

Female Farm Succession in German Agriculture

Breaking Gendered Tradition?

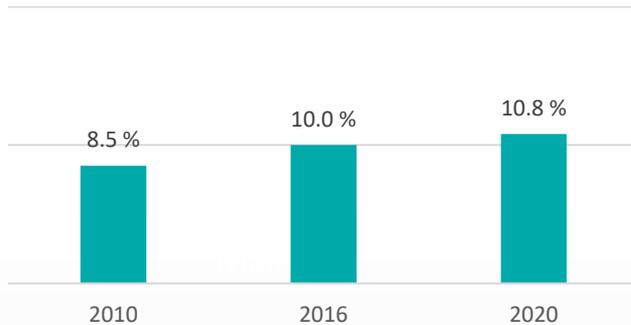
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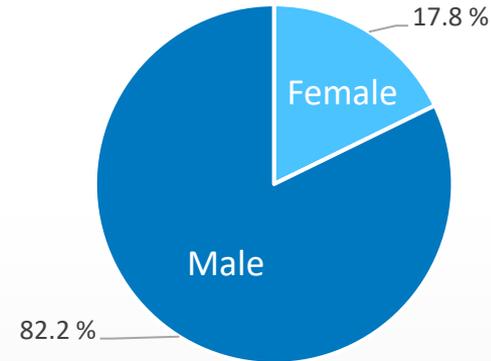
Introduction – Is there a gender gap in farm succession?

Only 11% of German farms in 2020 were owned and operated by women (Destatis, 2021a).



Percentage of women owning and operating farms in Germany

Source: German Agricultural Census, Destatis, 2011, 2021



Gender structure of the expected farm successors stated by farm operators in 2020

Source: German Agricultural Census, Destatis, 2021b

Introduction – Why it matters?

- **Farm succession = main pathway to farm ownership and management.**
- Implications of gender inequality in farm succession
 - Inequitable wealth distribution (land as a key long-term asset linked to wealth)
 - Less inclusive rural development and gendered innovation pattern
- **Need to understand the farm transfer processes and the determinants of the farm succession outcomes**
- Research gap:
 - *Focus:* Existing studies mostly focus on farm owner decisions, overlooking the conditional agency of daughters.
 - *Lack of literature* on specific conditions under which daughters are **chosen** for farm succession and factors influencing their **decision to pursue, accept, or decline** farm succession.

Objectives

Empirical



To analyse how personal, familial, socio-cultural and farm factors shape observed female farm succession outcomes

- Focus on the role of patriarchal tradition & women's agency.



Conceptual



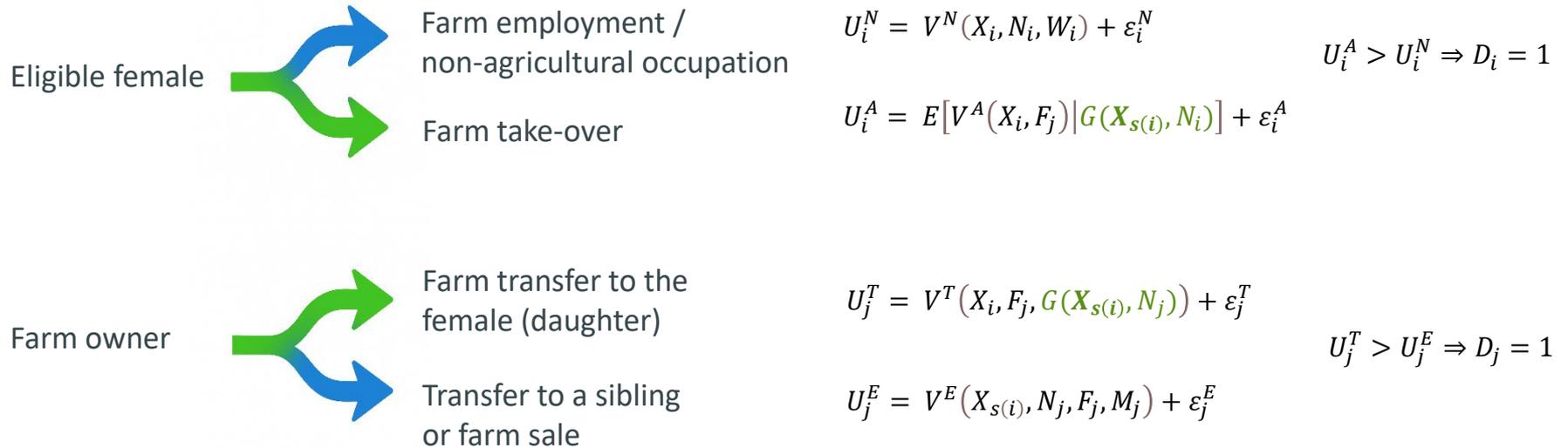
To develop a theoretical framework for female farm succession that explicitly incorporates (the constraints on) female agency in farm succession.

