

An empirical assessment of microeconomic effects from suckler cow farming in Austria

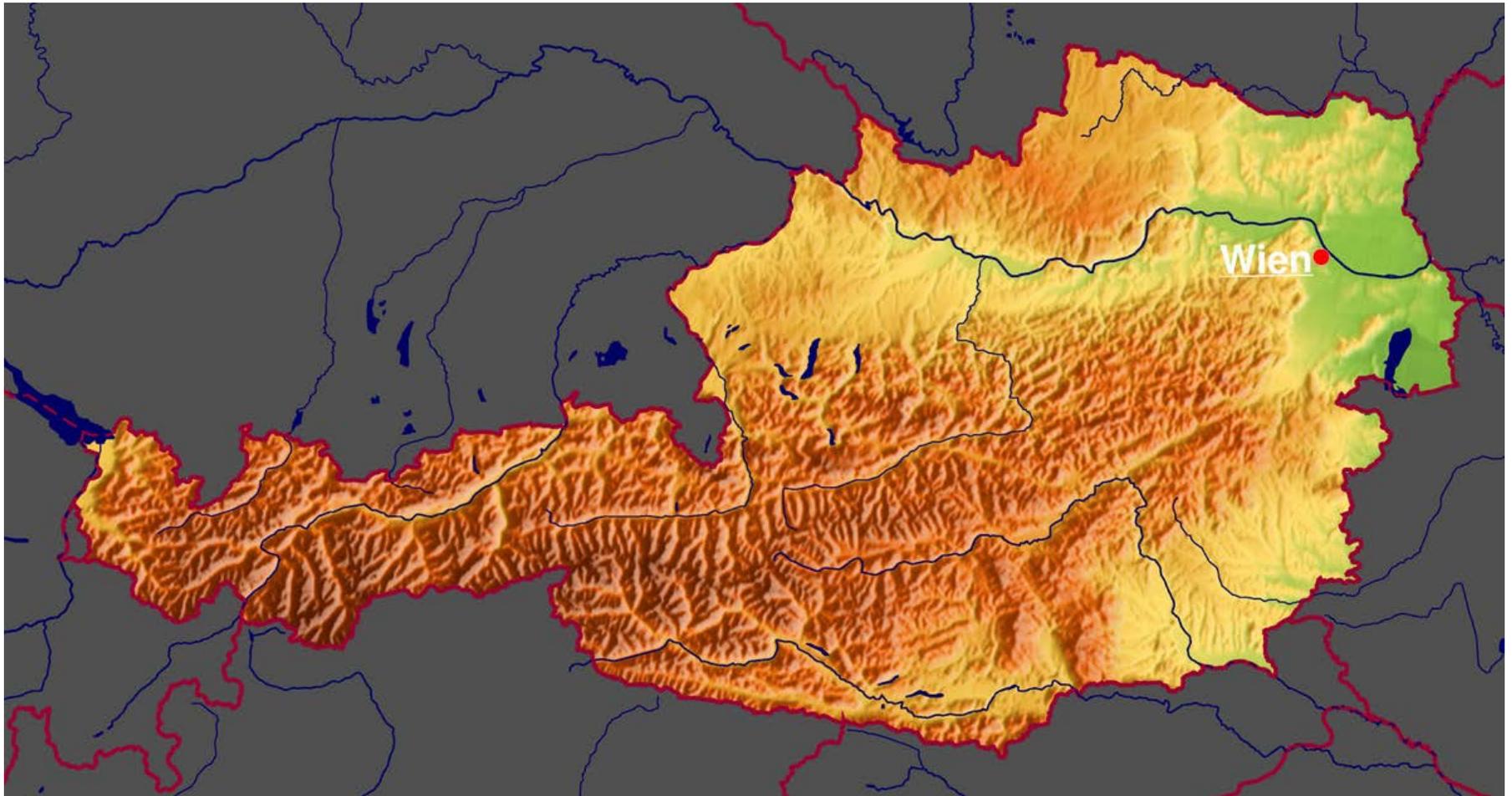


*64th EAAP Meeting
Nantes, France
26th – 30th August, 2013*

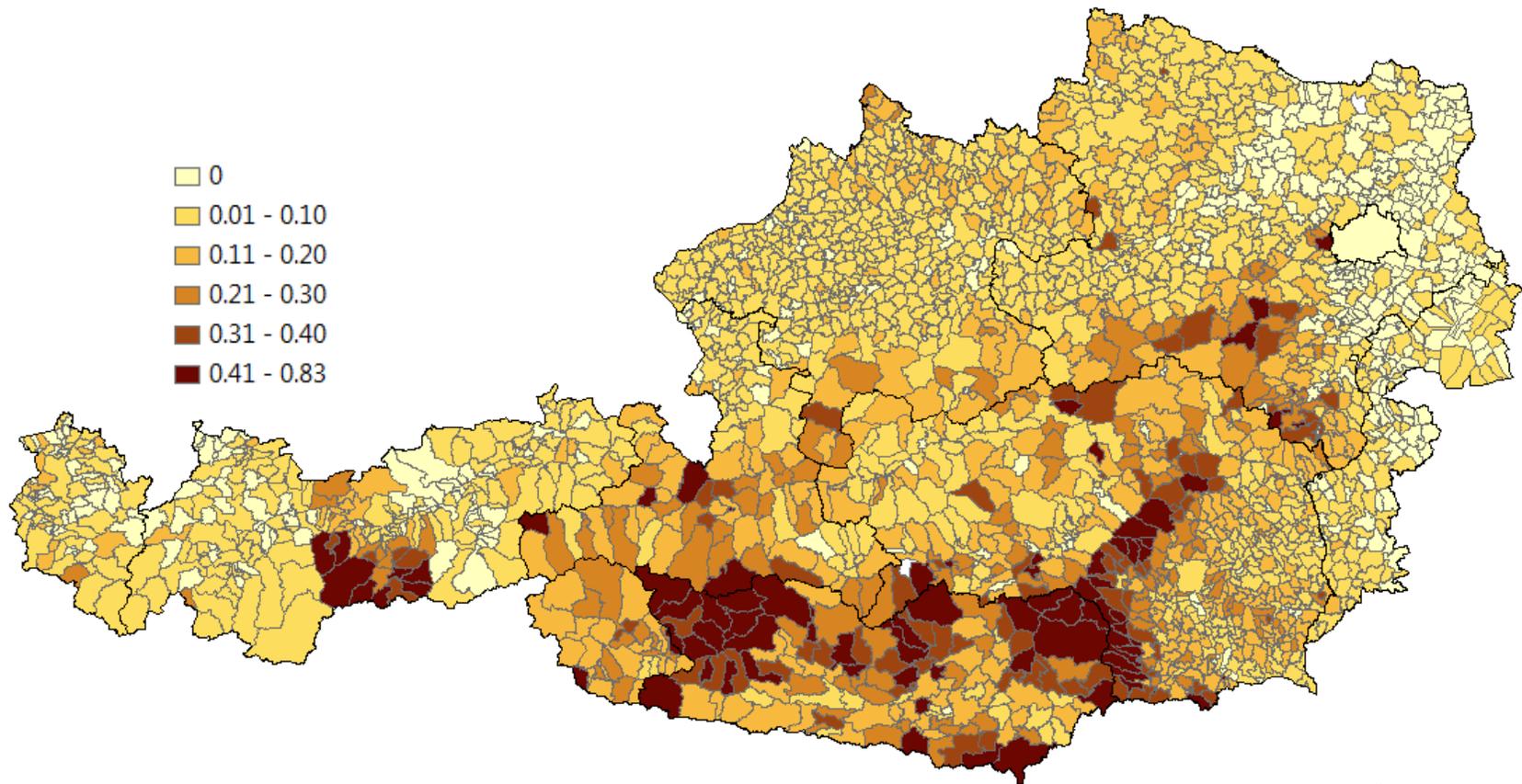
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Map of Austria

