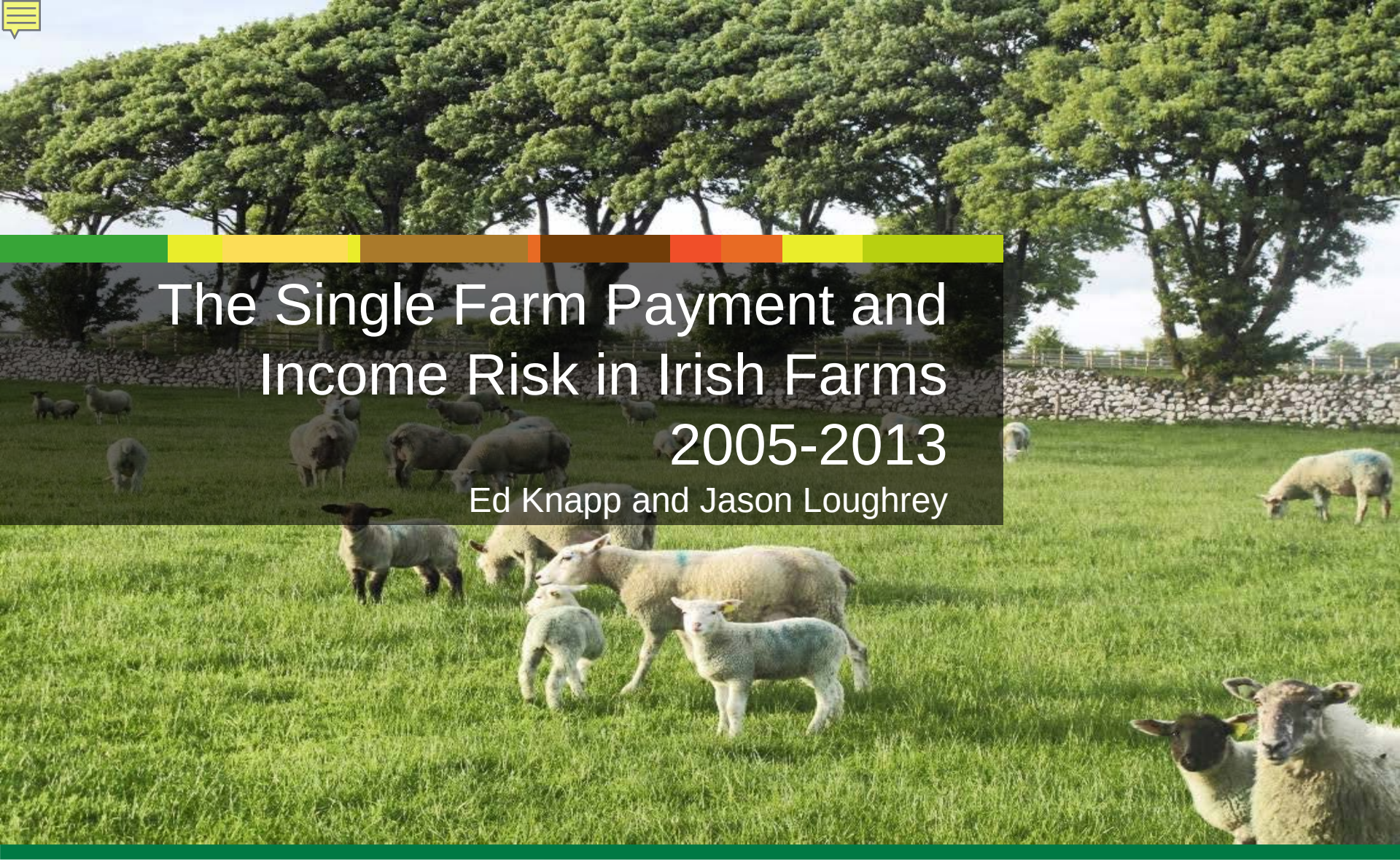

The Single Farm Payment and Income Risk in Irish Farms 2005-2013

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Introduction

- Volatility in agriculture is a key issue in Ireland and elsewhere
  - Globalized markets, climate change, etc.
- How does policy affect income risk?
  - Does policy incentivize risky behavior?
  - Do farm subsidies increase income volatility?

