Privatizing Common Property: Evidence from Enclosure Acts in Wales

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Motivation: Tragedy of the Commons?

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- How we privatize common property should be important too: If few people get all land that was previously common, is everyone better off?
- When look at privatization of common property, should we expect an overall increase in wealth? Should this be different from the effect on land value?

Background on Enclosures Acts

- Parliamentary Enclosures were Acts of Parliament that formally enclosed land.
- Enclosure transformed common and open fields into sole proprietor private land holdings.
- The Parliamentary Enclosure Movement in England spanned 1604-1914, with over 5,200 acts.
- The Welsh Parliamentary Enclosure Movement went from 1758-1936, with 272 acts.

Testable Predictions from History Literature

1. Enclosures decreased population and induced migration
   - Hollowell (2000); Tate (1967)
2. Induced people to change occupations
   - Humphries (1990); Polanyi (1944)
3. Increased poverty and exacerbated inequality
   - Webb & Webb (1927); Hammond & Hammond (1911); Robinson, Heldring & Volmer (2022)
4. Generated profits for landlords
   - Hollowell (2000); McCloskey (1976)

Research Question

- How did the privatization of land affect the wealth of the population exposed to enclosure in Wales?
- Decompose the effect: How does enclosure affect land vs. non-land wealth?

Preview of Findings

- We estimate enclosure has a significant *negative* effect on land value (£/acre)
- We find negative (but not statistically significant) estimates of the effect of enclosure on overall wealth
- When we separate the effect of enclosure on land vs. non-land wealth, our estimates give *negative* coefficients of effect on land assets, and a *positive* coefficients on non-land assets

Mechanisms?

- **Population:** No evidence of effect on population
- **Occupation:** Not strong evidence of effects on occupational choice
- **Agricultural Commodity Prices:** No strong correlation with grain market prices

Related Literature

- Earlier economics literature on English Enclosures: McCloskey (1972, 1989, 1991) and Allen (1982, 1992)
- Much earlier econ history literature: Johnson (1909), Davies (1927), and Chambers (1940).
- English Enclosures: Heldring, Robinson and Vollmer (2022)
- Large historical literature: Humphries (1990), Hollowell (2000), Hammond & Hammond (1913), Boyer (1990)
- Property Rights: Coase (1960); Besley (1995); Besley and Ghatak (2010); Besley, Ghatak, and Burchardi (2012), Bühler (2023)
- Institutions: Acemoglu et al. (2001) and North (1990).

Welsh Parliamentary Enclosures

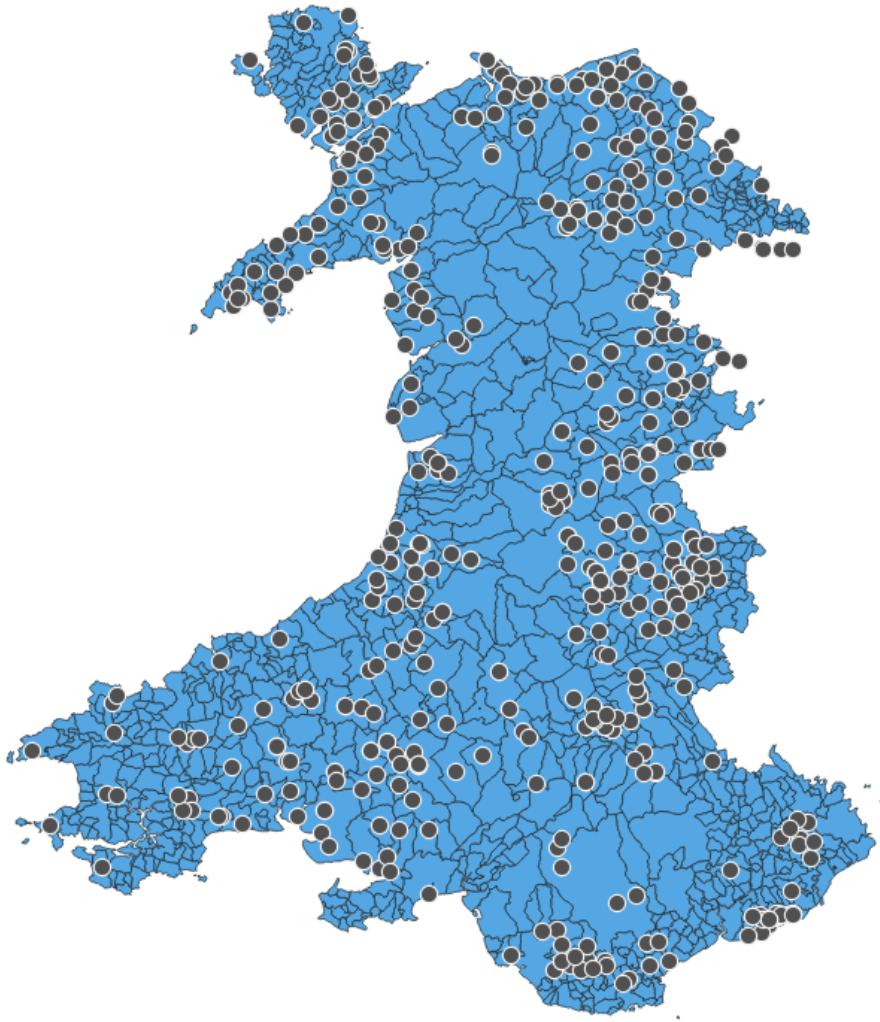
We focus on Wales for 3 reasons:

1. Enclosures happened later in Wales than in England.
    - During the period of Welsh Parliamentary Enclosures we have census data and individual-level wealth data.
2. Some English Parliamentary Enclosures were formalizing earlier informal enclosures, this is not the case for any Welsh Parliamentary Enclosures (Chapman, 1990).
3. Wales had few early informal enclosures relative to England, evidenced (Kain and Oliver, 1995)

