9	0.686
	Current Job	17	4.2	0.9	24	4.6	0.7	0.160
Study specialization	First Job	42	3.8	1.5	52	3.7	1.4	0.732
	Current Job	17	3.4	1.8	24	3.3	1.7	0.911
Internships	First Job	42	3.2	1.5	52	3.0	1.6	0.401
	Current Job	17	2.9	1.9	24	3.0	1.8	0.866
Basic agricultural studies	First Job	42	3.0	1.8	51	3.2	1.8	0.530
	Current Job	17	2.5	2.0	24	3.1	1.8	0.287
Grade of thesis	First Job	42	2.9	1.5	52	2.5	1.5	0.295
	Current Job	17	2.9	1.6	23	2.4	1.4	0.267
Additional qualifications	First Job	42	2.9	1.4	52	2.9	1.6	0.961
	Current Job	17	3.2	1.6	24	2.0	1.5	0.720
Elective subjects	First Job	42	2.0	1.4	52	2.3	1.6	0.367
	Current job	17	1.4	1.0	24	2.2	1.8	0.090*
Work experience	Current Job	41	2.4	1.8	52	2.7	1.7	0.348
Networking	First Job	41	2.2	2.0	51	2.7	1.6	0.237
	Current Job	16	1.6	1.9	23	2.8	1.7	0.052*
Topic of thesis	First Job	42	1.7	1.5	52	2.3	1.7	0.084*
	Current Job	17	1.3	1.2	23	1.7	1.8	0.426
Gender	First Job	42	1.0	1.5	51	1.4	1.5	0.160
	Current Job	18	0.6	1.0	24	1.7	1.5	0.020**
Gender	Agribusiness leadership position	6	0.5	0.8	12	2.3	1.6	0.020**

Source: own calculations based on data collected in 2009 by the Agribusiness and Farm Management Group of the Martin-Luther-University Halle-Wittenberg (cf., WAGNER 2011). <sup>a)</sup> Calculated means of replies result from answers given on a Likert-type item ranging from very unimportant (= 0) to very important (= 5). <sup>b)</sup> Level of significance (two-tailed two-sample t-test):  $p < 0.01 = ***$ ,  $p < 0.05 = **$ ,  $p < 0.10 = *$ .

With regard to receiving the *first* job, both female and male graduates assign the highest importance to personal characteristics. Furthermore, in both subsamples the lowest importance for receiving the first job is assigned to gender.<sup>22</sup> Existing gender-specific differences in the evaluation of the importance of “personal characteristics” as well as “gender” are not statistically significant. One may cautiously conclude that gender is a comparatively unimportant attribute for receiving a job after graduation. However, it should be noted that graduates’ perceptions of the importance of attributes may not be equivalent to employers’ evaluations of the importance of attributes.

<sup>21</sup> The reasoning behind the choice of attributes included in the survey is not available to us.

<sup>22</sup> The wording of the survey question left participants to interpret which “personal characteristics” they were to evaluate. As gender was presented as a separate item, one may assume that under the item “personal characteristic” the participants evaluated any kind of characteristics apart from gender.

For receiving the *current* occupation, again the attribute of gender is evaluated as relatively unimportant (in relation to the other included attributes). The results of a two-tailed two-sample t-test show that female graduates evaluate gender to have been significantly less important for receiving their current occupation. This may cautiously be interpreted as a sign that male graduates are more likely to apply for occupations where the gender of an applicant is influential for the hiring decision.

With regard to receiving a *leadership position in an agricultural business* (defined as divisional management, junior farm management, or farm management position), we find that the majority of female graduates who obtained a leadership position evaluate gender as very unimportant. In contrast to this, male graduates who obtained a leadership position evaluate gender as significantly more important than female graduates. This may cautiously be interpreted as an indication that gender discrimination in hiring choice of agricultural leadership positions does occur. The significant gender-specific difference in the evaluation suggests that, on the one hand, women graduates in leadership positions evaluate gender as significantly *less* important for obtaining their position. On the other hand, male graduates in leadership positions evaluate gender as significantly *more* important for obtaining their position. In other words, gender appears to be more important when a male graduate is hired for a leadership position.

Further statistically significant gender-specific differences in the evaluation of the importance of attributes can only be detected in three other variables. Female graduates evaluated (i) the importance of the topic of the thesis with regard to obtaining the first job, (ii) networking, and (iii) elective subjects with regard to obtaining the current job as *less* important than male graduates.

#### *Are female agricultural graduates less likely to become farm managers?*

Table 10 provides an overview of respondents' initial occupational intentions as well as information on whether they receive a leadership position in agriculture. A total of 20 female and 26 male graduates indicate that they did intend to work on a farm after graduation. Thus, in relative terms, almost exactly the same percentage of female and male graduates intended to go into practical agriculture. This finding stands in contrast to most of the previously presented evidence. Proceeding to the occupation which graduates obtained after graduation, 6 female and 13 male graduates directly transitioned from university to a leadership position in an agricultural business. With regard to the graduates' current occupation, 7 female and 17 male graduates work in a middle or top leadership position within an agricultural business. The results of two Pearson's  $\chi^2$  tests indicate that the gender-specific differences in obtaining leadership positions in agricultural business are not statistically significant. This holds true both for the occupational situation right after graduation and for the current occupational situation. The survey results do not deliver any further explanations of why the intentions to obtain a

leadership position in an agricultural business did (not) translate into obtaining such a position.

*Table 10 Gender-specific differences in occupational intentions and in obtaining a leadership position in agriculture*

	Female subsample		Male subsample		Differences p-value <sup>a)</sup>
	n		n		
Intention to work on a farm after graduation (respondents)	39	100.0%	51	100.0%	0.977
Yes	20	51.3%	26	51.0%	
No	19	48.7%	25	49.0%	
Leadership position in agriculture obtained directly after graduation (respondents)	38	100.0%	51	100.0%	0.269
Yes	6	15.8%	13	25.5%	
No	32	84.2%	38	74.0%	
Currently in a leadership position in agriculture (respondents)	38	100.0%	51	100.0%	0.117
Yes	7	18.4%	17	33.3%	
No	31	81.6%	34	66.6%	

Source: own calculations based on data collected in 2009 by the Agribusiness and Farm Management Group of the Martin-Luther-University Halle-Wittenberg (cf., WAGNER 2011). <sup>a)</sup> Level of significance (Pearson's  $\chi^2$  test with one degree of freedom):  $p < 0.01 = ***$ ,  $p < 0.05 = **$ ,  $p < 0.10 = *$ .

In conclusion, the presented results from the graduate survey deliver two slightly different results from the evidence presented before: First, female and male graduates evaluate gender mostly as relatively unimportant for receiving a job (in relation to other attributes). However, there is some evidence that the male gender may be influential when a graduate is hired for an agricultural leadership position. What is more, one may assume that the question of reasons for receiving an occupation and reasons for *not* receiving an occupation must be answered separately. Second, evidence suggests that female and male graduates were almost equally inclined to work in practical agriculture after graduations.

### 3.2 A first investigation into the demand side of the labor market: Primary evidence on why farm managers are concerned with an applicant's gender<sup>23</sup>

In our exploratory stage of the demand side research, we conducted seven semi-structured interviews with farm managers from Eastern Germany in the spring and summer of 2012. The aim is to shed first primary light on our central research questions of whether and why the gender of an applicant may influence the hiring decision in the context of the farm manager position.

<sup>23</sup> Large parts of the exploratory study are included in the following publication:

LEHBERGER, M., HIRSCHAUER, N. (2014): What causes the low share of female farm managers? An explorative study from Eastern Germany. *Jahrbuch der Österreichischen Gesellschaft für Agrarökonomie* 23: 111-120.

### *Data and method*

Participating farm managers were initially contacted over the telephone or via email. Contact details were gathered with the help of an agricultural consultant via internet or via personal contact. The main intention of the sample selection process was to ensure that farm managers from the most common legal forms of farms are included in the sample, while simultaneously considering that farms were sufficiently large to assume that managers are predominantly concerned with managerial tasks. A further intention was to secure that both male and female managers take part in our study. After seven interviews (with 4 female and 3 male interviewees) the point of saturation was reached. This marked the end of the exploratory demand side data collection. The collected sample must be viewed as a convenience sample, and presented results are viewed as exploratory evidence.

The semi-structured interviews consisted of three main parts: First, farm managers were asked to describe which qualifications a farm manager needs. They were further asked to indicate whether gender-specific advantages and disadvantages exist with regard to these qualifications. In the second part of the interview, interviewees were questioned on the farm manager succession process on their farm. The third part of the interview was concerned with interviewees' perception of the reasons for the low share of female farm managers in Germany. Since the central research question of this study is associated with prejudice, it represents a sensitive question that the interviewed farm managers might have been prone to answer in a socially desirable manner. We consequently asked indirect questions about the farm managers' beliefs on the reasons for the lack of female farm managers. Asking indirect questions is often applied in consumer research and has proven to be an effective way to reduce social desirability bias (e.g., FISHER 1993). The guideline of questions for the semi-structured interviews with farm managers is depicted in Table 11.

*Table 11 Guideline for the semi-structure interviews with farm managers*

<b>Part</b>	<b>Questions</b>
1.	(i) What competencies should an agricultural business manager possess? (ii) Do you believe that gender-specific advantages and/or disadvantages may exist concerning these competencies and qualifications? (iii) Are there any other factors besides competencies and personal qualifications that you need to consider when choosing a successor for the manager position?
2.	(i) Who is in charge of the succession decision on your farm? (ii) Does your farm already has a successor and if so, who is it? (iii) If there already is a successor: What decision rationale led to the choice of the successor?
3.	(i) Currently approximately 10% of farm managers are female. What do you think are the reasons for this relatively low share of women in the management position? (ii) According to your expertise and evaluation: Is it more difficult for women to assess themselves in the agricultural sphere or not? Can you name examples of the situations?

Source: own representation

The interviews were conducted in the familiar setting of the farm and lasted between 30 and 70 minutes. The interviews were transcribed verbatim and analyzed applying the

reductive content analysis according to MAYRING (2003). The aim of this method of analysis is to reduce the data material without losing essential contents. The analysis is a stepwise reduction of collected data. First, answers of participants relevant for our overall research question were collected. Then, the three central steps of the analysis were carried out: paraphrasing the verbatim answers, generalizing their content, and reducing the resulting data to its essential content. The verbatim German quotes of the in the following cited statements are depicted in Appendix 2. The process of the reductive content analysis can be viewed in Appendix 3.

Table 12 gives a brief overview of interviewed farm managers and their farms.

*Table 12 Description of the farm managers and the farms*

Sex	Position	Farm
F	Chairwoman of the board of management (e.G. <sup>a)</sup> )	21 FTW <sup>a)</sup> , 1 500 ha agricultural land, 280 dairy cows
F	Chairwoman of the board of management (e.G. <sup>a)</sup> )	35 FTW <sup>a)</sup> , 2 987 ha agricultural land, 250 dairy cows
F	Managing director (GmbH & Co KG <sup>a)</sup> )	43 FTW <sup>a)</sup> , 2 300 ha agricultural land, 450 dairy cows, 100 suckler cows
F	Farm manager (Einzelunternehmen)	37 FTW <sup>a)</sup> , 3 500 ha agricultural land, 730 dairy cows
M	Managing director (Corporate group)	125 FTW <sup>a)</sup> , 10 600 ha agricultural land, 640 cattle, 650 dairy cows
M	Managing director (GmbH <sup>a)</sup> )	6 FTW <sup>a)</sup> , 825 ha agricultural land
M	Farm manager (GbR <sup>a)</sup> )	30 FTW <sup>a)</sup> , 2 500 ha agricultural land, 450 dairy cows, 3 000 pigs

Source: own data, 2012; <sup>a)</sup> Abbreviations are explained in the list of abbreviations.

The seven participants were farm managers from family farms and agricultural companies. The agricultural land of farms ranged from 825 ha to 10,600 ha. One farm exclusively specialized in the cultivation of agricultural land. All other farms also had animals, mostly dairy cows. The number of employed full-time workers ranges from 5 to 125.

*Are those in charge of hiring future farm managers influenced by the gender of an applicant?*

After following the steps of paraphrasing, generalizing, and reducing, the analysis of the seven interviews with farm managers indicates that farm managers' evaluations may indeed be influenced by gender. The interviews with both male and female farm managers suggest that traditional notions of femininity and masculinity still play a central role in agriculture. Most interviewees assume men to be strong and technically versed individuals who are the main breadwinners for the family. Women are assumed to be less physically and technically versed as well as more emotional. They are also assumed to be the principle caretakers of the family. These notions endanger the impartiality of recruitment decisions due to three key aspects: (i) women are assumed to be less flexible in their time management, (ii) the prevailing masculine culture in agriculture, and (iii) women are assumed to be less qualified for practical on-farm activities. In the following, the three aspects are described in more detail.



First, being a farm manager is described as a very time-intensive job with inflexible working hours. Consequently, all interviewees evaluate having children and being a farm manager at the same time as hardly possible for women. In fact, three out of the four interviewed female farm managers explicitly state that they would have never considered being a farm manager while their children were still young. As one female farm manager explains:

*“As long as women have family, meaning, if children live at home, or a man and the partner has a position with responsibility too, someone has to keep the house in order, or?[...] But during harvest, there is so much work. You also have to work on some Saturdays and Sundays. And that is, for women, difficult. Difficult to combine.” [D6-8]*

Due to the predominantly shared belief that women ought to be the primary caretakers of children, almost all interviewees agree that a disadvantage of female applicants is that they are less flexible in their time management. Furthermore, two interviewees even explicitly state that they see the employment of a young female farm manager as hardly possible as a temporary drop out due to pregnancy and/or parental leave represents an excessive financial risk.

Second, a potential source for the influences of the applicant's gender on the hiring decision is the prevalent masculine culture in agriculture. Three out of the four interviewed female farm managers report that they had to adapt to the masculine way of behavior in agriculture in order to be accepted by male colleagues and employees. One female interviewee reports of speaking more aggressively or in a deeper voice when talking to colleagues and employees. Another interviewee reports that she had to learn to be less emotional at the workspace as this was evaluated negatively by her colleagues. As one farm manager summarizes her experiences in her masculine work environment:

*“As a woman you have to learn, these are the rules of the game.” [C36]*

In general, the interviews indicate that masculine behavior is a more accepted way of behavior in the agricultural sphere. This suggests that applicants for management position who do not comply with this prevalent masculine behavior are likely to have a disadvantage. This entails the risk that female applicants are less favorably evaluated. The finding that a predominantly male culture is a substantial problem for (potential) female farm managers is further supported by empirical evidence from Australia. Australian female farm managers report that in order to succeed in the agricultural sphere, they had/have to be willing and able to adapt to masculine behavior (PINI 2005).

The third potential determinant for influence of gender on the evaluation of applicants is the notion that women are less versed in practical agricultural work. This was stated to be a key reason for the lack of female farm managers, especially by male interviewees. In addition to the assumed lack of sufficient physical strength, women were evaluated to be less able to appropriately handle and/or repair the agricultural machinery. As one

farm manager states:

*"I would rather say that it is the problem of women [...] that they are probably not as technically versed as men."* [A34]

Similarly, BRANDTH'S (1994: 131) concludes that: "[t]he masculinization of farming became particularly marked after the mechanization of agriculture." Thus, although the need for physical strength is *de facto* reduced by an employment of machinery, our results suggest that on-farm work is still mainly reserved and seen as appropriate for men. This is especially interesting given the fact that all farm managers report that they personally do not have to carry out practical agricultural tasks.

In conclusion, our exploratory findings from the "demand side" suggest that gender may indeed influence the hiring decision of the people in charge of hiring future farm managers. It may do so because women are assumed to be less flexible in their time management and less qualified. Moreover, with regard to the prevalent masculine culture our findings may indicate that some evaluations of women may be unjustified and indeed *gender biased*.

### 3.3 Summary of exploratory findings and implications for the further supply and demand side research

Our results from our exploratory research indicate that causes for the low share of female farm managers stem both from the behavior of supply side agents and from the behavior of demand side agents.

Focusing first on our findings on occupational intentions, most presented empirical evidence suggests that qualified women may indeed be less inclined to become farm managers: We found that qualified women and men differ in their evaluation of the expected outcomes of the farm manager position. Specifically, exploratory findings suggest that the anticipated working time and the lack of anticipated enjoyment of the tasks may restrict women from wanting to become farm managers. What is more, we were able to find evidence that women are less optimistic to obtain an occupation in practical agriculture. However, we cannot conclude whether this perception was based on their evaluation of their *controllable* decision variables (e.g., self-efficacy evaluations) or the *non-controllable* environmental parameters (e.g., anticipated discrimination).

Focusing on our findings regarding the hiring decision of current farm managers, we found first evidence that farm managers have a tendency to view women as less qualified for the position than men. What is more, findings indicate that women are assumed to be less flexible in their time management. Strictly speaking, the latter may not be viewed as an approximation of women's "competencies". Nonetheless, also in this situations gender is used to approximate women's and men's aptitude to successfully carry out the farm manager position.

Contrasting the decision parameters of the supply and the demand side agents, we were able to find evidence that two variables are valuable for understanding the behavior of agents of both sides: (i) women's ability to combine family and manager position and (ii) the perception of women's competencies. With regard to the incompatibility of having a family life and being a farm manager, we were able to find that both the supply and demand side agents are concerned about women's ability to combine the family life and the manager position. With regard to perception of women's competencies, our results suggest that female agricultural science students have lower self-evaluations of their competencies. At the same time, we find evidence that farm managers have a tendency to perceive women to be less qualified for the position.

With regard to our further research process, our exploratory research findings led us to assume that two principal research avenues exist: On the one hand, we could investigate into the socialization processes that eventually determine both the supply and the demand side agents' decision parameters, which, in turn, cause the low share of female farm managers. On the other hand, we could focus on identifying those decision parameters which are important to understand occupational and hiring choices in a specific point in time. While both avenues of research were regarded as insightful, we decided in favor of the latter. We assumed that it is first necessary to understand which decision parameters are truly relevant for qualified junior professionals' occupational and farm managers' recruitment decisions. Only then one may focus on going one analysis level further upstream in the cause and effect chain leading to supply and demand side agents' decisions. Consequently, our implications for our further empirical research were as follows:

For the further supply side research, our exploratory findings led us to decide that we wanted to take into account the different insights which can be gained from the economic as well as the social psychological disciplines. Consequently, in our quantitative research we wanted to *systematically* operationalize two theories of behavior: one driving from the economic school of thought and the other deriving from the social psychological school of thought. This allowed us to contrast and compare the insights from both scientific disciplines.

With regard to the implications that we draw from our demand side findings, we decided to investigate into two issues: First, we wanted to explore which competencies farm managers truly approximate by gender. And second, we wanted to understand whether farm managers prefer a male successor, even when the *de facto* job-relevant competencies of women and men are kept constant.

## 4 Quantitative research

To investigate further into the causes of the low share of female corporate farm managers, in the following we first present quantitative evidence on the occupational intention of qualified junior professionals. Then, we present quantitative evidence on the hiring intentions of people in charge of hiring corporate farm managers. We close this chapter by contrasting the evidence gained from our quantitative research into behavioral intentions of the supply and the demand side agents.

### 4.1 A quantitative analysis of the supply side of the labor market<sup>24</sup>

The aim of our supply side hypotheses testing stage is to gain further and more precise insights into our two core research questions of *whether* and eventually *why* qualified women are less inclined to become corporate farm managers. To this end, we carried out a pen-and-paper survey with agricultural science students in the summer of 2013.

The subchapter is structured as follows: First, we describe and contrast both conceptualizations of occupational choice and their associated hypotheses. Second, we present the sampling method of our quantitative study as well as the questionnaire. Then, we deliver an overview of socio-demographic statistics of the study participants. Fourth, our methodological approach of data analysis is described. Fifth, we present and discuss our results. In the final step, we systematically summarize our findings of the quantitative supply side research.

#### 4.1.1 Hypotheses for the supply side analysis

In the light of the previous findings, our comprehensive assumption is that qualified women are indeed less inclined to become a corporate farm. In order to investigate into the reasons why, the central approach taken in this research stage is that we systematically operationalize two conceptual perspectives of behavior: one from the economic and one from social psychological school of thought. By following this approach, we aim to take into account most of the marketed differences of the presented reasoning and findings on gender-specific occupational choice in our research context. What is more, the parallel use of both occupational conceptions, allows us to more critically evaluate the reliability of our findings. The results derived from the two conceptions

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<sup>24</sup> Large parts of this subchapter are included in a paper submitted to the Agriculture and Human Values Journal as: LEHBERGER, M., HIRSCHAUER, N.: Recruiting problems and the shortage of junior corporate farm managers in Germany: the role of gender-specific assessments and life aspirations.

may confirm, complement or even contradict each other. All of these outcomes improve our capability for a cautious and scientifically sound interpretation of the contribution that we have been able to make towards answering our supply side research question.

