Slavery and the British Industrial Revolution

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- One the one hand: Williams Hypothesis
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- On the other hand: Disputed
  - "African slavery ... did not ... cause the British Industrial Revolution ... its role was no greater than that of many other economic activities." (*Eltis and Engerman 2000*)

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- Theoretical model of international trade, structural transformation and economic development
- Find substantial effects of slavery wealth on local industrial activity and economic development

Individual Wealth

- At the individual level, the wealth obtained from slavery was large
- Grade I-listed Harewood House is still owned by the Lascelles family, who amassed much of their wealth from slavery
- Second Earl of Harewood, Henry Lascelles, received £26,307 for 1,277 slaves, equals £19m (inflation adjusted) or £128m (share of GDP)

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  - Britain — West Africa — Caribbean and North America
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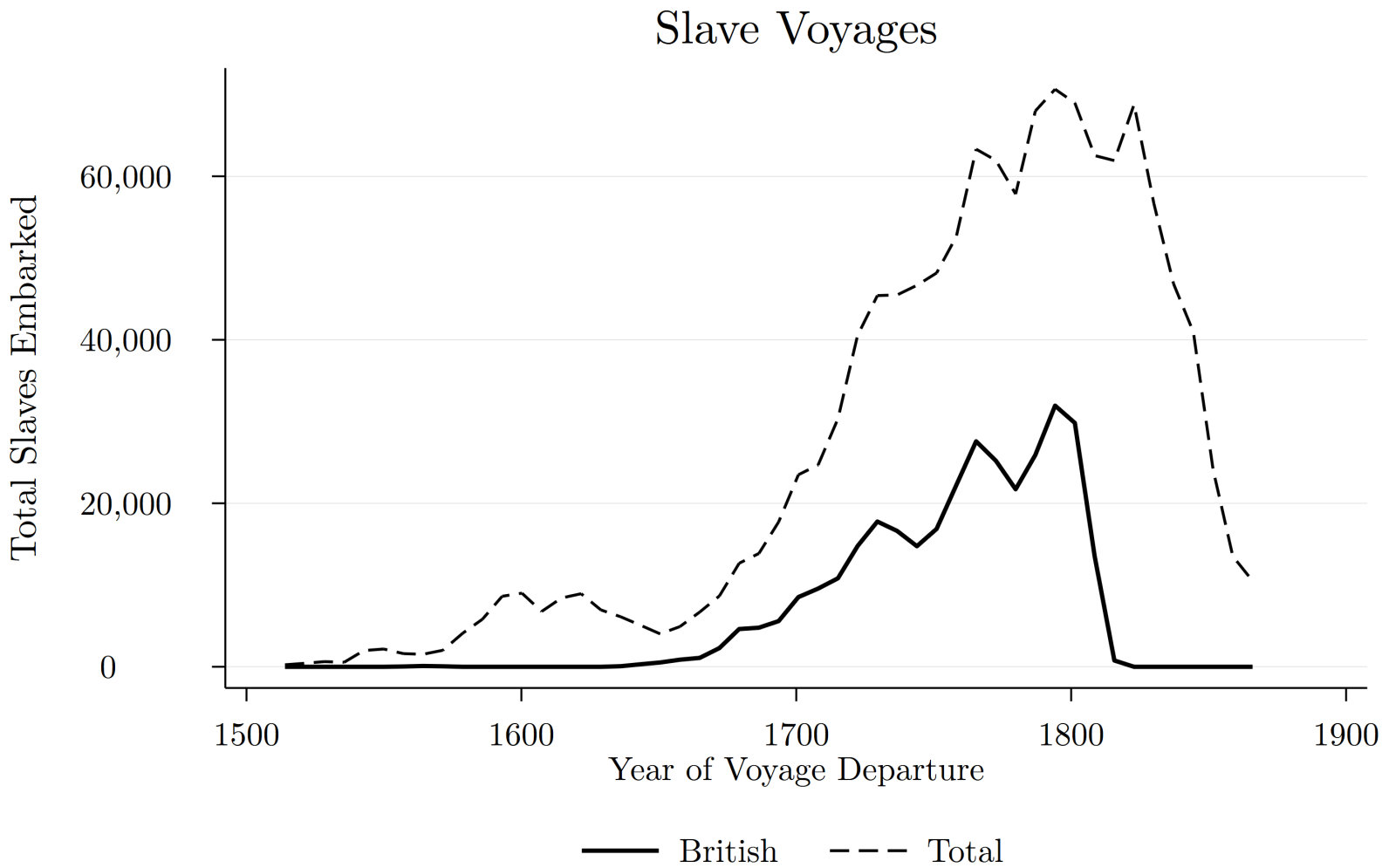
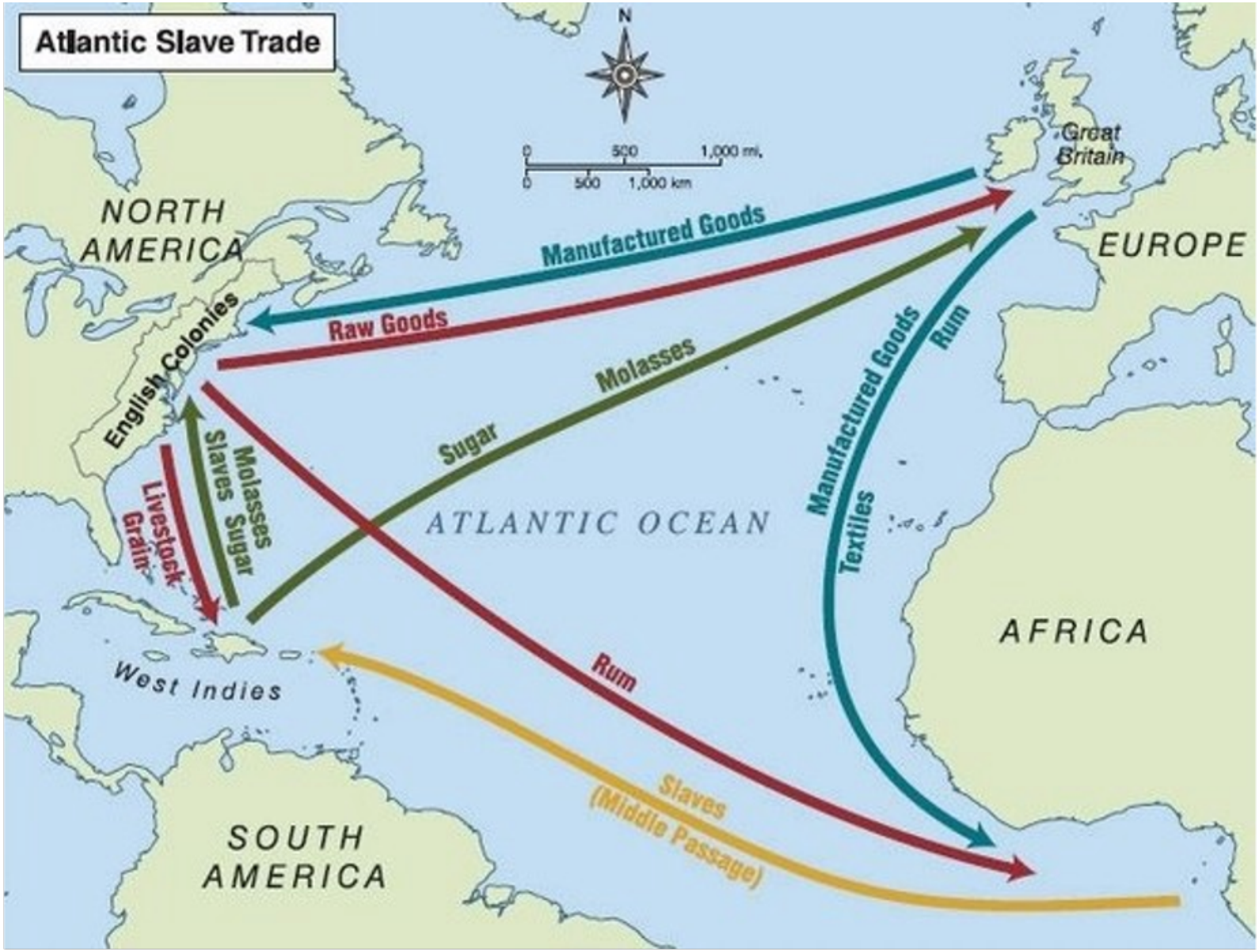
- Slavery Abolition Act 1833
  - Made purchase or ownership of slaves illegal within British Empire, except East India Company, Ceylon, and Saint Helena (eliminated 1843)
  - British government raised £20 million (40% of gov revenue, 5% of GDP, debt paid off in 2015) for compensation of *slaveholders*
  - Only slaves below the age of 6 were emancipated immediately
  - Slaves over the age of 6 were indentured as "apprentices," with final apprenticeships not scheduled to end until 1840