Irish Farms versus US Farms

	Ireland	U.S.A.
Mean farm size (acres)	81	434
Mean farm hh net assets ($)	963,964	955,243
Mean farmer income ($)	22,772	37,241
Mean government payments ($)	12,569	3,818
% of farms with cattle	79	43
% of farms with sheep	23	4
% of farms with crops	12	61

Policy Background

- Stabilizing food markets is a primary EU goals
- 40% of EU budget goes to agriculture support
  - Mostly for decoupled subsidy payments

Literature

- Are “decoupled” payments truly decoupled from production decisions?
  - Capitanio and Adinolfi 2009; Chambers and Voica 2016; Femenia *et al*. 2010; Finger and Lehman 2012; Hennessy 1998
- Do decoupled payments induce riskier behaviors?
  - Enjolras *et al*. 2014; Severini *et al*. 2016; Feil *et al*. 2014; Kazukauskas *et al.* 2013

Theory

- Partial asset integration – expected utility theory
  - Income is the primary driver of utility, assets are secondary
  - $\int u(w, y)\, dG = E_G(u(w, y))$
- Hypothesis: decoupled subsidies are associated with market income risk

Data and Methodology

- Teagasc National Farm Survey
  - 927 farms observed from 2005 to 2013
- Variability is measured as the standard deviation from trend of gross market income
- $Ln(\sigma Y_{ci}) = \beta Ln(Y_{di}) + \beta Ln(\bar{Y}_{ci}) + \beta X_{it} + \alpha + \varepsilon_{it}$

Selected Summary Statistics

Variable	Mean
Standard Deviation of Gross Output	11,842
Initial Decoupled Subsidies (€)	21,787
Change in Decoupled Subsidies (€)	-351
Mean Coupled Subsidies (€)	2,286
Mean Gross Output (€)	70,924

- Other control variables
  - Farm and farmer characteristics
  - Off-farm work
  - Farm type

Selected Results

Standard deviation of market income on Irish farms					
Variable	Full Sample	Dairy Only	Cattle	Sheep	Field Crops
Decoupled Subsidies (€10,000)	0.10***	0.01	0.10***	0.19***	0.05
Change in Decoupled Subsidies (€10,000)	0.13***	0.09**	0.10***	0.28***	0.15**
Log of Coupled Subsidies	0.02**	0.03	0.03**	0.07	0.03
Log of Gross Output	0.53***	0.63***	0.50***	0.31***	1.06***
N	927	249	494	104	80
R-squared	0.80	0.80	0.76	0.67	0.84

Conclusions

- Decoupled payments and market income risk are closely related
- Data suggests that payments induce farmers to take on more risk
  - No policy incentive for operators to manage risk
  - Subsidies are a costly way to moderate income
- Future research
  - Longer time series, alternative subsidy systems
  - Other systemic risk factors