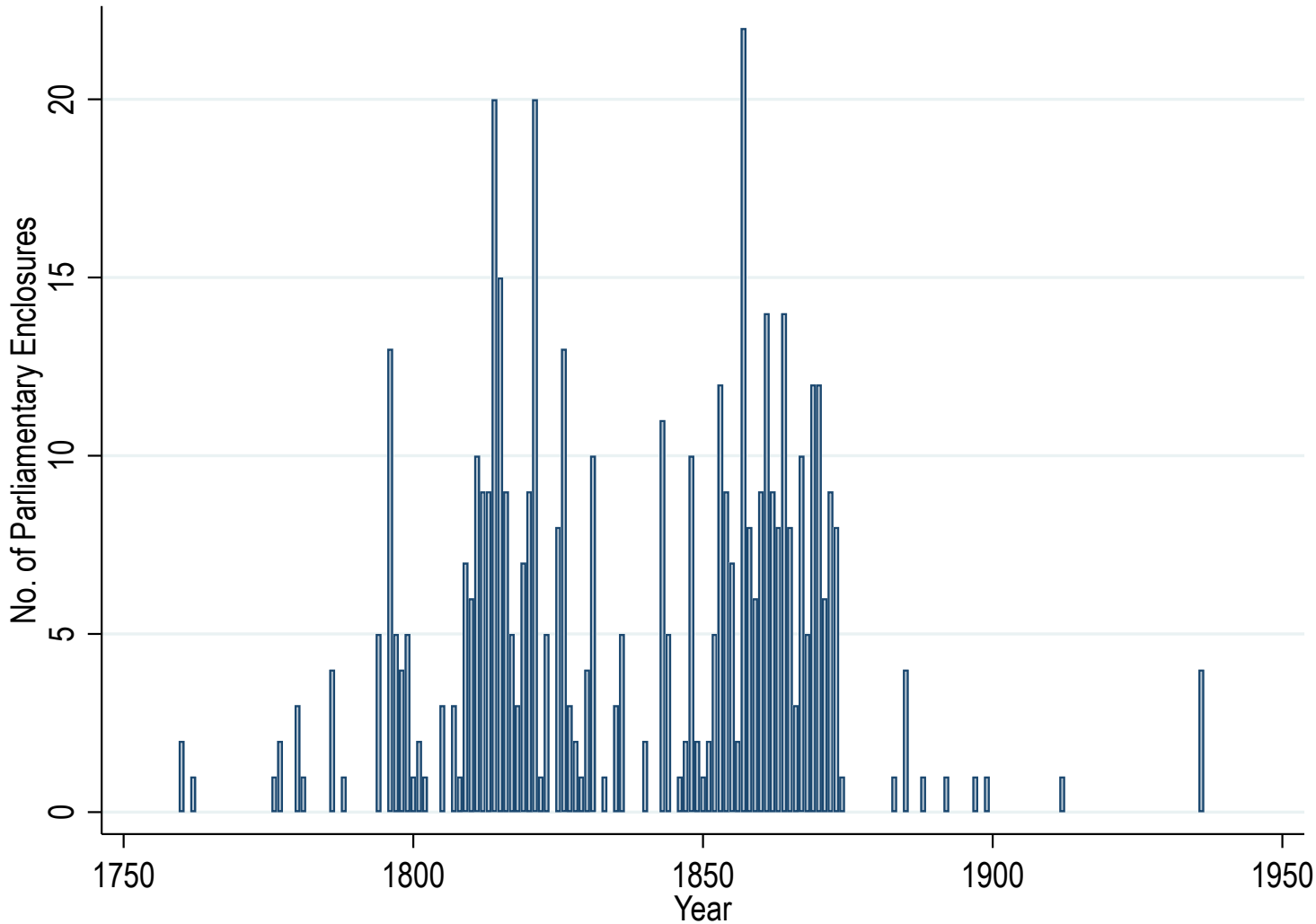
Data

- Parliamentary Enclosures in Wales (Chapman, 1992): Year, georeferenced location, area enclosed
- Probate (wealth-at-death) records from 1858 to 1911
- Individual level death records from 1858 to 1911
- 1842 land tax records (tithes): Name of Landowner, Name of Tenant, land use, land area, tithe value, exact geolocation.
- 1872 Survey of Owners of Land: Name of Landowner, Address, Area of Land Owned, Value of Land Owned, for England and Wales.
- Individual de-anonymized census data (names, occupations, addresses) 1851-1911.
- Parish-level census data 1801-1891
- Parish-level occupation data 1817, 1831
- Weekly grain price data at the market-level, 1820-1865

Welsh Parliamentary Enclosures Spatially



Welsh Parliamentary Enclosures by Year



Methodology: Estimating Changes in Land Value

- Estimate the proportion of each parish enclosed in a given year (2 ways to estimate this given our data) ▸ Treatment
- Collapse 1842 Tithe Survey (plot-level data with land value) at the land-owner level.
- Merge this by landowner (surname, location) to the 1872 Survey of Owners of Land data
- Estimate effect of enclosure on land value for landowners who experienced enclosure between 1842 and 1872

Land Value and Area, Landowner-Level

All Parishes

	(1) log(1+value)	(2) log(1+acres)	(3) log(1+value)	(4) log(1+acres)	(5) log(1+value)	(6) log(1+acres)
Post*Treat	-0.122***	0.0946				
	(0.0251)	(0.0729)				
Proportion Enclosed (T1)			-0.395***	0.316		
			(0.0878)	(0.285)		
Proportion Enclosed (T2)					-0.362***	0.459
					(0.0986)	(0.336)
N	22898	22898	22898	22898	22898	22898
Mean of Dep. Var.	0.355	3.067	0.355	3.067	0.355	3.067
R-squared	0.422	0.198	0.422	0.198	0.422	0.198

Non-Urban Parishes

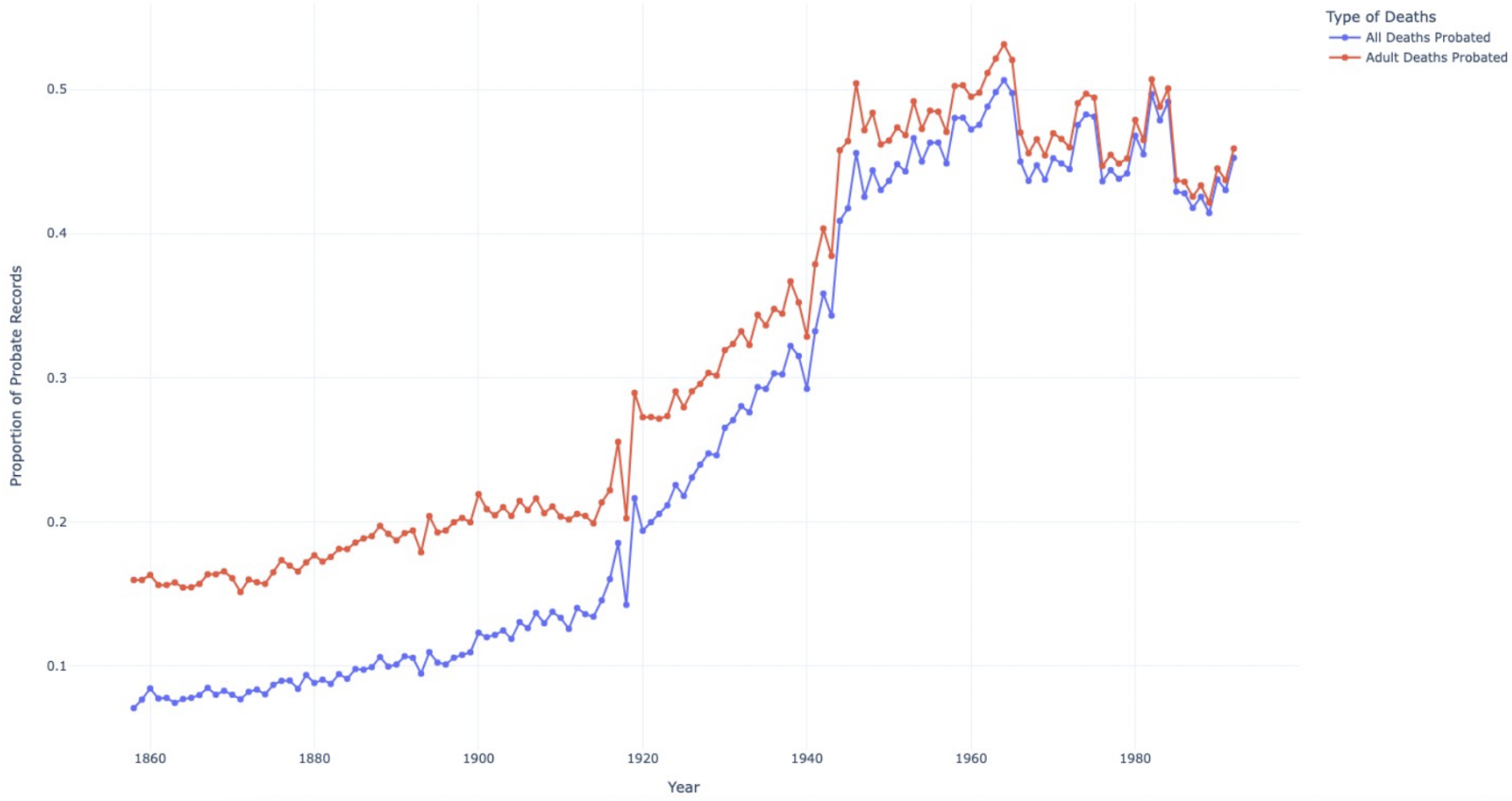
	(1) log(1+value)	(2) log(1+acres)	(3) log(1+value)	(4) log(1+acres)	(5) log(1+value)	(6) log(1+acres)
Post*Treat	-0.125***	0.0957				
	(0.0255)	(0.0695)				
Proportion Enclosed (T1)			-0.401***	0.311		
			(0.0899)	(0.270)		
Proportion Enclosed (T2)					-0.367***	0.408
					(0.101)	(0.319)
N	22653	22653	22653	22653	22653	22653
Mean of Dep. Var.	0.354	3.011	0.354	3.011	0.354	3.011
R-squared	0.425	0.198	0.425	0.198	0.424	0.198