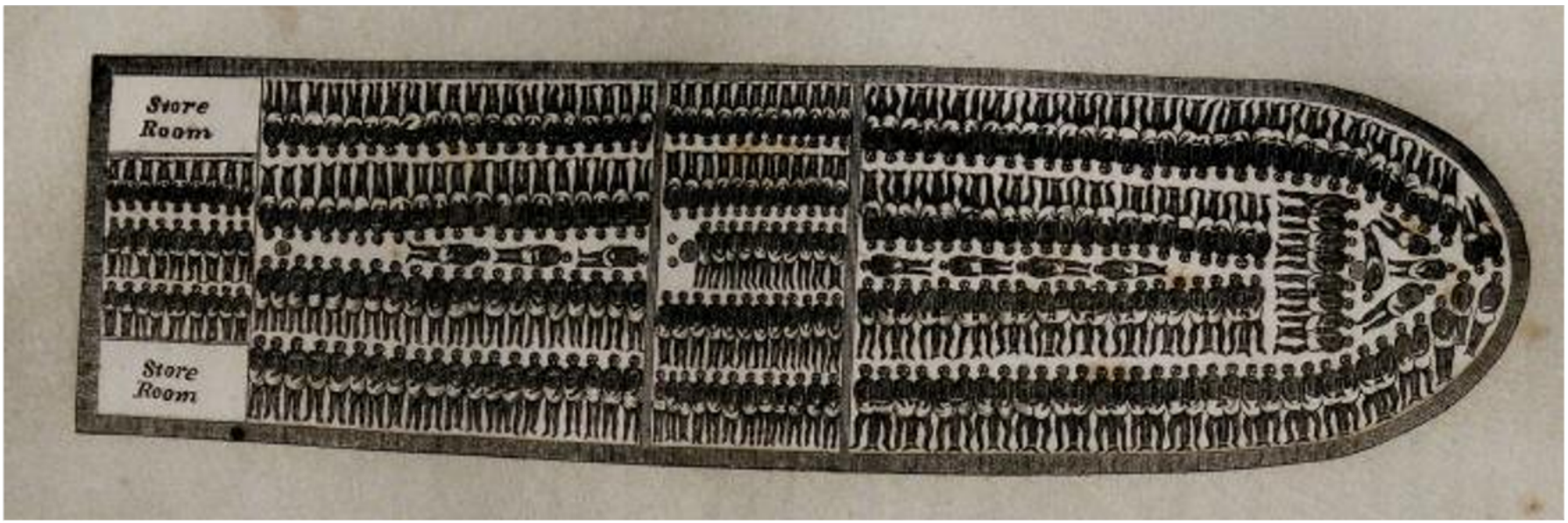
Number of Voyages



Triangular Trade

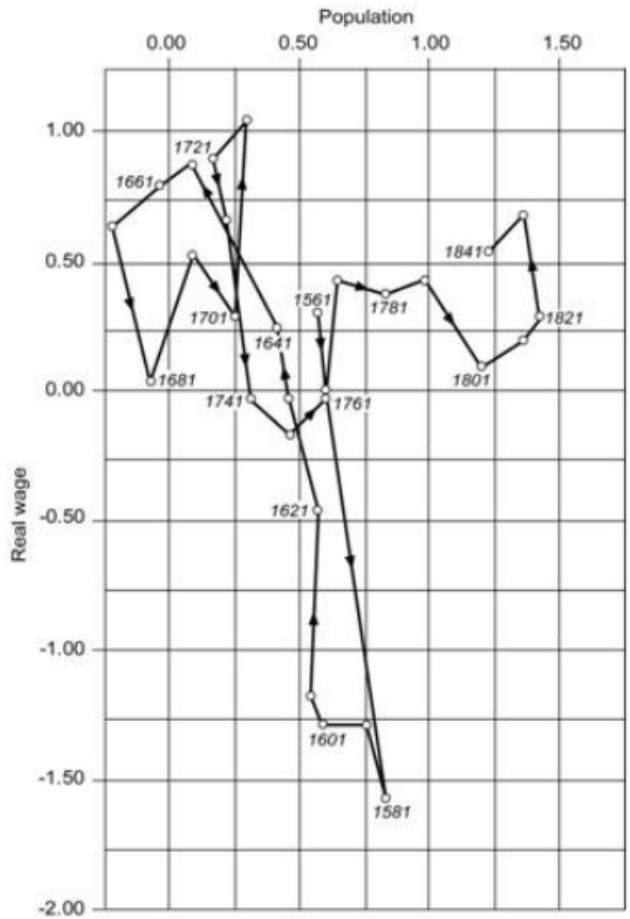


Middle Passage



Understanding the British Industrial Revolution

- Growth pre-1830
  1. Per capita growth accellerates (mildly) after ca. 1680
  2. Relationship between population and income changes radically after 1770
- This paper:
  1. Examines cross-sectional differences by the 1830s
  2. Calibrates a model to examine hgow much poorer 1830s Britain would ahve been without *overseas* slavery



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Data

- Legacies of British Slavery Database (UCL)
  - Based on compensation claims paid by British parliament under 1833 Act
  - Around 25,000 slaveholders, who held slaves in the British Caribbean, Mauritius or the Cape, including number of slaves & compensation
- Slave Voyages Database
  - >10,000 voyages by British owners, including >2.9 million enslaved
  - Ship captain and owners, slaves embarked and disembarked, voyage origin, principal place of purchase, principal place of landing, year
- Population census of England and Wales
  - Data for around 11,000 parishes
  - Population (from 1801), employment by occupation/industry (from 1831)
- Parliamentary return of location of all mills and factories in 1839
- 800 years property values: 1066 Domesday; 1344 Lay Subsidy; 1535 Valor Ecclesiasticus; 1690/1798 land tax; Rateable values 1815-1896
- Ancestry.com – family trees
- British Newspaper Archive (BNA) for steam adoption

Jamaica Compensation

JAMAICA.

Divisions.	Classes.	Average Value of a Slave as appraised by the sworn Valuators. £ s. d.	Compensation per Slave. £ s. d.
Prædial Attached	Head People	78 4 1½	31 0 6¾
	Tradesmen	78 17 8	31 5 11¼
	Inferior Tradesmen	52 2 11	20 13 9¼
	Field Labourers	67 1 5¾	26 12 2¾
	Inferior Field Labourers	32 5 9¾	12 16 2¾