Key factor

Patrilineal systems of land/farm transfer

- Patriarchal socio-cultural norms, legal inheritance structures and economic considerations disadvantage women in inheriting and preserving family farms (Davier et al. 2023; Sheridan et al. 2023; Balaine 2019).
- Traditional gender scripts position sons as natural farm successors while daughters are socialized into supportive roles, rarely acquiring the management skills needed for farm takeover (Silvasti, 2003).

Theoretical model of female farm succession



Theoretical model of female farm succession



$$U_i^N = V^N(X_i, N_i, W_i) + \varepsilon_i^N$$

$$U_i^A > U_i^N \Rightarrow D_i = 1$$

$$U_i^A = E[V^A(X_i, F_j) | G(X_{s(i)}, N_i)] + \varepsilon_i^A$$

$$P(Y_i = 1) = P(D_i = 1 | E_i(P(D_j = 1))) \cdot P(D_j = 1 | D_i = 1)$$

Female farm succession



$$U_j^T = V^T(X_i, F_j, G(X_{s(i)}, N_j)) + \varepsilon_j^T$$

$$U_j^T > U_j^E \Rightarrow D_j = 1$$

$$U_j^E = V^E(X_{s(i)}, N_j, F_j, M_j) + \varepsilon_j^E$$

Empirical model

Binary logit model of the probability of female farm succession

$Y_i = 1$ if the woman becomes a farm successor

$Y_i = 0$ if the farm is transferred to a sibling(s) or outside of the family

$$P(Y_i = 1) = \frac{e^{\eta_i}}{1 + e^{\eta_i}}$$

where

$$\eta_i = \alpha + \sum_k \beta_k X_{ik} + \sum_m \gamma_m G_{im} + \sum_{k,m} \delta_{k,m} (X_{ik} \times G_{im})$$

↑ ↑
Sibling constellation & and socio-cultural
context (gendered norms of succession)

Data & variables

- Convenience sample: data from a nationwide survey of women working on farms in Germany (“Living Situation of Women on Farms in Germany”, Davier et al. 2023)
- Time of the survey: 11/2020 – 5/2021.
- Subsample of 1,898 women
 - Old Federal States (family farm tradition)
 - Women eligible to farm succession & interested in working on the farm
 - Farm successors (n = 304)
 - Farm employees (n = 1,594)

Explanatory variables

Female characteristics

Age

Education

Agricultural training

Family characteristics

Sibling constellation

Mother’s profession (farmer)

Parents reside onfarm

Socio-cultural factors

Inheritance legal framework/farm succession tradition

Characteristics of the farm and location

Specialization

Organic vs. conventional

Size of the farm (ha)

Wage labour

Legal form

Location: rural vs. urban (categories)

Inheritance regimes

“Realteilung” partible inheritance system

- ⇒ a farm can be **divided among multiple heirs**, including daughters and sons.
- ⇒ increases flexibility but may result in farm fragmentation.

“Anerbenrecht” primogeniture / non-partible inheritance system

- ⇒ designates a **single heir**, historically the (eldest) **son**, to maintain farm viability.
- ⇒ shapes the norm of male succession.