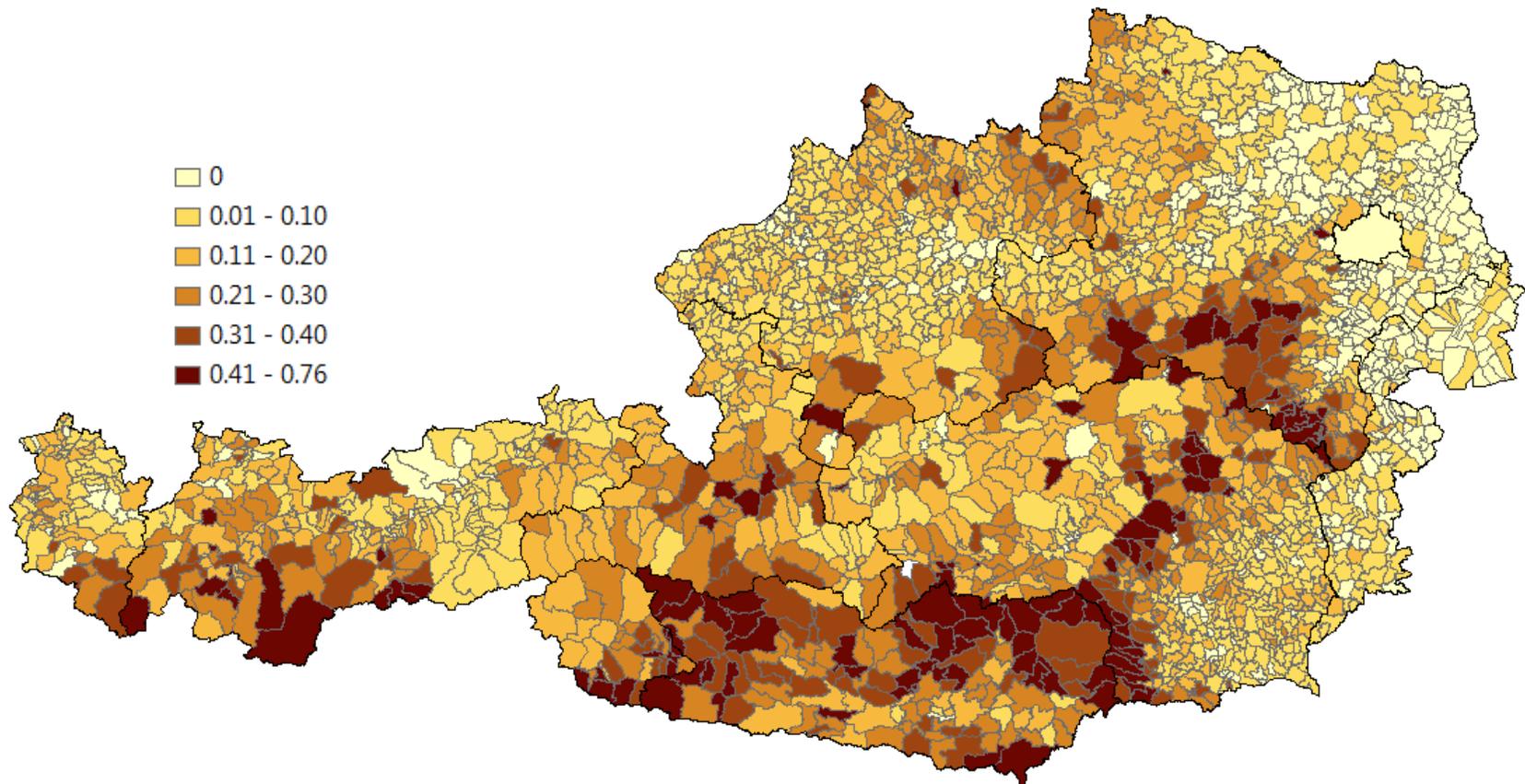


The share of specialized suckler cow farms in Austrian municipalities in the year 1998



Source: Own illustration; INVEKOS

The share of specialized suckler cow farms in Austrian municipalities in the year 2010

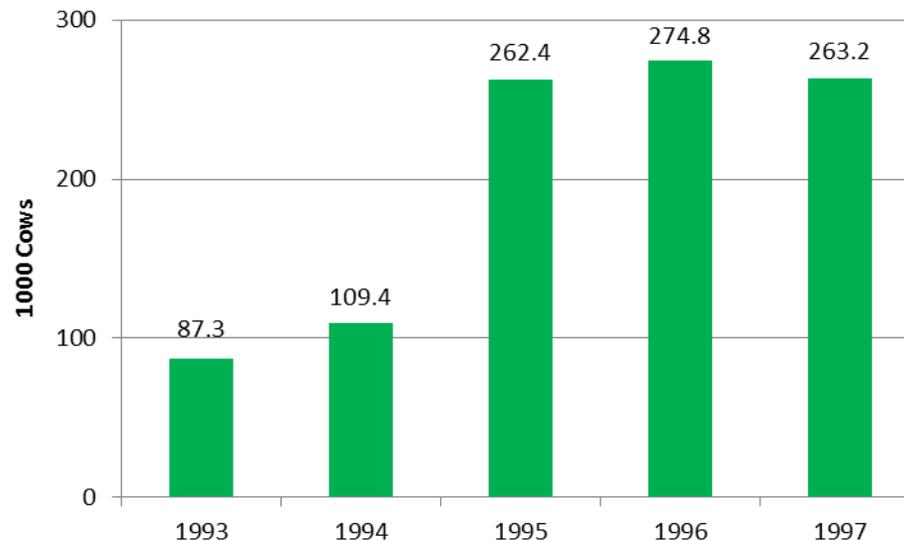


Source: Own illustration; INVEKOS

Why did suckler cow farming increase that much?