Prædial Unattached	Head People	78 4 10	31 0 10
	Tradesmen	79 11 0	31 11 2¾
	Inferior Tradesmen	52 13 4¼	20 17 11
	Field Labourers	66 19 7¾	26 11 6
	Inferior Field Labourers	33 6 2¼	13 4 3¾
Non-prædial	Head Tradesmen	78 0 7	30 19 2
	Inferior Tradesmen	51 17 0	20 11 5
	Head People employed on Wharfs, Shipping, or other Avocations	76 6 1	30 5 5½
	Inferior People of the same Description	57 3 7¼	22 13 8¾
	Head Domestics	73 9 9½	29 3 1½
	Inferior Domestics	49 5 1¾	19 10 10¼
	Children under Six Years of Age on 1st August 1834	13 17 0¼	5 9 10¾
	Aged, diseased, or otherwise non-effective	10 18 5¼	4 6 8

Example Claim

Centre for the Study of the
Legacies of British Slavery (/lbs/)

Henry Lascelles, 2nd Earl of Harewood

Profile & Legacies Summary

25th Dec 1767 - 24th Nov 1841

CLAIMANT OR BENEFICIARY

Biography

1.
Henry Lascelles, 2nd Earl of Harewood, son of Edward Lascelles (1739-1820), 1st Earl and Anne Chaloner. Landowner. 'The family made its money in the West Indies'. Styled Viscount Lascelles, 3 June 1814-1820; succeeded his father as 2nd Earl of Harewood, 3 April 1820.

Addresses (1)

Harewood House, Yorkshire, Yorkshire, England — **DETAILS (/LBS/ADDRESS/VIEW/1922/6180)**

Example Claim

Associated Claims (6)

Barbados 211 (Belle) (/lbs/claim/view/5922)	£6,486 1s 6d	Awardee	DETAILS (/LBS/CLAIM/VIEW/5922)
Barbados 2769 (Fortescues) (/lbs/claim/view/3115)	£3,291 11s 4d	Awardee	DETAILS (/LBS/CLAIM/VIEW/3115)
Barbados 2770 (Thicket) (/lbs/claim/view/3116)	£5,810 5s 6d	Awardee	DETAILS (/LBS/CLAIM/VIEW/3116)
Barbados 3817 (Mount St George) (/lbs/claim/view/6143)	£3,835 6s 5d	Awardee	DETAILS (/LBS/CLAIM/VIEW/6143)
Jamaica St Dorothy 23 (Nightingale Grove Estate) (/lbs/claim/view/20581)	£2,599 0s 4d	Awardee	DETAILS (/LBS/CLAIM/VIEW/20581)
Jamaica St Thomas-in-the-Vale 147 (Williamsfield Estate) (/lbs/claim/view/19790)	£4,286 19s 3d	Awardee	DETAILS (/LBS/CLAIM/VIEW/19790)