-> shape the **norms of succession decisions**

Results - Key determinants of female succession

- Temporal change (socio-cultural shifts towards greater acceptance) (- age *)
- Education level and agricultural training (+)
- Sibling constellation
 - (+) No siblings
 - (-) Higher number of siblings (at least one brother) & brother/s)
- Inheritance traditions (+ partible inheritance system *)
- Farm specialization (- dairy)
- Legal form (+partnership)

Logit model estimates

Table 1: Logit model estimates of the determinants of female farm succession (basic model)

Dependent variable: Female Succession	Basic model		
	Coeff.	P-value	Odds ratio
Constant	2.003***	0.000	9.758
Female characteristics			
Age	-0.081***	0.000	0.922
Vocational training (ref.)			
Specialised higher education	0.02	0.944	1.020
University	0.516**	0.048	1.676
Education in agriculture (ag_educ)	1.279***	0.000	3.594
Specialised higher education# ag_educ	0.06	0.885	1.061
University# ag_educ	-0.755*	0.052	0.470
Family characteristics			
No siblings (ref.)			
Brother & sister	-1.057***	0.000	0.348
Brother/s	-0.773**	0.013	0.461
Sister/s	-0.275	0.345	0.760
Mother worked on farm	-0.007	0.967	0.993
Parents remain/ed living on farm	0.05	0.755	1.051
Socio-cultural characteristics			
Partible inheritance system	2.140**	0.041	8.498
Partible inheritance system # size	-0.016	0.904	0.984
Partible inheritance system # age	-0.057***	0.004	0.945
Farm characteristics			
Arable (ref.)			
Dairy	-0.689***	0.003	0.502
Hog	-0.375	0.171	0.687
Other livestock	0.065	0.831	1.067
Horticulture, permanent crops	-0.174	0.628	0.840
Mixed	-0.194	0.478	0.824
Organic farm	0.113	0.597	1.120
Size	-0.08	0.272	0.923
Wage labour	-0.165	0.323	0.848
Sole proprietorship (ref.)			
Partnership	0.360**	0.034	1.434
Legal entity	-0.365	0.376	0.694
Rurality (missing data, control)	-0.273	0.161	0.761
Very rural location (ref.)			
Less rural location	0.098	0.603	1.103
Urban location	0.414	0.225	1.513
Number of observations	1898		
Log likelihood	-606.029		
LR χ^2 (27) / Prob > χ^2	457.990	0.000	
Pseudo R ²	0.274		

Results – Impact of Education

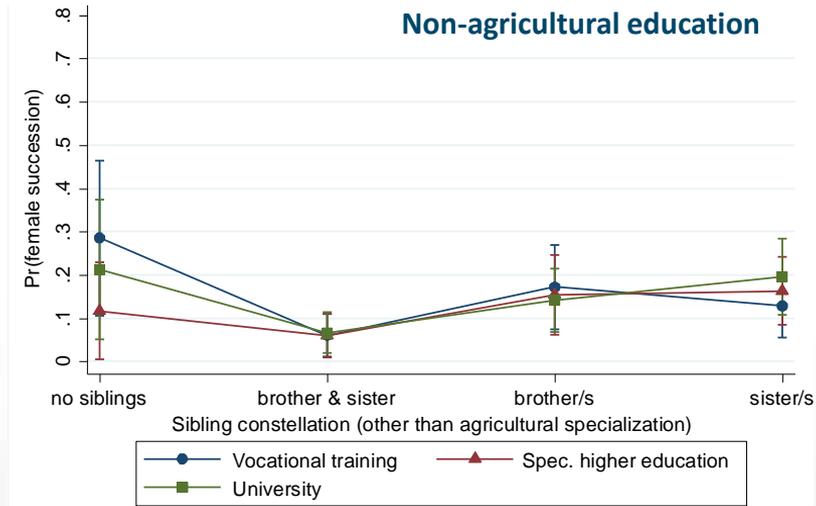


Figure 1: Marginal effects of education on female farm succession by sibling constellation