- Less labour input and time depending - allows part-time farming
- Policy support
 - Milk market recovery (BMLFUW, 1993)
 - Coupled payments (76 Mio. Euros 2010, 6.5% of 1. Pillar; BMLFUW, 2011)



Number of supported suckler cows in Austria (Source: BMLFUW, 1993)

Research questions



- ? What are the effects from suckler cow farming on farm competitiveness?
 - Comparison of suckler cow farms with dairy farms

- ? What can we learn for the future?
 - Analysis of the time period 2005-2010

Methodology



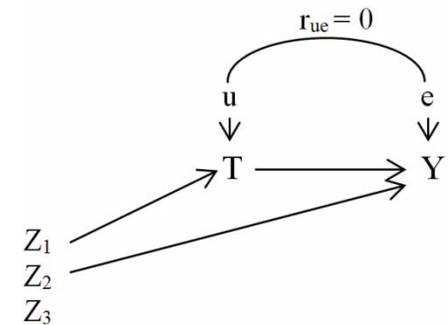
■ Propensity Score Matching

“Under a given set of observable covariates (Z) the outcome is independent of the strategy (Conditional Independence Assumption)”

■ Propensity score

- Estimated probability of participation
- Logit-model

■ `Multiple neighbour calliper pair matching without replacement`



T...Treatment
 Y...Outcome
 Z...Covariates
 u...Error term for Treatment
 e...Error term for Outcome
 R_{ue}...Correlation between u and e

Source: Gangl, 2006

■ Comparison of matched groups for the time period 2005–2010

$$\tau | (T=1) = \sum_{A=1}^n Y_A^1 | p(Z)/n_A - \sum_{B=1}^n Y_B^0 | p(Z)/n_B$$

where:

$\tau | (T = 1)$ is the average treatment effect on the treated
 Y_A^1 is the outcome of participant A
 Y_B^0 is the outcome of control B
 n_A is the number of participants
 n_B is the number of control
 $p(Z)$ is the propensity score based on a vector of covariates

Data



- *Voluntarily bookkeeping data from Austria (2005-2010)*
 - *86 specialized suckler cow farms*
 - *483 specialized dairy farms*

- *Maching covariates (2005)*

Total UAA (ha)
Share of rented UAA (%)
Share of arable land (%)
Mountain farm cadastre (Pts.)
Organic farming
Agricultural education
Depreciation (€)

UAA is utilized agricultural area

Results from propensity score matching



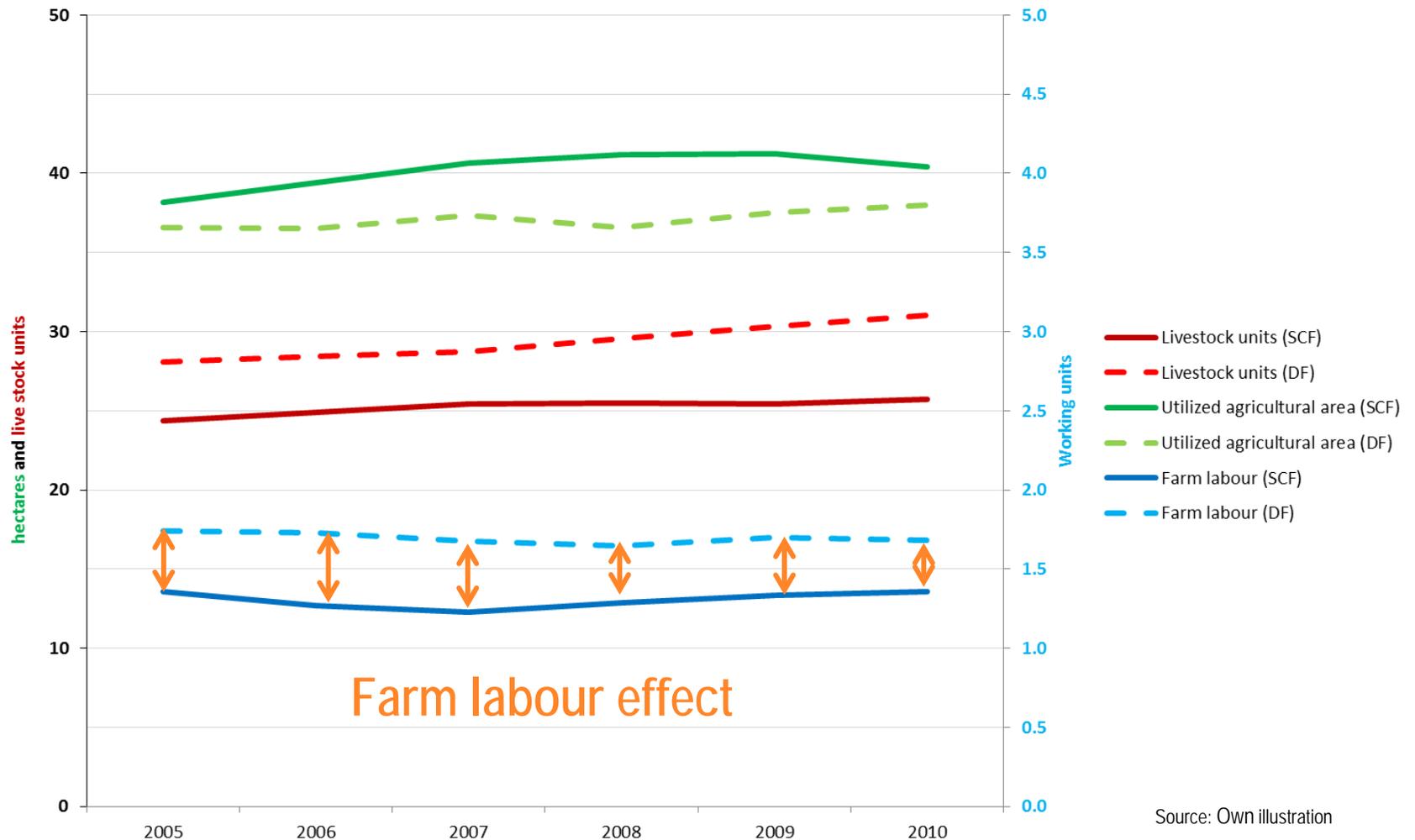
	Before Matching			After Matching		
	Suckler cow farms	Dairy farms	p-value ¹⁾	Suckler cow farms	Dairy farms	p-value ¹⁾
Number of farms	86	483		67	67	
Total UAA ²⁾ (ha)	23.7	25.0		25.1	24.0	
Share of rented UAA ²⁾ (%)	17.6	26.2 **		20.1	18.6	
Share of arable land (%)	24.1	26.9		23.1	20.9	
Mountain farm cadastre (Pts.)	130.8	87.1 ***		119.2	119.6	
Organic farming (Dummy)	0.71	0.26 ***		0.67	0.65	
Highest level of agricultural education (Dummy)	0.32	0.46 ***		0.42	0.41	
Depreciation (€)	11,994	17,320 ***		13,300	12,977	

