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# Farm succession at a crossroads: The interaction among farm characteristics, labour market conditions, and gender and birth order effects



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## ABSTRACT

Farm succession is a relevant issue, as it is related to rural and youth migration, sustainability and the ageing of the agricultural sector. Understanding the factors behind the willingness of potential successors to take over the family business is crucial for farm continuity. We examine the factors affecting children's likelihood of carrying on the family business in a sample of 216 potential heirs of Italian horticultural farms. Using local labour market conditions (income gap and employment rate) and surrounding context variables (population density), we plug the farm labour migration/occupational choice theory into farm succession analysis. This approach allows us to treat child succession as the opposite of the choice to migrate out of the farm sector. While farm labour migration theory predicts linear negative effects of labour market/contextual variables on farm transfer, we find that the income gap, employment rates and population density exert both negative and positive effects on child succession, according to their intensity. The pro-succession effects we find suggest that, despite potential threats, the proximity to wealthy areas may represent an opportunity for farm continuity and thriving. We also examine explicitly the effect of child characteristics (gender and birth order), finding that male and first-born potential successors are more likely to take over the family farm, in accordance with results from previous firm succession studies. This finding suggests a persistence of traditional normative beliefs in the agricultural sector.

## 1. Introduction

It is well known that the structure of agricultural enterprises is family-based in the majority of countries around the world. According to Graeb et al. (2016), 98% of all farms are family-based and concentrate 53% of total agricultural land. In addition, also in those areas with the lowest share of family farms (e.g., South America) they represent the 82% of the total number of farms. In developed countries, the share of family farms ranges from 97% of the European Union (28 countries) to 63% of Australia (Bertoni and Cavicchioli, 2016a). Given the prominent importance of family farming, it is evident that the perpetuation of agricultural activity is mainly based on intra-family farm succession (Leonard et al., 2017; Chiswell, 2018; Lobley et al., 2010). However such a view is challenged by some authors, that points on the increasing role of new entrants in ensuring farming continuity (Joose and Grubbström, 2017).

One of the necessary conditions for this transfer is the willingness of potential successors to take over the farm business. However, there are many studies witnessing the intention of young potential heirs to abandon agricultural activity and/or rural areas (Morais et al., 2018; Bednarfková et al., 2016; Demartini et al., 2015; Chen et al., 2014;

Bjarnason and Thorlindsson, 2006). This trend seems to be stronger for young women (Leibert, 2016; Johansson, 2016), also as a consequence of the persistence of patrilineal culture in farming activities (Price, 2012; Heggem, 2014). Even if rural and agricultural migration phenomena do not overlap perfectly, they are undoubtedly connected, and choices and trajectories of individuals and family farms are part of these patterns. A counterpart and consequence of youth migration from agriculture and rural areas is the ageing of the population of farmers (Duesberg et al., 2017; Leonard et al., 2017; Bertoni and Cavicchioli, 2016a). Such a claim is supported by data (European Commission, 2012); in 2007, the ratio between young and old farmers was 1–9 in the EU-27, even if these figures are quite scattered and differentiated in each country (Zagata and Sutherland, 2015).

As the adoption of more sustainable and innovative farming practices is inversely correlated with farm age, farm ageing induced by younger farmers' migration may lead to a lower uptake of environmentally friendly farming practices (Leonard et al., 2017; Gaviglio et al., 2016; Suess-Reyes and Fuetsch, 2016; Paracchini et al., 2015; Zagata and Sutherland, 2015; Bertoni et al., 2011; Van Passel et al., 2007). It is thus clear the relevance of farm succession in slowing down youth migration from rural areas, counteracting the ageing of the

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farmers population and promoting sustainability and innovation in the agricultural sector.

For the abovementioned reasons, it is relevant to analyse to what extent such transfer takes place and the most relevant features that affect the probability of transfer. However, it is worth noting that—so far—farm succession has been often analysed mainly in isolation with respect to the wider phenomenon of agricultural and farm labour migration. Therefore, it is important to highlight how external factors (such as local labour market and surrounding territorial conditions) may interact with such a process.

Gender and primogeniture issues in farm succession have been widely explored from a qualitative viewpoint (Chiswell, 2018; Fischer and Burton, 2014; Gasson et al., 1988; Whatmore et al., 1987). However, the role of child gender, and especially birth order, has been less frequently considered in the analysis of farm succession determinants using quantitative methods (probit and logit regression), while such a topic has been examined in the management/business literature on family firms' succession.

In this context, our paper is at a crossroads with different strands of literature. We merge traditional literature on farm succession determinants (mainly at the farm level) with the occupational choice theory—OCT, hereafter (Mundlak, 1978)—considering the intention of potential heirs to take over the family business as a complement to searching for employment outside of the agricultural sector (Bertoni and Cavicchioli, 2016b; Olper et al., 2014). In doing so, we make explicit the role played by the local labour market, the farm location and the territorial features surrounding the farm in the intention of potential heirs to take over the farm rather than to search for a non-farm job. As a further contribution to the existing literature, we make explicit the effect of the birth order and the gender of potential successors in the choice of taking over the family business (Ahrens et al., 2015; Sharma and Irving, 2005; Chrisman et al., 1998). We analyse such effects and interactions in a sample of Italian horticultural farms using logistic regression and looking for nonlinear effects.