Methodology: Estimating Changes in Wealth

Wealth Data: the universe of Welsh probate (wealth-at-death) records from 1858-1911

- Held by the Government for estate tax purposes
- Record wealth-at-death of every person who died with wealth above a nominal threshold
- Typically record name, profession, place of death, address, date of death, and the value of probate
- Include only personal wealth until 1898 (no land); contain real estate post-1899

Proportion of Population Probated Each Year



Combining Wealth and Death Records

Death Registers:

- Universe of individual-level Welsh death registers from 1858-1911.
- Data has the person's name, registration district, year and quarter of death, and age of death for every person who died in Wales

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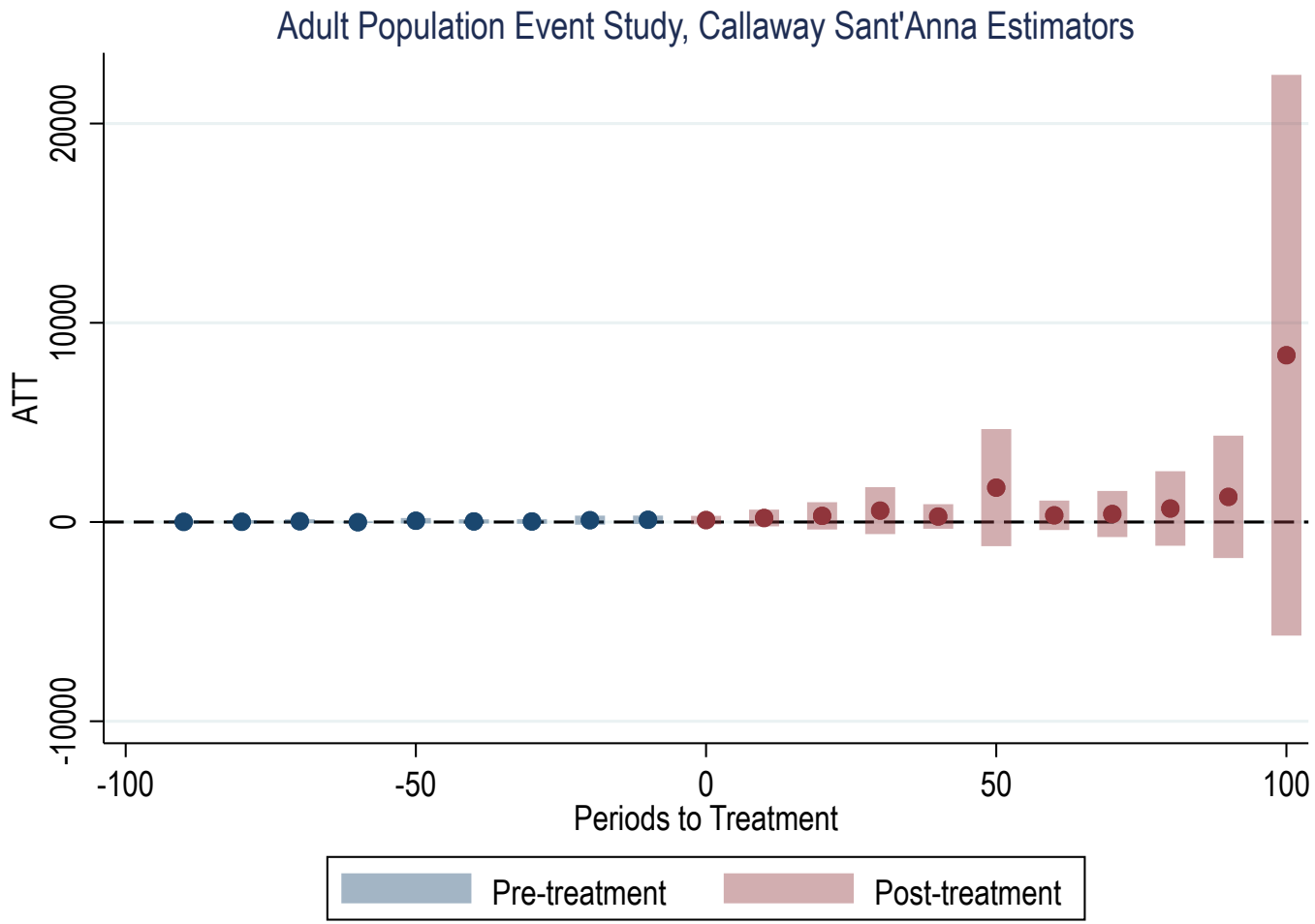
$=>$ Combine the individual-level probate records with individual-level death registers to estimate the wealth distribution for each district in Wales in each year