1) t-test for equality of means: Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1;

2) UAA is utilized agricultural area

Results from farm group comparison

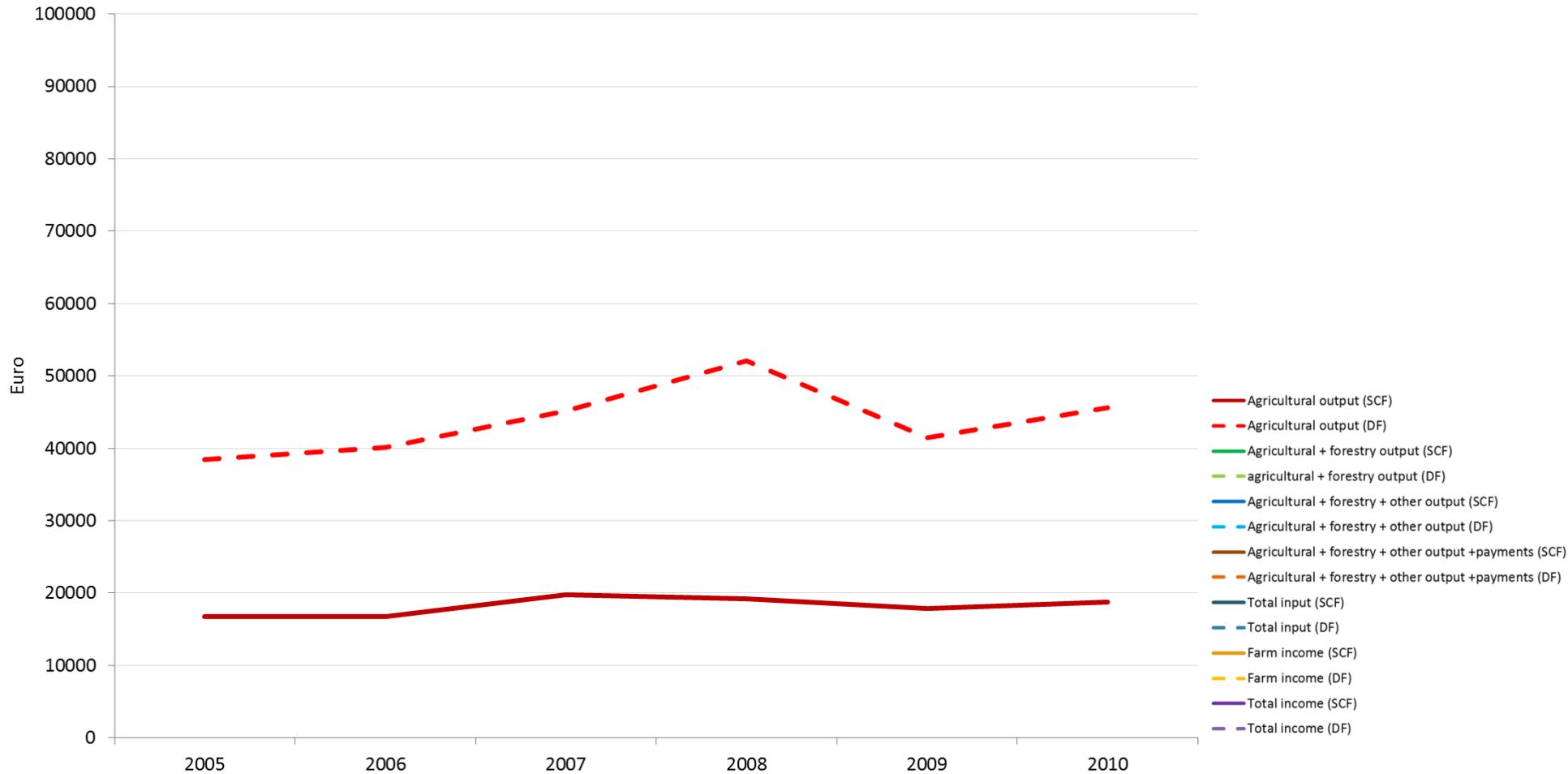
Structural variables for suckler cow farms (SCF) and dairy farms (DF)