#### *A behavioral economic conception of occupational choice*

To recall: If one adopts a narrow conception of rational choice, occupational choices are explained in the same way as any other economic choices: qualified junior professionals would be assumed to maximize utility, with utility presumably depending exclusively on the material outcome of their choices. One would accordingly assume that young men and women will only try to become corporate farm managers if they expect this choice to maximize their income or wealth. As we have seen from presented empirical evidence, human behavior in the context of the occupational choice to become a farm manager is not supportive of the propositions derived from such a narrow rational choice conception. As this is also the case in many other contexts, it has been widely acknowledged within the behavioral economics literature that individuals form subjective expectations and that they may pursue a wide variety of goals. In accordance with many distinguished behavioral economists (e.g., AKERLOF and KRANTON 2000; BECKER 1971; FREY 1997; OSTROM 2005), for the economic conceptualization of occupational choice we adopt the before-introduced notion that individuals derive utility from both the material and the non-material outcomes of their choices.

Another dimension of utility origins that we take into account, besides the material/non-material dichotomy, is provided by the distinction between external and internal sources (e.g., CRAWFORD and OSTROM 2005; FREY 1997; HIRSCHAUER et al. 2012). Whereas all material outcomes (e.g., salaries, profits) constitute external sources of utility, non-material outcomes may represent internal sources (e.g., the enjoyment of being a corporate farm manager) as well as external sources (e.g., social recognition/ostracism for being a corporate farm manager) of utility. The distinction of the sources of utility allows us to determine which gender-specific differences in preferences account for differences in the occupational choice in question.

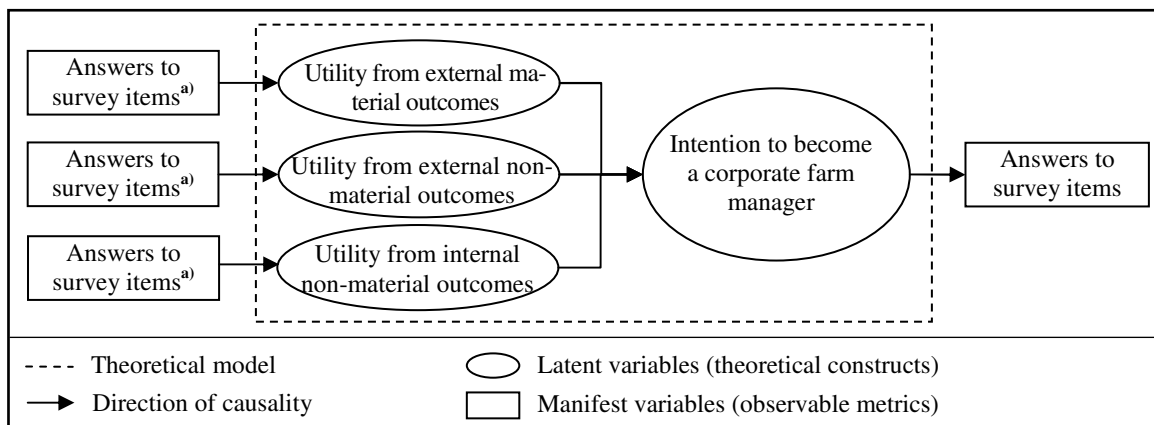
From the economic perspective on gender-specific occupational choice, we have seen that gender is discussed to affect in particular the utilities and disutilities derived from non-material outcomes of occupations. Following the line of reasoning proposed by AKERLOF and KRANTON (2000), we assume that gender identity and resulting gender-specific behavioral prescriptions change the utility from internal sources. Obeying or violating gender-specific behavioral prescriptions may furthermore change the utility that one gains from external sources in terms of social approval or disapproval (e.g., for being a male vs. a female corporate farm manager).

This extension of the narrow rational choice conception is largely reflected in OSTROM's (2005) institutional economics concept. Focusing on rule-governed social life, Ostrom

adds so-called “delta parameters” to material payoffs to account for the non-material costs and benefits of different behaviors that are taken account of by individuals who try to make overall rational choices given their multiple goals.

Figure 4 illustrates the corresponding economic conception used in this study. Being concerned with the “supply side”, we look at occupational intention instead of *de facto* occupational choice. We assume that the endogenous variable “intention to become a corporate farm manager” is a function of three exogenous variables: the utility from external material outcomes, the utility from external non-material outcomes, and the utility from internal non-material outcomes as subjectively expected by each individual. Endogenous and exogenous variables are *latent* variables (theoretical constructs) that cannot be observed directly. Instead, they must be captured indirectly by means of *manifest* variables (observable metrics) such as answers to survey items. In order to determine the manifest variables, we considered the presented primary and secondary empirical evidence.

Figure 4 An economic conception of multi-goal occupational choice



Source: own representation based on OSTROM (2005); <sup>a)</sup> The direction of arrows indicates that a formative measurement model is used for the latent exogenous variables.

Based on the economic conceptualization of occupational choice, we specify the following set of hypotheses that are to be investigated:

H<sub>1</sub>: Compared to qualified young men, qualified young women are less inclined to become corporate farm managers because they expect to derive less utility from external material outcomes (income) from the occupation.

H<sub>2</sub>: [...] because they expect to derive less utility from external non-material outcomes (social recognition) from the occupation.

H<sub>3</sub>: [...] because they expect to derive less utility from internal non-material outcomes (inner satisfaction) from the occupation.

#### A social psychological conception of occupational choice

In social psychology, a widely recognized concept for explaining and predicting behavior is FISHBEIN and AJZEN 's (e.g., 2010) “theory of planned behavior”, which is based

on their earlier “theory of reasoned action” (FISHBEIN and AJZEN 1975). While not conceptualizing risk in terms of probability distributions, the theory of planned behavior puts much emphasis on the fact that people rarely have complete control over their environment. Consequently, the *intention to perform* a behavior is clearly distinguished from *actually performing* the behavior, and the latter is seen as the result of the individual’s *actual* control and the individual’s intention. By the words of AJZEN (1991: 181), intentions indicate “how hard people are willing to try [and] how much effort they are planning to exert, in order to perform the behavior”. Intentions are understood as being a function of three central factors: the subjective norm, the attitude, and the *perceived* control.

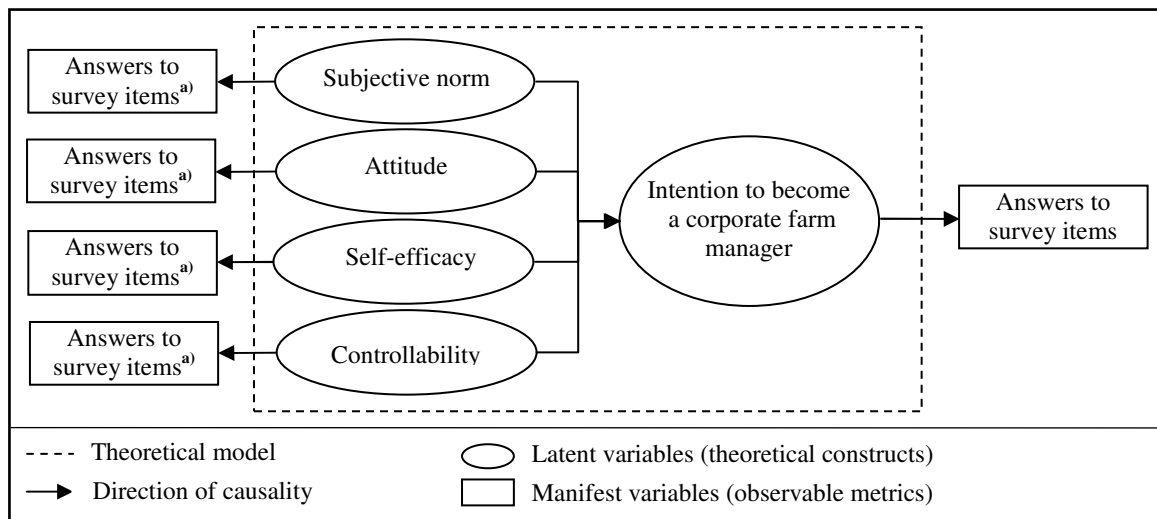
The term “subjective norm” designates the individual’s overall evaluation of the perceived social pressure to perform a particular behavior. Social pressure may result from injunctive normative beliefs, i.e., the beliefs what relevant others consider as appropriate. It may also stem from descriptive normative beliefs, i.e., the role models provided by the behavior of respected others.

The “attitude” towards the behavior describes the instantaneously formed overall evaluation of the behavior in question. It is determined by beliefs and evaluations regarding the behavior’s likely outcomes. According to Fishbein and Ajzen, people can have an infinite number of beliefs about the outcomes of the behavior in question. Due to limited cognitive capabilities, it is assumed that only a small number (five to nine) of so-called salient behavioral beliefs are readily accessible and consequently relevant for forming an attitude.

The term “perceived behavioral control” describes the individual’s belief to which degree they have control over a particular behavior. Many different factors are assumed to determine the actual control a person has to perform a behavior. These can be internal factors (skills, self-efficacy etc.) or external factors (getting employed as a corporate farm manager by the person in charge). Control beliefs are the beliefs that a person has regarding their power over the control factors. They are beliefs about existing resources and opportunities in terms of (i) internal circumstances such as skills or knowledge or (ii) external circumstances such as dependence on the cooperation of other people. In total, the multiple and potentially diverging beliefs lead to an evaluation of the extent of control a person has over a behavior or over attaining a goal. With regard to control beliefs, in empirical measurement an explicit distinction is often made between “self-efficacy” (i.e., beliefs regarding one’s own skills and capabilities) on the one hand, and “controllability” (i.e., beliefs regarding external factors that may hamper or facilitate one’s behavior) on the other (e.g., PERTL et al. 2010; TERRY and O’LEARY 1995). The beliefs of junior professionals regarding their capability to become corporate farm managers and their beliefs concerning their control in a job (application) situation may

widely differ. Furthermore, our overview of the social psychological reasoning on gender-specific occupational choice indicated that self-efficacy evaluations are viewed to be a central reason for gender-specific occupational choice. This assumption was further supported by presented empirical evidence. Hence, an explicit distinction between self-efficacy and controllability appears relevant in our quantitative part of the study. Figure 5 illustrates that the corresponding conceptual approach in this part of the thesis uses the theory of planned behavior as a point of departure and puts a special focus on self-efficacy and controllability. We assume that the endogenous variable “intention to become a corporate farm manager” is a function of four exogenous variables: subjective norm, attitude, self-efficacy, and controllability. The endogenous and exogenous variables are theoretical constructs and thus *latent* variables that cannot be observed directly but must be measured by means of *manifest* variables such as answers to survey items.

Figure 5 A social psychological conception of multi-goal occupational choice



Source: own representation based on FISHBEIN and AJZEN (2010); <sup>a)</sup> The direction of arrows indicates that a reflective measurement model is used for the latent exogenous variables.

Based on the psychological conceptualization of occupational choice, we specify four central hypotheses that are to be investigated:

H<sub>4</sub>: Compared to qualified young men, qualified young women are less inclined to become corporate farm managers because they perceive less social expectation to do so.

H<sub>5</sub>: [...] because they expect the outcomes of the occupation to be less favorable in general.

H<sub>6</sub>: [...] because they evaluate themselves to be less capable to be(come) farm managers.

H<sub>7</sub>: [...] because they perceive to have less control over becoming a farm manager or not.



### *Contrasting the economic and the social psychological conceptualizations*

Contrasting the two conceptualizations, analogies and differences can be found. First of all, the general idea of utility maximization as assumed in the economic concept is also inherent to the psychological concept as represented by the theory of planned behavior, albeit less explicitly elaborated. The theoretical construct “subjective norm” can be related to the assumption that people obtain utility and disutility from non-material outcomes (e.g., social approval/disapproval, internalized role models). The construct attitude, while emphasizing the instantaneous character of evaluation processes, is based on the assumption that individuals aim to act in accordance with their preferences. And finally, the use of the construct's “self-efficacy and “controllability” can be seen as the attempt to focus on the role of uncertainty in the value of expectations by distinguishing between *controllable* decision variables and *non-controllable* environmental parameters. Despite the commonalities, there is also a crucial difference between the two concepts. The theory of planned behavior is *not* concerned with the explicit evaluation of behavioral outcomes in terms of utilities and disutilities. Instead, it is meant to reflect the intuitive and heuristic ways of forming intentions and making decisions that – according to KAHNEMAN (2003; 2011) – replace calculative analytical approaches in many situations characterized by ambiguities and a high degree of complexity.

#### 4.1.2 Sampling method and questionnaire for the agricultural science students

We carried out a standardized pen-and-paper survey at six German universities in 2013. We considered universities in the new and old federal states of Germany. Including “East” and “West” enabled us to control for differences in region-specific socialization. In Germany, agricultural sciences can be studied at two types of higher education establishments. Consequently, our sampling method considered universities as well as universities of applied sciences. A systematic overview of the universities where the survey was carried out is depicted in Table 13.

*Table 13 Overview of sampled universities*

	<b>Old federal state</b>	<b>New federal state</b>
<b>University</b>	GAU Göttingen	MLU Halle-Wittenberg University of Rostock HU Berlin
<b>University of applied sciences</b>	HS Osnabrück	HS Anhalt HNE Eberswalde <sup>a)</sup>

Source: own representation; <sup>a)</sup> No separate sampling took place at the HNE Eberswalde. Students from the HNE Eberswalde are included in the sample because they participated in the sampling at the HU Berlin.

The questionnaires were handed out to students immediately following their courses and after consent and support had been voiced by the university lecturers. Addressing the students directly in the lecture hall setting boosted the participation rate to approximately 95% (of which only 5% did not complete the survey). In the end, a total of 273 students filled out the questionnaire. It should be noted that despite the high participation

rate among the students who were attending the lectures when we carried out the survey and despite our sampling of different regions and universities, the resulting group of respondents remains a convenience sample. As such, it may not be statistically representative of the entire pool of potential junior farm managers in Germany. Hence, the results have to be interpreted cautiously and taken as preliminary evidence.

The questionnaire comprised three essential parts. The first part contained the questions related to the social psychological conception, and the second one questions related to the economic conception. All answers in the first two parts has to be given on a seven point Likert-type item. The third part was concerned with socio-demographic data. To ensure the viability and quality of the questionnaire, a pretest with a selected group of agricultural science students was carried out. A number of questions were subsequently refined and improved. The latent variable “intention to become a corporate farm manager” represents the endogenous variable of both the economic and the psychological model. The intention was measured with a “scale” (intention scale), i.e., a constructed variable that was produced by calculating the arithmetic mean of three questionnaire items (= reflective manifest variables) that were differently worded but were concerned with the same information content. We specifically asked each participant to indicate their intention to become a corporate farm manager (as defined in our introduction). The items required the respondents to indicate in how far they agree with statements ranging from “completely disagree” (= 0) to “completely agree” (= 6). Since Cronbach’s alpha (0.98) amounts to nearly 1, the scale’s internal consistency (reliability) can be deemed as being excellent.

In the first part of the questionnaire, which was concerned with the exogenous variables of the social psychological model, some items required the respondents to indicate in how far they agree with statements ranging from “completely disagree” (= 0) to “completely agree” (= 6). Other questions were based on “semantic differentials” and required answers on a rating scale whose extreme points were labeled by bipolar adjectives such as “bad” and “good”. Following FISHBEIN and AJZEN (2010), all latent exogenous variables were measured via Likert scales<sup>25</sup> and were calculated as the mean of several *reflective* variables. Four reflective variables were used to construct the subjective norm and the attitude scale, and three for both the self-efficacy and the controllability scale. With Cronbach’s alpha ranging from 0.76 to 0.91, the reliability of the scales can be rated as satisfactory to excellent (NUNNALLY and BERNSTEIN 1994).

In the second part of the questionnaire, which contained the questions regarding the exogenous variables of the economic model, students were asked to compare the ex-

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<sup>25</sup> Throughout this thesis we differentiate between Likert-type items and Likert scales. As indicated, the latter refers to scales that are calculated on the basis of several Likert-type items (e.g., NORMAN 2010).

pected outcomes of being a corporate farm manager with the expected outcomes of employment alternatives. Possible answers were coded on Likert-type items ranging from “much worse” (= 0) to “much better” (= 6). All latent exogenous variables were measured through several *formative* variables. The “internal non-material outcomes” were measured via the following four items: the extent to which the job is socially meaningful, the extent to which it creates inner contentment, the fun in carrying out the job, and its strenuousness. Three items were used to measure the “external non-material outcomes”: recognition for being a corporate farm manager from family members, recognition from friends and acquaintances, and recognition from future colleagues. The latent variable “external material outcome” was operationalized through questions on expected income, income risk, cost of living, leisure time, and working time flexibility. In the third part of the questionnaire, socio-demographic data were collected. The complete questionnaire is presented in Appendix 4.

#### 4.1.3 Descriptive statistics of the agricultural science students

Table 14 provides an overview of selected socio-demographic descriptive statistics.

*Table 14 Description of the agricultural science students*

	Female subsample		Male subsample		Total sample	
	n		n		n	
Birth region (respondents)	135	100.0%	132	100.0%	267	100.0%
New (eastern) federal states	45	33.3%	52	39.4%	97	36.3%
Old (western) federal states	74	54.8%	70	53.0%	144	53.9%
Others (incl. Berlin)	16	11.9%	10	7.6%	26	9.7%
Upbringing on a farm (respondents)	131	100.0%	132	100.0%	263	100.0%
Yes	34	26.0%	73	55.3%	107	40.7%
No	97	74.1%	59	44.7%	156	59.3%
Finished agricultural vocational training (respondents)	134	100.0%	136	100.0%	270	100.0%
Yes	44	32.8%	88	64.7%	132	48.9%
No	90	67.2%	48	35.3%	138	51.1%
Average age	135	23.7 (SD = 2.8)	133	23.8 (SD = 2.3)	268	100.0%

Source: own data and calculations, 2013

The gender distribution in the sample is well balanced, with 135 female and 138 male participants. A slight majority of respondents was born in the old federal states of Germany. While only a quarter of female participants grew up on a farm, more than half of male participants did so. At the time when the survey took place, almost half of the survey students had already finished an agricultural vocational training. However, considerably more male than female participants had a finished vocational training. Both female and male respondents were, on average, between 23 and 24 years old.

Table 15 provides information on the number of students who took part in the study at each University as well as their current graduate program.

Table 15 Participants' education related characteristics

	Female subsample		Male subsample		Total sample	
	n		n		n	
University (respondents)	135	100.0%	137	100.0%	272	100.0%
GAU Göttingen	33	24.4%	29	21.2%	62	22.8%
HS Anhalt	15	11.1%	38	27.7%	53	19.5%
MLU Halle-Wittenberg	28	20.7%	19	13.9%	47	17.3%
HU Berlin	26	19.3%	13	9.5%	39	14.3%
HS Osnabrück	9	6.7%	24	17.5%	33	12.1%
University of Rostock	12	8.9%	7	5.1%	19	7.0%
HNE Eberswalde	12	8.9%	6	4.4%	18	6.6%
Others	0	0.0%	1	0.7%	1	0.4%
Type of university (respondents)	135	100.0%	136	100.0%	271	100.0%
University	99	73.3%	68	50.0%	167	61.6%
University of applied sciences	36	26.7%	68	50.0%	104	38.4%
Graduate program (respondents)	133	100.0%	135	100.0%	268	100.0%
Bachelor	111	83.5%	127	94.1%	238	88.8%
Master	22	16.5%	8	5.9%	30	11.2%

Source: own data and calculations, 2013

With approximately a quarter of the total participants, agricultural science students enrolled at the GAU University of Göttingen comprised the largest group of participants. Slightly over half of the participants were enrolled at a university, and the remainder studied at a university of applied sciences. The vast majority of survey respondents was pursuing a bachelor's degree when the survey was carried out.