Estimating Effect of Enclosures on Wealth

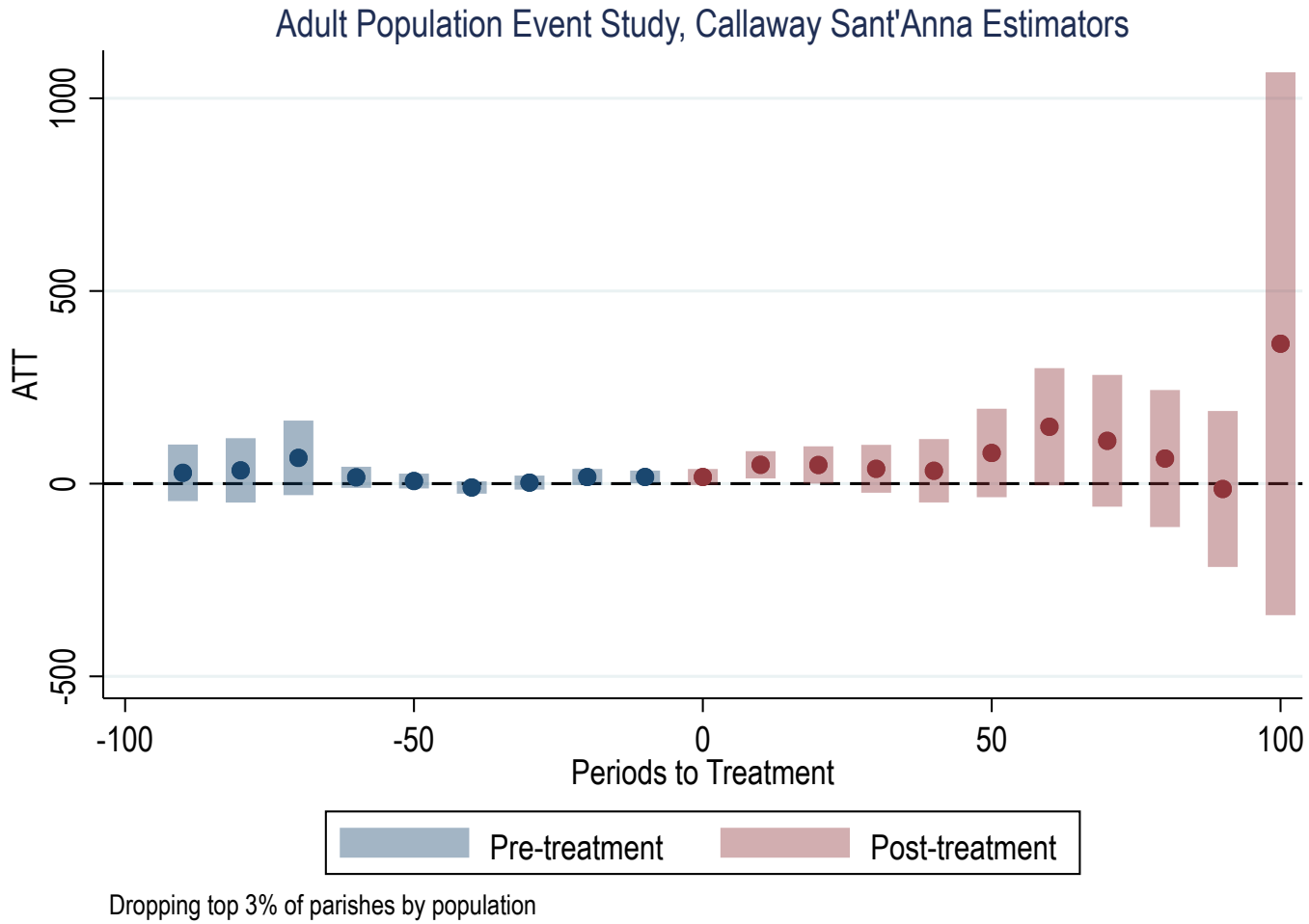
VARIABLES	(1) Average Wealth	(2) Average Wealth
% Enclosed	-217.2	33.14
	(255.1)	(273.9)
% Enclosed*Post-1899		-403.6
		(384.2)
Observations	2,359	2,359
R-squared	0.148	0.149
Year FE	YES	YES
District FE	YES	YES
Cluster SE	District	District

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Mechanisms: Population



Population, Dropping Most Urban Parishes



Dropping top 3% of parishes by population

▸ Regressions

Occupation of Adult Males

Agricultural Jobs

	(1) Callaway Sant'Anna	(2) DiD	(3) T1	(4) T2
ATT	-13.15	10.16**	11.40	12.87
	(8.539)	(3.372)	(9.420)	(7.133)
N	6548	6548	6548	6548
Mean of Dep. Var	81.12	81.12	81.12	81.12
R-squared	0.899	0.900	0.899	0.899

Manufacturing Jobs

	(1) Callaway Sant'Anna	(2) DiD	(3) T1	(4) T2
ATT	26.87	8.196	-38.22*	-41.17**
	(22.87)	(19.94)	(15.16)	(15.16)
N	6548	6548	6548	6548
Mean of Dep. Var	29.98	29.98	29.98	29.98
R-squared	0.760	0.760	0.760	0.760

Robust standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

▸ Agri. Event Studies ▸ Manufacturing Event Studies ▸ Services Jobs Event Studies

Occupations of Adult Males in non-Urban Parishes

Agricultural Jobs

	(1) Callaway Sant'Anna	(2) DiD	(3) T1	(4) T2
ATT	-0.140	10.31***	13.15	15.00*
	(4.366)	(2.940)	(9.436)	(7.170)
N	6341	6341	6341	6341
Mean of Dep. Var.	73.05	73.05	73.05	73.05
R-squared	0.883	0.883	0.883	0.883

Manufacturing Jobs

	(1) Callaway Sant'Anna	(2) DiD	(3) T1	(4) T2
ATT	-3.512*	-1.330	-5.617	-6.377*
	(1.586)	(1.795)	(3.177)	(3.080)
N	6341	6341	6341	6341
Mean of Dep. Var.	9.160	9.160	9.160	9.160
R-squared	0.639	0.639	0.639	0.639

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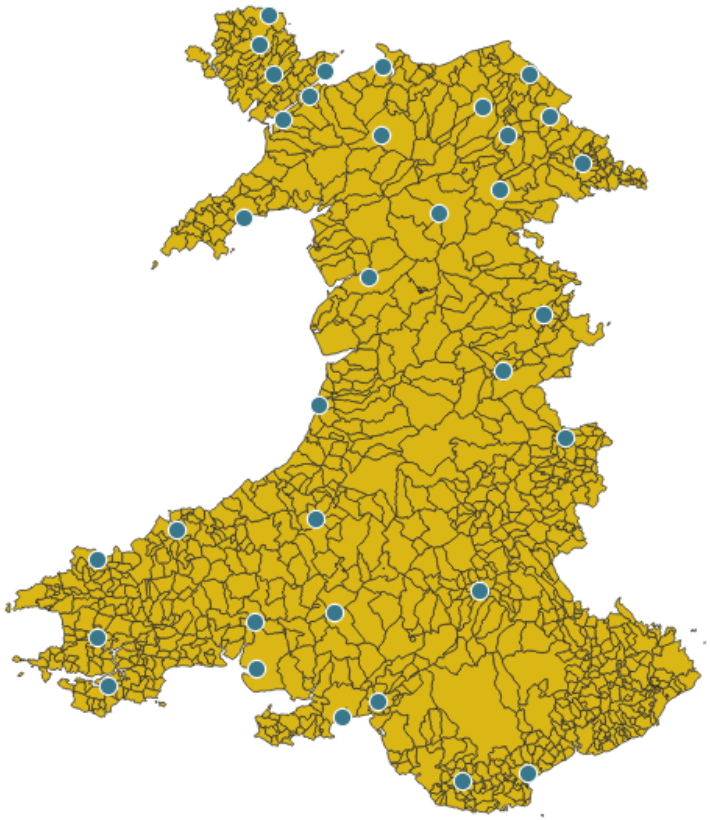
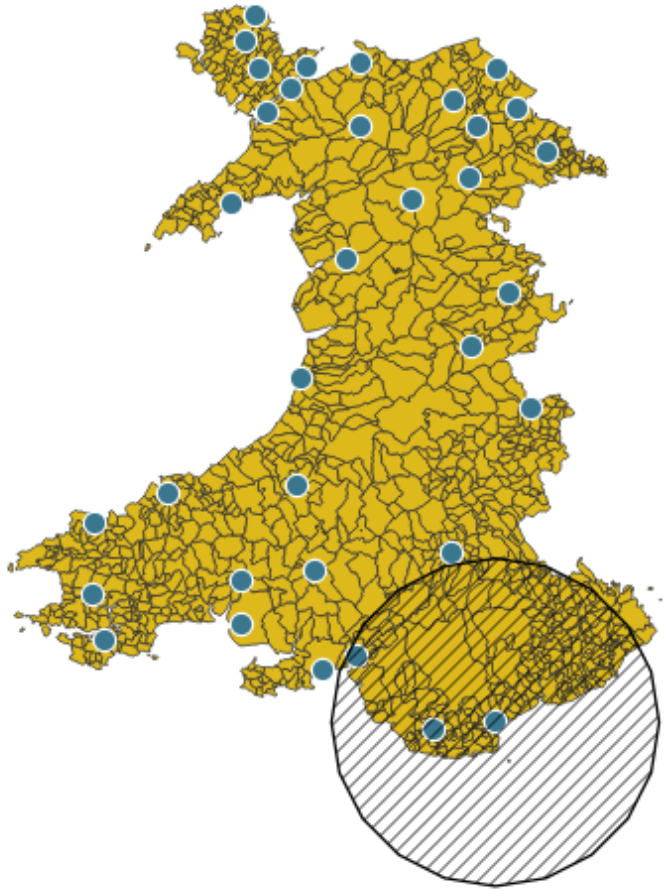
Market-Level Data