Acknowledments

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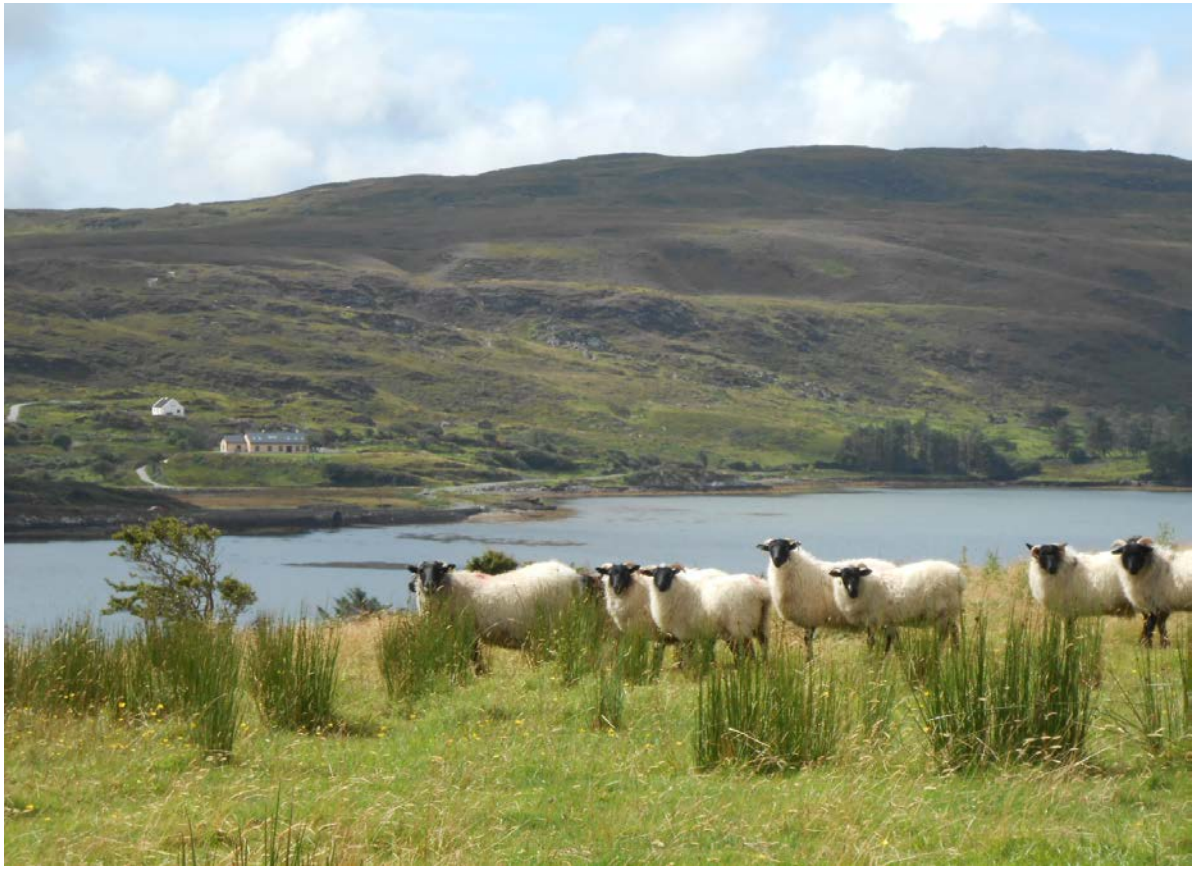
Thank You



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Selected Results

Standard deviation of market income on Irish farms (SR Assets Model)					
Variable	Full Sample	Dairy Only	Cattle	Sheep	Field Crops
Decoupled Subsidies (€10,000)	0.11***	0.02	0.11***	0.25***	0.06
Change in Decoupled Subsidies (€10,000)	0.14***	0.09***	0.11***	0.29***	0.15**
Log of Coupled Subsidies	0.02**	0.02	0.03**	0.06	0.03
Log of Gross Output	0.51***	0.66***	0.45***	0.34***	1.00***
N	927	249	494	104	80
R-squared	0.80	0.79	0.76	0.66	0.81

Full summary statistics

Variable	Mean	Standard Deviation
Detrended Standard Deviation of Gross Market Output	11,842	12,287
Initial Decoupled Subsidies (€)	21,787	15,547
Change in Decoupled Subsidies (€)	-351	7,184
Mean Coupled Subsidies (€)	2,286	2,880
Mean Gross Output (€)	70,924	78,844
Farm Characteristics	**Mean**	**Standard Deviation**
Mean Livestock Units Per Hectare	1.34	0.60
Mean Daily Concentrates per L.U. (kg)	1.45	1.23
Mean Crop Protection Cost	1,120	3,476
Mean Fertiliser Cost	6,572	7,196
Mean Farmer Age	53.9	11.0
Mean Farmed Area (Hectares)	56.7	43.1
Off-Farm Work	**Percent**	**Observations**
Initial Off-Farm Job, Farmer	27.1	252
Initial Off-Farm Job, Spouse	36.8	341
Initial Farm System	**Percent**	**Observations**
Cattle Rearing	21.6	200
Cattle and Other	18.4	171
Dairy	26.9	249
Dairy and Other	13.3	123
Sheep	11.2	104
Tillage	8.6	80