Source: Own illustration

Results from farm group comparison

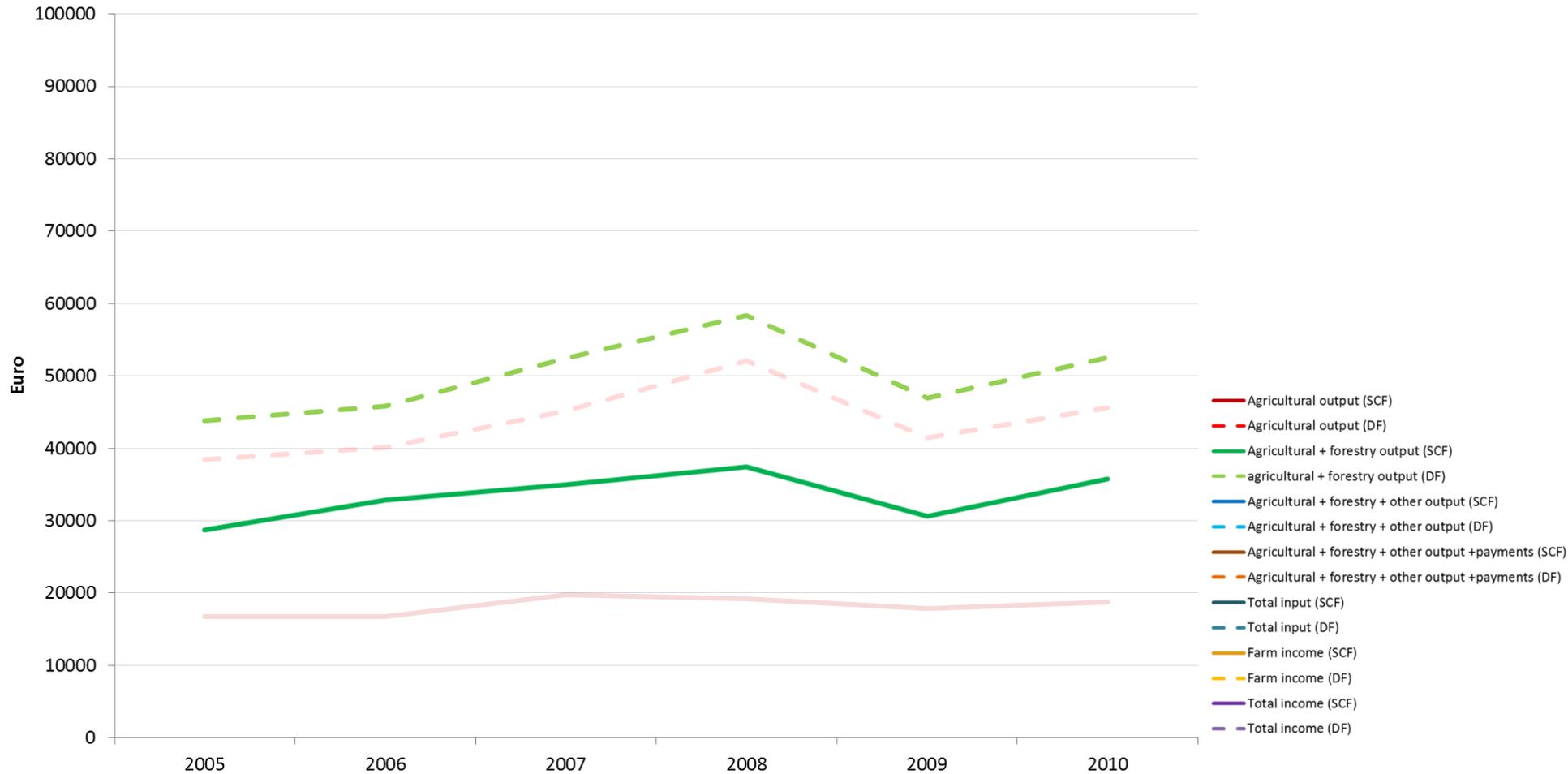
Agricultural output for suckler cow farms (SCF) and dairy farms (DF)



Source: Own illustration

Results from farm group comparison

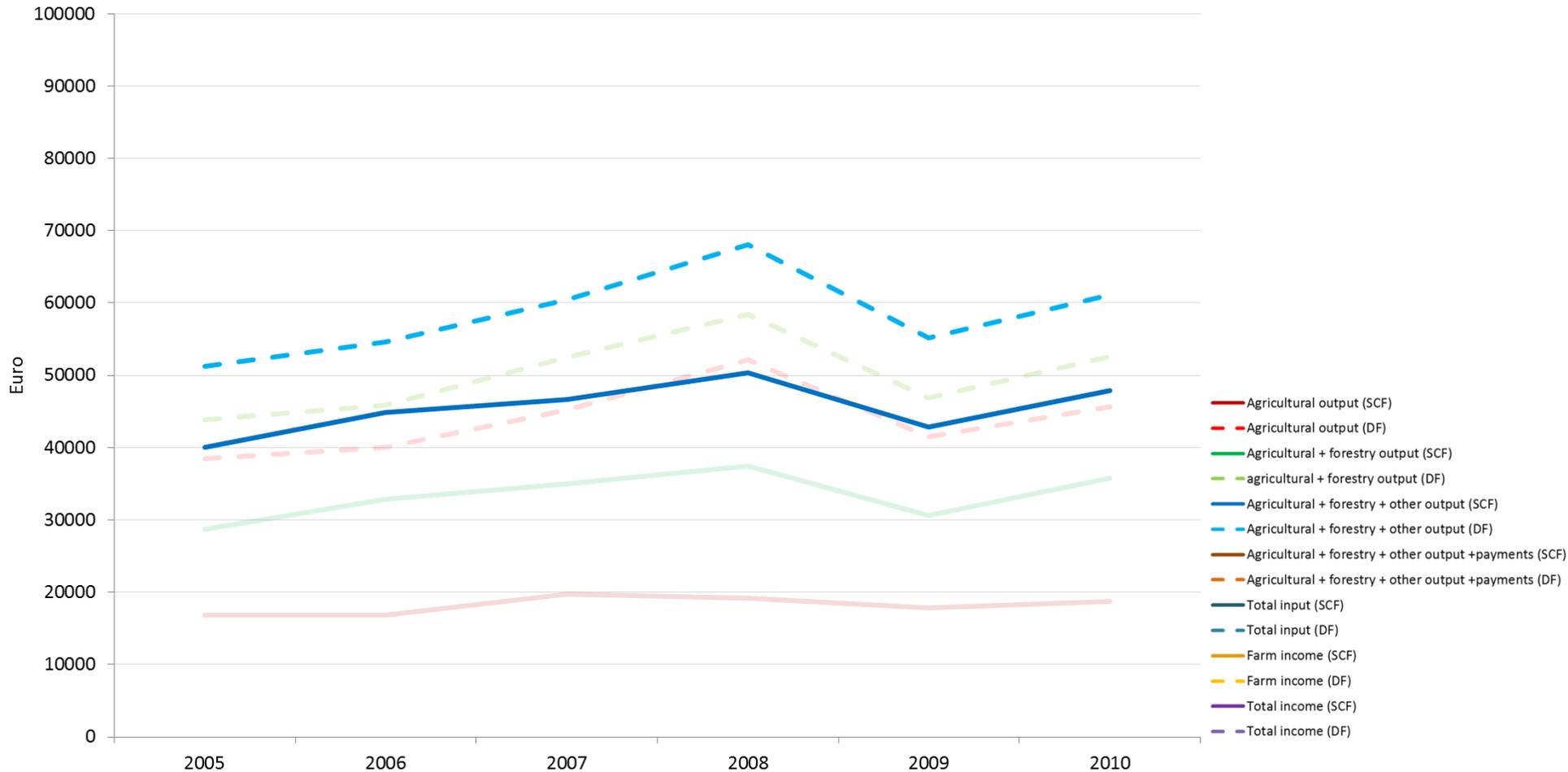
Agricultural and forestry output for suckler cow farms (SCF) and dairy farms (DF)