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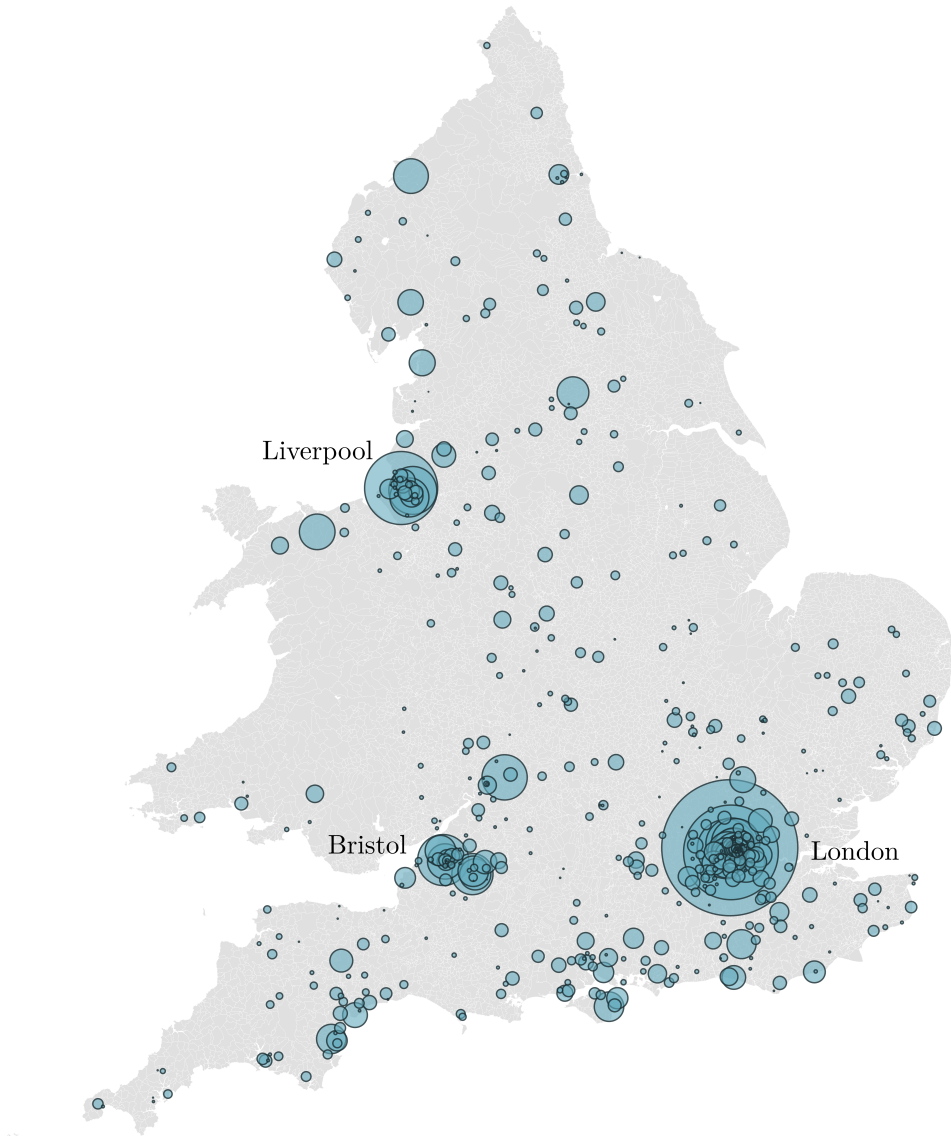
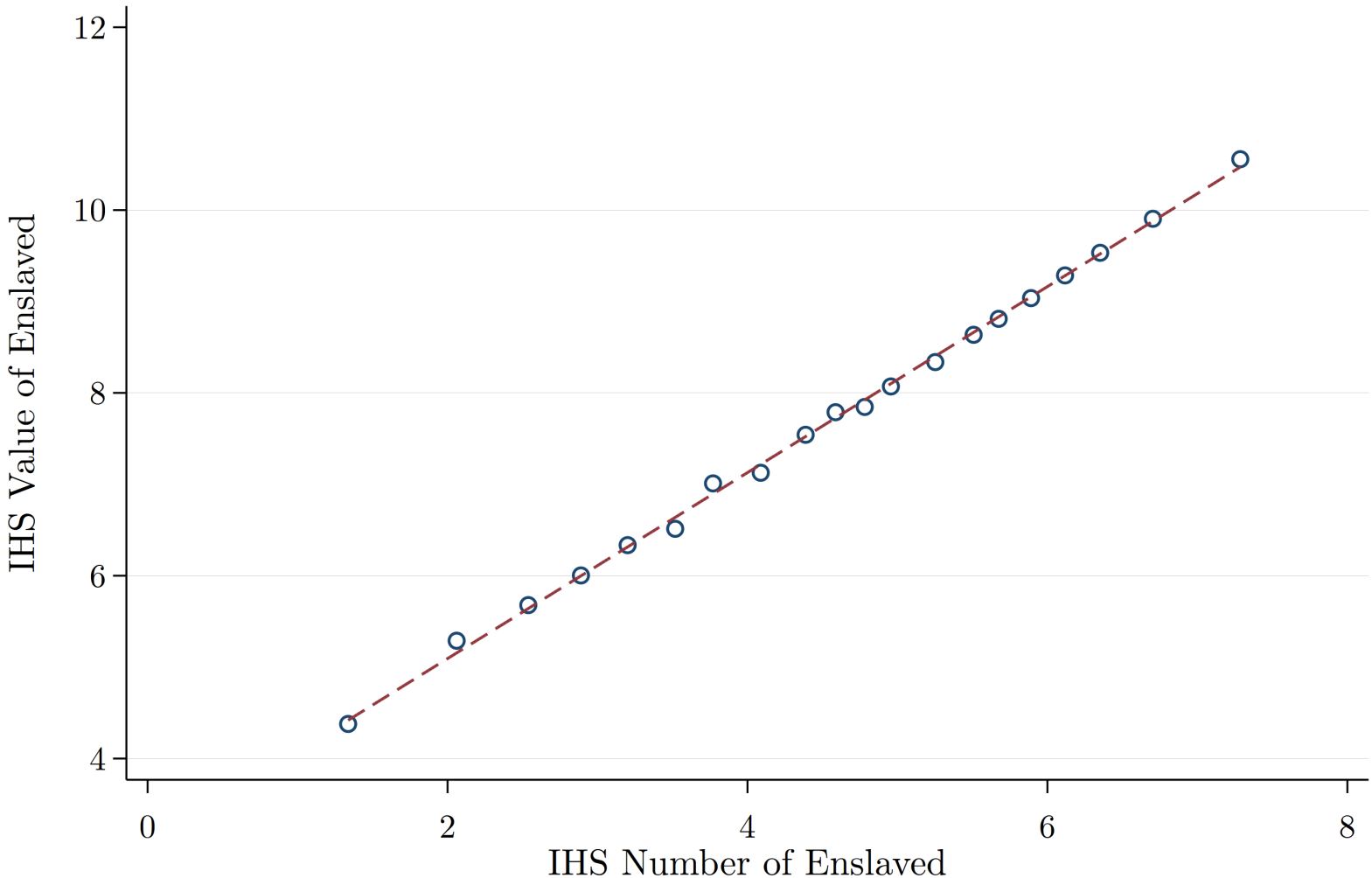
Slaveholding in England & Wales in 1833

