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Exploring within- and between-effects of the factors influencing off-farm work decisions in Switzerland

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Electronic supplementary material

Supplementary Table S1

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Hausman-Taylor-Model (HT-Model) for within-between panel-data model was estimated in a multi-step procedure in R using function pht (plm-package). First, consistent (but inefficient) parameters for all time-varying explanatory variables are estimated using the fixed-effects procedure (LSDV). In the second stage, an IV estimation procedure (2SLS) is used, in which the farm-specific mean values of the disturbance term from the first regression are regressed against all remaining (time-invariant) variables. The estimated variances of the error terms from the first two regressions are used in the weighting of all variables in the third stage, where a weighted IV estimator is applied to the original random effects model. All time invariant variables (age, education of the farm manager and the partner) and the mean values of the time-variant variables were used as instruments.

Random Effects Panel model with limited dependent variable (LDV-Model) was estimated in R using function pldv (plm-package) using the lower bound 0 and upper bound 100 in order to ensure that predicted values of the dependent variable "off-farm work" receive reasonable values.

As can be seen from the following table, direction and significance levels of the parameters do not differ much from the results of the presented within-between model.

Table S1. Results of the HT- and LDV-model estimating the share of days worked off-farm in total worked days of the farm household

Variable	HT-Model		LDV-Model	
	coefficeint	SE	coefficeint	SE
Intercept	27.949	4.892***	21.341	2.472***
Time-invariant				
Age of farmer	–0.263	0.062***	–0.260	0.028***
Farmers' agricultural education	–1.03	0.553*	–0.494	0.186***
Farmers' non-agricultural education	3.388	0.683***	4.015	0.286***
Partners' non-agricultural education	0.896	0.344***	0.950	0.170***
Time-variant between				
Farmers' off-farm wage	0.009	0.002***	0.010	0.001***
Partners' off-farm wage	0.025	0.003***	0.030	0.001***
Children	–1.442	0.378***	–1.738	0.179***
Hired labour	0.042	0.024*	0.046	0.010***
Extensive farm type	11.586	1.375***	8.902	0.509***
Equity	–0.053	0.019***	–0.054	0.009***
Direct payments	0.003	0.038	0.107	0.018***
Farm income	–0.119	0.015***	–0.100	0.006***
Diversification	2.536	4.613	0.173	3.093
Time-variant within				
Farmers' off-farm wage	–0.004	0.000***	–0.004	0.000***
Partners' off-farm wage	0.002	0.001***	0.002	0.001***
Children	–0.654	0.086***	–0.665	0.090***
Hired labour	0.183	0.007***	0.180	0.007***
Extensive farm type	3.418	0.520***	3.445	0.544***
Equity	0.006	0.008	0.006	0.008
Direct payments	0.147	0.015***	0.146	0.016***
Farm income	0.016	0.003***	0.016	0.003***
Diversification	1.941	1.526	1.816	1.598

*,**,*** $P < 0.1$, $P < 0.05$, and $P < 0.01$, respectively; HT – Hausman-Taylor; LDV – limited dependent variable