

Farm size and viability

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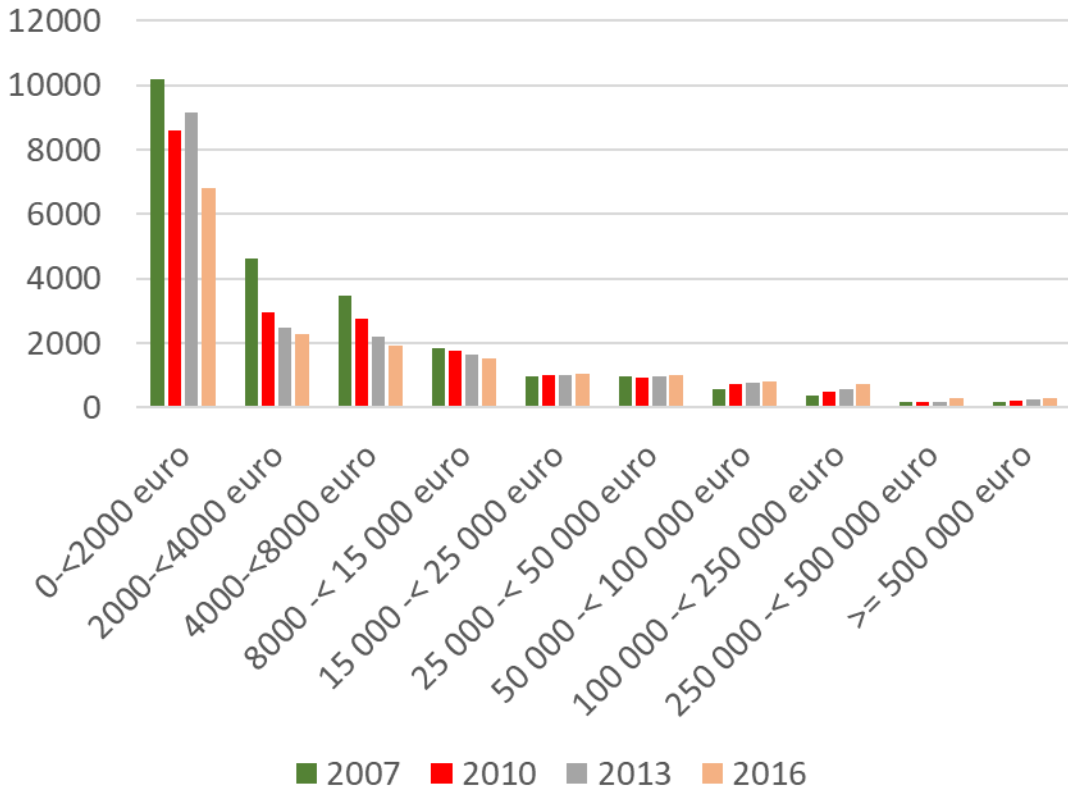
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Competitors or Partners?" 10-12 December 2018

Outline

- Background and Objective
- Farm Viability - Definition and Measures
- Data and Method
- Results
- Conclusions and Discussion

Background

Number of Farms in Estonia by Size, 2007-2016



- Small farms make up the majority of Estonian farms.
- More than two thirds of all farms in Europe have less than 5 hectares of agricultural land, and more than half have a Standard Output of less than 333 euros per month.
- In 2005 more than 70% of all farms in the EU-27 worked on less than 5 hectares, by 2013 this number had fallen to over 65%.*
- The number of small farms, with standard output 0-8000 euro per year had fallen 40% in Estonia between 2007-2016.**