Table 16 provides an overview of participants' work preferences and prospects. For female participants, working in the agricultural up- or downstream sector was the most often stated preference. In contrast to this, for the male respondents working in an agricultural business was the most common preference. Considerably more female study participants were unsure about their preference with regard to a labor market sector: A fifth of the female and approximately a tenth of the male participants indicated to not know in which sector they would want to work. With regard to the working tasks which participants wanted to perform at their future working place, for both female and male survey participants the most desired working tasks were leadership tasks. The second most preferred tasks were office tasks. What is more, approximately 40% of the female and 30% of the male participants wanted to work with animals.

Table 16 Participants' work preferences and prospects

	Female subsample		Male subsample		Total sample	
	n		n		n	
Desired working sector (respondents)	134	100.0%	132	100.0%	266	100.0%
Agribusiness	44	32.8%	74	56.1%	118	44.4%
In the agricultural up- or downstream sector	52	38.8%	33	25.0%	85	32.0%
Outside the agricultural sector	7	5.2%	4	3.0%	11	4.1%
Undecided between agribusiness and others	4	3.0%	11	8.3%	15	5.6%
Do not know	27	20.2%	10	7.6%	37	13.9%
Leadership tasks desired (respondents)	129	100.0%	128	100.0%	257	100.0%
Yes	80	62.0%	109	85.2%	189	73.5%
No	49	38.0%	19	14.8%	68	26.5%
Office tasks desired (respondents)	129	100.0%	128	100.0%	257	100.0%
Yes	56	43.4%	54	42.2%	110	42.8%
No	73	56.6%	74	57.8%	147	57.2%
Working with animals desired (respondents)	129	100.0%	128	100.0%	257	100.0%
Yes	50	38.8%	36	28.1%	86	33.5%
No	79	61.2%	92	71.9%	171	66.5%
Working with machinery desired (respondents)	129	100.0%	128	100.0%	257	100.0%
Yes	7	5.4%	28	21.9%	35	13.6%
No	122	94.6%	100	78.1%	222	86.4%
Existing agreement to become a corporate farm manager (respondents)	132	100.0%	132	100.0%	264	100.0%
Yes	0	0.0%	19	14.4%	19	7.2%
No	132	100.0%	113	85.6%	245	92.8%

Source: own data and calculations, 2013

Only a small minority of female and male participants desired to work with machinery. Furthermore, at the time when the survey was carried out, no female participant had the prospect to become a corporate farm manager. In contrast to this, 19 of the male participants already had existing agreements to become corporate farm managers.

#### 4.1.4 Methodological approach of data analysis

To provide insights whether, and eventually why, young women are less inclined to become corporate farm managers than young men, we used a combination of two-tailed two-sample t-test and multivariate regression analysis. The following working steps were carried out:

1. The sample of 273 respondents was divided into two subsamples: women and men. To test whether our data supports our key assumption that qualified women are less inclined to become corporate farm managers than qualified men, the significance of gender-specific differences in the "intention scale" (endogenous variable) was tested with a two-tailed two-sample t-test.
2. To investigate why there might be differences in the occupational intentions of women and men, two ordinary least squares (OLS) regressions were run for each subsample: a multivariate regression based on the economic model and a multivariate regression based on the psychological model.

3. To test our further hypotheses and to investigate the relative importance of various factors for explaining the differences in occupational intentions, the results of the subsample regressions were contrasted. Subsample comparisons were made separately for the economic and psychological model. We first identified the exogenous variables that were significant in one of the two subsample regressions but not in the other. We then identified the variables significant in both subsamples and compared them with a two-tailed two-sample t-test.

4. Finally, the overall findings resulting from the economic and the psychological conceptual approaches were compared.

The core of our data analysis process was composed of ordinary least squares regressions (OLS). This regression method estimates the impact of a set (1 to  $k$ ) of exogenous variables on an endogenous variable by applying the least squares method. The multiple linear regression estimation model itself can formally be written as:

$$y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \dots + \beta_kx_k + \mu \quad (1)$$

where  $\beta_0$  denotes the intercept (or constant),  $\beta_1$  is the regression beta coefficient associated with  $x_1$ ,  $\beta_2$  the regression beta coefficient associated with  $x_2$  and so on.  $\mu$  denotes the error term. *Ceteris paribus*, the estimated beta coefficients of the exogenous variables give information about the direction and extent of the influence of each of the exogenous variables on the endogenous variable. Ordinary least squares regressions produce best linear and unbiased estimators (BLUE) as long as the so-called Gauss-Markov assumptions<sup>26</sup> for cross-sectional regression are not violated (WOOLDRIDGE 2009). Critical assumptions are further discussed in the data analysis stage.

Analogous to the data analyses in the previous chapter, our statistical analysis approach in this chapter is based on the assumption that parametric methods can deliver robust

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<sup>26</sup> The five Gauss-Markov assumptions are: (1) the model is linear in its parameters; (2) observations are sampled randomly; (3) the conditional mean of the error terms is zero (i.e., the error  $\mu$  has an expected value of zero, given any values of the independent variables); (4) no perfect collinearity exists (i.e., none of the independent variables is constant, and there are no exact linear relationships among the independent variables) and (5) homoscedasticity exists (i.e., the variance of the error terms is constant) (WOOLDRIDGE 2009).

results, even though the data were collected using Likert-type measurement instruments.<sup>27</sup>

#### 4.1.5 (Why) Are qualified women less inclined to become corporate farm managers than men?

The mean of the intention scale among the female respondents amounts to 2.4, whereas the mean among male participants was 3.8. A mean comparison shows that this difference is highly significant (cf., Table 17). Our data thus support our comprehensive assumption that qualified women are less inclined to become corporate farm managers. What is more, when running a total sample economic as well as a total sample social psychological OLS regression, we find that in both regressions a gender dummy variable (male = 0; female = 1) is highly significant. The beta coefficient of the gender dummy variable has a negative sign, delivering further supportive evidence for our key assumption that qualified women are less inclined to become corporate farm managers.

#### *Results from the economic investigation into the occupational intentions of junior agricultural professionals*

Table 17 shows the gender-specific descriptive statistics of all variables included in the OLS estimations that were based on the economic model and separately run for each subsample (“gender-specific economic OLS regression”).

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<sup>27</sup> We considered to verify our results by running ordered logistic regressions. However, once we drop the assumption that Likert-type data can be treated as metric data, we cannot use the identical endogenous variable. To recall: our endogenous variable (“intention-scale”) is computed out of three manifest variables. By calculating this scale, we need to assume that Likert-type data can be added as well as divided. Hence, if Likert-type data is argued to be ordinal in nature, a *ceteris paribus* comparison between the results of an order logistic regression and the presented OLS regression is not possible in our case. Technically, this further means that instead of, for instance, estimating one male and one female OLS regression for the economic model, we have to estimate three male and three female ordered logistic regressions (as we have three manifest variables measuring the endogenous variable “intention to become a corporate farm manager”). With the regards to the social psychological model, the situation is even more complex as already the latent exogenous variables are measured via several reflective variables. Consequently, we decided against a systematic cross-verification via ordered logistic regressions. This is because the differences that exist between each of the ordered logistic regression results and the OLS regression results (typically one variable more, or less, is significant) are difficult to interpret as it is not a *ceteris paribus* comparison. However, it can be noted that using the “intention-scale” as the endogenous variable for ordered logistic regressions leads to the identical variables being significant in all four regressions presented in the following.

Table 17 Descriptive statistics of variables included in the economic OLS regressions

	Female subsample			Male subsample			Difference in mean p-value <sup>b)</sup>
	n	Mean <sup>a)</sup>	SD	n	Mean <sup>a)</sup>	SD	
<b>Endogenous variable</b>							
Intention to become a corporate farm manager (scale)	133	2.4	1.6	136	3.8	1.7	0.000***
<b>Exogenous variables</b>							
<i>External material outcomes</i>							
Higher income	133	3.3	1.2	137	3.1	1.3	0.379
Lower income risk	134	3.3	1.3	137	3.9	1.4	0.001***
Lower cost of living	133	3.0	0.7	136	3.2	0.9	0.049**
More leisure time	135	1.9	1.1	136	1.8	1.0	0.358
More working time flexibility	135	2.4	1.3	137	2.7	1.5	0.051*
<i>External non-material outcomes</i>							
More recognition from family	135	3.5	1.2	137	3.5	1.1	0.635
More recognition from friends/acquaintances	135	3.3	1.2	135	3.4	1.1	0.253
More recognition from future colleagues	133	3.6	1.1	131	3.7	0.9	0.243
<i>Internal non-material outcomes</i>							
More socially meaningful	134	3.8	1.1	137	4.2	1.2	0.006***
More inner contentment	134	3.4	1.4	135	3.9	1.4	0.006***
More fun	131	3.4	1.4	136	4.0	1.5	0.001***
Less strenuous	135	2.7	1.4	137	3.0	1.4	0.135

Source: own data and calculations, 2013; <sup>a)</sup> Calculated means of replies result from answers given on a Likert-type item ranging from much worse (= 0) to much better (= 6). <sup>b)</sup> Level of significance (two-tailed two-sample t-test):  $p < 0.01 = ***$ ,  $p < 0.05 = **$ ,  $p < 0.10 = *$ .

All questionnaire items were congruently and comparatively framed to reflect the implicitly hypothesized relationship between the variable and the intention to become a corporate farm manager. A higher (lower) numerical Likert-type item value than 3 for the exogenous variable “higher income”, for instance, indicates that the respondent thinks that the income of a corporate farm manager is higher (lower) than the income in alternative employments. Correspondingly, high (low) numerical Likert-type item values for the variable “less strenuous” indicate that the respondent thinks that doing the job as a corporate farm manager is less (more) strenuous than other jobs.

Compared to the male respondents, female respondents show higher average Likert values for only two exogenous variables: higher income and more leisure time. The difference in mean between the two groups, however, is very small and not significant. In contrast, there are a number of variables for which male respondents indicate considerably and significantly higher mean values than female respondents. This applies, on the one hand, to variables concerned with expected material outcomes (lower income risk, lower cost of living, more working time flexibility). It applies, on the other, to the expected internal costs and benefits of the occupation (being more socially meaningful, creating more inner contentment, being more fun). We can thus summarize at this point that female respondents tend to evaluate the outcomes of being a corporate farm manager far less positively than male respondents.



Going beyond mean comparisons, Table 18 shows the results of the gender-specific economic OLS regressions which shed light on the (dis)utilities that shape the respondents' occupational intention.

Table 18 Gender-specific results of the economic OLS regression

Exogenous variables	Female subsample (n = 105) <sup>a)</sup>		Male subsample (n = 101) <sup>a)</sup>	
	Coefficients	p-value <sup>b)</sup>	Coefficients	p-value <sup>b)</sup>
Constant	-1.30	0.337	-0.83	0.591
<i>External material outcomes</i>				
Higher income	-0.13	0.360	0.10	0.316
Lower income risk	0.09	0.393	0.05	0.539
Lower cost of living	-0.05	0.801	-0.12	0.401
More leisure time	-0.15	0.381	-0.11	0.391
More working time flexibility	0.18	0.245	0.05	0.575
<i>External non-material outcomes</i>				
More recognition from family	-0.34	0.084*	-0.04	0.800
More recognition from friends/acquaintances	0.08	0.664	0.35	0.022**
More recognition from future colleagues	0.29	0.078*	-0.19	0.254
<i>Internal non-material outcomes</i>				
More socially meaningful	-0.12	0.381	-0.14	0.249
More inner contentment	0.40	0.008***	0.39	0.013**
More fun	0.44	0.004***	0.34	0.032**
Less strenuous	-0.01	0.893	0.12	0.143
<i>Control variables</i>				
Growing up on a farm (no = 0; yes = 1)	0.42	0.183	0.68	0.014**
Age	0.04	0.332	0.05	0.380
Born in a new federal state (no = 0; yes = 1)	0.73	0.010**	0.28	0.249
F-statistics (p-value)	F(15,89) = 5.85 (0.000)		F(15,85) = 7.56 (0.000)	
Adjusted R <sup>2</sup>	0.412		0.496	

Source: own data and calculations, 2013; <sup>a)</sup> Lower sample sizes (as compared to the total sample size n = 273) are due to our focus on students born in the German new and old federal states, excluding Berlin, and incomplete answers.

<sup>b)</sup> Level of significance (two-tailed two-sample t-test): p < 0.01 = \*\*\*, p < 0.05 = \*\*, p < 0.10 = \*.

According to a Breusch-Pagan-Test, the null hypothesis of homoskedasticity is not to be rejected. Concerns regarding multicollinearity can be mitigated by the variance inflation factor. The factor is at a maximum of 3.69 in the female subsample and 4.08 in the male subsample. The F-statistics show that both regressions as a whole are significant. With an adjusted R<sup>2</sup> of 0.412 in the female subsample and 0.496 in the male subsample, the regressions explain nearly half of the variance of the endogenous variable.

None of the material outcome variables are significant. Consequently, the hypothesis that qualified women are less inclined to become corporate farm managers *because* they expect to derive less utility from external material outcomes from the occupation (H<sub>1</sub>) cannot be confirmed by our data and analysis.

Several exogenous variables are significant in only one of the two subsample regressions. While the intention to become a corporate farm manager is significantly influenced by the anticipated social recognition in both subsamples, the sources of recognition that are significant are not identical: for participating men, the anticipated recogni-

tion from friends and acquaintances represents a significant influence; for participating women, it is the anticipated recognition from their family and from future colleagues. It is interesting that the sign of the coefficient for the “recognition from family” is negative in the female subsample. At first view, this seems counterintuitive and contradicts the assumption that a positive attitude of family members towards their daughters/sisters becoming managers fosters their inclination to do so. One might speculate that this is the result of defiance on the part of female respondents who feel the need to resist pressures from the family to become a corporate farm manager. Furthermore, the fact that the anticipated social recognition from future colleagues is significant only for the female respondents’ occupational intentions can be seen as an indication that women are more worried about social acceptance by future peers and staff members than men. Our data suggest that women’s and men’s inclinations to become corporate farm managers are influenced by different external non-material utility sources. Consequently, no concrete conclusion can be drawn from our data concerning the hypothesis that qualified women are less inclined to become corporate farm managers, *because* they expect to derive less utility from external non-material outcomes from the occupation (H<sub>2</sub>).

Two exogenous variables, both pertaining to the evaluations regarding internal benefits and costs, are significant in both subsamples: “feeling an inner contentment” and “having fun doing the job” significantly foster the intentions of respondents to become corporate farm managers. What is more, a two-tailed two-sample t-test (cf., Table 17) shows that the mean of both variables is significantly lower in the female subsample. We may thus cautiously conclude that our data confirms the hypothesis that qualified women anticipate less internal benefits from being a corporate manager which, in turn, represents a crucial reason why they are less inclined to become corporate farm managers (H<sub>3</sub>).

The estimations for the control variables reveal that “being born in the new federal states” significantly increases the inclination to become a corporate farm manager in the female subsample. In contrast, “growing up on a farm” is significant for male respondents. This suggests that there are gender-specific differences in socialization that affect the intention to become a corporate farm manager but are not captured by the exogenous variables of the economic model.

#### *Results from the social psychological investigation into the occupational intentions of junior agricultural professionals*

Table 19 provides a descriptive overview of the gender-specific variables that were used in the subsample-specific OLS estimations based on the social psychological model (“gender-specific social psychological OLS regression”).

Table 19 Descriptive statistics of variables included in the social psychological OLS regressions

	Female subsample			Male subsample			Difference in mean p-value <sup>b)</sup>
	n	Mean <sup>a)</sup>	SD	n	Mean <sup>a)</sup>	SD	
<b>Endogenous variable</b>							
Intention to become a corporate farm manager (scale)	133	2.4	1.6	136	3.8	1.7	0.000***
<b>Exogenous variables</b>							
Subjective norm (scale)	127	2.4	1.3	133	3.3	1.2	0.000***
Attitude (scale)	131	4.6	0.9	130	4.9	0.9	0.020**
Self-efficacy (scale)	130	3.1	1.4	136	4.1	1.3	0.000***
Controllability (scale)	132	4.3	1.2	136	4.8	1.0	0.000***

Source: own data and calculations, 2013; <sup>a)</sup> Calculated means of replies result from answers given on a Likert-type scale ranging from completely disagree (= 0) to completely agree (= 6). <sup>b)</sup> Level of significance (two-tailed two-sample t-test):  $p < 0.01 = ***$ ,  $p < 0.05 = **$ ,  $p < 0.10 = *$ .

We keep with the principal manner in which the Likert-type items were coded in the economic model. Consequently, the items and the resulting scales of the psychological model had been congruently constructed to reflect the hypothesized direction of influence between the exogenous variables and the endogenous variable. The higher (lower) the numerical Likert-type scale value for the exogenous variable subjective norm scale, for instance, the more (less) the respondent feel social and self-image pressures to become a corporate farm manager.

The means of all four exogenous variables are significantly lower in the female subsample than in the male subsample: female survey respondents feel less social and self-image pressures to become a corporate farm manager, have a less positive attitude towards the job, have a lower self-efficacy evaluation, and perceive their control over becoming a corporate farm manager as lower.

Table 20 shows the results of the gender-specific social psychological OLS regression, thus shedding light on the question in how far the variables influence occupational intentions. According to a Breusch-Pagan-Test, concerns about heteroscedasticity can be met. Concerns regarding multicollinearity can be mitigated by the variance inflation factor. The factor is at a maximum of 1.79 in the female subsample and 1.72 in the male subsample. The F-statistics show that both regressions as a whole are significant. With an adjusted  $R^2$  of 0.545 in the female subsample and 0.637 in the male subsample, the models explain more than half of the variance of the endogenous variable.

Table 20 Gender-specific results of the social psychological OLS regression

Exogenous variables	Female subsample (n = 102) <sup>a)</sup>		Male subsample (n = 100) <sup>a)</sup>	
	Coeffi- cients	p-value <sup>b)</sup>	Coeffi- cients	p-value <sup>b)</sup>
Constant	-2.46	0.014**	-1.90	0.144
Subjective norm (scale)	0.41	0.000***	0.39	0.000***
Attitude (scale)	0.49	0.000***	0.27	0.044**
Self-efficacy (scale)	0.26	0.018**	0.52	0.000***
Controllability (scale)	0.07	0.463	0.32	0.002***
<i>Control variables</i>				
Growing up on a farm (no = 0; yes = 1)	0.08	0.782	0.31	0.226
Age	0.01	0.699	-0.03	0.593
Born in a new federal state (no = 0; yes = 1)	0.66	0.004***	0.15	0.469
F-statistics (p-value)	F(7,94) = 18.30 (0.000)		F(7,92) = 25.86 (0.000)	
Adjusted R <sup>2</sup>	0.545		0.637	

Source: own data and calculations, 2013; <sup>a)</sup> Lower sample sizes (as compared to the total sample size n = 273) are due to our focus on students born in the German new and old federal states, excluding Berlin, and incomplete answers.

<sup>b)</sup> Level of significance (two-tailed two-sample t-test): p < 0.01 = \*\*\*, p < 0.05 = \*\*, p < 0.10 = \*.

The subjective norm scale, the attitude scale, and the self-efficacy scale are significant for both genders. What is more, the means of the variables of subjective norm, attitude, and self-efficacy are all significantly lower for women (cf., Table 19). This represents supportive evidence that qualified women are less inclined to become corporate farm managers than men (i) *because* they feel less social pressure to do so (H<sub>4</sub>), (ii) *because* their instantaneously formed evaluation of the overall outcomes of being a corporate farm manager is less positive (H<sub>5</sub>), and (iii) *because* they consider themselves as being less suited and capable to be(come) one (H<sub>6</sub>). The controllability scale is only significant in the male subsample. Consequently, the hypothesis of women being less inclined to become corporate farm managers *because* they perceive to have less control over the decision (H<sub>7</sub>) is not supported by our data.

The estimations for the control variables show again that being born in the “East” is a significant exogenous variable for female respondents. We may thus conclude that the social psychological conception is not capable either to completely capture differences in socialization.

#### 4.1.6 Summary of the quantitative supply side research results

In our quantitative analysis of data from agricultural science students, we found strong evidence that qualified women are less inclined to become corporate farm managers. We have used methodological triangulation and carried out regressions based on two different conceptual models to cross-verify our results. After systematically contrasting the results of the two types of regressions, we can summarize our findings by classifying them into three sets:

First, we have an intersecting set of results which, in terms of content, reveal the same information despite different terminologies. Results from both types of analysis are

supportive of the proposition that gender-specific differences in the utilities derived from various sources are important drivers of observed differences in occupational intention. More specifically, both analyses indicate that gender-specific differences in the evaluation of non-material outcomes play an important role in explaining the gender-specific differences.