The remainder of the paper is structured as follows: Section 2 presents the three pieces of literature (traditional farms succession determinants; occupational choice theory (OCT); birth-order and gender effect in management/business) on which the paper is based; Section 3 illustrates the data, the variables and the applied methodology; Section 4 reports the main results, which are discussed in Section 5; and Section 6 concludes.

## 2. Family farm succession analysis, the occupational choice, birth order and gender: a brief review

Recently, there has been a growing field of literature focusing on various aspects related to intra-family farm succession: the intra-family dynamics underlining the succession process (Falkiner et al., 2017; Fischer and Burton, 2014), the intention and/or reluctance of elder farmers to retire (Conway et al., 2016, 2017), the identity and intention of potential farm successors to take over the family business (Morais et al., 2017, 2018), the potential post-succession farm strategies (Ohe, 2018; Suess-Reyes and Fuetsch, 2016), and public policies affecting succession (Corsi, 2017; Mishra and El-Osta, 2008).

Within such a broad topic, there is a long-established tradition of analysing the determinants of intra-family farm succession using an empirical approach, mainly at the farm level (Dudek, 2016; Corsi, 2009; Kerbler, 2008; Mishra and El-Osta, 2008; Glauben et al., 2004; Kimhi and Nachlieli, 2001; Stiglbauer and Weiss, 2000).

However, the availability or the intention of each child to succeed the family farm has been rarely investigated (Cavicchioli et al., 2015; Aldanondo Ochoa et al., 2007; Mann, 2007; Simeone, 2006). Using child-level data allows for the measurement of the effect of potential successors' characteristics on the probability of intra-family transfer. These features provide additional information, along with farm and farmers' characteristics. In greater detail, Mann (2007) tested the effect

of individual and environmental factors on the potential heirs' willingness to take over the family farm in a sample of 454 male and female children in Switzerland. Male children's willingness was higher among those having at least a high school diploma and an increasing number of sons, while it was reduced by the amount of land owned. In line with previous farm-level analysis, Simeone (2006) found a negative relationship between child gender (female) and her probability to take over the family farm. In the same study, based on a sample of 225 farm children, farm holder education level (graduation), work intensity (full-time), and the share of rented land increased the probability of succession. In a sample of 195 children from 76 Spanish households, Aldanondo Ochoa et al. (2007) tested the determinants affecting child involvement in the farm (working full-time, part-time or not working) using an ordered logit model. They found that child education, the number of children in the household, farm acreage and the distance between the farm and the closest city discourage against the decision to work on the farm. They also found a nonlinear U-shaped relationship between child age and on-farm employment. Finally, Cavicchioli et al. (2015) examined which elements increase the probability of a child taking over the farm in a sample of 193 apple farm children in a northern Italian mountain region. Consistent with the findings of other authors, a lower succession probability (−19%) was found for female children. A negative effect was also noted based on the number of children on the farm (−5.8% for any additional child) and by children's education (high school diploma). On the other hand, farmer education (at least high school) increased the willingness of heirs to take over the farm by 14.6%.

Even if the likelihood of intra-family succession is influenced by internal factors linked to the farm and family members' features, an important role may also be played by the territorial and socio-economic context in which each farm operates. Particularly, two contextual factors are worthwhile to investigate in relation to the farm succession: the rural-urban relationships and the surrounding labour market conditions. Both of these factors may provide incentives or disincentives to keep working in the farming sector (generally in the family farms) or to migrate out of it. These incentives depend on the probability of finding an alternative non-farm employment, a higher income, and, more generally, a better quality of life in urban areas.

The relationship between farm succession and surrounding territorial socio-economic conditions has not been deeply investigated, with some exceptions. Aldanondo Ochoa et al. (2007) found an inverse relationship between the distance from the closest urban centre and the succession probability. In a farm-level analysis, Corsi (2009) found a direct effect of the relative labour size of the local agricultural sector on in-farm child employment and an opposite effect of the regional employment rate. In general, using variables describing local labour market conditions allows for the examination of intra-family farm transfer as a complementary phenomenon with respect to out-farm labour migration. In fact, farm succession may be considered a result of occupational choice made by potential heirs. Following OCT (Larson and Mundlak, 1997; Barkley, 1990; Mundlak, 1978; Todaro, 1969), the decision of farm household members to keep working in the agricultural sector depends on their expectations to maximize personal welfare. The key factors considered to make this choice are the income differential between the agricultural and non-agricultural sectors and the probability of finding a job in the non-farm sector. This probability depends, in turn, on the unemployment rate and the relative size of the non-agricultural sector (often approximated by the population density). Applying OCT, Olper et al. (2014) found that out-farm labour migration depends on the variables related to labour market conditions (share of agriculture in the total labour force, unemployment rate), the income gap between agriculture and other sectors and the population density. Alasia et al. (2009) found similar results, testing the role of the same factors (except for income gap) in modelling off-farm labour choice in Canada. Following these authors, we chose to test such factors in our analysis on farm children succession.

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