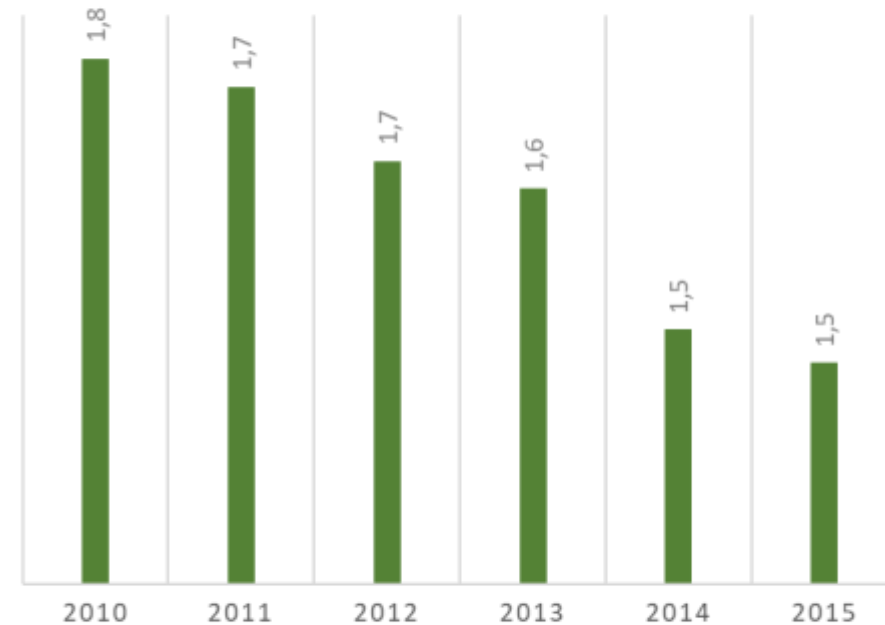
* EU Farms and Farmers in 2013: an update. EU Agricultural and Farm Economics Briefs, No. 9, November 2015. Retrieved from: http://ec.europa.eu/agriculture/sites/agriculture/files/rural-areaeconomics/briefs/pdf/009_en.pdf]

** Statistics of Estonia

Total labour input in annual work units per 100 ha of utilised agricultural area, 2010-2015

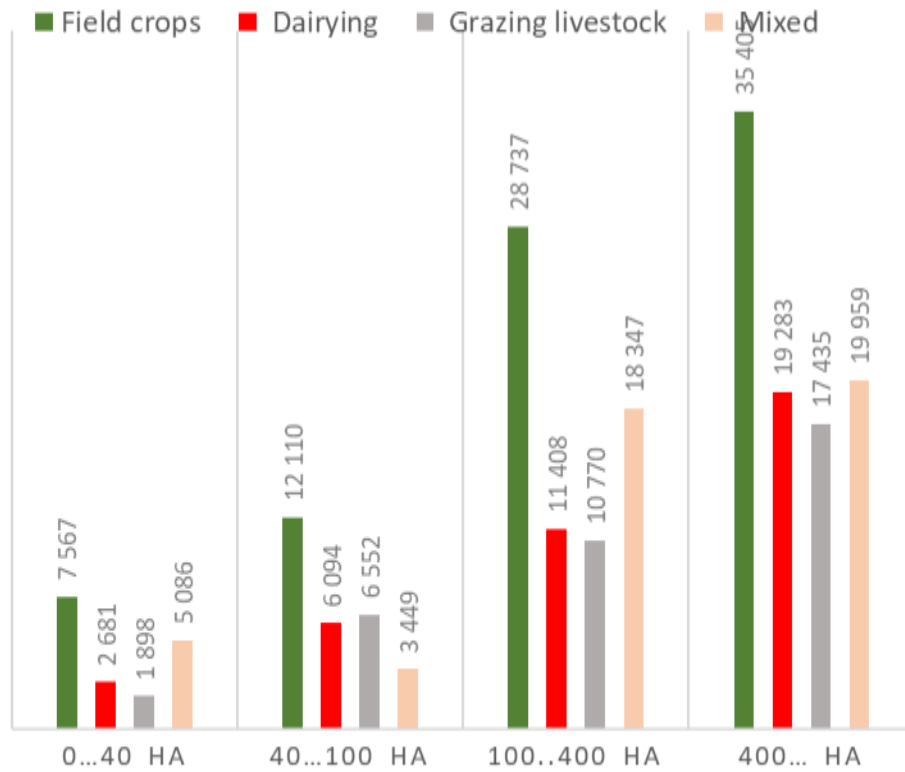
FADN dataset for the Estonian farms.

The analysis of Farm Accountancy Data Network (FADN) data on the income and economic activities of agricultural holdings.



Annual work unit (AWU) is fixed at 2200 working hours per year
Utilised agricultural area (UAA)

Farm net value added per annual work unit by farms' size and land use, 2015



- *Farm net value added (FNVA) = total output and public support - total intermediate consumption (farm-specific costs and overheads) - depreciation*
- Farm net value added (FNVA) expressed per annual work unit (AWU) takes into account differences in the farm (family) labour to be remunerated per farm.