The second set of findings was, and could be, derived from the economic model only. This is due to the fact that the latent exogenous variables of the economic model were operationalized through several formative manifest variables that are related to causal factors. We were thus able to find evidence that the difference in the intention to become a corporate farm manager is partly due to women and men deriving utility from the appraisal of different social groups. Furthermore, our results indicate that qualified women anticipate less internal benefits from being a corporate manager which, in turn, represents a crucial reason why they are less inclined to become corporate farm managers. Through this same distinction of causal factors, we were able to find that none of the material sources of utility have a significant impact on the occupational intention to become a corporate farm manager. That is, we were not able to confirm the proposition of conventional economic thinking. This finding of “non-confirmation” could not have been produced in the social psychological model in which the variable “attitude” covers all outcome expectations and evaluations without any disaggregation into further theoretical constructs.

The third set of findings constitutes the evidence that could only be provided through the specific features of the social psychological model. Its explicit focus on the fact that people do not always have complete control over their environment was the prerequisite for the finding that the evaluation of one’s own skills (self-efficacy) is a significant determinant for occupational intention and that female respondents have significantly lower self-efficacy evaluations. Whilst this aspect enters the economic model implicitly through the proposition that individuals form subjective expectations, no theoretical constructs are provided in the economic model that allow for the distinction between one’s own capabilities and the non-controllable parameters in one’s environment. Hence, the finding that lower self-efficacy evaluations are an important factor determining women’s occupational intentions could not have been produced in the economic model.

One might argue that the above-described findings result from the specific metrics that we have used to operationalize the economic and the psychological model; one might consequently ask whether there are general differences between the two concepts. We believe this to be the case. The merits of the extended rational choice concept, on the one hand, arise from its theoretical constructs which allow the analyst to distinguish between material/non-material and external/internal outcomes. Independent of the idiosyncratic measurement approach, this general conceptual understanding and the associ-

ated terminology is the prerequisite for the understanding of the impact of incentives. The merits of the social psychological conception, on the other hand, are due to its theoretical distinction between one's own skills and the non-controllable environmental parameters. This conceptualization is the precondition for the understanding of problems related to self-evaluation and competency (due to gender-specific socialization) and preconceived opinions (e.g., the glass-ceiling problem).

## 4.2 A quantitative analysis of the demand side of the labor market

To gain further insights into the questions of *whether* and eventually *why* people in charge of hiring future corporate farm managers are influenced by the gender of the applicant, we collected data from farm managers<sup>28</sup> in Eastern Germany in the spring of 2014.

The subchapter is structured as follows: In the first part, we present the hypotheses for the quantitative research. We then explain the sampling approach and the questionnaire design. In the third part we deliver an overview of the socio-demographic characteristics of study participants as well as of the descriptive statistics of the respective farms. In the fourth part, we explain our methodological approach of data analysis. In the fifth part, we present and discuss the results. Finally, we systematically summarize our findings from the quantitative demand side research.

### 4.2.1 Hypotheses for the demand side analysis

In the light of previous findings and discussions, our comprehensive hypothesis for the demand side analysis is:

H<sub>8</sub>: Farm managers prefer a male successor over a female successor.

With regard to the question of why the recruitment decision of the people in charge is influenced by the gender of the applicant, we first investigate into the possibility of general "in-group favoritism". The previous discussions led us to hypothesize:

H<sub>9</sub>: Farm managers' preference of a certain gender of the applicant depends on their own gender (i.e., gender based in-group favoritism exists).

We then investigate the possibility that farm managers use gender to approximate competencies, which in turn, leads to the preference of a certain gender of the applicant. We assume:

H<sub>10</sub>: Farm managers use gender to approximate the competencies of an applicant.

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<sup>28</sup> In this part of the thesis, we refrain from using the term "corporate farm manager" when referring to the survey participants, as not all participants may be described as such.

Finally, we address the question whether preferences unrelated to the approximation of competencies lead to a preference for a male successor. Here, the following hypothesis is to be investigated:

H<sub>11</sub>: Keeping job-relevant competencies constant, female applicants are less positively evaluated than male applicants.

#### 4.2.2 Sampling method and questionnaire for the farm managers

We carried out an online survey with farm managers from Eastern Germany in the spring of 2014. To recall: We focus on this subpopulation because we assume that the defined position of a corporate farm manager is more common in Eastern Germany. Furthermore, the forecasted shortage of corporate farm managers is particularly pronounced in Eastern Germany. In addition to the online survey, participants were given the choice to fill out a PDF-version of the questionnaire and return it to us by fax.<sup>29</sup> To contact farm managers, we primarily cooperated with the Bauernverband Sachsen-Anhalt e.V. (Farmers' Association of Saxony-Anhalt). This cooperation included the personal participation of the author of this dissertation in a formal meeting of the association's district managers. We presented our research project, and then the district managers were given the opportunity to voice their recommendations and concerns. After the meeting, the chairman of the Bauernverband Sachsen-Anhalt e.V. composed a letter in which he voiced his consent and support of our study. Subsequently, the link to the online survey, the PDF-version of the questionnaire, and the chairman's letter was sent to all the district managers via email. The district managers were then to disseminate our survey via email to the members of their district. A reminder was sent out to the district managers two weeks after the initiation of the survey. The district managers were, in turn, to remind their members. Due to the structure of the Bauernverband Sachsen-Anhalt e.V., we were not able to trace the process beyond our emails and personal interactions with the officials of the association. Consequently, we were not able to reconstruct how many farmer managers were eventually contacted. A total of 22 farm managers from Saxony-Anhalt completed our questionnaire. As the total number of study participants was low, we decided to also approach all other farmers' associations in Eastern Germany. With regard to the Sächsischer Landesbauernverband e.V. (Saxony), the Bauernverband Brandenburg e.V. (Brandenburg), and the Bauernverband Mecklenburg-Vorpommern e.V. (Mecklenburg-West Pomerania), a very similar procedure to the one in Saxony-Anhalt was undertaken. However, a meeting with the respec-

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<sup>29</sup> We recognize that there may be principle differences between the farm managers who decided to take part in the completely anonymous online survey and those who sent their answers via a traceable fax number. However, previous experience indicated that farm managers are reluctant to take part in scientific studies. Consequently, our sampling approach was guided by the aim to maximize the number of observations. One has to keep in mind that there might be biases resulting from our sampling method.

tive district managers did not take place. In Thuringia, the PDF-version of the questionnaire was uploaded to the official website of the Thüringer Bauernverband e.V. A link to the questionnaire and the online survey was additionally disseminated to the members of the association via two subsequent weekly newsletters.

The overall procedures led to a total of 31 farm managers completing the questionnaire (12 via the online survey<sup>30</sup>, 19 via manually completing the PDF questionnaire). The resulting group of respondents must be viewed as a convenience sample. As such, it is not statistically representative of farm managers in Eastern Germany. The results have to be interpreted very cautiously and must be taken as preliminary evidence.

The questionnaire was comprised of five essential parts. The first part contained fictional applications for the position of farm manager. The purpose and design of the applications is described in detail in Subchapter 4.2.4. The participant had to evaluate the applications on a scale ranging from 0 (= applicant is eligible below average) to 10 (= applicant is eligible above average). The second part of the questionnaire was concerned with the importance of personal characteristics and competencies for the hiring decision of the farm management successor. A list of competencies and formal qualifications was presented and respondents were to indicate in how far they agree that the competencies and formal qualifications are relevant for the hiring decision. Respondents were to indicate their answers on a Likert-type item ranging from “absolutely unimportant” (= 0) to “absolutely important” (= 6). In order to ensure that we did not miss any essential qualifications or competencies, a half-open question was additionally included.<sup>31</sup> The third part of the questionnaire covered socio-demographic information of the study participants. The fourth part included direct questions on the issue of women as (junior) farm managers. Among others, farm managers were to indicate whether and why they prefer either a female or a male successor. With regard to the applied scales of measurement, the fourth part of the questionnaire was predominantly comprised of nominal scaled questions and (semi-)open questions. The last part of the questionnaire was concerned with descriptive statistics of the farms. To ensure the viability and quality of the questionnaire, a pretest with a selected group of agricultural science students was carried out. A number of questions were subsequently refined and improved. The complete questionnaire can be viewed in Appendix 5.

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<sup>30</sup> A total of 40 farm managers followed the link to the online-survey. 26 of them proceeded to the second page of the survey, where the questions started. 13 respondents started to fill out the questionnaire. One respondent completed approximately a quarter of the questionnaire and was consequently eliminated from the analysis.

<sup>31</sup> Eventually, this second part of the questionnaire was not included in the analyses carried out here.



### 4.2.3 Descriptive statistics of the farm managers and their farms

Table 21 provides an overview of selected socio-demographic parameters of the study participants. A total of 24 (= 77.4%) male and 7 (= 22.6%) female farm managers participated in our survey. All but one of the respondents had graduated from a university with an agricultural science degree. In addition to the university degree, almost half of the surveyed farm managers had finished an agricultural vocational training. The majority of 22 respondents indicated that their main working tasks are management and leadership tasks. The remaining participants stated that their work is composed equally out of management and leadership tasks as well as agricultural tasks. On average, study participants were between 52 and 53 years old and had between 19 and 20 years of experience in a farm management position.

*Table 21 Description of the farm managers*

	Total sample	
	n	
Gender (respondents)	31	100.0%
Female	7	22.6%
Male	24	77.4%
University degree (respondents)	31	100.0%
Yes	30	96.8%
No	1	3.2%
Agricultural vocational training (respondents)	31	100.0%
Yes	15	48.4%
No	16	51.6%
Working tasks (respondents)	31	100.0%
Mainly management/leadership tasks	22	71.0%
Equally management/leadership and agricultural tasks	9	29.0%
Mainly agricultural tasks	0	0.0%
Average age in years (respondents)	30	52.8 (SD = 14.2)
Average years in farm management (respondents)	31	19.1 (SD = 13.8)

Source: own data and calculations, 2014

Table 22 provides an overview of selected descriptive statistics of the sampled farms. The majority of 22 farms was located in Saxony-Anhalt. The remaining farms were located in Saxony, Thuringia and Brandenburg. No farm located in Mecklenburg West-Pomerania was included in our sample. The slight majority of 16 (= 51.6%) sampled farms were “eingetragene Genossenschaften” ( $\approx$  registered cooperatives). 7 (= 22.6%) farms were registered as “Gesellschaft mit beschränkter Haftung” ( $\approx$  company with limited liability), 3 (= 9.7%) as “Einzelunternehmen”<sup>32</sup> ( $\approx$  sole proprietorship), 2 (= 6.5%) as “Gesellschaft mit beschränkter Haftung & Compagnie Kommanditgesellschaft” ( $\approx$  company with limited liability and with a limited partnership business entity as part-

<sup>32</sup> In Germany, Einzelunternehmen are categorized on the basis of the relative share of income generated by the farm. Accordingly, farms can either be categorized as a “Haupterwerbsbetriebe” (the income generated by the farm is higher than the income generated outside of the farms) or a “Nebenerwerbsbetriebe” (the income generated outside of the farm is higher than the income generated by the farms) (STATISTISCHES BUNDESAMT 2011). All of the three included Einzelunternehmen were categorized as “Haupterwerbsbetriebe” by the participating farm managers.

ner), 2 (= 6.5%) as “Gesellschaft bürgerlichen Rechts” (≈ company constituted under civil law) and 1 (= 3.2%) as a “Kommanditgesellschaft” (≈ limited partnership business entity). Approximately half of the sampled farms were classified as mixed holdings. The remaining sample consists of specialist field crop holdings, specialist grazing livestock holdings, and one specialist granivore holding. One participant did not indicate the farm type. One of the sampled farms was an organic farm, whereas all other farms followed conventional farming practices.

*Table 22 Descriptive statistics of the farms*

	Total sample	
	n	
Location of the farm (total sample)	31	100.0%
Saxony-Anhalt	22	71.0%
Saxony	4	12.9%
Thuringia	4	12.9%
Brandenburg	1	3.2%
Legal form of the farm (total sample)	31	100.0%
Eingetragene Genossenschaft (e.G.)	16	51.6%
Gesellschaften mit beschränkter Haftung (GmbH)	7	22.6%
Einzelunternehmen	3	9.7%
Gesellschaft mit beschränkter Haftung & Compagnie	2	6.5%
Kommanditgesellschaft (GmbH & Co. KG)		
Gesellschaft bürgerlichen Rechts (GbR)	2	6.5%
Kommanditgesellschaft (KG)	1	3.2%
Type of the farm <sup>a)</sup> (total sample)	31	100.0%
Mixed holding	16	51.6%
Specialist field crop holding	11	35.5%
Specialist grazing livestock holding	2	6.5%
Specialist granivore holding	1	3.2%
Other	1	3.2%

Source: own data and calculations, 2014; <sup>a)</sup> The applied type of classification refers to the official typology of the European Union (EU). The classification depends on the standard output (defined as the standard value of gross production) of the branches of the farm. More precisely, the branch that generates more than 2/3 of the standard output designates the type of farm. If no single branch generates more than 2/3 of the standard output, the farm is classified under a form of mixed holdings (which we do not further differentiate). For more detailed information on the EU typology cf., COMMISSION REGULATION (EC) No 1242/2008.

An overview of descriptive statistics with regard to farm sizes and the employed labor force is provided in Table 23.

*Table 23 Labor forces and farm sizes*

	n	Total sample		
		Mean (SD)	Median	Range
Labor force				
Number of full-time workers	30	30.0 (24.5)	21	1 - 97
Number of part-time workers	17	2.8 (1.9)	2	1 - 7
Arable land in hectares	30	1 524.9 (823.9)	1 400	450 - 3 500
Livestock in livestock units	21	929.6 (552.5)	800	80 - 2 000

Source: own data and calculations, 2014

As standard deviations proved to be high, we provide additional information in terms of medians and ranges. The average amount of full-time workers at the sampled farms was 30. In addition to full-time workers, 17 farms employed part-time workers. These farms employed, on average, 2 to 3 part-time workers. The mean area of arable land of the

sampled farms was 1 524.9 ha. In addition to arable land, 21 farms indicated owning livestock. Livestock units (LSU) ranged from 80 to 2000, where the calculated mean was 929.6 LSU. For one farm, neither the amount of arable land nor the amount of livestock units was indicated.

By summarizing the descriptive statistics on the farm managers and their farms, we want to highlight three properties of our sample: First, we had considerably more male than female participants in our survey. This, however, is not unexpected as the gender distribution in our sample approximates the existing gender distribution of farm managers in Eastern Germany, where currently approximately 17% of farm managers are women (STATISTISCHES BUNDESAMT 2014b: 403-415). Second, the sampled farms were particularly large. To illustrate this with one short example: The calculated mean area of arable land of the sampled farms was 1 524.9 ha. This is well above the average of 226.7 ha of arable land per Eastern German farm in 2014 (STATISTISCHES BUNDESAMT 2014c). Indeed, with regard to arable land, *every* sampled farm was larger than the average farm in Eastern Germany. Third, only two of the sampled farms were family farms (Einzelunternehmen). One may speculate that this low share is due to the focus of the study: As discussed, in family farms the farm as well as the manager job is still primarily passed on to a relative (i.e., inherited). Consequently, one may assume that questions concerning the *hiring decision* of a successor are deemed irrelevant for family farm managers. Although the high share of large, non-family farms in our sample can be described as coincidental rather than intentional, for the purpose of our study it should not be interpreted as a drawback: The vast majority of respondents indicated their position to consist predominantly of management tasks, i.e., they held the position that we focus on in our study. Furthermore, the focus of our research lies on farms where the farm management succession decision can be described as a hiring decision rather than an inheriting decision.

#### 4.2.4 Methodological approach of data analysis and the conjoint analysis research process

We used a combination of direct and indirect methods to elicit farm managers' preferences for their successor's gender. The following working steps were carried out:

1. To obtain quantitative information on whether preferences for the successor's gender exist, we first looked into the study participants' answers to the direct question about their preference for the successor's gender.
2. To investigate the possibility of a relationship between the preference for an applicant of a particular gender and the gender of the current farm manager, we divided the total in two subsamples: female and male farm managers. To test the significance of the difference in the preference, we used a two-tailed Fisher's exact test.

3. To obtain information on whether the farm managers approximated candidate's competencies by gender, we analyzed farm managers' stated reasoning behind their preference for a certain gender; farm managers were asked to indicate why they prefer a female or male successor. We analyzed their qualitative answers by categorizing them and then used descriptive statistics to present the results.

4. To determine whether preferences unrelated to the farm managers' approximation of candidates' competencies influence their evaluation of a potential successor, we used an indirect method to examine their preferences: We used a so-called "conjoint analysis", for which we designed applications from qualified junior professionals for a farm manager position. We then asked farm managers to evaluate these applicants. With the collected data we were able to analyze the influence of the applicants' gender on the evaluation of the applications while also controlling for other job-relevant competencies. The details of this process are described in more detail below.

5. To give an indication of how pronounced the influence of the applicants' gender is on the evaluation of the applications (as compared to other job-relevant competencies), we calculated conjoint typical "mean importance values". The mean importance values give insight into the relative importance of all job-relevant competencies included in the designed applications.

As the core of our statistical analysis is comprised of the conjoint analysis, in the following we describe its idea and procedure in more detail.

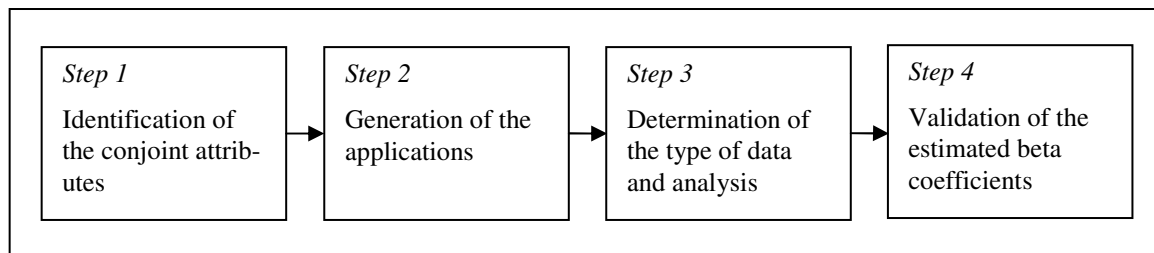
#### *The conjoint analysis research process*

The conjoint analysis is a frequently applied tool in marketing research. Commonly, the method is used to determine the influence of product attributes and their different formations (in the following referred to as attribute "values") on the market potential of products (BACKHAUS et al. 2011). The basic idea behind the method can be explained as follows: In keeping with the terminology of marketing research scholars, the "total utility" of a product is assumed to be determined by its attributes (e.g., color) and the respective "part-worth utilities" of each attribute value (e.g., red vs. blue). In accordance with standard economic theory, consumers are assumed to buy the product which maximizes their utility (RAO 2014). To determine the part-worth utilities of the attribute values, study participants are to indicate the total utility in terms of an evaluation of the presented product; after that, a regression is run on the collected data. In regression analytical terms, the evaluations of the product serve as the endogenous variable, while the attribute values serve as the exogenous variables. The key different between a "regular" regression based on data collected from study participants (for instance, the regressions run in Subchapter 4.1.5), and the conjoint analysis is that the values of the exogenous variables (i.e., the product) are designed by the researcher. Thus, study participants only indicate the value of the endogenous variable.

While still primarily used in consumer research, the conjoint analysis has also gained popularity in other academic fields. For instance, conjoint analyses have been carried out by scholars in environmental economics (e.g., ADAMOWICZ et al. 1994; OPALUCH et al. 1993) and health care (e.g., BEUSTERIEN et al. 2005; COAST et al. 2006). In an attempt to answer our research question whether preferences unrelated to the approximation of competencies lead farm managers to prefer a male successor, we applied the idea of the conjoint analysis to a recruitment situation. We assumed that the total utility of an application is determined by the part-worth utilities gained from the competencies and personal characteristics (hereafter referred to as “attributes”) of applicants. Our main intention was to elicit how the attribute of gender influences the evaluation of an application.

Our conjoint research process can be divided into four steps: the identification of the conjoint attributes, the generation of the applications, the decision on the type of data collected and its analysis, and the validation of the estimations (cf., Figure 6).<sup>33</sup> These steps are described in more detail below.