Source: Own illustration

Results from farm group comparison

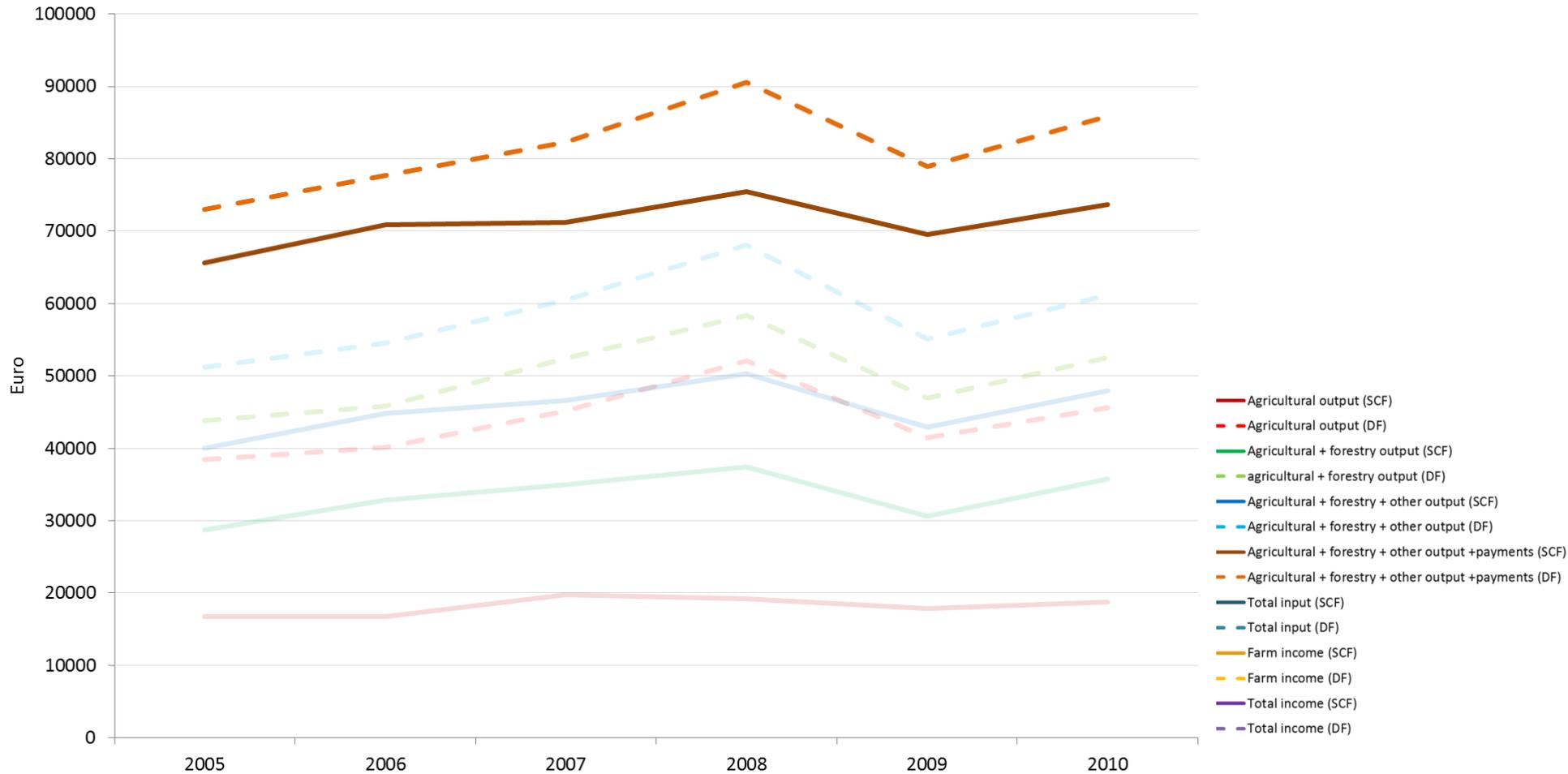
Total output **without** public support for suckler cow farms (SCF) and dairy farms (DF)



Source: Own illustration

Results from farm group comparison

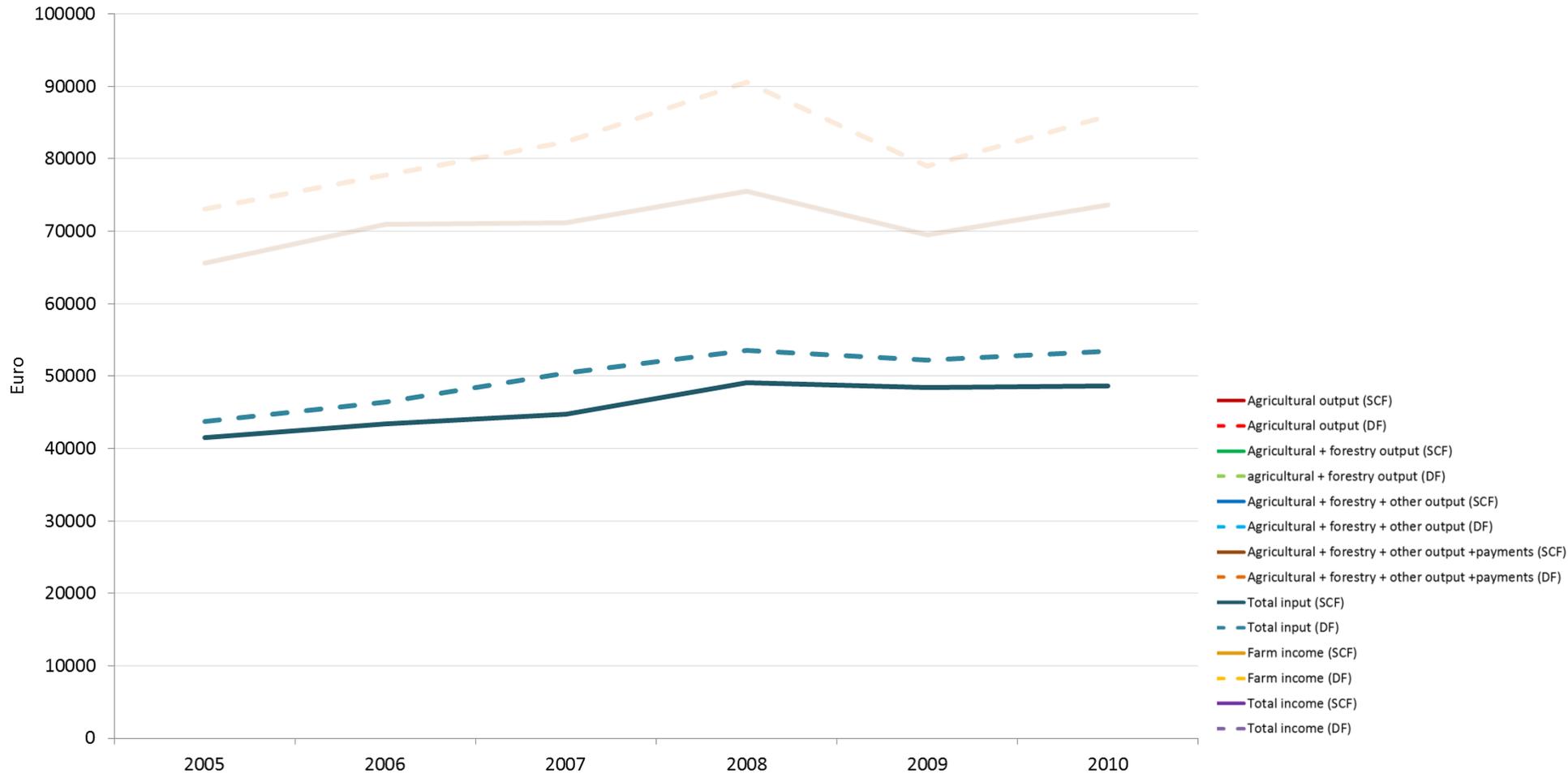
Total output **with** public support for suckler cow farms (SCF) and dairy farms (DF)