Objective

- The study examines the levels of farms' viability according to their size providing an overview of the economic results of Estonian farms.
- The study aims to determine the share of viable farms of different size groups in Estonia.

Farm Viability - Definition and Measures

- A farm is economically viable if it can (a) remunerate family labour at the average agricultural wage, and (b) provide a 5 per cent return on non-land assets. *
- An economically viable farm is defined as one having (a) the capacity to remunerate unpaid family labour at the average agricultural wage, and (b) the capacity to provide an additional 5 per cent return on non-land assets – these include the capital value of machinery, livestock and production quotas. **
- A farm is classified as economically viable if the farm net value added per annual work unit is at least 80% of average labour cost per year and provides a 5 per cent return on the capital invested in non-land assets, i.e. buildings, machinery and breeding livestock.

* Frawley, J.P. and Commins, P. (1996): The Changing Structure of Irish Farming: Trends and Prospects. Rural Economy Research Series No. 1. Dublin: Teagasc.

** Hennessy, T., Shresthra, S. and Farrell, M. (2008): Quantifying the viability of farming in Ireland: can decoupling address the regional imbalances. Irish Geography 41 (1), 29-47. <https://doi.org/10.1080/00750770801909342>

Method

Economically viable farm:*

$$\frac{FFI - CC}{AWU} > WT$$

FFI - Family farm income (entrepreneurial income)

CC - cost of own capital

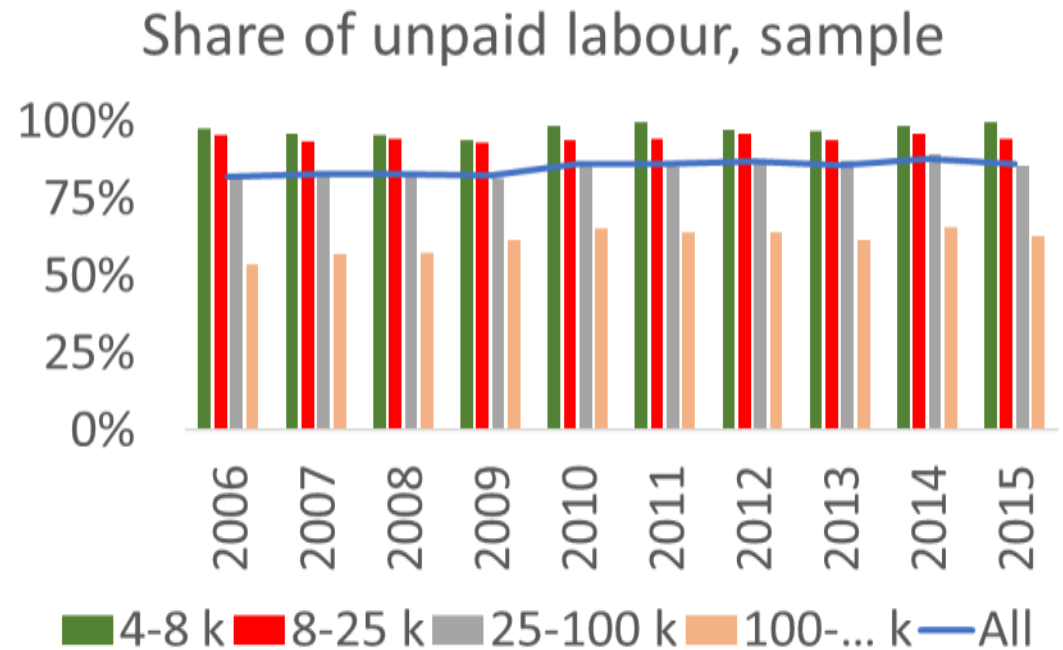
AWU - hours worked on the farm, (annual work unit fixed at 2200 working hours per year)

WT - treshold wage, (at least 80% of average labour cost per year) or the average wage in the economy or paid wages as observed in FADN.

* O'Donoghue, C., Devisme, S., Ryan, M., Conneely, R., Gillespie, P. (2016) Farm economic sustainability in the European Union: A pilot study. STUDIES IN AGRICULTURAL ECONOMICS, 118 (3). pp. 163-171.