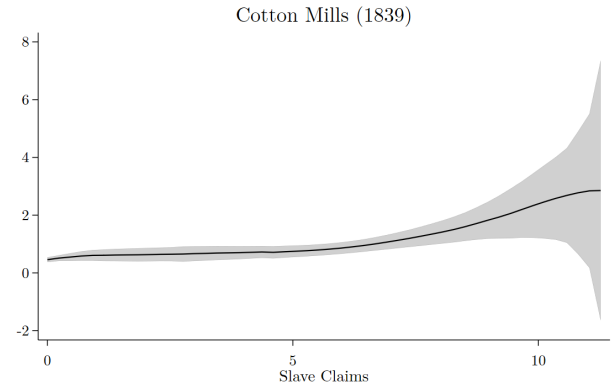


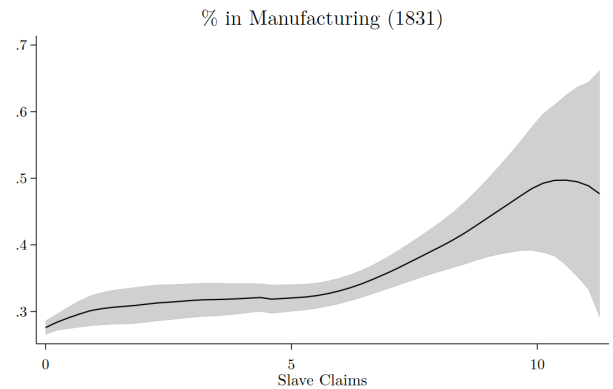
Compensation and Number Enslaved

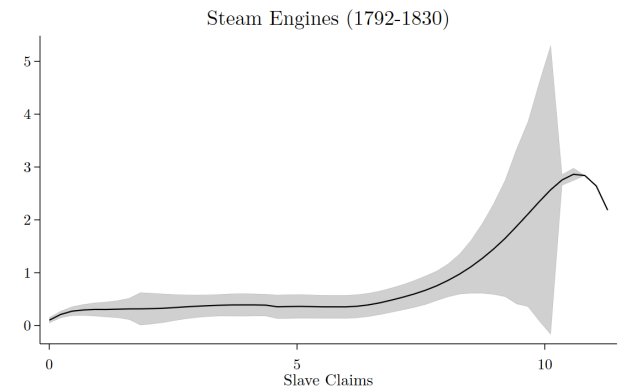


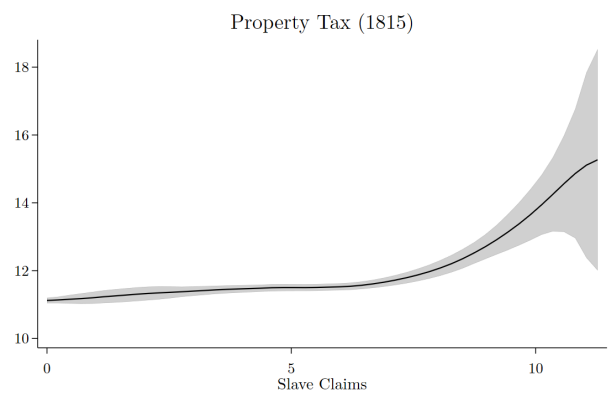
schedule

Correlations 1833 Slave Claims with 1831/1839 Outcomes