Source: Own illustration

Results from farm group comparison

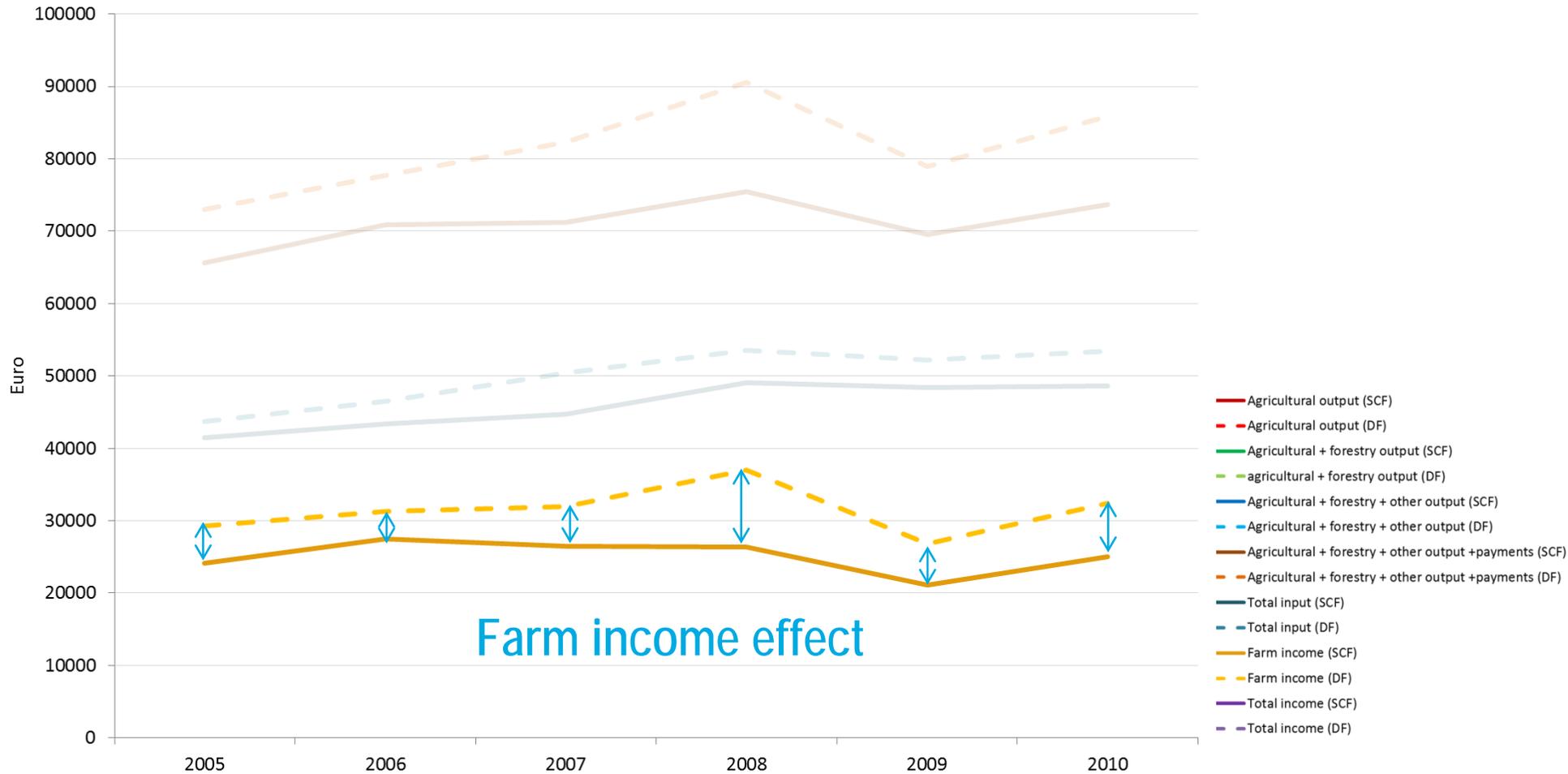
Total input for suckler cow farms (SCF) and dairy farms (DF)