Viability analysis based on Estonian FADN data

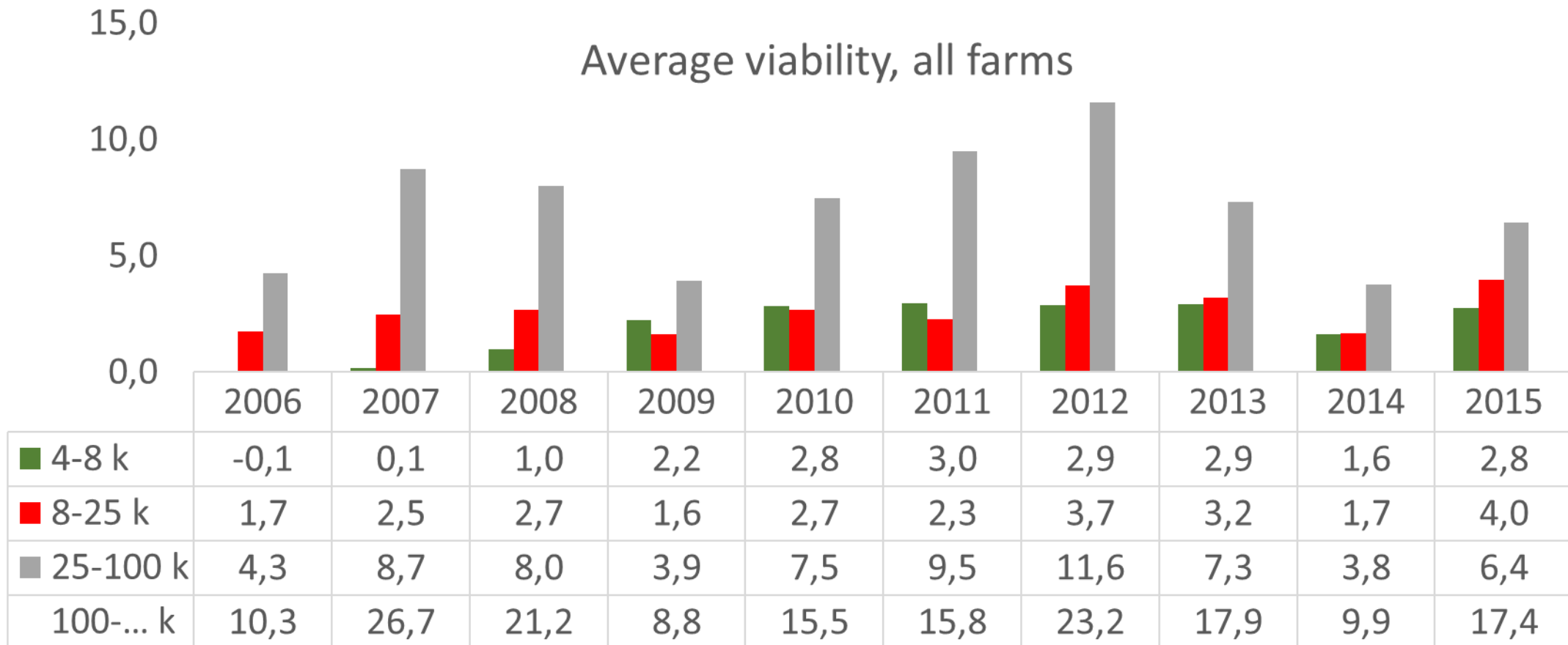
- Data from Estonian FADN database is used
 - Data from 2006-2015
 - 4341 observations over 10 years.
- We exclude the farms with:
 - Share of unpaid labour less than 20%
 - Specialist orchards – fruits