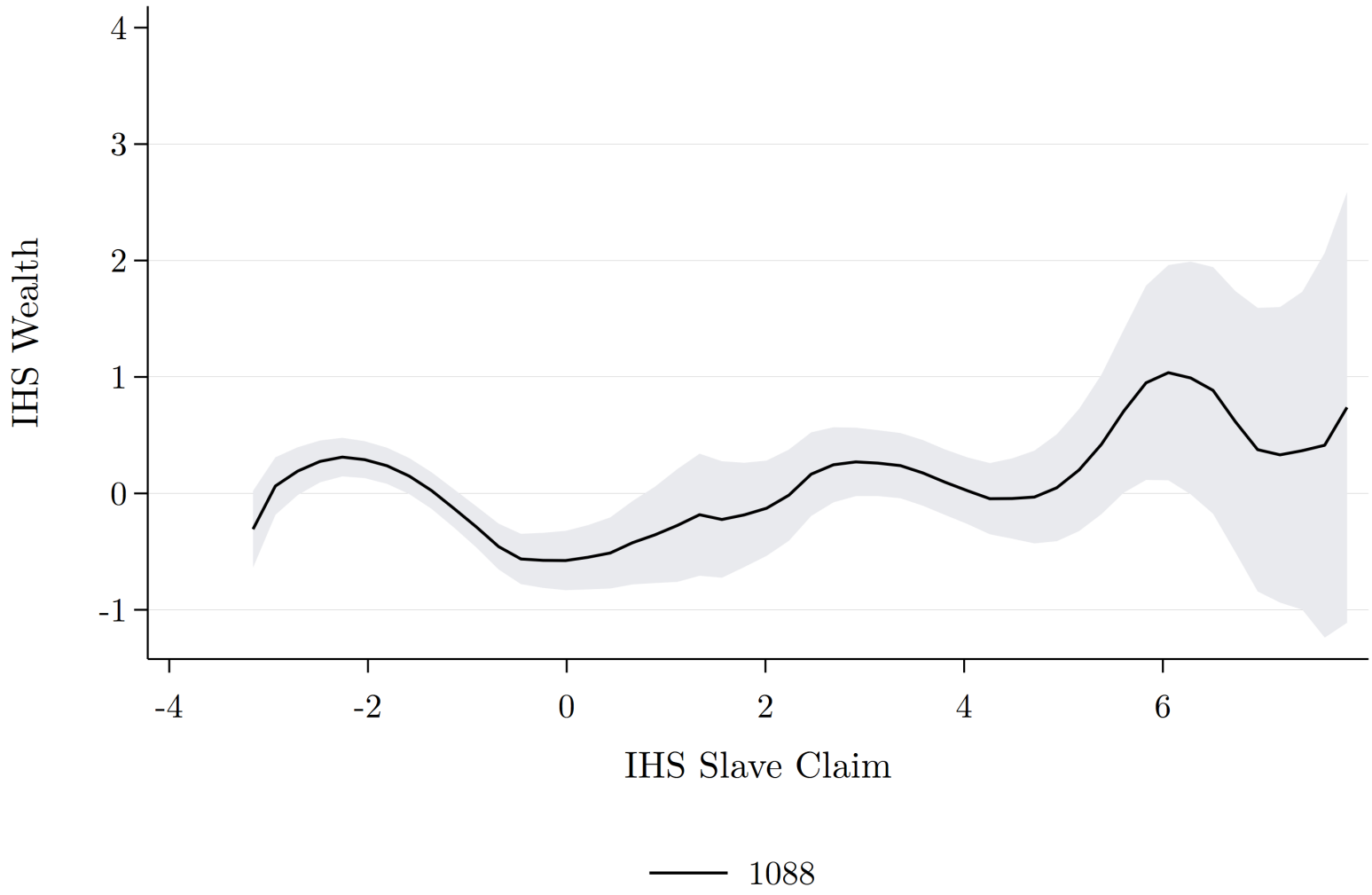








Property Value Gradients



- Conditional correlation after controlling for latitude, longitude and population Domesday

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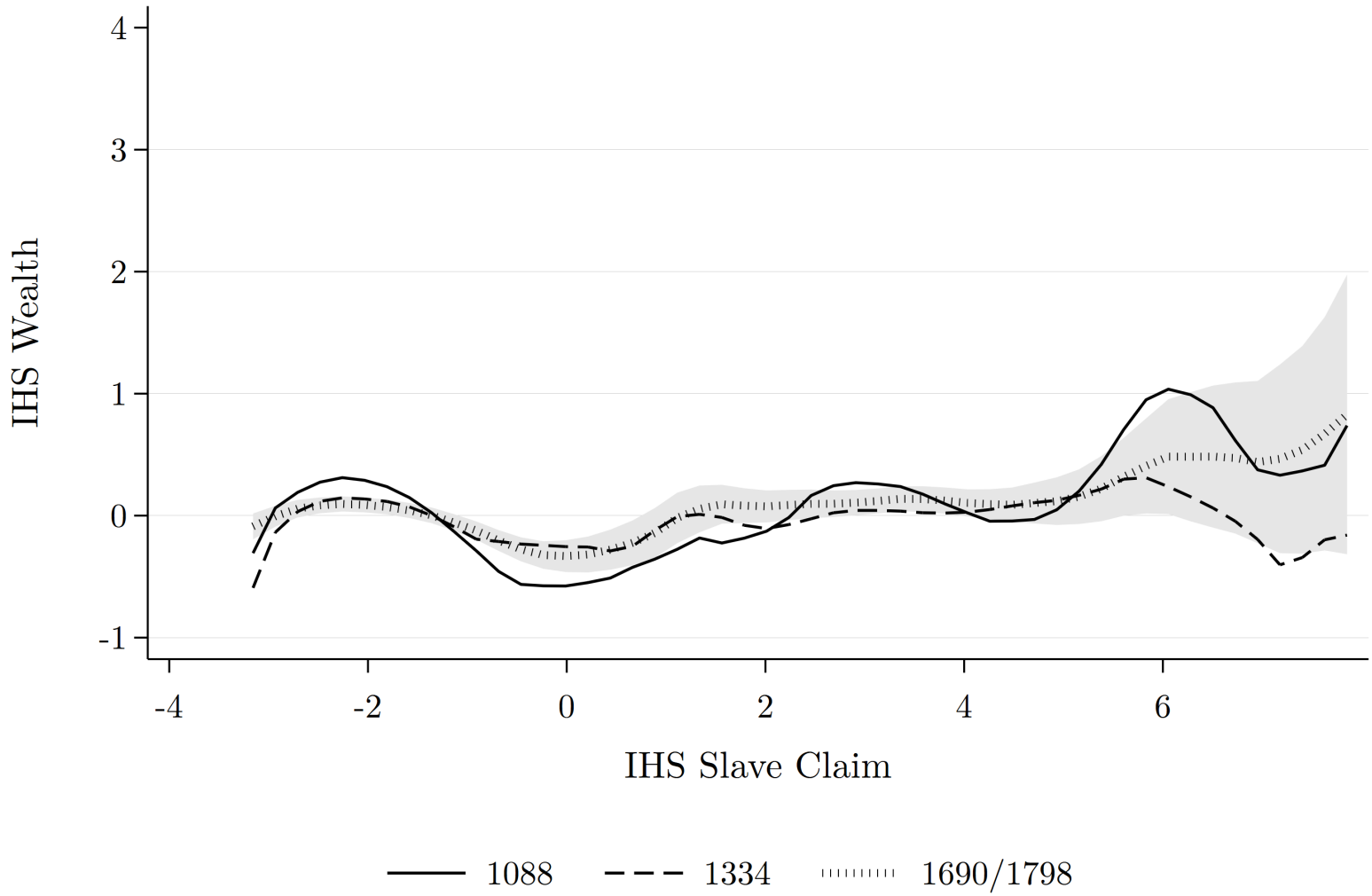