Figure 6 The conjoint analysis research process



Source: own representation

*Step 1 (Identification of the conjoint attributes):* Whilst our prime interest was the influence of gender on the evaluation of a potential successor’s application, further attributes were needed to design realistic applications. In order to determine which attributes to include on the applications, we referred to the guidelines for choosing attributes for a conjoint analysis by BACKHAUS (2011).<sup>34</sup> Consequently, we considered six key criteria for the choice of attributes. First, the relevance of the attributes; secondly, the feasibility of the attributes; thirdly, the independency of the attributes; fourthly, the substitutability of attributes; fifthly, the prevention of immediate rejection due to one attribute; and sixthly, the number of attributes and their respective level. In the following paragraphs,

<sup>33</sup> There are several different types of conjoint analysis (e.g., adaptive conjoint analysis, choice-based conjoint analysis, self-explicated conjoint analysis). It goes beyond the scope and intent of this chapter to deliver an overview of the various conjoint analysis methods. However, it may be helpful for the reader to indicate that we focus on the conjoint method that is typically (but not consistently) referred to as the “traditional” conjoint analysis.

<sup>34</sup> As guidelines for conjoint analysis are typically tailored for the context of product marketing, some criteria had to be slightly altered to fit our context.

we briefly explain the criteria and elaborate on our reasoning behind the choice of attributes.

To identify which attributes of applicants are *relevant* for the hiring decision of the future farm manager, we considered two sources: On the one hand, we analyzed our primary data from the semi-structured interviews with the farm managers (cf., Subchapter 3.2). On the other hand, evidence from the literature was reviewed. With regard to the semi-structured interviews, one of our guideline questions covered farm managers' perception on which competencies and formal qualifications are required for the farm manager position (cf., Table 11). In order to analyze the qualitative data, we (once more) carried out the reductive content analysis. Consequently, we followed the steps of paraphrasing, generalizing, and reducing.<sup>35</sup> The results of our analysis suggest that interviewed farm managers evaluate four central competencies to be necessary for a successor: (i) practical experience, (ii) passion for the job, (iii) personnel management competency, and (iv) an academic degree. After researching the literature, we found that a number of studies address the question on what competencies agricultural employers look for in employees (e.g., GERDS 2010, 2012; NORWOOD and HENNEBERRY 2006; VDL 2012). However, the studies do not address the specific situation of the farm manager position. First evidence in this context comes from a quantitative study carried out in Eastern Germany by KREYBIG et al. (2007). This study includes one question, where participating corporate farm managers (n = 1 415) were to indicate in how far selected attributes are important for the hiring decision of leadership personnel.<sup>36</sup> Results of the study suggest that the four attributes which were evaluated to be the most important are "leadership competencies", "being versatile", "personal impression", and "practical experience". More precise definitions of the terms are not provided. In order to systemize the findings from the cited sources, we followed the frequently made distinction between generic and vocational specific competencies (e.g., BIESMA et al. 2008; GERDS 2010; HEIJKE et al. 2003). Generic competencies are understood as competencies which can be applied in various unrelated occupations (e.g., writing, passion, reliability). Vocational-specific competencies are specialized skills which are relevant only in the respective occupation. With regard to the inclusion of generic competencies in our analysis, cited evidence led us to consider (i) the passion for the job as well as (ii) the competency to solve problems. In terms of vocational specific competencies, we included (iii) the formal qualification, (iv) the personnel management competency, and (v) practical agricultural and business management competency.

In order to ensure that the second criterion of the guideline, i.e., the *feasibility of the attributes*, is met, we chose only attributes with values that we perceived as realistic and

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<sup>35</sup> The analysis steps of the reductive content analysis are traceable in Appendix 2.

<sup>36</sup> The three-point scale ranged from "very important", over "important" to "less important".

not mutually exclusive. Considering the *independency of the attributes*, we assumed that the evaluation of a value of an attribute is not influenced by the value of another attribute. The criterion of the *substitutability of the attributes* reflects the need for attributes to compensate each other. To ensure this, we included only levels of attributes which we assumed as sufficient to qualify the applicant for the job as a farm manager. This approach was to furthermore ensure that we avoided a situation where a study participant *immediately rejects* an applicant due to one (low) attribute value. Lastly, while simultaneously considering that we meet the criteria (i) to (v), we kept the *number of attributes* and their respective values to the possible minimum. Thus, we used only two values per attribute. To provide an indication whether our attributes and values truly comply with the six criteria, a pretest of the conjoint analysis was carried out and consequently discussed with a group of agricultural science students. An overview of the resultant attributes and their values is depicted in Table 24.

Table 24 Overview of attributes included in the conjoint analysis

Attribute	Value A of the attribute	Value B of the attribute
1. Gender	Male	Female
2. Formal qualification	Agricultural master craftsman	Agricultural university degree
3. Passion for the job	Passionate	Very passionate
3. Competency to solve problems (analytical thinking)	Satisfactory competency	High/very high competency
5. Personnel management competency	Satisfactory competency	High/very high competency
6. Practical agricultural and business management competency	Satisfactory competency	High/very high competency

Source: own representation

*Step 2 (Generation of the applications):* There are two principle application design possibilities for a conjoint analysis: a full factorial design and a reduced design (e.g., BÜHL 2012; RAO 2014). A full factorial design is composed of all possible profiles which result from all the possible combinations of the included attribute values. A reduced design is composed of a fraction of possible profiles resulting from a systematic reduction of the combinations of attribute values. As every study participant has to evaluate all created profiles, the decision in favor of one of the two alternatives highly depends on the number of exogenous variables included in the analysis.<sup>37</sup> Our number of included attributes and their respective values already resulted in a high number of possible applications (six attributes with two values each =  $2^6 = 64$ ). Consequently, we decided in favor of a reduced design. Our design of choice was the so-called balanced orthogonal main effect design with a total of eight applications (cf., Appendix 5). The design entails that all attribute values occur equality as often (= 4 times) and the attributes have zero correlation with each other.<sup>38</sup> This balanced orthogonal design method ensures the

<sup>37</sup> Alternative approaches where participant only evaluate a part of the designed profiles exist. Without going into detail, this has consequences for the estimation process (RAO 2014).

<sup>38</sup> To produce our design, the SPSS procedure "Orthoplan" was carried out.

uncorrelated estimate of all main effects of the conjoint attributes values (ADDELMAN 1962). The application of orthogonal main effect designs are common practice in conjoint studies (e.g., ANNUNZIATA and VECCHIO 2013; DARBY et al. 2008). Although many different balanced orthogonal main effect designs are possible, no design may be deemed as better than the other. Consequently, the choice of the concrete design does not follow any particular reasoning (e.g., BACKHAUS 2011).

*Step 3 (Determination of the type of data and analysis):* A total of 31 study participants evaluated the eight applications on a scale ranging from 0 (= applicant is eligible below average) to 10 (= applicant is eligible above average). We explicitly asked study participants to consider that the applicants only differ in the presented attributes. In regression analytical terms, our data can be described as follows:

- we have six binary exogenous variables in terms of personal characteristics, formal qualifications, and competencies of applicants
- we have eight endogenous variables for each of the 31 study participants in terms of evaluations of the applications (ranging from 0 to 10).

In order to estimate the beta coefficients of the attributes values, we used OLS-regression. Our six binary exogenous variables were coded as dummy variables, where the attribute value A (c.f., Table 24) was coded as “0” and the attribute value of B was coded as “1” (e.g., ORME 2010; RAO 2014). The general model of our additive conjoint analysis can be formally denoted as:

$$y = \beta_0 + \beta_1 x_{gender} + \beta_2 x_{formal\ qualification} + \beta_3 x_{passion} + \beta_4 x_{problem\ solving} + \beta_5 x_{personal\ management} + \beta_6 x_{practical\ agricultural/\ business\ management} + \mu, \quad (2)$$

where  $y$  denotes the total utility of an application.  $\beta_0$  denotes the intercept,  $\beta_1$  is the regression beta coefficient associated with  $x_{gender}$ ,  $\beta_2$  the regression beta coefficient associated with  $x_{qualification}$  and so on.  $\mu$  denotes the error term.

Conjoint analysis estimations can be carried out either on an individual level or on the level of a (sub)sample (e.g., MOORE 1980; RAO 2014). For estimations on an individual level, one regression is run for each study participant (in our case this would lead to 31 separate regressions). In the case of (sub)sample<sup>39</sup> level estimation, the individual observations were stacked together and the data was analyzed in one regression run (RAO 2014). While following the total sample regression approach, we used the clustered sandwich estimator, where we clustered the evaluated applications on the basis of the individual study participants. This approach accounts for the fact that study participants

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<sup>39</sup> Subsamples are most commonly identified either by theoretical considerations or by clustering individuals. In the latter case, those individuals which prove to have similar preference structures are clustered together, i.e., clustering is based on the beta coefficients of the individual regression results (BACKHAUS et al. 2011).



always evaluated eight applications, i.e., these evaluations were *not* made independent from each other. In other words: the clustered sandwich estimator produces consistent estimators even if the residuals are correlated within the clusters (e.g., ANGRIST and PISCHKE 2009; HOECHLE 2007). To mitigate concerns regarding the interference of the significance of the results from samples with few clusters<sup>40</sup>, we cross-verified the interferences by running an OLS regression with standard errors adjusted via bias-reduced linearization (e.g., BELL and MCCAFFREY 2002; CAMERON and MILLER 2015).<sup>41</sup>

*Step 4 (Validation of the estimated beta coefficients):* In order to provide information on how well the OLS beta coefficient estimations fit the empirically collected data, we calculated the Person's *r* correlation coefficient (e.g., KRYSTALLIS and NESS 2006; REUTTERER and KOTZAB 2000; ROSENTHAL et al. 2006). The Pearson's *r* coefficient indicates the correlation between the empirically detected evaluation scores of the eight applications with their estimated scores. The estimated score of each application results from adding the estimated beta coefficients of the respectively presented attribute values to the estimated constant (BACKHAUS 2011).

To further assess the validity of the beta coefficient estimations, we designed two so-called "holdout" applications and calculated the Kendall's tau-b coefficient for the applications (e.g., BACKHAUS 2011; RAO 2014). The holdout applications were evaluated by the study participants but were *not* included in the OLS regression analysis. The Kendall's tau-b coefficient for the holdout applications gives information on the correlation between the calculated ranks of the two holdout applications and the empirically detected ranks. The calculated rank of each holdout application follows from adding the estimated beta coefficients of the respective attributes values to the estimated constant. The empirically detected ranks result from the evaluations of each individual study participant.

Both the Person's *r* and the Kendall's tau-b indicate how well the OLS regression for the total sample is able to predict the individual evaluations. This is important inasmuch the aggregated OLS regressions can lead to a loss of individual level information when participants' preferences are heterogeneous (MOORE 1980).

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<sup>40</sup> Statistical analyses have led scholars to conclude that the validity of cluster-robust standard errors heavily relies on the number of clusters in the sample. A small number of clusters can lead to downward bias cluster-robust standard errors (e.g., CAMERON and MILLER 2015). There is no clear-cut definition determining the cluster number as "few". For instance, ROGERS (1994: 23) argues that "[a]s long as the largest cluster is 5 percent or less of the sample, this bias should be negligible". Other publications speak of anything below 50 or even 20 clusters (e.g., CAMERON and MILLER 2015).

<sup>41</sup> The Stata command for an OLS regression with standard errors adjusted via bias-reduced linearization is provided by the MASSACHUSETTS INSTITUTE OF TECHNOLOGY (2015).

#### 4.2.5 (Why) Are people in charge of hiring future farm managers influenced by the gender of an applicant?

Table 25 shows participants' answers to the direct question which gender they prefer as their successor.

*Table 25 Preferred gender of successor*

	Female subsample		Male subsample		Total sample	
	n		n		n	
Preferred gender of successor (respondents)	5	100.0%	23	100.0%	28	100.0%
Male successor preferred	4	80.0%	18	78.3%	22	78.6%
Female successor preferred	1	20.0%	5	21.7%	6	21.4%

Source: own data and calculations, 2014

While 6 respondents (= 21.4%) indicate to prefer a female successor, the vast majority of 22 (= 78.6%) farm managers state to prefer a male successor. Though not all participants prefer a male successor, our data may be taken as a supportive evidence for our key hypothesis that farm managers prefer a male successor over a female successor ( $H_8$ ). The result of a two-tailed Fisher's exact test suggests that in our sample no statistically significant relationship between the gender of the farm manager and the preference for the applicant's gender exists. Thus, our data does not support the hypothesis that gender-based in-group favoritism exists ( $H_9$ ).

#### *Do the farm managers use gender to approximate the competencies of the applicant?*

Table 26 provides an overview of the farm managers' answers to the half-open question on why there is a preference for a successor of a particular gender.<sup>42</sup>

*Table 26 Stated reasons for the preferences of a (fe)male successor*

	Total sample	
	n	
Reasons for preference for a male successor (number of comments) <sup>a)</sup>	25	100.0%
Higher acceptance/assertiveness	6	24.0%
More flexible in time management	5	20.0%
Lower risk of drop-out	3	12.0%
Higher work load capacity	3	12.0%
Greater physical strength	3	12.0%
Other reasons	5	20.0%
Reasons for preference for a female successor (number of comments) <sup>a)</sup>	9	100.0%
Higher personnel management competency	3	33.3%
Gender is not important	3	33.3%
Others	3	33.3%

Source: own data and calculations, 2014; <sup>a)</sup> Multiple answers were possible. Answers result from a half-open question.

The farm managers who indicate a preference for a male successor predominately explain their reasoning to be determined by (presumed) gender-specific difference in competencies. More precisely, several participants voice their concerns with regard to

<sup>42</sup> Respondents were asked to only state keywords. In order to analyze the half-open questions, inductive categories were created. Keywords were then subsumed under the appropriate category.

the co-workers acceptance of a woman as a farm manager. In addition, findings indicate that some farm managers are concerned that female applicants are restricted in their time and workload capacity. This includes farm managers' perception that female applicants have a higher risk of drop-outs. Farm managers typically referred to women's family duties as an explanation for women's overall lower working time capacity. As indicated before, strictly speaking, women's assumed lower working time capacity due to family duties may not be viewed as an approximation of women's "competencies". Nonetheless, also in this situation gender is used to approximate the aptitude to successfully perform the duties of a farm manager. Although not indicated in Table 26, only one farm manager explains his preference to be based on the tradition of men as farm managers in the corporation. Amongst the six participants who stated a preference for a female successor, three farm managers explain their reasoning to be determined by (presumed) gender-specific differences in competencies.<sup>43</sup> These three farm managers evaluate women to be better in personnel management, as they are more empathetic. The other three farm managers who also indicated a preference for a female successor argue that gender is *unimportant* for the succession decision. The answers point to the core weakness of directly asking about reasons for the preference for a certain gender: It is impossible to assess in how far indicated reasons for a certain preference are sincere or rather misleading explanations in order to justify (socially-undesired) preferences.

Although no meaningful statistical hypotheses tests can be carried out, we may cautiously conclude that our data supports the hypothesis that farm managers use gender to approximate competencies ( $H_{10}$ ). Furthermore, our findings suggest that not only competencies are approximated via gender, but also working time capacity.

*Are preferences independent from the approximation of competencies a reason for the preference of a male successor?*

Table 27 shows the OLS regressions results for the total sample using the clustered sandwich estimator. The clustered sandwich estimator allows error terms to be heteroscedastic as well as correlated on the individual level (HOECHLE 2007). Our balanced orthogonal design leads to a variance inflation factor which is 1 at its maximum. The F-statistics show that the regression is significant as a whole. The  $R^2$  of 0.427 indicates that the regression explains nearly half of the variance of the endogenous variable. The calculated Pearson's  $r$  and the Kendall's tau-b for the two holdout applications are both highly significant and lie at 0.645 and 0.588, respectively. The correlations may be deemed as strong (COHEN 1988).

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<sup>43</sup> As multiple answers were possible, the total amount of listed reasons is nine.

Table 27 Results of the conjoint analysis

Exogenous variables	Total sample (n = 31)		
	Coefficients	p-value <sup>a)</sup>	
Constant	2.53	0.000***	(0.000***)
Gender (male = 0; female = 1)	-0.48	0.018**	(0.021**)
Formal qualification (master craftsman = 0; university degree = 1)	1.33	0.001***	(0.002***)
Passion for the job (passionate = 0; very passionate = 1)	0.24	0.263	(0.471)
Competency to solve problems (satisfactory = 0; high/very high = 1)	2.08	0.000***	(0.000***)
Personnel management competency (satisfactory = 0; high/very high = 1)	1.73	0.000***	(0.000***)
Practical agricultural/ business management competency (satisfactory = 0; high/very high = 1)	1.78	0.000***	(0.000***)
F-statistics (p-value)	F(6,30) = 25.46 (0.000)		
R <sup>2</sup>	0.427		
Pearson's r (p-value)	0.645 (0.000)		
Kendall's tau-b for holdout applications (p-value)	0.588 (0.000)		

Source: own data and calculations, 2014; <sup>a)</sup> Level of significance (two-tailed two-sample t-test):  $p < 0.01 = ***$ ,  $p < 0.05 = **$ ,  $p < 0.10 = *$ ; p-value without parentheses result from estimations with the clustered sandwich estimator, p-values within the parentheses results from standard errors adjusted by bias reduced linearization.

Besides the passion for the job, all included conjoint attributes are significant. This statistical inference holds true both for the result from estimations with the clustered sandwich estimator as well as from standard errors adjusted by bias-reduced linearization. The negative sign of the beta coefficient for the attribute of gender indicates that farm managers' evaluation of an application is significantly lower when the applicant is female. This is the case when all other job relevant competencies included in the analysis are kept constant. Hence, the results may be interpreted as a support of the hypothesis that female applicants are less positively evaluated than male applicants even when competencies are kept constant ( $H_{11}$ ). What is more, the OLS estimations suggest that participating farm managers' evaluations of applications significantly increase when the applicant holds an agricultural degree, has high/very high competency to solve problems, has a high/very high competency to manage the personnel, and has a high/very high competency in practical agricultural and business management. Although not included in the final OLS regression, we tested whether a number of background variables of study participants (age, gender, legal form of farm) has an interaction effect with any of the conjoint attributes (e.g., whether female managers are significantly different affected by any of the conjoint attributes than male farm managers are). Since no significant interaction effect could be detected, we did not include them in the final regression.

In the last step of our demand side data analysis, we investigate into the relative importance of the conjoint attribute of gender for the evaluation of applications. Table 28

provides an overview of the conjoint typical “mean importance values” of all six conjoint attributes.

*Table 28 Mean importance values of the conjoint attributes*

	<b>Total sample (n = 31)</b> Mean importance value (SD)
Competency to solve problems	20.9 (10.3)
Personnel management competency	19.5 (10.9)
Formal qualification	19.4 (14.8)
Practical agricultural/ business management competency	18.4 (12.4)
Gender	11.0 (10.2)
Passion for the job	10.9 (7.8)

Source: own data and calculations, 2014

The calculation of the mean importance values is based on the aggregation of information based on individual level OLS regression results (ORME 2010). The individual importance values, in turn, are calculated on the basis of the individual range of the beta coefficients and add up to 100 (indicating the 100% of the part of the variance in the evaluations that are explained by the conjoint attributes).<sup>44</sup> Results from the calculation suggest that, on average, the competency to solve problems is the most influential conjoint attribute. The attribute explains, on average, 20.9% of the decision. Gender is the second last influential attribute with a mean importance value of 11%. Only the passion for the job shows a lower mean importance value.

Table 29 provides an overview of individual level OLS regression information combined with the information on the *direction* of influence of the conjoint attribute of gender. This is insightful with regard to the earlier indicated possibility of heterogeneous preferences.