Average values of the components of viability, sample of FADN farms

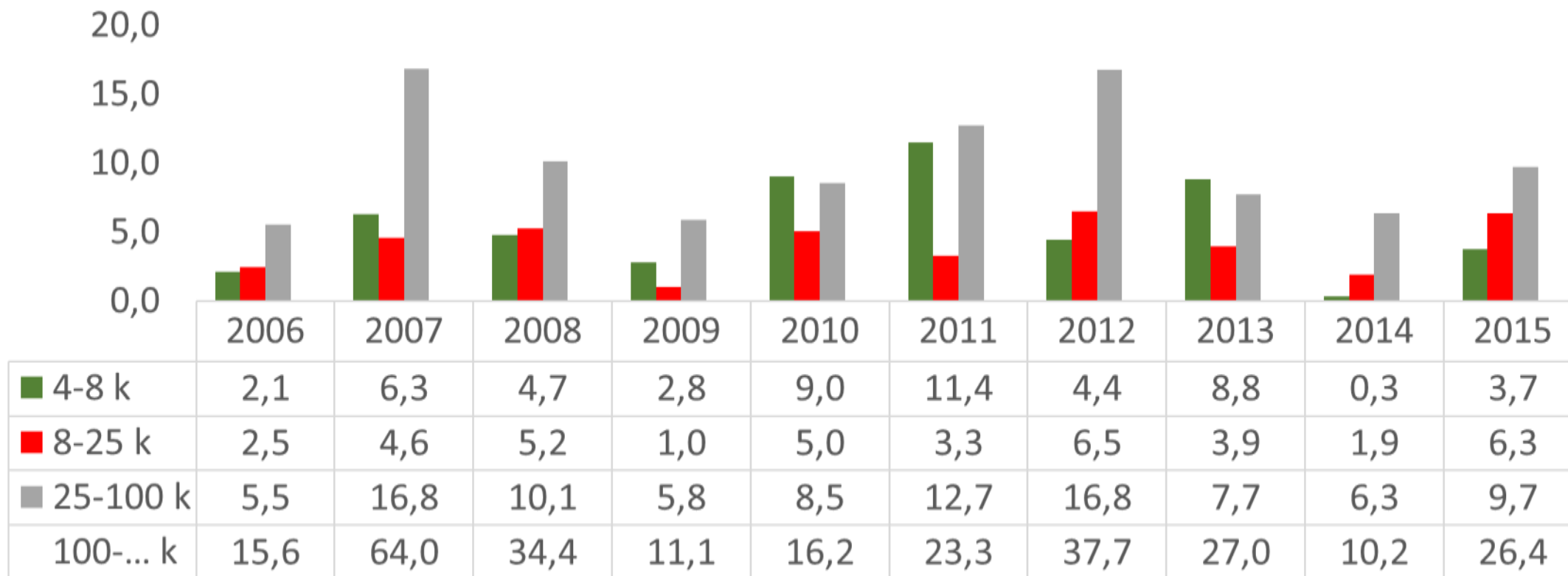
	2006	2010	2015	Change
Number of farms	412	485	437	6%
Unpaid labour input - FWU	1,61	1,25	1,01	-37%
Paid labour input - AWU	0,49	0,34	0,31	-37%
Family Farm Income - c.u.	19731	22248	15617	-21%
Annual hourly paid wage	1,67	3,19	5,37	222%
Own capital (excl. Land)	124948	130831	139252	11%
Cost of own capital	4822	4947	1770	-63%