Market Locations



One Market Area

▸ Treatment Variable Distribution

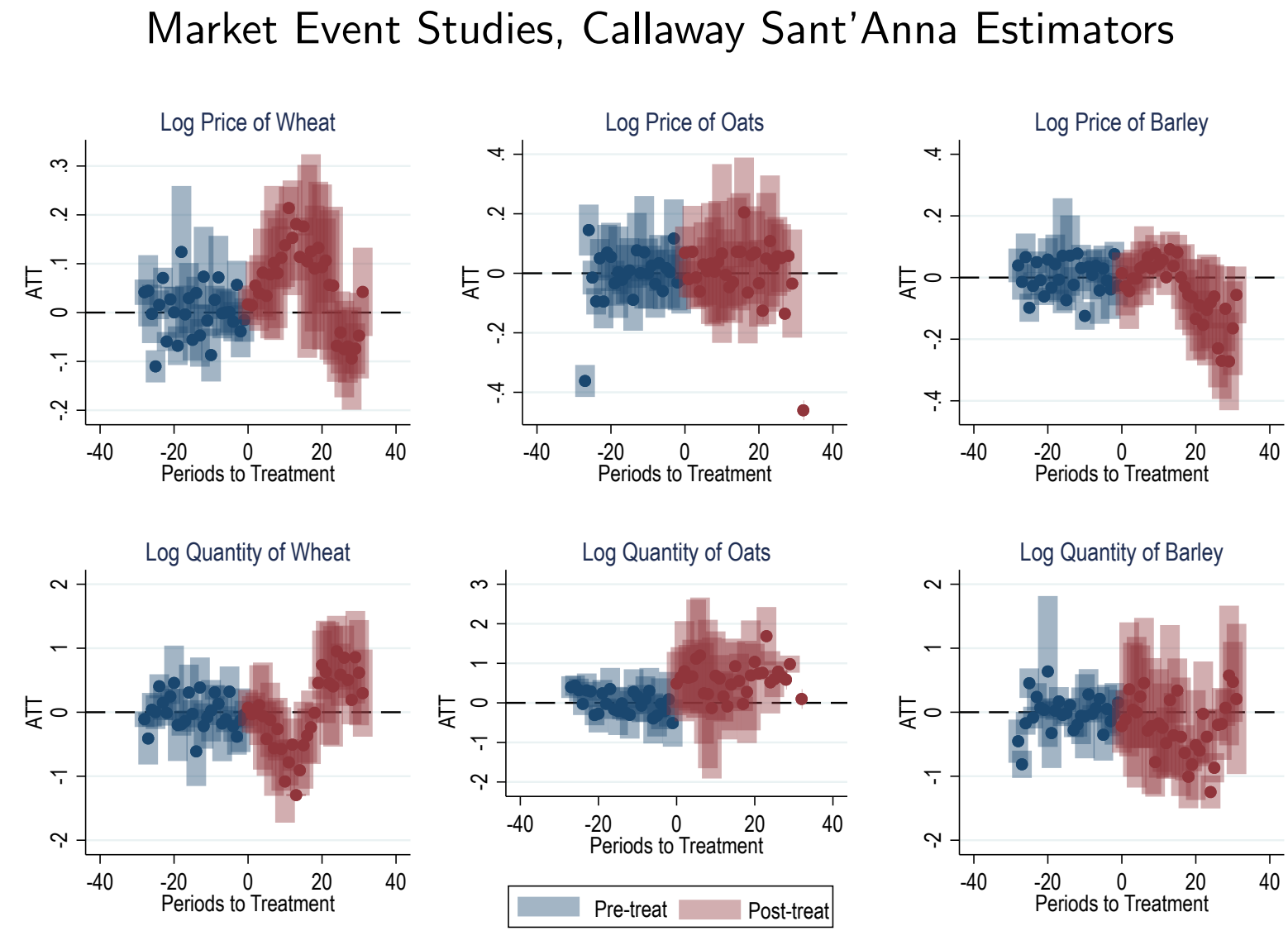
	(1) log(1+wheat price)	(2) log(1+wheat price)	(3) log(1+wheat quantity)	(4) log(1+wheat quantity)
Prop. Enclosed	-0.0837		1.169*	
	(0.0595)		(0.545)	
Prop. Enclosed (weighted)		-0.389		-28.48**
		(0.924)		(9.431)
N	651	651	651	651
Mean of Dep. Var.	2.055	2.055	5.523	5.523
R-squared	0.917	0.917	0.779	0.781

	(1) log(1+oats price)	(2) log(1+oats price)	(3) log(1+oats quantity)	(4) log(1+oats quantity)
Prop. Enclosed	-0.295***		-3.475***	
	(0.0848)		(0.875)	
Prop. Enclosed (weighted)		-0.607		8.856
		(1.247)		(12.92)
N	541	541	541	541
Mean of Dep. Var.	1.249	1.249	5.755	5.755
R-squared	0.863	0.860	0.773	0.766

	(1) log(1+barley price)	(2) log(1+barley price)	(3) log(1+barley quantity)	(4) log(1+barley quantity)
Prop. Enclosed	-0.447***		-1.209*	
	(0.0574)		(0.506)	
Prop. Enclosed (weighted)		-3.696***		-18.29*
		(1.026)		(8.711)
N	675	675	675	675
Mean of Dep. Var.	1.613	1.613	5.731	5.731
R-squared	0.897	0.889	0.646	0.645

Robust standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Market-Level Event Studies



Note: here "treat" is defined as any parish-year that has a weighted proportion enclosed above 0.0025

Conclusion

- We estimate land assets decrease in value after privatization
- Potentially, non-land assets increase relative to land assets
- Population change and occupational shifts don't directly explain this
- No evidence of changes in agricultural commodity prices

Next Steps

- Identification: Geo-locate and link censuses (in progress) and work with individual-level data
- Use the universe of Welsh birth and death records to estimate migration (rather than population change)
- Consider other explanations -privatization of land can increase contracting costs generating holdup problems (Guerriero; 2016, 2023).