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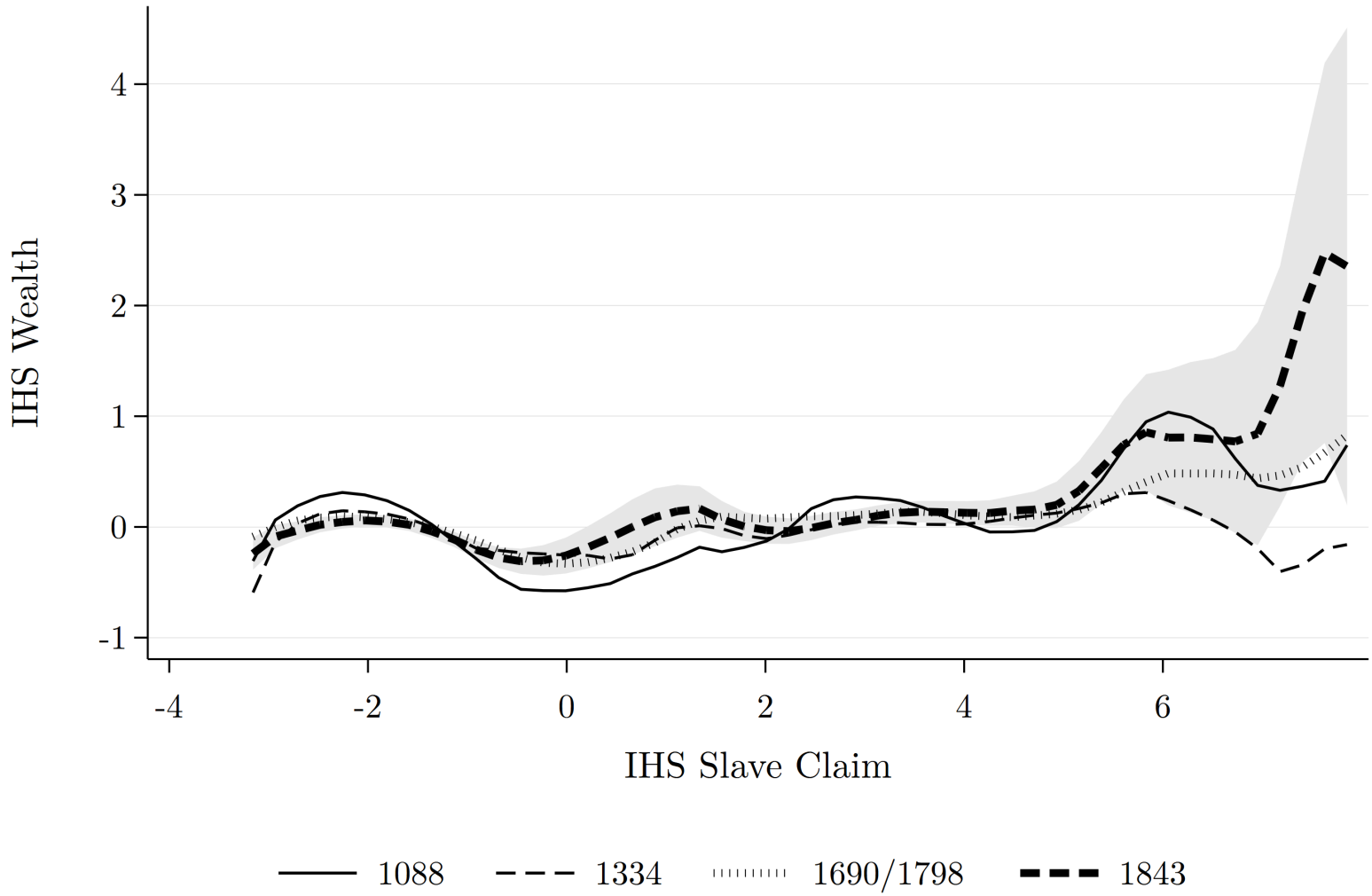

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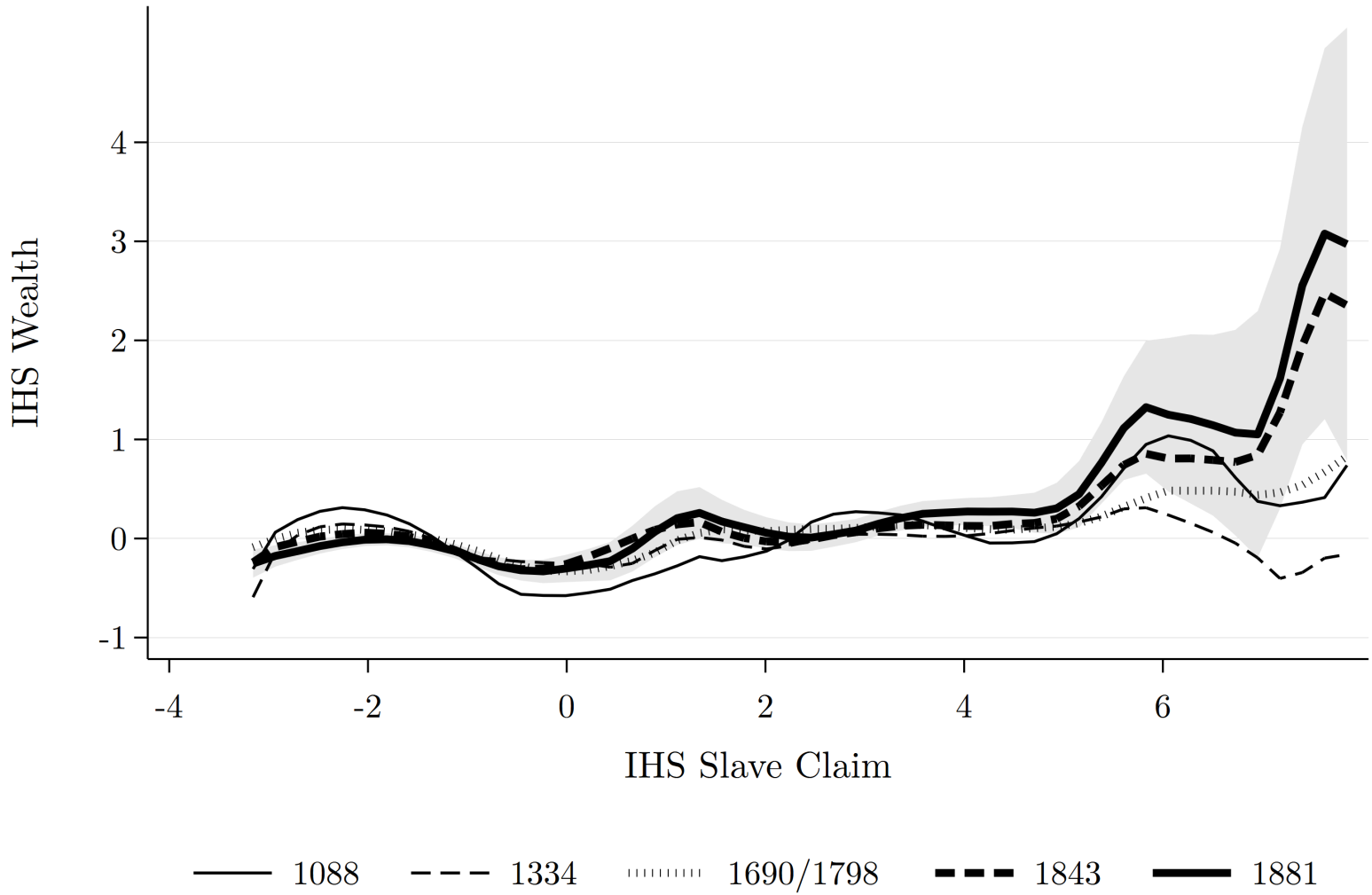