Change in average viability, 2006-2015, all farms



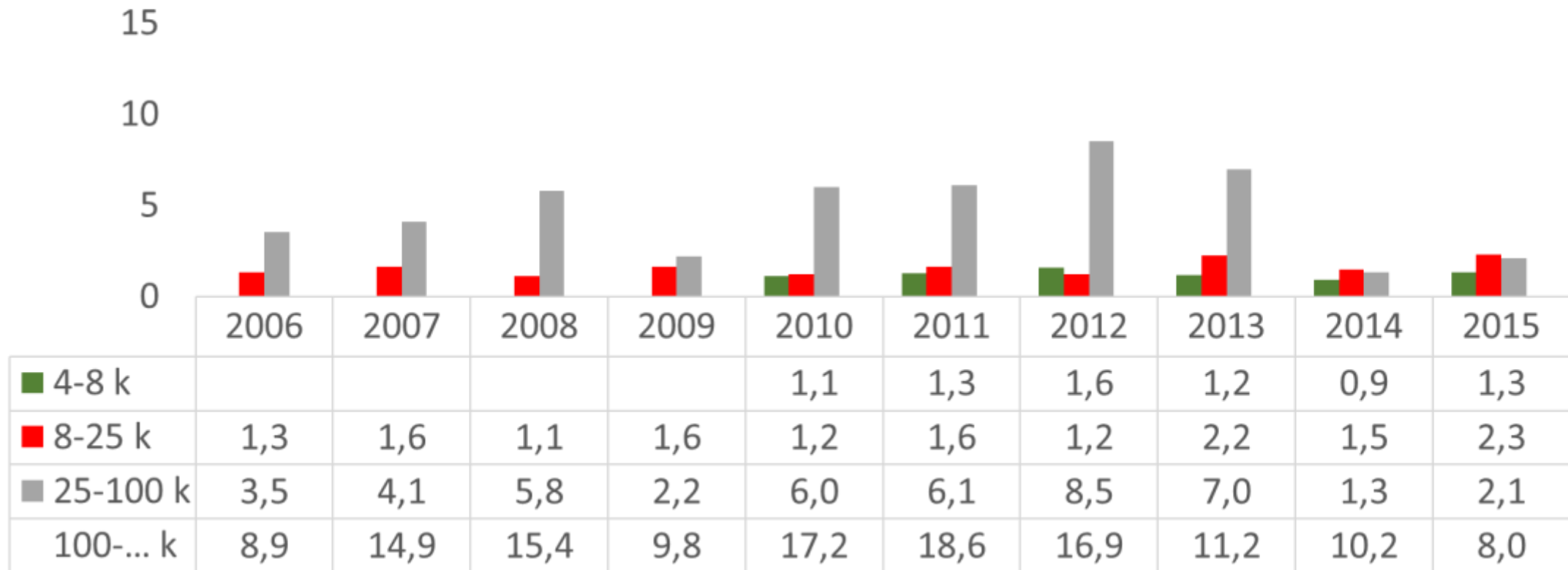
Change in average viability, 2006-2015, field crops

Average viability, field crops



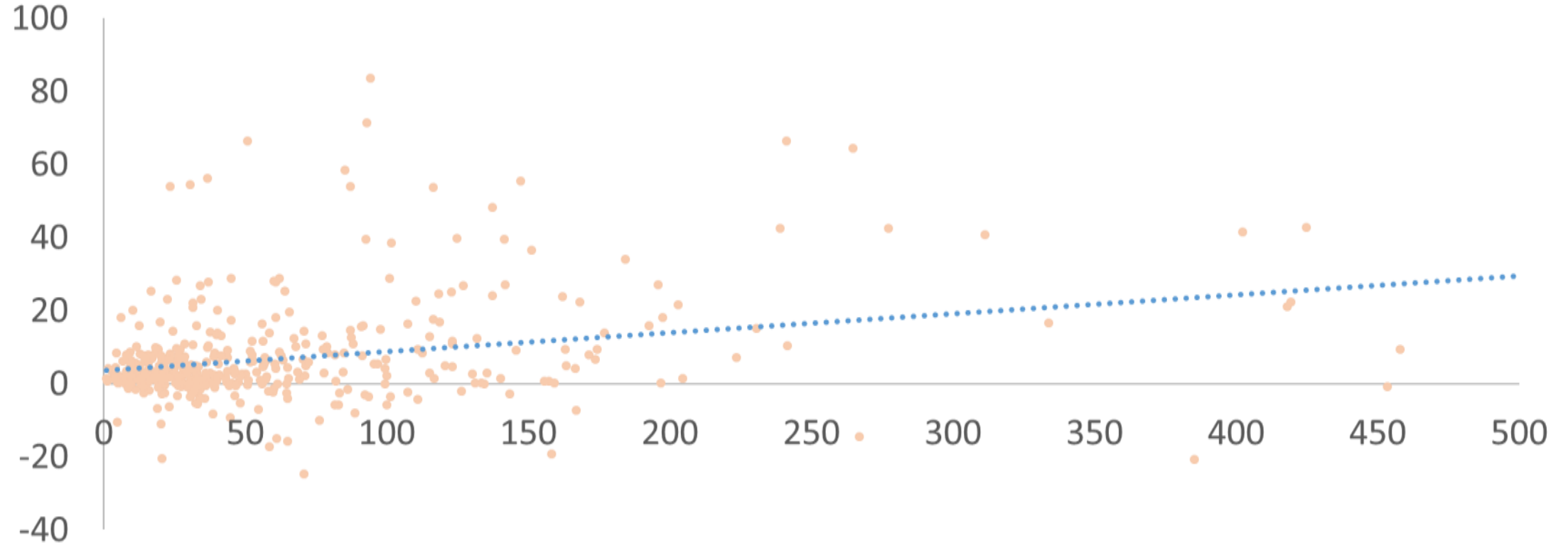
Change in average viability, 2006-2015, dairying