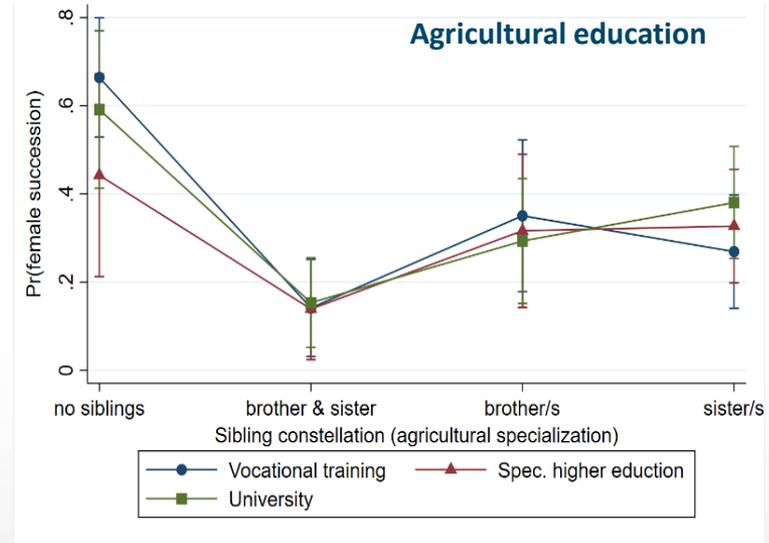


Figure 2: Marginal effects of education on female farm succession by sibling constellation

Results - Impact of farm size by inheritance regime

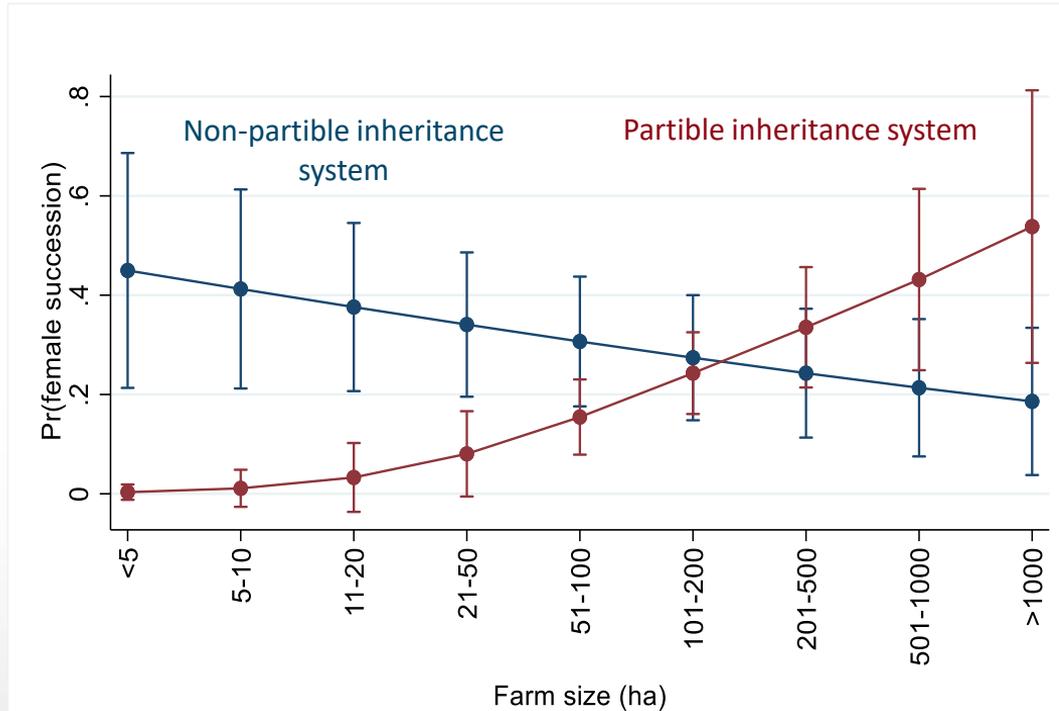


Figure 3: Predicted probabilities of female farm succession by inheritance tradition for heirs with one or more siblings.