*Table 29 Gender-specific evaluations of the conjoint attribute of gender*

	<b>Female subsample (n = 7)</b>		<b>Male subsample (n = 24)</b>		<b>Total sample (n = 31)</b>	
	n	Mean importance value (SD)	n	Mean importance value (SD)	n	Mean importance value (SD)
Male applicant preferred	5	7.2 (4.3)	16	14.9 (12.0)	21	13.0 (11.1)
Female applicant preferred	1	12.5 (-)	7	7.7 (6.4)	8	8.3 (6.2)
No influence of gender	1	0.0 (-)	1	0.0 (-)	2	0.0 (-)

Source: own data and calculations, 2014

Before going into the presentation of the results, it should be noted that on the individual OLS regression level, the conjoint attribute of gender is mostly not significant. Nonetheless, individual level results are in principle in accordance with the previously presented OLS regression results from the total sample. Thus, results suggest that both fe-

<sup>44</sup> As long as all individuals evaluate the identical set of applications, estimated beta coefficients of the total sample OLS regression are identical to the average of the individual level beta coefficients (MOORE 1980). Consequently, using the total sample OLS regression estimations for the importance value calculation would underestimate the importance of those attributes where contrary preferences exist as they (partly) cancel each other out.

male and male participants predominantly evaluate an application from a man more positively. Keeping job-relevant competencies constant, individual level OLS regressions lead to the conclusion that 21 farm managers prefer an application from a male applicant. 8 farm managers prefer a female applicant, and only for 2 farm managers gender had no influence on the evaluation of the applicants. Furthermore, the calculation of the mean importance value of all participants indicates that the attribute of gender plays a less pronounced role for those participants who prefer a female applicant. When a female applicant is preferred, the gender of an applicant determines, on average, 8.3% of the decision explained by the six conjoint attributes. When a male applicant is preferred 13% of the decision is explained by the attribute of gender.

Summarizing our results from the conjoint analysis, we (again) find support for our comprehensive hypothesis that a male successor is preferred over a female successor ( $H_8$ ). What is more, our data suggest that preference unrelated to the approximation of competencies leads to the farm managers' preference of a male successor. When job-relevant competencies are kept constant, we find supportive evidence that applications from men are more positively evaluated than applications from women ( $H_{11}$ ). We also find evidence, however, that gender is not as influential as most of the other job-relevant conjoint attributes.

#### 4.2.6 Summary of the quantitative demand side research results

In our quantitative analysis of survey data from farm managers we found considerable evidence that the gender of the applicant is relevant for the farm management succession decision. We have used both a direct and an indirect approach of questioning in order to better understand why people in charge of hiring future farm managers are influenced by the gender of an applicant. Analogously to the summary from the quantitative supply side research, we may systematically review our findings from the quantitative demand side research by classifying them into three sets:

Concerning the question of whether the gender of an applicant influences the hiring decision, we have an intersecting set of results. In both our indirect and direct questioning approach, we found evidence that the vast majority of participating farm managers prefer a man over a woman as a successor. This finding holds true for both the female and the male study participants.

Second, with regard to our investigation into farm managers' preferences via a direct questioning approach, we found evidence that the participating farm managers do approximate the competencies of applicants via gender. Respondents are concerned about co-workers' acceptance of a woman farm manager and women's capability to assert themselves in this situation. What is more, we found evidence that women's assumed working time restrictions may be a reason for a preference for a male successor. The

empirical evidence may cautiously be taken as an indication that one reason for the low share of female farm managers in Germany is that demand side agents perceive women to be less qualified for the position. In how far the respondents' perceptions with regard to gender-specific differences in competencies and working time restrictions are based on experience or preconceived opinions *cannot* be deducted from our findings. Furthermore, findings do not allow us to assess to what extent the approximations of competencies via gender influence the hiring decisions.

Lastly, with regard to our indirect questioning approach via conjoint analysis, we found evidence that the attribute of gender influences the evaluation of applicants even when other job-relevant competencies are kept constant. Participants were asked to exclusively consider the difference in the presented attributes for their evaluation. Consequently, results may be viewed as indications that preferences, unrelated to the approximation of competencies, are a reason for the low share of female farm managers in Germany.<sup>45</sup> Moreover, the application of conjoint analysis allowed us to create a quite realistic evaluation situation where multiple attributes of an applicant needed to be evaluated jointly by the farm managers. Via this approach, we were able to shed first light on the *relative* importance of the applicants' gender in a hiring situation. Our results suggest that the applicant's gender has, on average, a smaller influence on the evaluation of the application than most other included attributes.

### 4.3 Contrasting the findings from the quantitative supply and demand side analyses

In our quantitative analyses, we were able to find further evidence that the low share of female corporate farm managers is both a result of the behavior of the supply side and the demand side agents. Our results from the separate analyses of the two sides of the labor market point at a number of reasons that explain why qualified women are less inclined to become corporate farm managers than qualified men and why current farm managers prefer male successors. The contrasting of the results delivers three additional insights:

First, we were able to detect that there is an overlap between the supply and the demand side agents' decision parameters. In our quantitative supply and demand side analyses, we found that two variables are important drivers of both the supply side and the demand side agents' behavior: (i) the perceptions of competencies and (ii) the perceptions of co-workers' acceptance of women as farm managers. With regard to the perception of competencies, our results are supportive of the proposition that one key reason for the

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<sup>45</sup> We recognize that study participants' evaluations of the attribute "gender" may still have been influenced by perceptions on gender differences in terms of qualifications, skills etc. Nonetheless, every survey entails the risk that study respondents do *not* truly answer in the way requested.

low share of women farm managers is that women are evaluated to be less qualified for the position than men. This holds true, on the one hand, with regard to female agricultural science students' self-evaluation of competencies, which we found to be significantly lower than men's. This proves, on the other hand, to be the case for a considerable share of current farm managers, who we found to prefer a male successor due to the perception that men are more qualified for the farm manager position. We need to stress that our analyses regard the *perceptions* of competencies. Our results do not allow us to conclude on whether there are differences in *de facto* competencies between women and men. With regard to the second common decision parameter, we found evidence that both qualified women and current farm managers consider co-workers' acceptance of women farm managers for their decision: Our supply side analysis suggests that the anticipated recognition from future colleagues significantly and positively influences qualified women's inclination to become corporate farm managers. Our demand side analysis suggests that a considerable share of current farm managers is concerned about the acceptance of female farm managers by their co-workers. Consequently, one may conclude that an increase of workers' acceptance of women farm managers may lead to both an increase in qualified women's inclination to become corporate farm managers and an increase of them being hired for such a position. At the same time, our supply side analysis suggests that qualified women's and men's expectation of the recognition from future colleagues does not significantly differ. Thus, our analysis indicates that qualified women do not share current farm managers' concern that co-workers are less accepting of women as farm managers.

Second, we found contrasting evidence on the perceptions of the compatibility between the time requirements of being a farm manager and women's life-style. On the one hand, we were able to find that one key reason for farm managers' preferences for a male successor is that farm managers assume women to have a lower working time capacity. On the other hand, our analysis of the supply side decision determinants does not support the proposition that either the anticipated overall working time or the flexibility of the working time significantly influences women's inclination to become corporate farm managers. As we predominately surveyed students in their early 20s, one may speculate that in an older subpopulation the results may be different as older women may be more concerned about possible family and work conflicts. However, the results of the analysis of our data are not supportive of the proposition that the compatibility of the time requirements of being a farm manager and women's (family) life-style is a significant determinant of qualified women's inclination to become corporate farm managers.

The third additional insight arises from combing findings which focus on *controllable* decision variables and *non-controllable* environmental parameters of the supply side agents with the decision rationale of the demand side agents. In our supply side analysis, we found that women have significantly less positive evaluations of their *controlla-*



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*ble* decision variable (“self-efficacy”) and *non-controllable* environmental parameter (“controllability”) with regard to becoming corporate farm managers. Results from the demand side suggest that even when competencies are kept constant, an application from a woman is significantly less positively evaluated. Thus, one may cautiously conclude that qualified women “correctly” evaluate their controllability over becoming a corporate farm manager comparability as lower. This is because our demand side findings indicate that not only the applicant’s competencies are relevant for the hiring decision, but also the applicant’s gender. While the development of competencies does lie in the control of the applicant, their gender does not. However, our regression results from the supply side suggest that women’s evaluation of the controllability is not a significant determinant of their inclination to become corporate farm managers.

## 5 Conclusion and implications

Replacements for corporate farm managers in Germany are increasingly hard to find. At the same time, the continuously low share of women in manager positions in conjunction with the constantly high share of female graduates provoke the question whether the pool of potential junior farm managers is fully exploited. In this thesis, we investigated the causes for the low share of female corporate farm managers in Germany. We did so by investigating both into the supply and the demand side of the labor market. Overall, our results indicate that reasons for the low share of women corporate farm stem from the behavior of both the supply and the demand side agents. In the following, we first summarize our findings from our supply and demand side research. Then, implications for further research and stakeholders involved in the recruitment process of future corporate farm managers are drawn.

In our supply side research, we were able to find strong evidence that qualified women are less inclined to become corporate farm managers than men. This holds true both for our exploratory and quantitative research. Our empirical results are consistent with many prior propositions. With regard to social psychological propositions, both our qualitative and quantitative analysis suggest that women's self-evaluation of their competencies is one key reason for women's lower inclination to become farm managers. With regard to economic propositions, all our analyses are supportive of the proposition that gender-specific differences in the expected utility from non-material outcomes are important drivers of observed differences in occupational intentions. However, some results of our quantitative analysis contradict conventional wisdom as well as our results from the exploratory stage of the supply side research. First, our quantitative results do not confirm that the expected material outcomes of being a farm manager are important drivers of junior professionals' inclination to become farm managers. This stands in contrast to economic theory, which assumes material outcome in terms of income or working time to be of key importance for understanding (occupational) choices. It also stands in contrast to our exploratory findings: Among others, our exploratory evidence leads us to assume that gender-specific difference in the evaluation of the compatibility between the time requirements of being a farm manager and family life may be a key reason for understanding gender-specific occupational intentions. Second, in our quantitative analysis, we found a negative relationship between families' appraisal and female respondents' intention to become farm managers. While we may speculate that this "counterintuitive" finding may be due to some sort of resistance to family pressures, future research is needed to shed more light on this finding. Third, our quantitative re-

sults show that the evaluation of the “controllability” of a situation is a significant determinant of occupational intention for male respondents only.

In our demand side research, we found substantial evidence that gender influences the hiring decision of current people in charge of determining future corporate farm managers. This finding holds true both for our exploratory and quantitative research. Our empirical results are consistent with many prior propositions: In all our analyses, we found evidence that the people in charge of hiring farm managers use gender to approximate the competencies of applicants. More precisely, our results suggest that people in charge of hiring farm managers prefer a male successor because they are concerned about women’s capability to assert themselves in the masculine culture as well as their practical agricultural skills. What is more, all of our analyses suggest that farm managers are particularly worried about women’s time restrictions due to family duties. In our research process, however, we also found partly contrasting evidence: First, theoretical propositions as well as our quantitative investigation indicate that farm managers prefer a male successor even when job-relevant competencies are kept constant. This clearly discriminatory tendency, however, could not be detected in our exploratory research. Second, while most theoretical propositions suggest that male farm managers prefer a male successor and female farm managers prefer a female successor, a tendency of this so-called “in-group favoritism” could neither be detected in our exploratory nor in our quantitative research. Indeed, we found evidence that female and male farm managers do not significantly differ in their preferences for the applicant’s gender.

By contrasting our results from the supply and the demand side, we were able to find evidence that one key reason for the low share of women farm managers is that women are evaluated to be less qualified for the position than men. This conclusion is, on the one hand, supported by our finding that female agricultural science students’ self-evaluation of competencies is significantly lower than men’s. It is, on the other hand, supported by our finding that a considerable share of current farm managers prefer a male successor because they perceive men to be more qualified for the farm manager position. We need to stress that our analyses regard the *perceptions* of competencies. Our results do not allow us to conclude on whether differences between *de facto* competencies of women and men exist.

#### *Implications for further research*

The implications that derive from our research are partly due to our findings and partly due to the limitations of our findings. We may divide implications into three categories:

The first category of implications is directed towards researchers who follow our general methodological approach, which focuses on understanding the decision rationale of the supply and demand side agents in a specific point in time. Here, we suggest that future research is needed to determine whether our identified reasons for the low share

of female corporate farm managers apply to other subpopulations as well and can thus be generalized. This appears to be especially relevant as our samples must be viewed as convenience samples and do not allow for a claim of representativeness. This holds true both for our supply and demand side research. If our results cannot be replicated, future research will need to determine more precisely the specific group characteristics that explain deviations between different subpopulations. What is more, our findings indicate that a research design which allows for studying the role of competencies while looking at the supply and the demand side *simultaneously* would be insightful. This would allow to conclude whether the (self-)perceptions of women's competencies are caused by differences in *de facto* competencies or misjudgments of women's true qualifications.

The second category of implications is directed towards researchers who intend to follow a different methodological approach. Our research indicates two insightful avenues: On the one hand, further research is needed to understand which past processes and events are relevant for determining the decisions parameters of agents' present intentions and behavior. One may, for instance, pursue the question which (or whether) socialization processes determine the difference in women's and men's anticipation of internal benefits deriving from being a corporate farm manager (detected in our research). On the other hand, as our research focuses on the micro-level of analysis, we assume that an analysis on the macro-level is bound to lead to additional valuable additional insights into the cause of the low share of female corporate farm managers in Germany.

The third set of implications is directed to all researchers, regardless of their methodological approach. We suggest that research should focus on the potential differences between the causes for the low share of female farm managers in family farms (family succession problems) and in corporate farms (management staff recruiting problems). While partly coinciding, another promising angle might be the differences between Western and Eastern Germany.

#### *Implications for stakeholders*

When addressing the practical problem of how to best mitigate recruiting problems, we must be cautious with our implications. In order to give scientifically sound advice, one needs to know the exact goals of the stakeholders involved. Only then possible strategies to reach the goals may be identified. What is more, a systematic cost and benefit analysis of the strategies is necessary to identify the efficient strategies (e.g., in terms of a policy impact analysis). Our findings allow us to deduce *possible* strategies for reaching *possible* goals of stakeholders. However, neither the identification of all stakeholders' true goals nor the analysis of the efficiency of strategies was part of our research. Keeping these limitations in mind, we do want to close our research by pointing out

preliminary implications from our findings. The implications may be beneficial for three target stakeholder groups: farm managers who are in need of a qualified successor, female junior professionals who intend to become corporate farm managers, and policy makers who aim to mitigate recruitment problems.

Starting with implications from our supply side research, the first branch of preliminary implications follows from our quantitative analysis of junior professionals' occupational intentions. Farm managers in need of a qualified successor as well as policy makers aiming to mitigate recruitment problems may benefit from our findings. We found strong evidence that non-economic considerations rather than material outcomes represent important drivers of occupational choice. Consequently, we suggest that focusing exclusively on an increase of material incentives when trying to recruit junior managers is likely to produce unsatisfactory results. Our findings suggest that a more promising angle would be to show and convince qualified women and men that the farm manager position can be an enjoyable and fulfilling occupation. Consequently, (policy) measures targeted towards changing junior professionals' perception of the occupation may be helpful to strengthen the inclination to become a corporate farm manager. Measures could be, for instance, image campaigns, internships, or test workdays. Since we found evidence that the women's anticipated enjoyment of being farm managers is significantly lower than men's, measures targeted towards qualified women may be especially promising.

A second set of implications can be drawn from our finding that self-efficacy evaluations is a significant driver of junior professionals' inclination to become a corporate farm manager. Again, both farm managers and policy makers may benefit from our findings. Studies on self-efficacy evaluations have highlighted that self-efficacy evaluations can be positively changed by performance accomplishment, i.e., by successfully carrying out the tasks in question (LENT et al. 1994). Furthermore, it has been found that self-efficacy evaluations can be altered by verbal persuasion (BANDURA 1997). Consequently, human capacity building in terms of training and verbal persuasion may be helpful to increase junior professionals' inclination to become farm managers. Capacity building measures may be especially fruitful in the case of qualified women, as we found evidence that they have significantly lower self-efficacy evaluations than qualified men. They may be helpful to counteract the imprints of gender-specific socialization and lead to a stronger inclination of women to become corporate farm managers.

Proceeding to implications resulting from our demand side research, a third set of preliminary implications follows from our findings, indicating that current farm managers perceive men to be more qualified to be (come) a farm manager. Here, our first implication is directed toward those farm managers who are in need of a qualified successor. Our results do not allow us to conclude whether there is a significant difference in the

average distribution of *de facto* competencies between women and men. However, we suggest that farm managers must carefully re-evaluate their existing preconceived opinions always on the basis of the individual applicant. Moreover, policy measure targeted towards mitigating recruitment problems may include the provision of information on the true competencies of women. This may help to counteract potentially unjustified evaluation biases. In addition, qualified women who aim to become farm managers may also benefit from our findings. We found that current farm managers perceive women as less able to assert themselves and as less skilled in practical agriculture. Consequently, one possible strategy for qualified women may be to strategically counteract preconceived opinions by additional training in these fields.

A fourth set of implications may be deducted from our finding that anticipated gender-specific differences in the working time restriction due to family duties may be one reason for the low share of female corporate farm managers. We suggest that farm managers in the need of a qualified successor should revise the feasibility of an improvement in the work-family friendliness of the corporation. For instance, changes in the in structure of the corporation, where responsibilities can be more easily transferred, or corporation-internal childcare programs may be one way to mitigate concerns about the parents' working time restrictions. Furthermore, policy measures targeted towards an increase in the childcare facilities may be helpful. This appears to be especially relevant as farms are located in rural areas, where the maintenance of a comprehensive childcare infrastructure is particularly challenged by ongoing demographic changes (e.g., FUHRMEISTER et al. 2013).

While an increase of female corporate farm managers may be a normative goal, the current shortage of farming executives and the corresponding recruiting problems show that the pool of qualified management staff needs to be fully exploited in the future to prevent shortages. Overall, our findings suggest that human capacity building on both the supply and the demand side may be necessary to mitigate recruitment shortages.

## Summary

Practitioners as well as agricultural associations increasingly report that replacements for retiring managers are hard to find. The situation is especially pronounced in large agricultural cooperatives and companies in the eastern part of Germany. A large portion of managers who were appointed after the re-unification are now on the verge of retirement and will have to be replaced within the next few years. At the same time, the share of female farm managers remains disproportionately low in the agricultural sector. A mere 9% of German farms are currently managed by female executives. The gender distribution of agricultural students, who constitute the main reservoir from which to recruit the next generation of farm managers, is entirely different. More than 50% of the graduates of agricultural and nutritional sciences for more than a decade have been women. The discrepancy between qualified women and female farm managers gives rise to the question of what causes the low share of female farm managers in Germany. Conceptually, the share of female corporate farm managers can be understood as the result of a specific “supply behavior” (i.e., the career decisions made by women) and a specific “demand behavior” (i.e., the recruiting decisions made by corporate executives). Accordingly, this thesis tackled two core research questions:

1. (Why) Are qualified women less inclined to become corporate farm managers than qualified men?
2. (Why) Are people in charge of hiring future corporate farm managers influenced by the gender of an applicant?

In order to gain insight into our research questions, we divided the methodological approach for both the supply and the demand side into three main research stages each and a common final stage.

In the first stage, we systematized and contrasted existing theoretical perspectives and empirical evidence on gender-specific occupational choice (i.e., supply side research) and the influence of gender on hiring choices (i.e., demand side research). There are two scientific disciplines which are most concerned about these two issues: economics and social psychology. A large share of theoretical and empirical literature suggests that differences in the (self-)evaluation of women’s and men’s competencies are important drivers of both the supply and the demand side agents’ behavior. However, to the best knowledge of the author, no literature specifically aims to explain occupational and hiring choices with regard to the corporate farm manager position. Due to the diversity of literature typically referring to different levels of analysis, as well as to different analyt-

ical concepts, a vast variety of further hypotheses for the empirical supply and demand side research can be deducted.

To narrow the focus of analysis in the second and exploratory stage, we analyzed two primary qualitative datasets as well as two secondary quantitative datasets. For the supply side, we analyzed primary data from focus group discussions with agricultural science students from the Martin-Luther University Halle-Wittenberg ( $n = 38$ ; 20 female and 18 male participants), secondary data from agricultural science graduates of the Martin-Luther-University Halle-Wittenberg ( $n = 97$ ; 44 female and 53 male agricultural science graduates) and secondary data from agricultural science students from the August-University Göttingen ( $n = 225$ ; 137 female and 88 male participants). Overall, our results from the exploratory supply side research indicated that qualified women are less inclined to become farm managers. Findings led us to hypothesize that the reason for this may be the gender-specific differences in the expected non-material and material outcomes of the manager position as well as gender-specific differences in the perception of own competencies.

In our exploratory demand side research, we analyzed primary data from semi-structured interviews with farm managers from Eastern Germany ( $n = 7$ ; 4 female and 3 male participants). Results may be interpreted as first evidence that people currently in charge of hiring farm managers prefer to hire a male successor. We were able to find evidence that a key reason for a preference of a male successor may be that current farm managers assume men to be more qualified for the position. What is more, we found evidence that women are assumed to be less flexible in their time management due to family obligations.