Estimating Treatment

- **Treatment 1 (T1)**
  - take the georeferenced location of an enclosure from Chapman (1992)
  - find the parish of the georeferenced location & estimate the proportion of area enclosed of that parish
  - If more than 100% of that parish area is enclosed then evenly distribute the remaining area of enclosure to all other parishes the enclosure record references
- **Treatment 2 (T2)**
- Evenly split enclosure area area to all parishes the enclosure touches
- Compute the proportion of area enclosed for each parish

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Balance Table

	Never Enclosed	*Not Yet Enclosed (1851)*	*Total*	*Difference*
n (%)	3906 (87.0)	582 (13.0)	4488 (100.0)	
HHI of Land Ownership by Acreage	0.24 (0.21)	0.18 (0.14)	0.23 (0.20)	0.06***
HHI of Land Ownership by Value	0.08 (0.20)	0.06 (0.16)	0.08 (0.19)	0.02***
Land Value (£/acre)	1.67 (12.55)	7.02 (40.69)	2.39 (19.07)	-5.35***
Female Labour Force Participation	0.51 (0.24)	0.54 (0.24)	0.52 (0.24)	-.03***
% of Working Women Working in Farms	13.63 (32.16)	8.99 (14.94)	13.02 (30.50)	4.64***
Prop. of Working Population in Farms	0.32 (0.18)	0.36 (0.17)	0.33 (0.18)	-0.04***
Adult Population	1268.51 (5298.60)	2992.57 (22917.20)	1492.09 (9631.95)	-1724.06***
Child Population	518.55 (2244.61)	1236.81 (9559.39)	611.69 (4034.30)	-718.26***

*** 1% significance level

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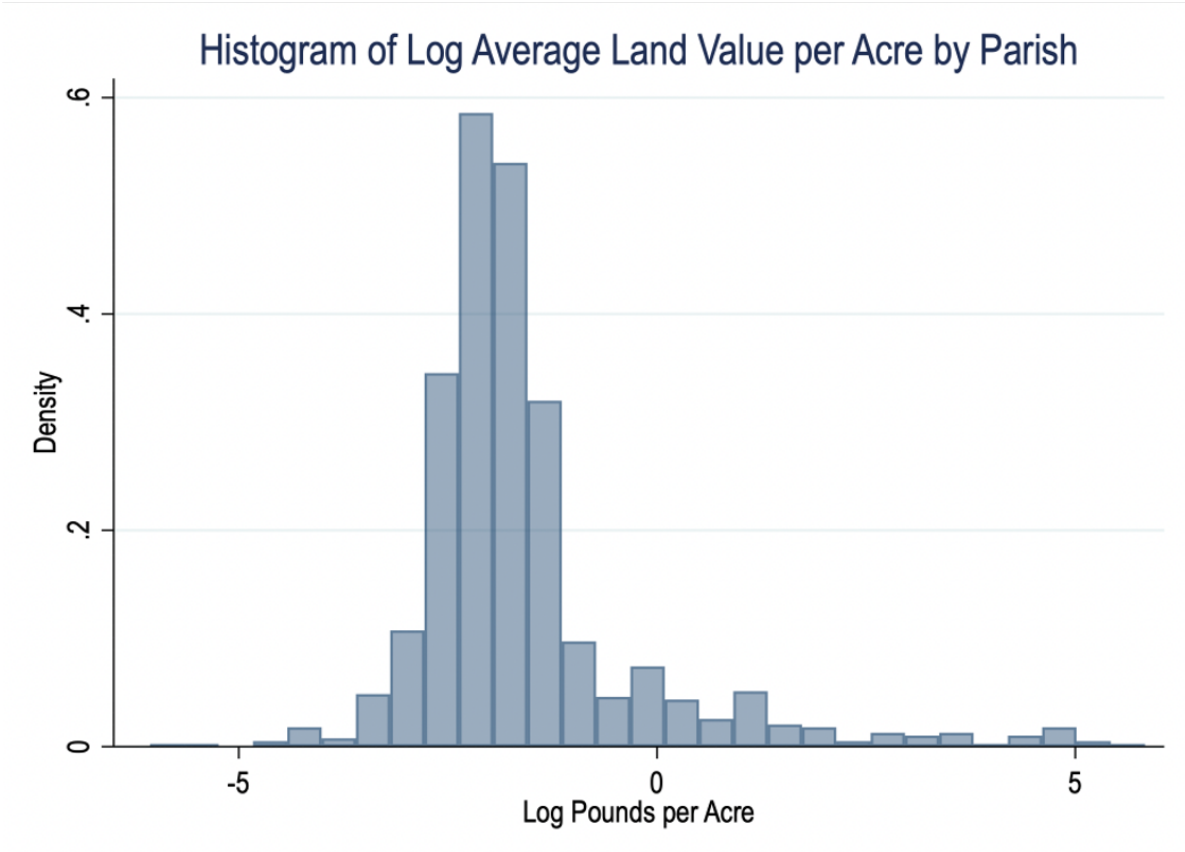
Distribution of Acreage Value by Parish