Results - Impact of farm size

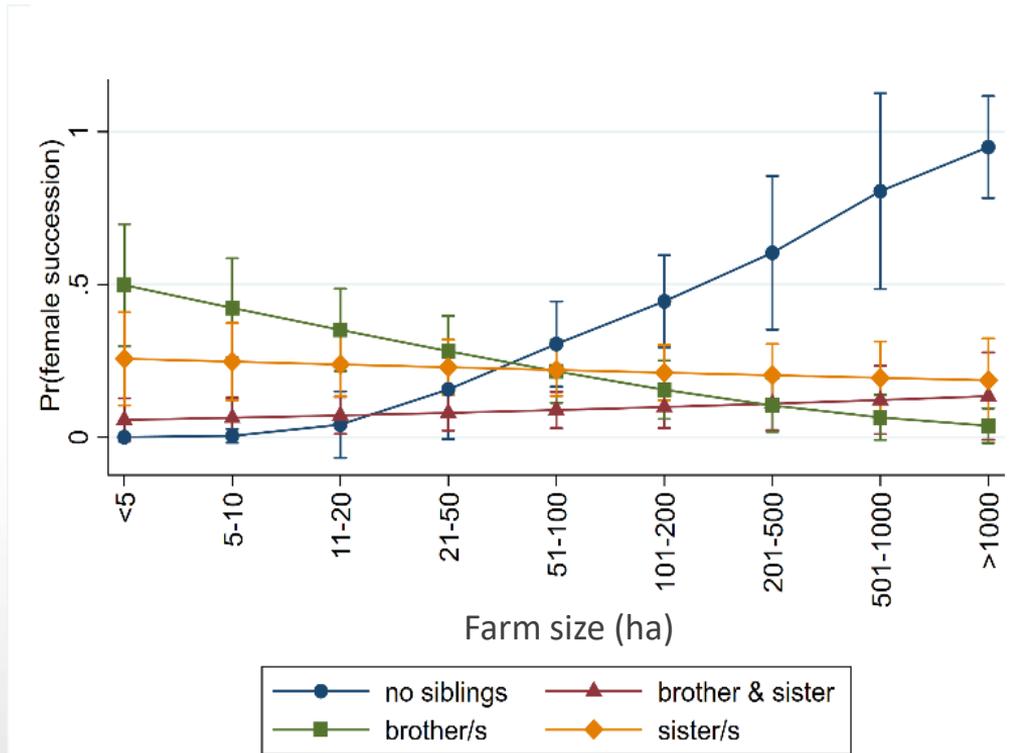


Figure 4: Predicted probabilities of female farm succession by farm size and sibling constellation.

Results – Role of farm specialization

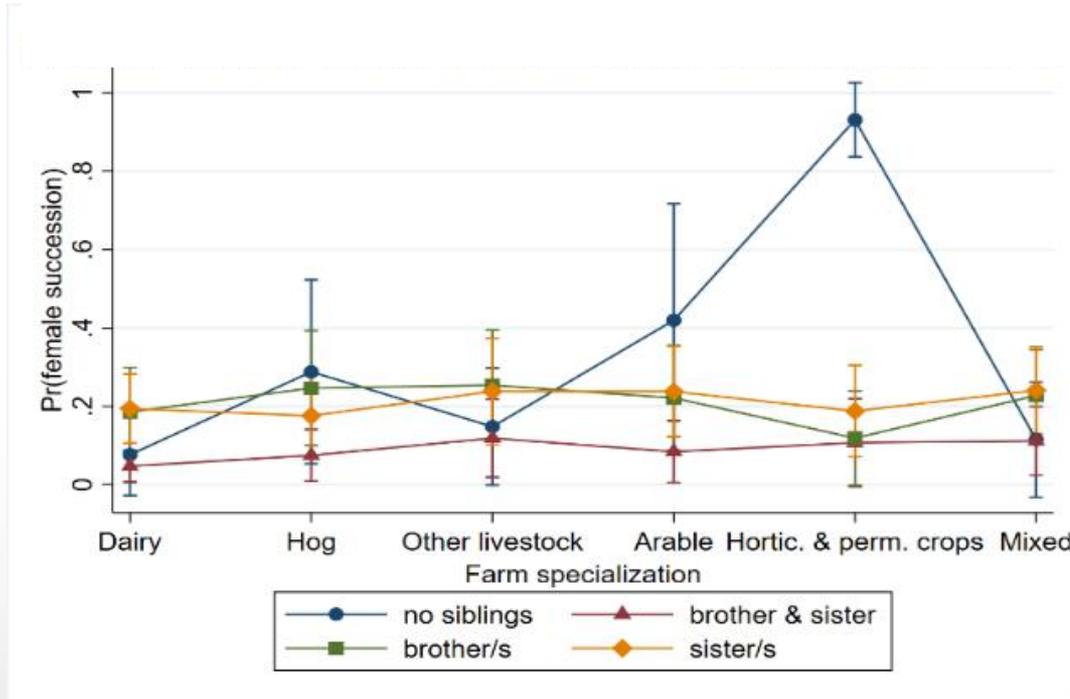


Figure 5: Predicted probabilities of female succession by farm specialization and sibling constellation.