In the third and hypotheses testing stage, we collected and analyzed quantitative data. For the supply side, we carried out a standardized pen-and-paper survey at six German universities ( $n = 273$ ; 135 female and 138 male participants). In the light of our previous findings, we operationalized two conceptual frameworks for occupational intentions: a behavioral economic conceptualization focusing on material (e.g., income, working time) and non-material benefits (e.g., social reputation, procedural utility), and a social psychological conceptualization based on the theory of planned behavior. Our statistical analysis consisted of a combination of two-tailed two-sampled t-tests and OLS regressions. To identify the added value of using two alternative conceptual frameworks for occupational intentions, we systematically contrasted the analyses results deriving from both conceptualizations. Our data and analyses support the key hypothesis that qualified women are less inclined to become corporate farm managers than qualified men. Concerning the question of why qualified women are less inclined to become corporate farm managers, we identified two main causes. First, they expect less internal benefits, in terms of expected inner contentment and fun, from such a position.



Second, they believe to be less suited to meet the professional requirements, i.e., they have lower self-efficacy evaluations. Overall, our systematic contrasting of results from both conceptions shows that looking “beyond” the realm of a single scientific discipline facilitates a more in-depth and critical understanding of the factors determining gender-specific occupational choices.

For the quantitative demand side research, we carried out an online survey with farm managers from Eastern Germany ( $n = 31$ ; 7 female and 21 male participants). We used a combination of direct and indirect questioning approaches. Via our direct questioning approach we were able to detect that the vast majority of farm managers prefers a male successor. We found evidence that this is mainly because women are assumed to be less qualified for the position (e.g., women’s assumed lower ability to assert themselves, women’s assumed lower competencies in practical agriculture). What is more, results indicated that a considerable share of farm managers are concerned about assumed lower working time capacity. Our indirect approach of questioning was composed of a conjoint analysis, where farm managers were to evaluate fictional applications for the farm manager position. Through this approach we were able to find evidence that farm managers prefer male applicants for the farm manager position, even when job-relevant competencies are kept constant.

After contrasting our results from the quantitative supply and demand side research, we concluded that two decision variables may be of particular importance as we found them to be important drivers of both the supply and the demand side agents’ behavior: the (self-)perceptions of women’s and men’s competencies as well as the perceptions of co-workers acceptance of a woman as a farm manager.

In the final stage, we made conclusions based on our results and derived implications for further research as well as for specific stakeholder groups (i.e., farm managers and policy makers who aim to mitigate recruitment problems and qualified women who intend to become corporate farm managers). While our research faced a few limitations, our investigation into the causes for the low share of female farm managers in Germany indicates that reasons for the low share stem from both the behavior of the supply and the demand side agents of the labor market. The current shortage of farming executives and the corresponding recruiting problems show that the pool of qualified management staff needs to be fully exploited in the future to prevent shortages. Our findings suggest that human capacity building on both the supply and the demand side may be necessary to mitigate such shortages.

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## Appendix

### Appendix 1: Verbatim German quotes used in the focus group discussion results

#### Appendix Table 1 German quotes and their translations: focus group discussions

German quote	English translation
„Ich denke einfach, dass das Problem an der Betriebsleiterposition bei der Frau ist, das sie sich irgendwann zwischen Job und Familie entscheiden muss. Wenn man davon ausgeht, dass Betriebsleiter schon eine Weile Berufserfahrung haben und dementsprechend ein bisschen älter sind wird es irgendwann kritisch für die Frau, weil sie entweder entscheiden muss, will sie diese Position des Betriebsleiter oder kriege ich ein Kind.“ [B3]	“I simply think that the problem women have with the farm manager position is that they have to decide between having a job and a family. If you assume that a farm manager has to have experience and therefore is a little older, it gets critical for a woman, because she has to decide whether she wants this position or she wants to have a child.” [B3]
„[...] ich würde erst mal anfangen, dass ich finanziell sicher bin und dann versuchen die Familie zu berücksichtigen. [...] Jetzt schwer zu sagen, hab ich mir jetzt noch keine Gedanken drüber gemacht [Kompatibilität des Berufes mit einer Familie], aber eigentlich hast du recht.“ [G1]	“I would start with being financially secure at first and after that I would start considering the family. [...] It is difficult to say, I haven't thought about that [compatibility of family and being a farm manager], but actually you are right.” [G1]
„Und es fällt einem schwerer, als jemanden, der schon damit aufgewachsen ist. Der schon mit sechs Jahren im Stall stand und weiß, wie alles abläuft. Als wenn man jetzt hier reinkommt und sagt: okay. Ich muss mir das alles angucken. Aber ich denke, wenn man den Willen hat und das Interesse sich damit zu beschäftigen, dann schafft man das. Aber es ist schwerer und es wird auch immer schwer bleiben.“ [C6]	“It is more difficult than for someone who grew up with it. Who stood in the stable from the age of six and knows how everything is done. Then coming in and saying: okay, I have to look at all of this. I think that if you have the will and the interest to deal with it, then you can manage to do so. But it is more difficult and it will always be more difficult.” [C6]
„[...] und [ein weiter Nachteil ist] dass Frauen eben oft nicht ernst genommen werden.“ [C3]	„[...] and [another disincentive is] that women are often not taken seriously.” [C3]
“[Es ist] eine Berufung eher als ein Beruf.” [F1]	“[It is] a calling rather than a job.” [F1]

### Appendix 2: Verbatim German quotes used in the farm manager interview results

#### Appendix Table 2 German quotes and their translations: interviews with farm managers

German quote	English translation
„Solange Frauen ne Familie haben, also es heißt, wenn Kinder im Haushalt leben, oder ein Mann und der Partner sag ich jetzt mal auch nen Verantwortungsvollen Posten hat, muss einer zu Hause die Ordnung halten, noar? [...]Aber Ernte ist ja wirklich Hochdruck. Da geht's dann auch mal Sonnabends und Sonntags. Und das ist für die Frauen, finde ich, schwer. Schwer vereinbar.“ [D6-8]	“As long as women have family, meaning, if children live at home, or a man and the partner has a position with responsibility too, someone has to keep the house in order, or? [...] But during harvest, there is so much work. You also have to work on some Saturdays and Sundays. And that is, for women, difficult. Difficult to combine.” [D6-8]
„Als Frau, das musste einfach lernen, das sind Spielregeln.“ [C36]	“As a woman you have to learn, these are the rules of the game.” [C36]
„Ich würd dann eher sagen das ist dann von den Frauen eher das Problem [...] dass sie wahrscheinlich technisch nicht so versiert sind wie die männlichen Leute.“ [A34]	“I would rather say that it is the problem of women [...] that they are probably not as technically versed as men.” [A34]

### Appendix 3: The reductive content analysis

#### Research questions

- 1) What are the reasons for the low share of women among farm managers?
- 2) What attributes and qualifications are required of applicants for the farm manager position?

#### Appendix Table 3 First reduction round: Interviewee A

Case	Par.	Nr.	Paraphrase	Generalization	Reduction
A	4	1	In cropping machines are necessary, which is problematic for women	Women are less versed in machinery	<b>Reasons for the low share of women</b> <b>L1</b> Assigned gender roles: - women are less versed in machinery - women have less physical strength - women are more likely to stay at home after childbirth - men still principal earner <b>L2</b> Succession pattern from father to son <b>Job requirements</b> <b>R1</b> Experience is needed, including practical agriculture work <b>R2</b> university degree preferred <b>R3</b> Personal management skills
A	4	2	Animal production is physically very demanding for women	Women have less physical strength	
A	34	3	Women are less versed in machinery	<del>Women are less versed in machinery</del>	
A	36	4	Basic understanding of machines is necessary for the job	Basic understanding of machines is necessary	
A	36	5	Everything for the job can be learned	Experience is needed	
A	36	6	Manager must get along with all employees	Personal management skills are needed	
A	64	7	Father and son assumed that son would take over	Succession pattern from father to son	
A	66	8	University degree not compulsory but indication for basic theoretical knowledge	University degree as indication for competencies	
A	68	9	Students have not much practical experience	Practical experience is important	
A	68	10	Practical experience is important for the job	<del>Practical experience is important</del>	
A	98	11	Men are still the principle earner	Men viewed as principle earner	
A	98	12	Women are more likely to stay at home and do the housework	Women are more likely to stay at home	

#### Appendix Table 4 First reduction round: Interviewee B

Case	Par.	Nr.	Paraphrase	Generalization	Reduction
B	2	13	Being a farm manager and having young children was not possible for her	Attitude that being a farm manager and having young children are hardly possible to combine	<b>Reasons for the low share of women</b> <b>L3</b> Assigned gender roles: - women are expected to stay at home with children - practical agriculture is for men - women have less physical strength - women are less accepted as farm managers - women are not assumed to have the needed competencies - women have to adapt their behavior <b>Job requirements</b> <b>R4</b> University degree <b>R5</b> Practical experience
B	2	14	Acceptance of husband only after the children were grown up	Lack of acceptance by partner as long as children were small	
B	12	15	Women are physically not as apt to repair machinery	Women are physically not as apt to repair machinery	
B	14	16	In principle a manager has to be able to do all practical farm work	Practical experience is necessary for the job	
B	14	17	She needed to learn to be less emotional	Women need to adapt their behavior	
B	38	18	She experienced lack of acceptance from colleagues	Lack of acceptance for women as farm managers	
B	38	19	Colleagues are often not convinced that a woman is able to do the job	women are not assumed to have the competencies to be farm managers	
B	44	20	University degree is important for the job	University degree is important for the job	

Appendix Table 5 First reduction round: Interviewee C

Case	Par.	Nr.	Paraphrase	Generalization	Reduction
C	36	21	She had to learn to speak more energetic in order to be heard by male colleagues	Women need to adapt to male behavior	<b>Reasons for the low share of women</b> <b>L4</b> Assigned gender roles: Women need to adapt to male behavior <b>L5</b> Limited financial capacity to compensate for women in leadership positions to go on a parental leave/ being pregnant
C	36	22	She learned the rules of the game, which are set by man	<del>Women need to adapt to male behavior</del>	
C	36	23	She learned to speak with a lower tone in order to assert herself	<del>Women need to adapt to male behavior</del>	
C	63	24	No difficulties with employees anymore, because she adapted to their behavior	<del>Women need to adapt to male behavior</del>	
C	73	25	Limited financial capacity to compensate for women in leadership position going on a parental leave/ working less due to being pregnant	Limited financial capacity to compensate for women in leadership positions to go on a parental leave/ being pregnant	

Appendix Table 6 First reduction round: Interviewee D

Case	Par.	Nr.	Paraphrase	Generalization	Reduction
D	6	26	As long as a family is at home, women are more likely to take care of the household and the family	Women are the principle caretaker for children	<b>Reasons for the low share of women</b> <b>L6</b> Assigned gender roles: - women are the principle caretaker for children and thus lack the time for being a farm manager - men are more interested and experienced in doing practical agricultural work - she needed to assert herself because she is a woman <b>Job requirements</b> <b>R6</b> University degree is preferred
D	6	27	Having a family means that you have to have fixed working hours and you are able to take unexpectedly time off, which is not possible as a farm manager	<del>Time conflict between having a family and being a farm manager</del>	
D	8	28	When deciding between job and family, she put her family first	<del>Family comes first</del>	
D	29	29	University degree advantageous for successor	University degree is preferred	
D	33	30	Men have more practical experience	Men have more practical experience	
D	33	31	Women like to do office work, men are more interested in practical agriculture	Belief of gender-specific interests: Women are less interested in practical agriculture	
D	37	32	She experienced prejudice from colleagues and had to prove that she can also do practical work	Had to assert herself in practical agriculture	
D	39	33	Women are still seen as exotic, as only few are in practical agriculture	Only few women in practical agriculture	
D	49	34	In negotiations with colleagues (from other farms) she experienced that they test their limits with her, because she is a woman	<del>Due to her gender, she needed to assert herself against male colleagues</del>	

Appendix Table 7 First reduction round: Interviewee E

Case	Par.	Nr.	Paraphrase	Generalization	Reduction
E	11, 13	35	After graduating women have children and only have time to work after they have grown up	Women stay at home after child-birth	<b>Reasons for the low share of women</b> <b>L7</b> Assigned gender roles: -women stay at home with family -women mainly work at farm supermarket, as secretaries or bookkeepers <b>Job requirements</b> <b>R7</b> University degree <b>R8</b> Before succession, successor has to gain experience within the farm and get to know all aspects of the business
E	79, 81	36	University degree is not a must, but would be better for the job	University degree is preferred	
E	105	37	Women are predestined to work at the farm's supermarket	Women are predestined to work at the farm's supermarket	
E	113	38	Women mainly work at the supermarket, as secretaries or at bookkeeping	Women mainly work at the supermarket, as secretaries or at bookkeeping	
E	113	39	Women are deterred by the working hours, as in times of e.g., harvest you have to work long and do not have time for the family	Belief that women are less willing and able to work long hours	

Appendix Table 8 First reduction round: Interviewee F

Case	Par.	Nr.	Paraphrase	Generalization	Reduction
F	8	40	Only female employee does office work	Only female employee does office work	<b>Reasons for the low share of women</b> <b>L8</b> Gender-specific socialization on family farm <b>L9</b> Lack of financial capability to compensate for women dropping out or going on a leave due to children <b>L10:</b> gender roles: - women stay at home with children - are not apt to repair machines -only female employee works in bookkeeping
F	20	41	Women cannot repair machines	Women cannot repair machines	
F	26	42	Only four people working on the farm, if a woman would have a child, someone else would need to do her work	Lack of financial capacity for needed work compensation, when women have children	
F	128	43	Daughters merely help with picking up stones from the field	Gender-specific socialization on family farm	
F	132	44	Son helped working on the farm from an early age with agricultural work e.g., drove the tractor	Gender-specific socialization on family farm	
F	188	45	Problem with young women is that when they have a baby he needs someone else doing the job and that is difficult for a small business	Lack of financial capacity for needed work compensation, when women have children	



Appendix Table 9 First reduction round: Interviewee G

Case	Par.	Nr.	Paraphrase	Generalization	Reduction
G	2	46	Agriculture is a male dominated field	Agriculture is a male dominated field	<b>Reasons for the low share of women</b> <b>L11</b> Assigned gender roles: - women assumed to stay at home - moral conflict between being a farm manager and having small children - agriculture is a male dominated field <b>Job requirements</b> <b>R9</b> Passion for job needed
G	14	47	She does not need to work outside, has not faced any problems with employees	No problems with employees, as she only works inside	
G	26	48	She became manager when children were already a bit older, otherwise she could have hardly imagined being the manager	Would not have become farm manager as long as children were small	
G	26	49	Would have had qualms, if she had to be the manager while children were still younger	Moral conflict in case of being a farm manager and having small children at the same time	
G	32	50	You have to do the job with heart blood, otherwise you do not succeed	Passion for job needed	

Appendix Table 10 Second reduction round: All interviewees

Case	Category	Generalization	Reduction
A	<b>L1</b> Assigned gender roles: - women are less versed in machinery - women have less physical strength - women are more likely to stay at home after childbirth -men still principal earner	Assigned gender roles: - women are less apt to do physical and technical agricultural work - women are more likely to stay at home after childbirth -men still principal earner	<b>Reasons for the low share of women (L)</b> 1. Assigned gender roles hinder women to becoming farm managers: - employing women as managers entails high financial risk, as women are assumed to be the principle child/housekeeper -women are assumed to be less apt to do practical agricultural work - women are not as accepted as farm managers - women have to be able to adapt to male behavior in order to assert themselves 2. Gender-specific socialization on family farms where succession pattern from father to son still implicitly assumed
A	<b>L2</b> Succession pattern from father to son	Succession pattern from father to son	
A	<b>R1</b> Experience is key to the job, including practical agriculture work	Experience, incl. practical experience, is the key for the job	
A	<b>R2</b> University degree	University degree is preferred	
A	<b>R3</b> Personnel management skills needed	Personnel management skills needed	
B	<b>L3</b> Assigned gender roles: - women are expected to stay at home with children - practical agriculture is for men - women have less physical strength - women are less accepted as farm managers - women are not assumed to have the needed competencies - women have to adapt their behavior	Assigned gender roles: - women are expected to stay at home with children - practical agriculture is for men - women have less physical strength - women are less accepted as farm managers - women are not assumed to have the needed competencies - women have to adapt their behavior	
B	<b>R4</b> University degree	University degree	
B	<b>R5</b> Practical experience	Practical experience	
C	<b>L4</b> Women need to adapt to male behavior	Women need to adapt their behavior	
C	<b>L5</b> limited financial capacity to compensate for women in leadership positions to go on a parental leave/ being pregnant	Financial risk to employ women as farm managers	<b>Job requirements (R)</b> 1. practical experience
D	<b>L6</b> Assigned gender roles:	Assigned gender roles:	

	- women are the primary caretaker for children and thus lack the time for being a farm manager - men are more interested and experienced in doing practical agricultural work - she needed to assert herself because she is a woman	- women are the primary caretaker for children and thus lack the time for being a farm manager - men are more interested and experienced in doing practical agricultural work - she needed to assert herself because she is a woman	rience 2. university degree is important 3. passion for the job 4. personnel management skills
D	<b>R6</b> University degree	University degree	
E	<b>L7</b> Assigned gender roles: - women stay at home with family - women mainly work at farm supermarket, as secretaries or bookkeepers	Assigned gender roles: - women stay at home with family - women mainly work at farm supermarket, as secretaries or bookkeepers	
E	<b>R7</b> University degree	University degree	
E	<b>R8</b> Before succession, successor has to gain experience within the farm and get to know all aspects of the business	Experience is needed	
F	<b>L8</b> Gender-specific socialization on their family farm	Gender-specific socialization on family farm	
F	<b>L9</b> Lack of financial capability to compensate for women dropping out or going on a leave due to children	Financial risk to employ women as farm manager, due to pregnancy/parental leave	
F	<b>L10:</b> Assigned gender roles: - Women stay at home with children - are not apt to repair machines - only female employee works in bookkeeping	Assigned gender roles: - women stay more often at home - are not apt to repair machines - only female employee works in bookkeeping	
G	<b>L11</b> Assigned gender roles: - agriculture is male dominated - women are assumed to stay at home - moral conflict between being a farm manager and having small children	Assigned gender roles: - agriculture is male dominated - women are assumed to stay at home - moral conflict between being a farm manager and having children	
G	<b>R9</b> Passion for job needed	Passion for job needed	









Als landw. UnternehmensleiterIn habe ich...		
sehr viel weniger Freizeit O	gleich viel Freizeit O	viel mehr Freizeit O
Als landw. UnternehmensleiterIn bin ich bei der Gestaltung der Arbeitszeiten z.B. mit Blick auf familienfreundliche Arbeitszeiten...		
sehr viel weniger flexibel O	gleich flexibel O	sehr viel flexibler O
Ich verbinde mit einer Tätigkeit als landw. Unternehmensleiter in einem ländlichen Umfeld eine.		
sehr viel geringere Lebensqualität O	gleiche Lebensqualität O	sehr viel höhere Lebensqualität O
Das Einkommensrisiko als landw. UnternehmensleiterIn (z.B. mit Blick auf zukünftige Arbeitslosigkeit) ist...		
sehr viel höher O	gleich hoch O	sehr viel niedriger O
Die Kosten der Lebensführung als landw. UnternehmensleiterIn sind...		
sehr viel höher O	gleich hoch O	sehr viel niedriger O
Eine Tätigkeit als landw. UnternehmensleiterIn verschafft mir in meinem familiären Umfeld...		
sehr viel weniger Anerkennung O	gleich viel Anerkennung O	sehr viel mehr Anerkennung O
Eine Tätigkeit als landw. UnternehmensleiterIn verschafft bei Freunden und Bekannten...		
sehr viel weniger Anerkennung O	gleich viel Anerkennung O	sehr viel mehr Anerkennung O
Eine Tätigkeit als landw. UnternehmensleiterIn verschafft bei meinen zukünftigen Mitarbeitern und Kollegen...		
sehr viel weniger Anerkennung O	gleich viel Anerkennung O	sehr viel mehr Anerkennung O
Eine Tätigkeit als landw. UnternehmensleiterIn verschafft mir insgesamt (bei Freunde, Familie, Berufskollegen etc.)...		
sehr viel weniger Anerkennung O	gleich viel Anerkennung O	sehr viel mehr Anerkennung O
Eine Tätigkeit als landw. UnternehmensleiterIn verschafft mir...		
sehr viel weniger innere Befriedigung O	gleich viel innere Befriedigung O	sehr viel mehr innere Befriedigung O
Eine Tätigkeit als landw. UnternehmensleiterIn verschafft mir...		
sehr viel weniger Spaß O	gleich viel Spaß O	sehr viel mehr Spaß O
Eine Tätigkeit als landw. UnternehmensleiterIn ist...		
sehr viel weniger sinnvoll für die Gesellschaft O	gleich sinnvoll für die Gesellschaft O	sehr viel sinnvoller für die Gesellschaft O
Eine Tätigkeit als landw. UnternehmensleiterIn entspricht meinem persönlichen Selbstbild...		
sehr viel schlechter O	gleich gut O	sehr viel besser O
Im Vergleich zu anderen Tätigkeitsfeldern bin ich für eine Tätigkeit als landw. UnternehmensleiterIn...		
sehr viel weniger geeignet O	gleich gut geeignet O	sehr viel besser geeignet O