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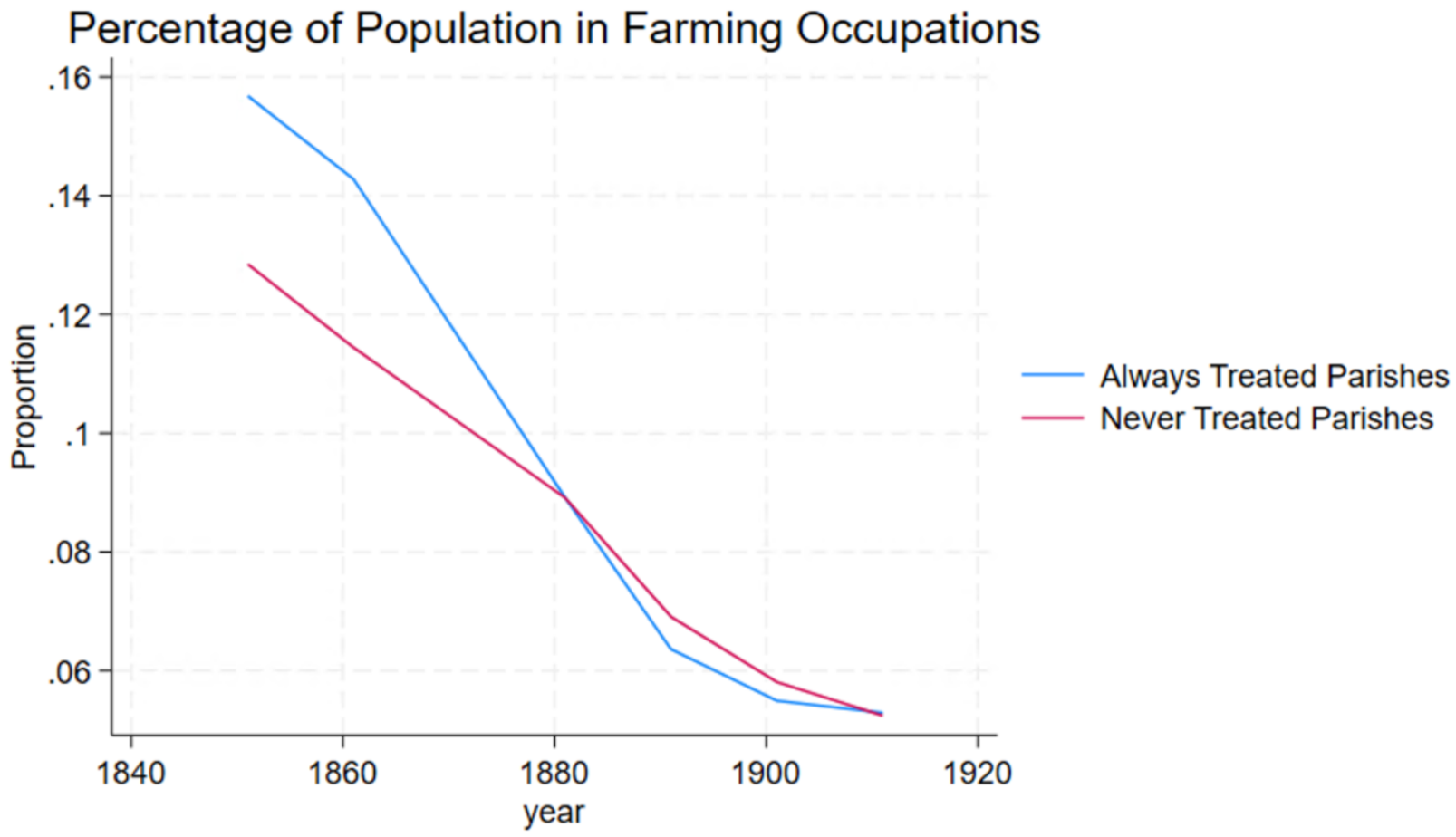
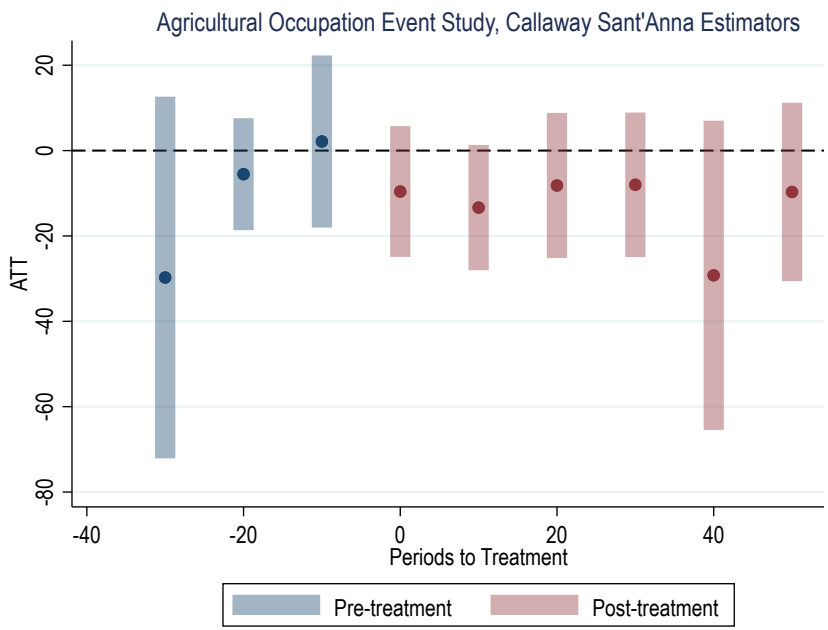
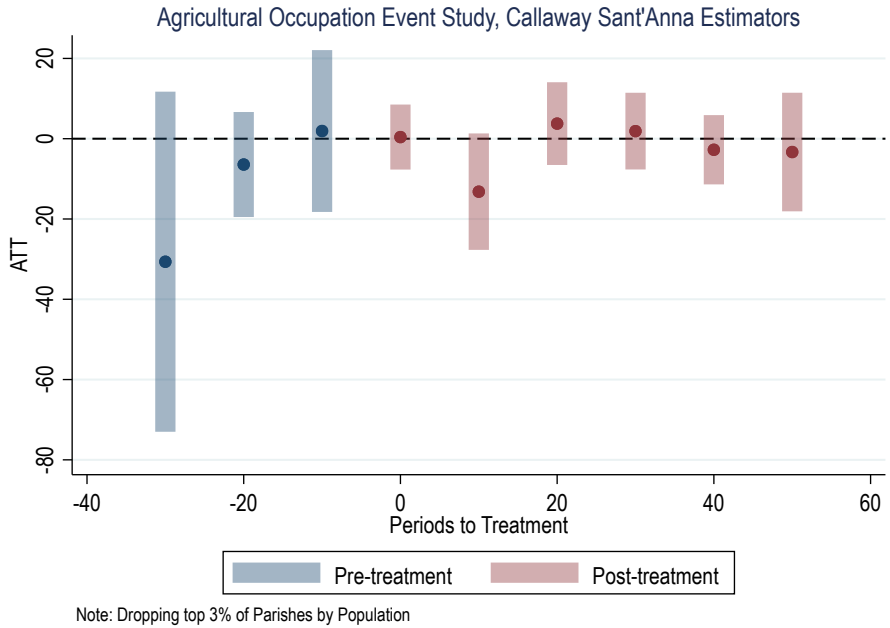
Adults in Agriculture



Agriculture Occupation Event Studies



All Parishes



Dropping Top 3%

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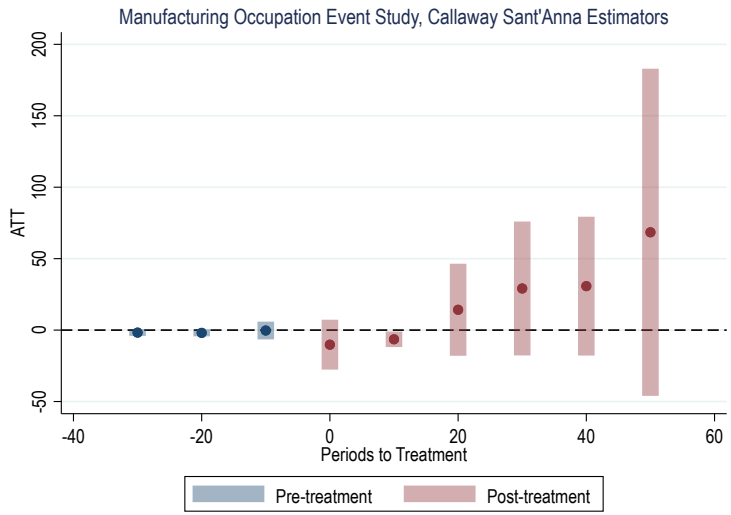
Manufacturing Occupation Event Studies



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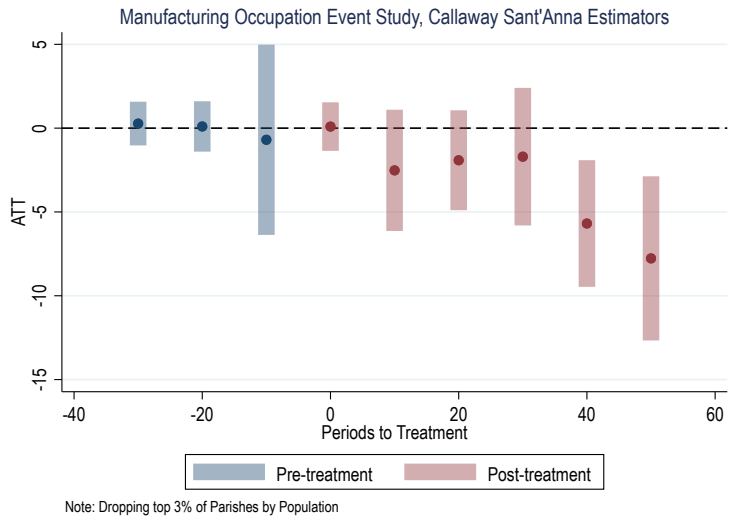