Average viability, dairying



Viability and capital to labour ratio, 2015

Viability and capital labour ratio, 2015

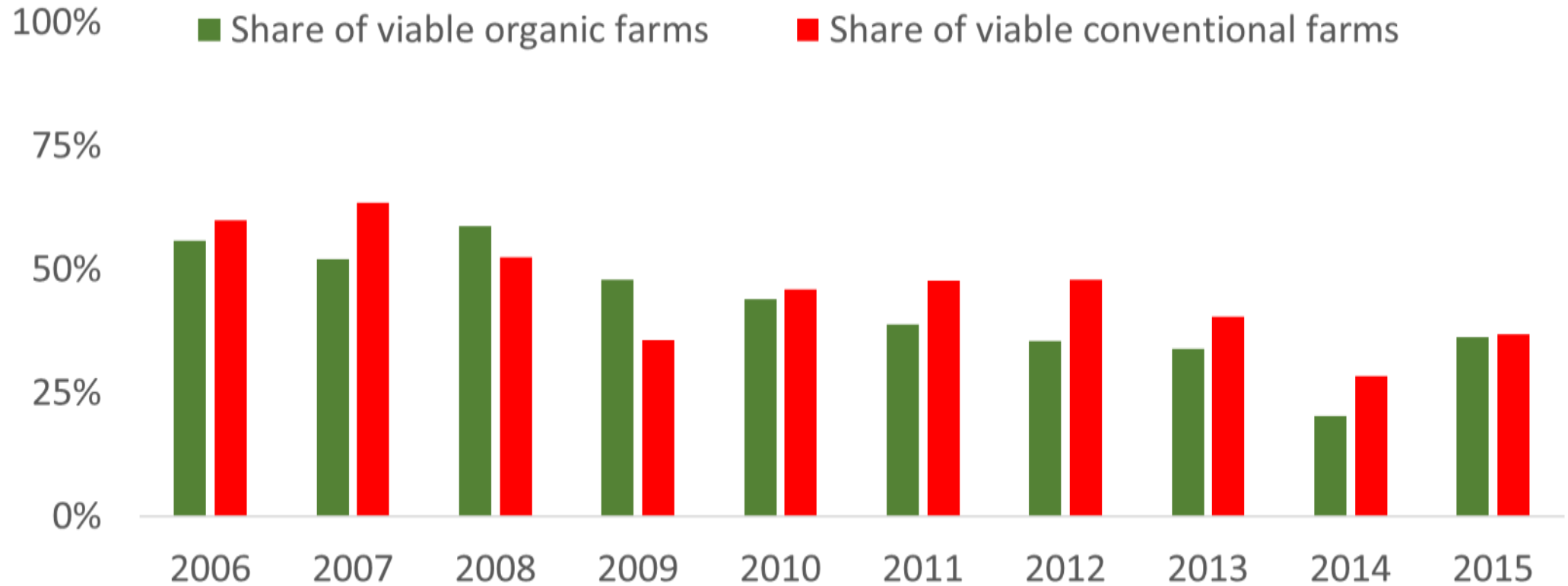


Share of viable farms according to farm size

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
4-8 k	11%	15%	24%	29%	19%	11%	18%	15%	11%	17%
8-25 k	39%	35%	24%	20%	21%	15%	19%	16%	10%	26%
25-100 k	66%	71%	64%	42%	58%	64%	62%	46%	27%	36%
100-... k	81%	88%	87%	65%	77%	83%	81%	78%	61%	70%
All farms	59%	61%	54%	39%	45%	45%	45%	39%	26%	37%

Share of viable organic and conventional farms

Organic vs conventional farms



Conclusions and discussion

- Average viability of Estonian farms has slightly increased, but the share of viable farms has decreased.
- Smaller farms are economically more vulnerable as their capability to survive, live and develop by using the available resources is lower compared to larger farms.
- The ability to generate sufficient profit with reasonable labour input is growing with farm size and capital intensity.
- Many small farms in Estonia are not viable without supporting themselves through off-farm work.