Ihr Geschlecht <input type="radio"/> männlich <input type="radio"/> weiblich	
Ihr Geburtsjahr? 19 _____	
Welches ist Ihr höchster angestrebter Abschluss? <input type="radio"/> B. Sc. der Agrarwissenschaften <input type="radio"/> B. Sc. der Ernährungswissenschaften <input type="radio"/> M. Sc. der Agrarwissenschaften <input type="radio"/> M. Sc. der Ernährungswissenschaften <input type="radio"/> Bachelor oder Master in einem Studiengang außerhalb der Agrar- und Ernährungswissenschaften <input type="radio"/> kein Abschluss angestrebt	
In welchem Semester studieren Sie derzeit? Im _____ Semester eines <input type="radio"/> Bachelor- oder <input type="radio"/> Masterprogrammes An welcher Universität bzw. Fachhochschule studieren Sie? <input type="radio"/> HS Osnabrück <input type="radio"/> MLU Halle-Wittenberg <input type="radio"/> GAU Göttingen <input type="radio"/> HNE Eberswalde <input type="radio"/> HU Berlin <input type="radio"/> Universität Rostock <input type="radio"/> HS Anhalt	
In welchem Bundesland sind Sie geboren? <input type="radio"/> _____ <input type="radio"/> ich bin nicht in Deutschland geboren, sondern in _____?	
Bitte schätzen Sie die Einwohnerzahl des Ortes/der Stadt, indem Sie aufgewachsen sind: Wurde in der Region viel Landwirtschaft betrieben? <input type="radio"/> Ja <input type="radio"/> Nein	
Ihr Vater ist oder war: (Mehrfachnennungen möglich) <input type="radio"/> berufstätig in einem landwirtschaftlichen Unternehmen <input type="radio"/> Unternehmensleiter eines großen landw. Unternehmens <input type="radio"/> berufstätig im vor- oder nachgelagerten Bereich der Landwirtschaft <input type="radio"/> berufstätig außerhalb der Agrar- und Ernährungswirtschaft <input type="radio"/> nicht berufstätig <input type="radio"/> sonstiges	Ihre Mutter ist oder war: (Mehrfachnennungen möglich) <input type="radio"/> berufstätig in einem landwirtschaftlichen Unternehmen <input type="radio"/> UnternehmensleiterIn eines großen landw. Unternehmens <input type="radio"/> berufstätig im vor- oder nachgelagerten Bereich der Landwirtschaft <input type="radio"/> berufstätig außerhalb der Agrar- und Ernährungswirtschaft <input type="radio"/> nicht berufstätig <input type="radio"/> sonstiges
In welchem Bereich möchten Sie in Ihrem zukünftigen Beruf tätig sein? (Bitte nur eine Antwort auswählen!) <input type="radio"/> in einem landwirtschaftlichen Unternehmen <input type="radio"/> außerhalb der Agrar- und Ernährungswirtschaft <input type="radio"/> im vor- oder nachgelagerten Bereich der Landwirtschaft <input type="radio"/> weiß noch nicht	
Welche Tätigkeiten möchten Sie in Ihrem zukünftigen Beruf hauptsächlich ausüben? (Mehrfachnennungen möglich) <input type="radio"/> Maschinenführung/-reparatur <input type="radio"/> Tierbetreuung <input type="radio"/> Führungsaufgaben <input type="radio"/> Büroarbeiten <input type="radio"/> Sonstiges : _____	
Sind Sie auf einem landwirtschaftlichen Betrieb aufgewachsen? <input type="radio"/> Ja <input type="radio"/> Nein, aber in meiner Verwandtschaft hat/hatte jemand einen landw. Betrieb und zwar mein/meine _____ <input type="radio"/> Nein	
Haben Sie bereits eine Zusage bzw. Vereinbarung über einen Job nach Ihrem Studium? <input type="radio"/> Ja, direkt als landw. UnternehmensleiterIn <input type="radio"/> Ja, als (werdender) BetriebsleiterIn eines kleineren Betriebes (d.h. regelmäßig körperliche Tätigkeit im Stall oder auf dem Feld) <input type="radio"/> Ja, und zwar als _____ <input type="radio"/> Ja, ein Job mit konkreter Aussicht auf die spätere landw. Unternehmensleitung <input type="radio"/> Nein	

## Appendix 5: Questionnaire for the farm managers

Sehr geehrte Damen und Herren,

Nachwuchsarbeitskräfte in der Landwirtschaft werden zunehmend knapp. Insbesondere die Suche nach qualifizierten Nachfolgern für Leitungspositionen in landwirtschaftlichen Unternehmen gestaltet sich schwierig. Neben gestiegenen Anforderungen liegt das auch am demografischen Wandel und den veränderten Wertvorstellungen und Lebensentwürfen junger Nachwuchskräfte.

Vor diesem Hintergrund wollen wir herauszufinden, welche persönlichen Eigenschaften und Fähigkeiten zukünftige Betriebsleiter aufweisen müssen. Auf der Grundlage Ihrer Erfahrungen als Führungskraft eines landwirtschaftlichen Unternehmens können Sie am besten beurteilen, welche Persönlichkeitsmerkmale und Kompetenzen besonders wichtig sind. Wir bitten Sie deshalb, die auf der nächsten Seite angeführten 10 Bewerbungsprofile zu beurteilen. Bitte versetzen Sie sich dabei in die folgende Entscheidungssituation:

1. Die Bewerber haben sich auf die Leitungsposition in Ihrem Betrieb beworben.
2. Sie haben die Eigenschaften der einzelnen Bewerber über die Unterlagen und das Bewerbungsgespräch selber erfasst. Der Übersicht halber haben Sie jeden Bewerber mit Hilfe von sechs Merkmalen charakterisiert.
3. Grundsätzlich ungeeignete Bewerber haben Sie bereits aussortiert. Alle verbleibenden zehn Bewerber weisen bei den jeweiligen Merkmalen eine von zwei Ausprägungen auf (vgl. Tabelle).

Merkmal	Ausprägung A	Ausprägung B
1. Ausbildung	Landwirtschaftsmeister	Agrarwissenschaftlicher Hochschulabschluss
2. Geschlecht	Männlich	Weiblich
3. Interesse/Leidenschaft für den Beruf des landwirtschaftlichen Betriebsleiters	Leidenschaft vorhanden	Große Leidenschaft vorhanden
4. Problemlösungsvermögen (analytisches Denkvermögen)	Zufriedenstellendes Problemlösungsvermögen	Gutes bis sehr gutes Problemlösungsvermögen
5. Kompetenz für die Mitarbeiterführung	Zufriedenstellende Kompetenz	Gute bis sehr gute Kompetenz
6. Kompetenz in der praktischen Landwirtschaft und als Betriebswirtschaftler	Zufriedenstellende land- und betriebswirtschaftliche Fähigkeiten	Gute bis sehr gute land- und betriebswirtschaftliche Fähigkeiten

Die verbleibenden grundsätzlich in Frage kommenden Bewerber sollen Sie nun vergleichend beurteilen. Bitte schauen Sie sich alle nachstehend beschriebenen Profile genau an und geben Sie jedem Bewerber

eine Punktzahl. Dabei sollten Sie davon ausgehen, dass sich alle Bewerber **ausschließlich** durch die beschriebenen Qualifikationen unterscheiden und bei den nicht im Profil abgebildeten Eigenschaften (z.B. dem Alter, der Ausdrucksfähigkeit in der deutschen Sprache etc.) eine grundsätzlich gleiche Eignung aufweisen.

Die bestmögliche Punktzahl von 10 bedeutet, dass Sie den Bewerber für die Führungsposition in Ihrem Betrieb für überdurchschnittlich gut geeignet halten. Die schlechtmöglichste Punktzahl von 0 bedeutet, dass Sie den Bewerber für unterdurchschnittlich gut geeignet halten. Bitte machen Sie Unterschiede in der Eignung deutlich, indem sie die Spannbreite bei der Punktevergabe voll ausschöpfen (0 = im Vergleich am wenigsten geeignet; 10 = im Vergleich am besten geeignet). Gleiche Punktzahlen sollten nur für tatsächlich gleich geeignete Bewerber vergeben werden.

Die Beurteilung von Profilen hat den pragmatischen Vorteil, dass man sich den Bewerber in der Kombination seiner Eigenschaften vergegenwärtigen kann. Der Nachteil ist, dass man nur eine relativ geringe Anzahl von Eigenschaften berücksichtigen kann, da es sonst unübersichtlich wird. Wir bitten Sie deswegen nach der Beurteilung der Profile auch noch um eine grundsätzliche Beurteilung der Wichtigkeit unterschiedlicher Eigenschaften für die Tätigkeit als Betriebsleiter.

Bei Fragen und Anmerkungen zu unserer Untersuchung senden Sie bitte eine kurze E-Mail an: [mira.lehberger@landw.uni-halle.de](mailto:mira.lehberger@landw.uni-halle.de).

Falls Sie sich für das manuelle Ausfüllen des Fragebogens entscheiden, bitte senden Sie den ausgefüllten Fragebogen an folgende **Faxnummer: 0345-55 271 10**

Wir danken Ihnen schon vorab für Ihre Mithilfe.

Mit freundlichen Grüßen

Mira Lehberger und Prof. Dr. Norbert Hirschauer

P.S. Die Umfrage ist natürlich absolut anonym. Auch möchten wir Sie gerne über die Ergebnisse unserer Untersuchung informiert halten. Sobald diese vorliegen, werden wir Sie über Ihren Bauernverband davon in Kenntnis setzen.





2) Wie wichtig sind Ihnen die folgenden Fähigkeiten und Charakteristika von Bewerbern bei der Entscheidung über die Betriebsleiternachfolge? Bitte kreuzen Sie an.

	Überhaupt nicht wichtig	Nicht wichtig	Eher nicht wichtig	Weder/ noch	Eher wichtig	Wichtig	Sehr wichtig
Interesse/Leidenschaft für den Beruf	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Zuverlässigkeit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Zeitliche Flexibilität	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Verbundenheit mit der Region	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geringes Arbeitsausfallrisiko (z.B. durch Elternzeit)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kompetenz für die Mitarbeiterführung	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kommunikationsfähigkeit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teamfähigkeit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Durchsetzungskraft	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rechenkompetenz	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schriftlicher Ausdruck	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Abgeschlossenes Agrarstudium	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Abgeschlossene landw. Berufsausbildung	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Abgeschlossener landw. Meister	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Praktika in landw. Unternehmen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Erfahrung in der landw. Unternehmensführung	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kompetenz im Umgang mit landw. Maschinen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kompetenz als Betriebswirtschaftler	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kompetenz in der praktischen Landwirtschaft	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physische Kraft	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kreativität/Innovationsfreudigkeit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fähigkeit zum kritischen Denken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Entscheidungsfreudigkeit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Problemlösungsvermögen (analytisches Denkvermögen)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3) Gibt es noch weitere Fähigkeiten/Merkmale, die für Sie wichtig bei der Entscheidung über die Betriebsleiternachfolge sind?

O Nein, alle Wichtigen sind in der Tabelle vorhanden.

O Ja, und zwar (max. 3) \_\_\_\_\_

4) Welche charakterlichen Eigenschaften und/oder Fähigkeiten vermissen Sie bei jungen Bewerbern für Führungspositionen am meisten (max. 3)? \_\_\_\_\_

5) Auf welcher Managementebene arbeiten Sie in Ihrem Unternehmen?

O oberste Führungsebene (z.B. Betriebsleiter/In, Geschäftsführer/In, Vorstandsmitglied, -vorsitzende/r)

O mittlere Führungsebene (z.B. Bereichsleiter)

O sonstige \_\_\_\_\_

6) In welchem Jahr wurden Sie geboren? 19 \_\_\_\_\_

7) Ihr Geschlecht:  weiblich  männlich

8) Führungskräfte in der Landwirtschaft haben vielfältige Aufgaben. Welche Beschreibung trifft am ehesten auf Ihre berufliche Tätigkeit zu?

O Ich bin hauptsächlich mit Management- bzw. Führungsaufgaben beschäftigt.

O Ich erledige ungefähr zu gleichen Teilen Managementaufgaben bzw. Führungsarbeiten und praktische Arbeiten auf dem Feld/ im Stall.

O Ich erledige hauptsächlich praktische Arbeiten auf dem Feld/ im Stall.

9) Inwieweit trifft die folgende Aussage auf Ihren Beruf zu:

Wenn ich nicht wollte, müsste ich nicht selber auf dem Feld bzw. im Stall arbeiten.

O trifft zu  O trifft eher zu  O trifft eher nicht zu

10) Welche dieser Ausbildungsabschlüsse haben Sie (Mehrfachnennungen möglich):

O abgeschlossene Ausbildung in einem landwirtschaftlichen Beruf

O Meister in einem landwirtschaftlichen Beruf

O Universitäts- oder Fachhochschulabschluss in der Agrar-, oder Forstwissenschaft

O abgeschlossene Ausbildung in einem *nicht*-landwirtschaftlichen Beruf

O Meister in einem *nicht*-landwirtschaftlichen Beruf

O Universitäts- oder Fachhochschulabschluss *außerhalb* der Agrar-, oder Forstwissenschaft

O keine abgeschlossene Ausbildung

O sonstige \_\_\_\_\_

11) Häufig werden Männern und Frauen unterschiedliche Fähigkeiten zugeschrieben. Bei der Wahl der Nachfolge der Betriebsleitung, für wen würden Sie sich entscheiden?

O für einen männlichen Bewerber

O eher für einen männlichen Bewerber

O eher für eine weibliche Bewerberin

O für eine weibliche Bewerberin

11b) Können Sie konkrete Gründe dafür nennen (max.)? \_\_\_\_\_

12) Glauben Sie, dass eine Leitungsposition im landwirtschaftlichen Unternehmen vereinbar ist mit der Absicht junger Frauen, eine Familie zu gründen?

O trifft voll zu  O trifft zu  O trifft eher zu  O weder noch  O trifft nicht zu  O trifft überhaupt nicht zu

13) Auf welche Fähigkeiten müssen junge Frauen besonders achten, wenn Sie die Leitung eines landwirtschaftlichen Betriebes übernehmen wollen (max. 3)? \_\_\_\_\_

- 14) Wer entscheidet bei Ihnen prinzipiell über die Nachfolge in der obersten Führungsposition im Betrieb?  
 ich alleine  
 ich zusammen mit anderen (z.B. weitere Gesellschafter, Vorstandsmitglieder o.ä.)  
 ich habe eine beratende Funktion, aber andere entscheiden (z.B. die Betriebseigentümer)  
 sonstiges \_\_\_\_\_

15) Wie lange arbeiten Sie schon in der Betriebsführung? \_\_\_\_\_ Jahre

- 16) Steht die Nachfolge in der Position der obersten Führungskraft bei Ihnen im Betrieb bereits fest?  
 ja  nein

17) Wenn ja, welche der Beschreibung trifft auf die Nachfolgerin/ den Nachfolger zu?

- weibliche familienfremde, betriebsinterne Arbeitskraft  
 männliche, familienfremde, betriebsinterne Arbeitskraft  
 weibliche familienfremde, extern rekrutierte Arbeitskraft  
 männliche familienfremde, extern rekrutierte Arbeitskraft  
 weibliche Familienangehörige, und zwar (Tochter/Nichte o.ä.) \_\_\_\_\_  
 männlicher Familienangehöriger, und zwar (Sohn/Neffe o.ä.) \_\_\_\_\_  
 sonstige: \_\_\_\_\_

18) Planen Sie eine Nachwuchsführungskraft längerfristig einzuarbeiten, bevor diese die oberste Führungsposition bei Ihnen im Betrieb einnimmt?

- Ja, eine längerfristige Einarbeitungsphase ist vorgesehen.  
 Nein, die Position wird gleich bzw. nach kurzer Einarbeitungsphase vom Bewerber eingenommen.

19) In welchem Bundesland liegt Ihr Betrieb?  Sachsen-Anhalt  sonstiges: \_\_\_\_\_

20) Zu welchem Erwerbstyp gehört Ihr Betrieb?  Nebenerwerb  Haupterwerb

21) Wie wird Ihr Betrieb bewirtschaftet?  konventionell  ökologisch

22) Zu welcher Betriebsform gehört Ihr Betrieb?

- Ackerbaubetrieb  Gartenbaubetrieb  Futterbaubetrieb  Dauerkulturbetrieb  
 Veredlungsbetrieb  Gemischtbetrieb  sonstiges \_\_\_\_\_

23) In welcher Rechtsform wird Ihr Betrieb betrieben?

- Einzelunternehmen  e.G.  GmbH  
 GbR  AG  sonstiges \_\_\_\_\_

24) Wie viel Hektar bewirtschaften Sie? \_\_\_\_\_ ha

25) Wie viele Großvieheinheiten haben Sie im Betrieb? \_\_\_\_\_ GVE

26) Anzahl der Arbeitskräfte im Betrieb:

	Familienarbeitskräfte (ggf. inkl. Betriebsleiter)	Familienfremde Arbeitskräfte (ggf. inkl. Betriebsleiter)
Vollbeschäftigte Arbeitskräfte		
Teilzeitbeschäftigt ( $\leq 30$ Std.)		
Nicht ständige Arbeitskräfte		

27) Wen halten Sie grundsätzlich besser für eine Führungsposition im landwirtschaftlichen Unternehmen geeignet:

- Hochschulabsolventen  Landwirte (Meister)

28) Können Sie sich vorstellen, dass ein kaufmännisch gut ausgebildeter Betriebswirt mit Hochschulabschluss aber ohne landwirtschaftlichen Hintergrund als Geschäftsführer ein Agrarunternehmen erfolgreich leitet?

- ja  eher ja  eher nein  nein

29) Welchen Ausbildungsweg und Qualifikationsweg würden Sie einem (sehr) jungen Menschen vorschlagen, der sehr großes Interesse an der Landwirtschaft hat und gern Leiter eines landwirtschaftlichen Unternehmens werden würde (in bitte max. 3 Spiegelstrichen)?

-  
-  
-

# Mira Lehberger

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## **Schulische und wissenschaftliche Ausbildung**

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**Seit Juni 2011:** Promovendin an der Martin-Luther Universität Halle-Wittenberg, Naturwissenschaftliche Fakultät III, Institut für Agrar- und Ernährungswissenschaften, Professur „Unternehmensführung im Agribusiness“

**Oktober 2008 – April 2011:** Integrated Natural Resource Management Studium an der Humboldt-Universität zu Berlin; Abschluss: Master of Science (M.Sc.)

**August 2006 – März 2007:** Studiensemester an der Masaryk Universität Brunn, Tschechische Republik

**Oktober 2004 – September 2008:** European Studies Studium an der Otto-von-Guericke Universität Magdeburg; Abschluss Bachelor of Arts (B.A.)

**September 2001 – Juli 2002:** Austauschjahr an der Francis Parker School, San Diego (Kalifornien), USA

**August 1995 – Juni 2004:** Gymnasium Oldenfelde, Hamburg; Abschluss: Abitur

**August 1991 – Juli 1995:** Grundschule Neurahlstedt, Hamburg

## **Erklärung**

Hiermit erkläre ich an Eides statt, dass ich die vorliegende Arbeit selbständig und ohne fremde Hilfe verfasst habe, keine anderen als die von mir angegebenen Quellen und Hilfsmittel benutzt habe und die den benutzten Werken wörtlich oder inhaltlich entnommenen Stellen als solche kenntlich gemacht habe.

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Ort, Datum

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Unterschrift