Results – Temporal shift

Female age \approx timing of succession

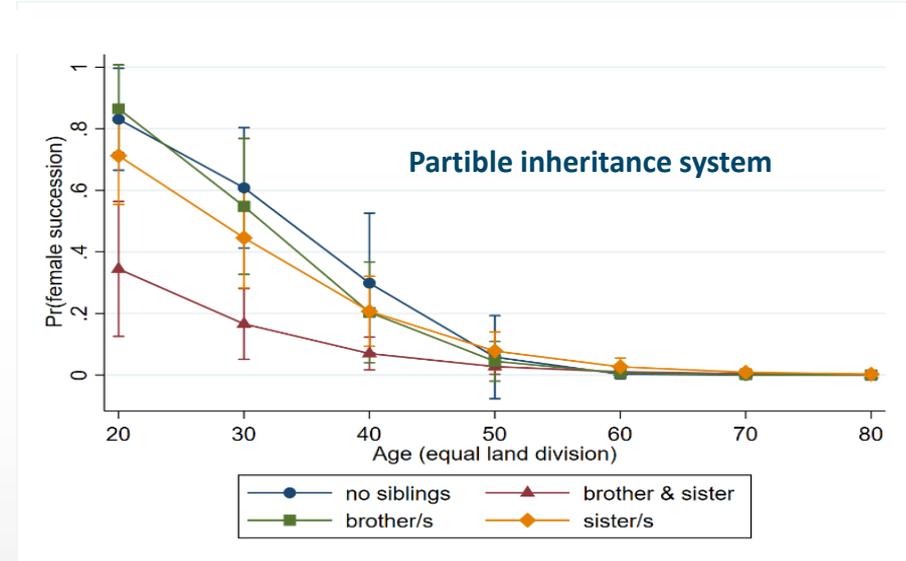
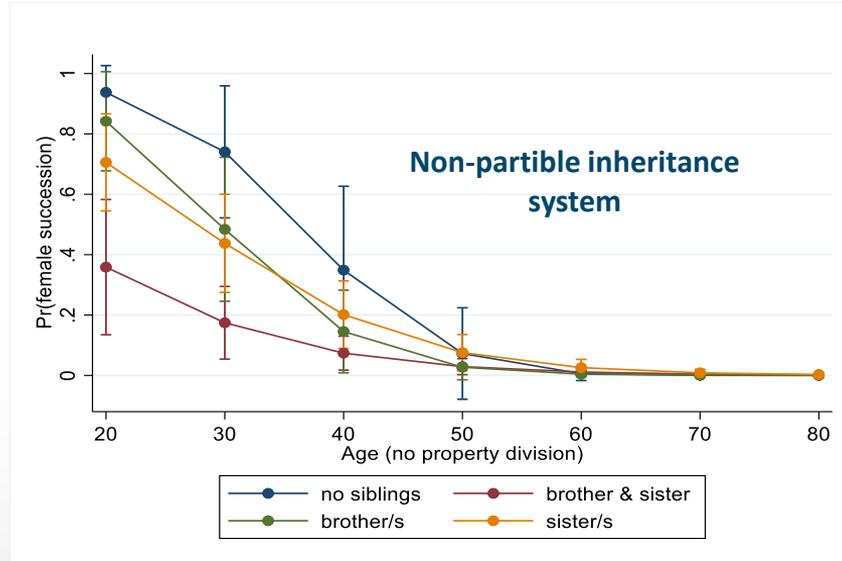


Figure 6: Predicted probabilities of female farm succession by age and sibling constellation.

Key takeaway

- **Evidence of systematic gendered constraints to female farm succession**
 - Influenced by regional differences in farm inheritance traditions
 - Significant shift in the gendered norms
- **“Without” succession constraints, females strategically pursue farm succession**
 - Farm size and specialization matter (perspective and stability/security)
 - Educational choice
- **Female farm succession is not only about being chosen — it's also about choosing to pursue.**

Policy must address both sides:

- Encourage farm owners to consider daughters,
- Empower daughters to pursue succession, even in gendered family settings.

Thank you for your attention

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