Source: Own illustration

Results from farm group comparison

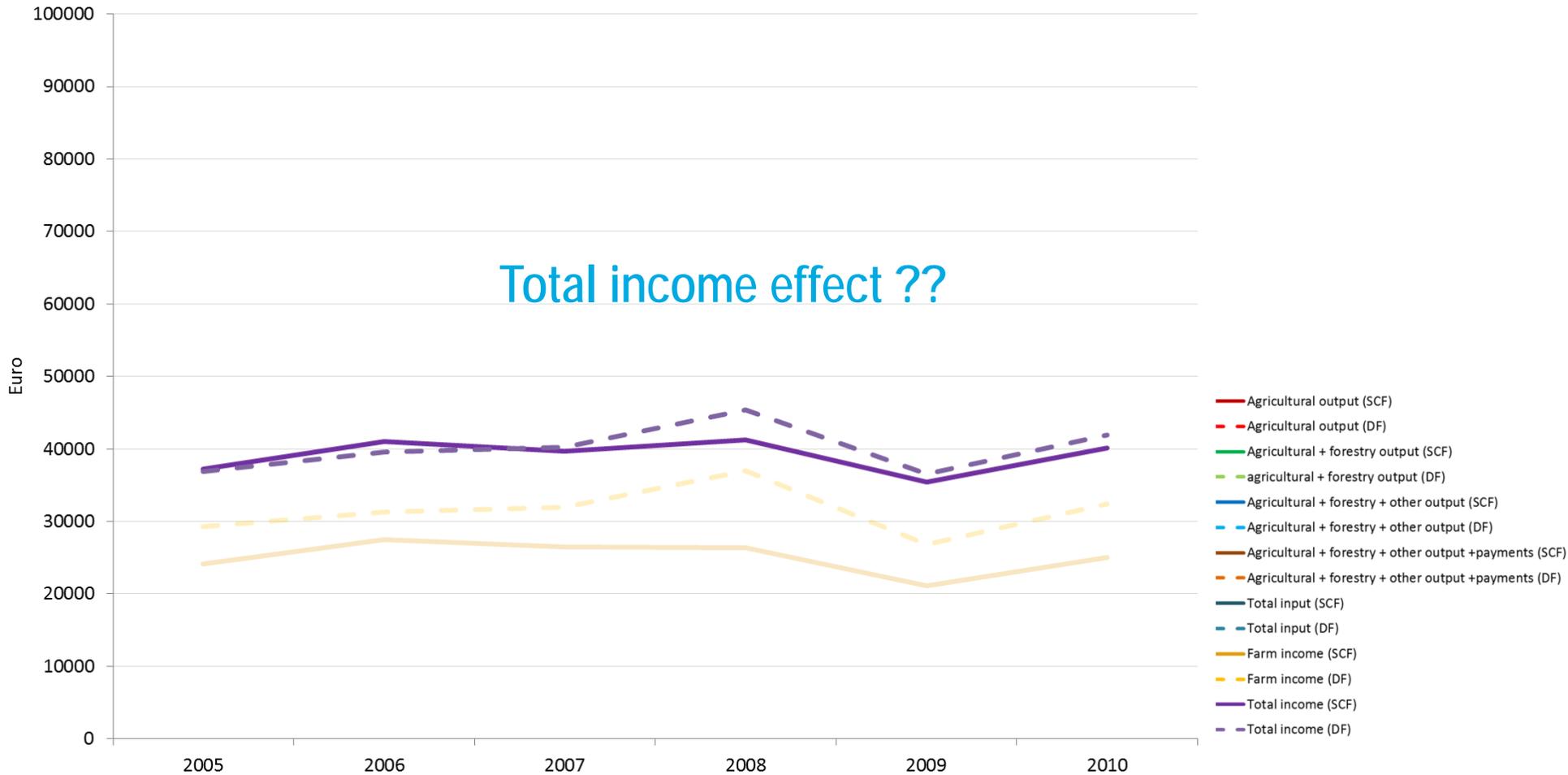
Farm income for suckler cow farms (SCF) and dairy farms (DF)



Source: Own illustration

Results from farm group comparison

Total income for suckler cow farms (SCF) and dairy farms (DF)



Source: Own illustration

Conclusion and discussion



- Higher output diversification
- Less farm income
- Almost no effect in total income
- High public support per working unit

- Less „vulnerable“ to price fluctuations - risk management
- Decoupling might raise alternatives to suckler cow farming
- Different effects are expected as direct payment scheme is changed in Austria



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		Decoupled	Coupled Si	Agri-enviro	Other paym	summe
2005	SCF	4886.50151	4588.12851	9980.57516	6072.26782	25527.473
	DF	3140.70898	3015.55601	9247.5145	6425.70163	21829.4811
2006	SCF	4960.64746	4461.85284	9996.96329	6640.74	26060.2036
	DF	3157.9793	3834.43404	9168.63473	7004.60699	23165.6551
2007	SCF	5055.77313	4473.60597	8448.01342	6589.2821	24566.6746
	DF	5574.13991	1533.16373	7897.20276	6852.95129	21857.4577
2008	SCF	5161.46865	4331.35821	8327.22532	7310.46126	25130.5134
	DF	5896.26678	1201.63425	7673.94233	7726.70029	22498.5437
2009	SCF	5095.75732	4387.13194	8796.88421	8332.93519	26612.7087
	DF	5824.88951	1165.0682	8375.55124	8485.99003	23851.499
2010	SCF	5423.96732	4068.4809	8810.7888	7448.5406	25751.7776
	DF	6039.49261	1645.89119	8633.13558	8423.00774	24741.5271



	Agricultural output (SCF)	Agricultural output (DF)	Agricultural + forestry	agricultural + forestry
2005	16795	38435	28721	43859
2006	16787	40082	32812	45837
2007	19748	45198	34991	52426
2008	19201	52112	37476	58394
2009	17823	41469	30639	46908
2010	18746	45616	35771	52570
	Agricultural + forestry + c	Agricultural + forestry + c	Agricultural + forestry	Agricultural + forestry
2005	40069	51194	65596	73024
2006	44852	54590	70912	77756
2007	46625	60454	71192	82311
2008	50353	68060	75483	90559
2009	42887	55123	69500	78975
2010	47919	61157	73670	85899
	Total input (SCF)	Total input (DF)	Farm income (SCF)	Farm income (DF)
2005	41482	43721	24114	29302
2006	43397	46462	27515	31294
2007	44748	50385	26444	31926
2008	49106	53593	26377	36965
2009	48437	52191	21062	26784
2010	48639	53468	25032	32430
	Non-farm income (SCF)	Non-farm income (DF)	Total income (SCF)	Total income (DF)
2005	13094	7554	37208	36856
2006	13519	8260	41034	39554
2007	13238	8303	39681	40229
2008	14871	8405	41247	45371
2009	14404	9807	35467	36591
2010	15062	9469	40094	41899

- Agricultural output (SCF)
- - Agricultural output (DF)
- Agricultural + forestry output (SCF)
- - agricultural + forestry output (DF)
- Agricultural + forestry + other output (SCF)
- - Agricultural + forestry + other output (DF)
- Agricultural + forestry + other output + payments (SCF)
- - Agricultural + forestry + other output + payments (DF)
- Total input (SCF)
- - Total input (DF)
- Farm income (SCF)
- - Farm income (DF)
- Total income (SCF)
- - Total income (DF)