Standard deviation of market income on Irish farms (Land Model)

Variable	Full Sample	Dairy Only	Cattle	Sheep	Tillage
Initial Decoupled Subsidies (€10,000)	0.10***	0.01	0.10***	0.19***	0.05
Change in Decoupled Subsidies (€10,000)	0.13***	0.09**	0.10***	0.28***	0.15**
Log of Coupled Subsidies	0.02**	0.03	0.03**	0.07	0.03
Log of Gross Output	0.53***	0.63***	0.50***	0.31***	1.06***
Initial Land Owned (100 Ha)	0.13**	0.39***	0.18	0.03	0.12
Initial Land Let Out (100 Ha)	0.17	-0.15	0.45	-.09	-0.81
Initial Land Rented In (100 Ha)	0.24***	0.50***	0.18	0.50	0.38
Change in Land Owned (100 Ha)	0.06	-.09	0.04	0.01	1.69**
Change in Land Let Out (100 Ha)	-0.25	1.03	-0.72	-0.59	-1.19
Change In Land Rented In (100 Ha)	0.07	0.02	0.08	-0.05	0.07
Livestock Units Per Hectare (100 Ha)	-.07*	-.06	0.01	-0.13	-0.12
Daily Concentrates per L.U. (kg)	0.01	-.03	0.02	0.01	-0.04
Crop Protection Cost (10,000s €)	0.13*	0.24	0.29*	-0.03	0.26
Fertiliser Cost (10,000s €)	-0.03	-.07	-0.08	0.01	-0.44**
Mean Farmer Age	-0.01	-0.04**	0.01	-0.00	-0.03*
Mean Farmer Age Squared	0.00	0.00**	-.00	0.00	0.00**
Farmer Off-Farm Job	0.02	0.10*	0.01	-0.07	0.16
Spouse Off-Farm Job	0.01	0.03	-0.04	0.12	0.21*
Cattle	-0.23***				
Sheep	-0.18***				
Tillage	-0.33***				
Constant	-5.74***	-6.02**	-6.28***	-4.51***	11.00***
N	927	249	494	104	80
R^2	0.80	0.80	0.76	0.67	0.84

Standard deviation of market income on Irish farms (SR Assets Model)

Variable	Full Sample	Dairy Only	Cattle	Sheep	Tillage
Initial Decoupled Subsidies (€10,000)	0.11***	0.02	0.11***	0.25***	0.06
Change in Decoupled Subsidies (€10,000)	0.14***	0.09***	0.11***	0.29***	0.15**
Log of Coupled Subsidies	0.02**	0.02	0.03**	0.06	0.03
Log of Gross Output	0.51***	0.66***	0.45***	0.34***	1.00***
Log of Total Farm Assets	0.07**	0.08	0.14***	-0.04	-0.00
Livestock Units Per Hectare (100 Ha)	-0.09***	-.16***	-0.02	-0.13	-0.00
Daily Concentrates per L.U. (kg)	0.01	-.02	0.03	-0.01	-0.04
Crop Protection Cost (10,000s €)	0.19***	0.06	0.30**	-0.28	0.34*
Fertiliser Cost (10,000s €)	-0.01	-0.00	-0.05	0.08	-0.37**
Mean Farmer Age	-0.01	-0.04**	0.01	-0.01	-0.02
Mean Farmer Age Squared	0.00	0.00**	-0.00	0.00	0.00
Farmer Off-Farm Job	0.02	0.10*	0.02	-0.04	0.21
Spouse Off-Farm Job	0.01	0.03	-0.05	0.14	0.21*
Cattle	-0.24***				
Sheep	-0.16***				
Tillage	-0.40***				
Constant	-5.75***	-6.58***	-6.28***	-4.55***	-10.60***
N	927	249	494	104	80
R^2	0.80	0.79	0.76	0.66	0.81