Non-Urban Parishes

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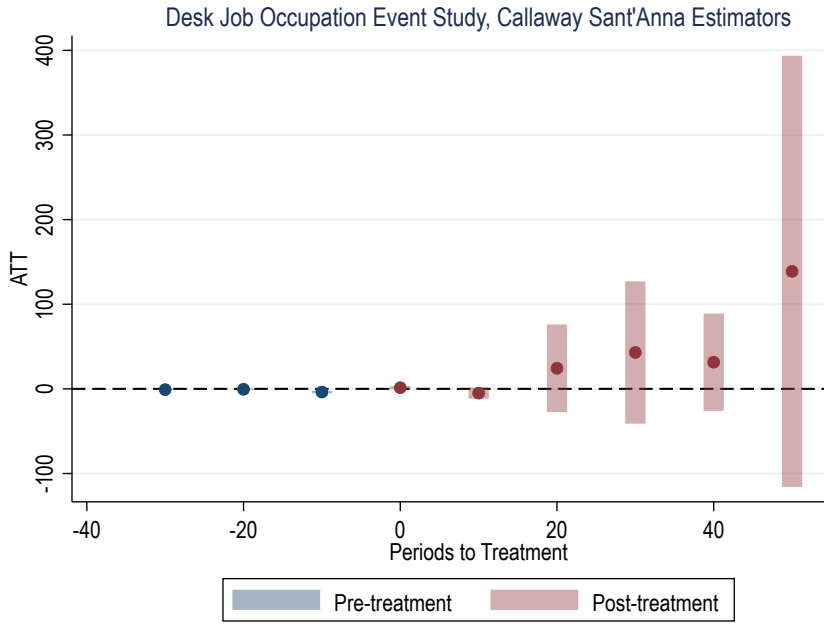
Services Occupation Event Studies



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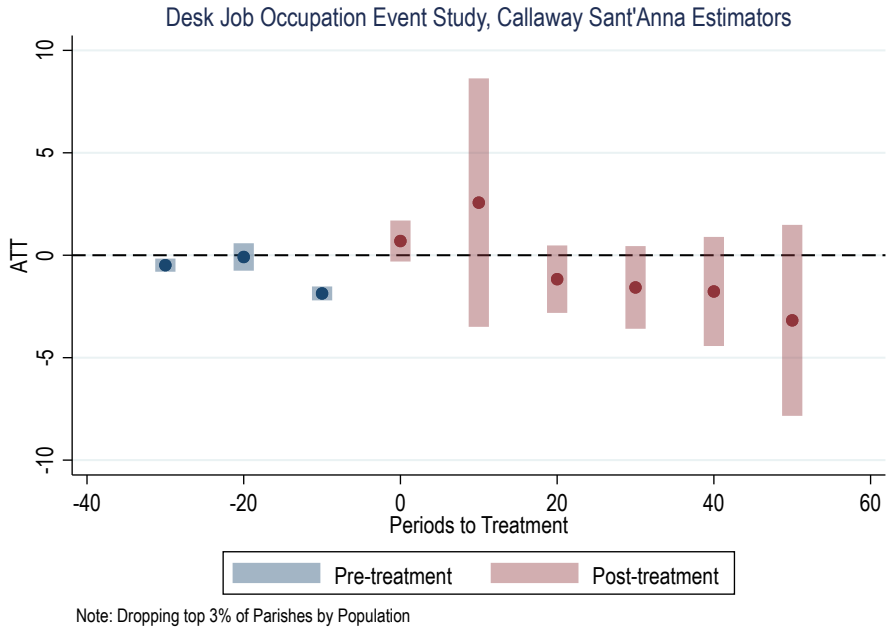

Non-Urban

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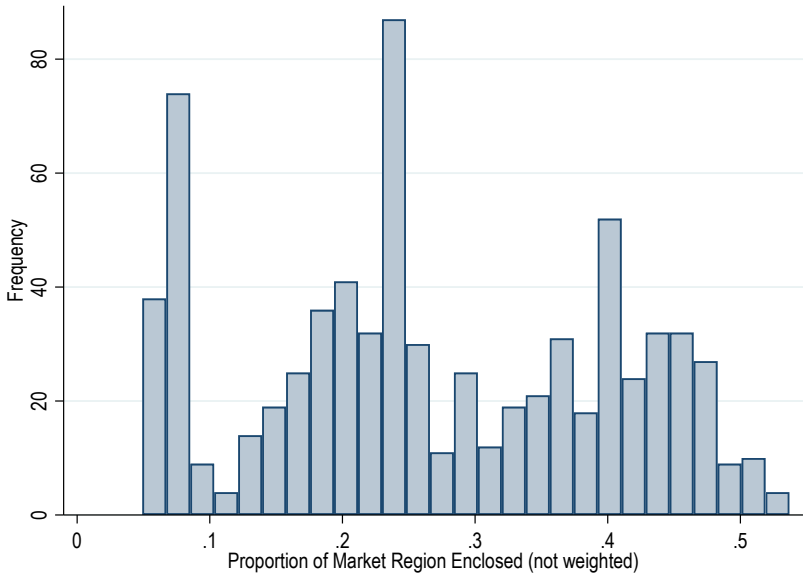
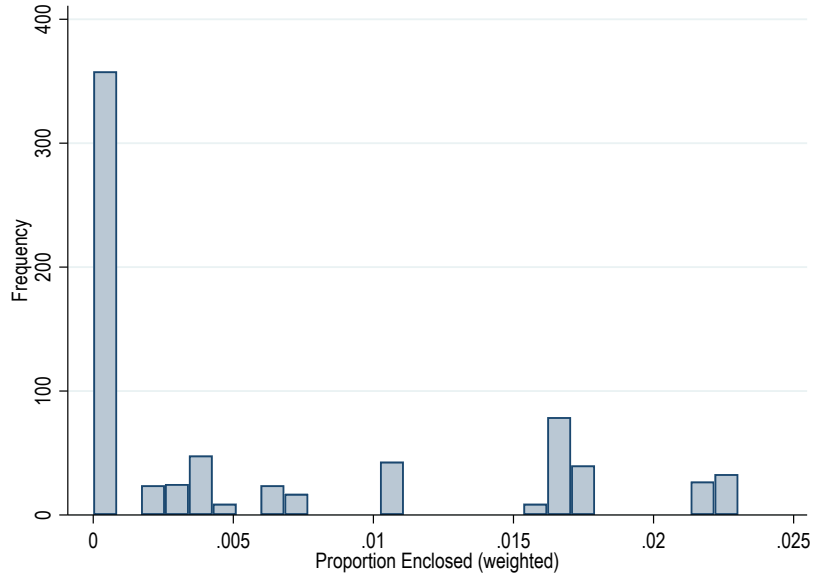
Histograms of Market Region Treatment





% of Market Region Enclosed

% Enclosed, Weighting by Distance

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Parish Population

(a) Dropping No Parishes

	(1) Callaway Sant'Anna	(2) DiD	(3) T1	(4) T2
ATT	626.2	610.1	-754.6*	-1087.1***
	(488.2)	(805.5)	(304.0)	(328.8)
N	12288	12288	12288	12288
Mean of Dep. Var.	1291.1	1291.1	1291.1	1291.1
R-squared	0.580	0.580	0.579	0.579

(b) Dropping Top 3% of Parishes by Population

	(1) Callaway Sant'Anna	(2) DiD	(3) T1	(4) T2
ATT	59.02	20.73	135.6	-26.47
	(41.70)	(36.42)	(118.0)	(79.16)
N	11928	11928	11928	11928
Mean of Dep. Var.	755.9	755.9	755.9	755.9
R-squared	0.840	0.840	0.840	0.840

Robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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