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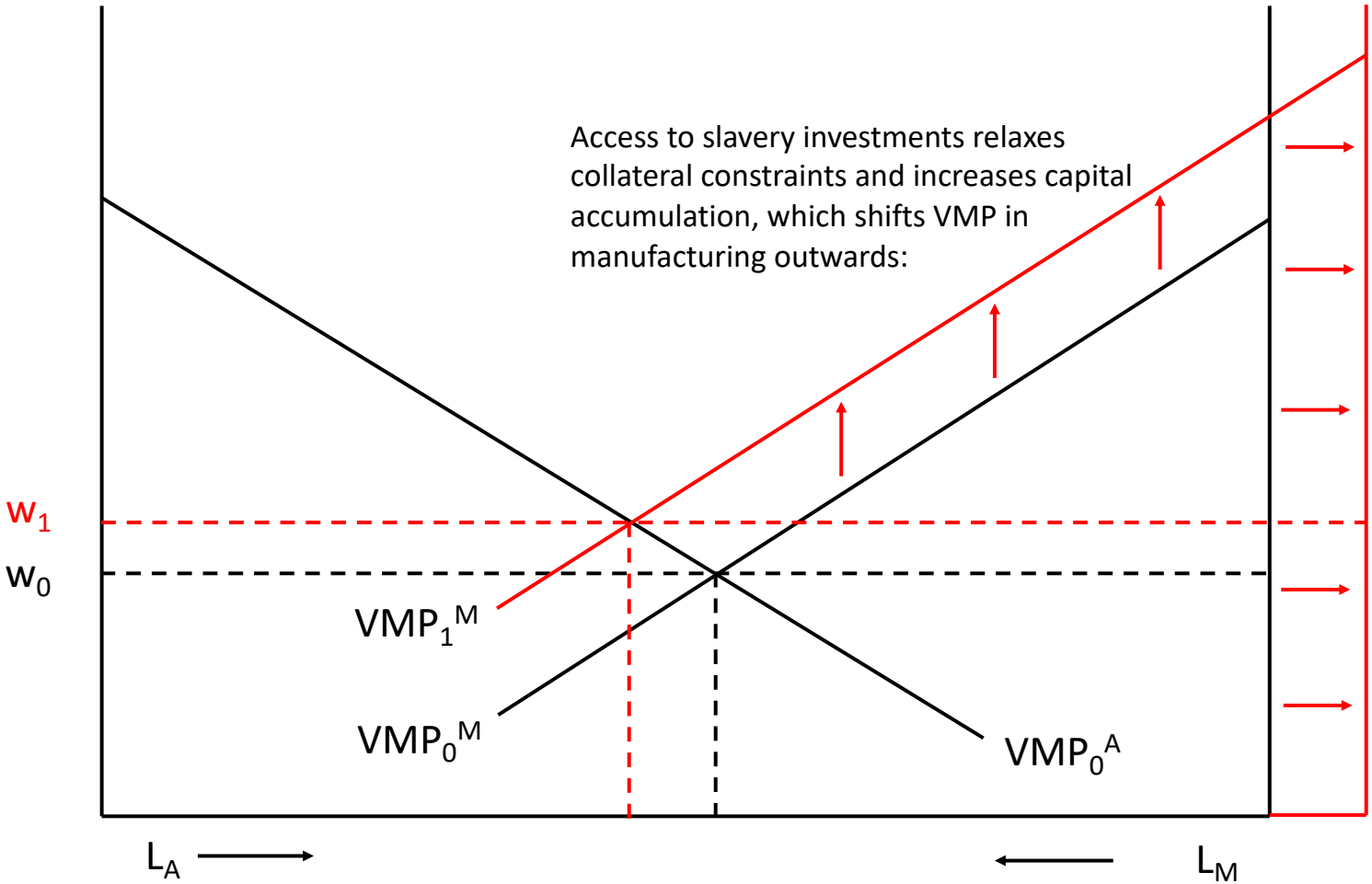
Dynamic Specific Factors Model

- Economy consists of many domestic locations and an overseas colony
- Three types of agents: capitalists and free workers in domestic locations, and enslaved workers in the colony (Ricardo-Viner)
- Domestic agriculture uses free labor and land
- Domestic manufacturing uses free labor and capital
- Colonial plantation products use enslaved labor and capital
- Workers are perfectly mobile across domestic locations
- Capitalists are immobile and heterogeneous in wealth (a_{nt})
- Capitalists can allocate their wealth to domestic investments in manufacturing, colonial investments, and/or consumption bond
- Domestic/colonial investments subject to idiosyncratic productivity shocks and imperfect substitutes (Koijen-Yogo JPE 2019)
- Capitalists face collateral constraints (Moll AER 2014): $k_{nt} \leq \lambda_{nt} a_{nt}$
- Access to slavery investments relaxes collateral constraints and raises the expected return to capital accumulation

Dynamic Specific Factors Model



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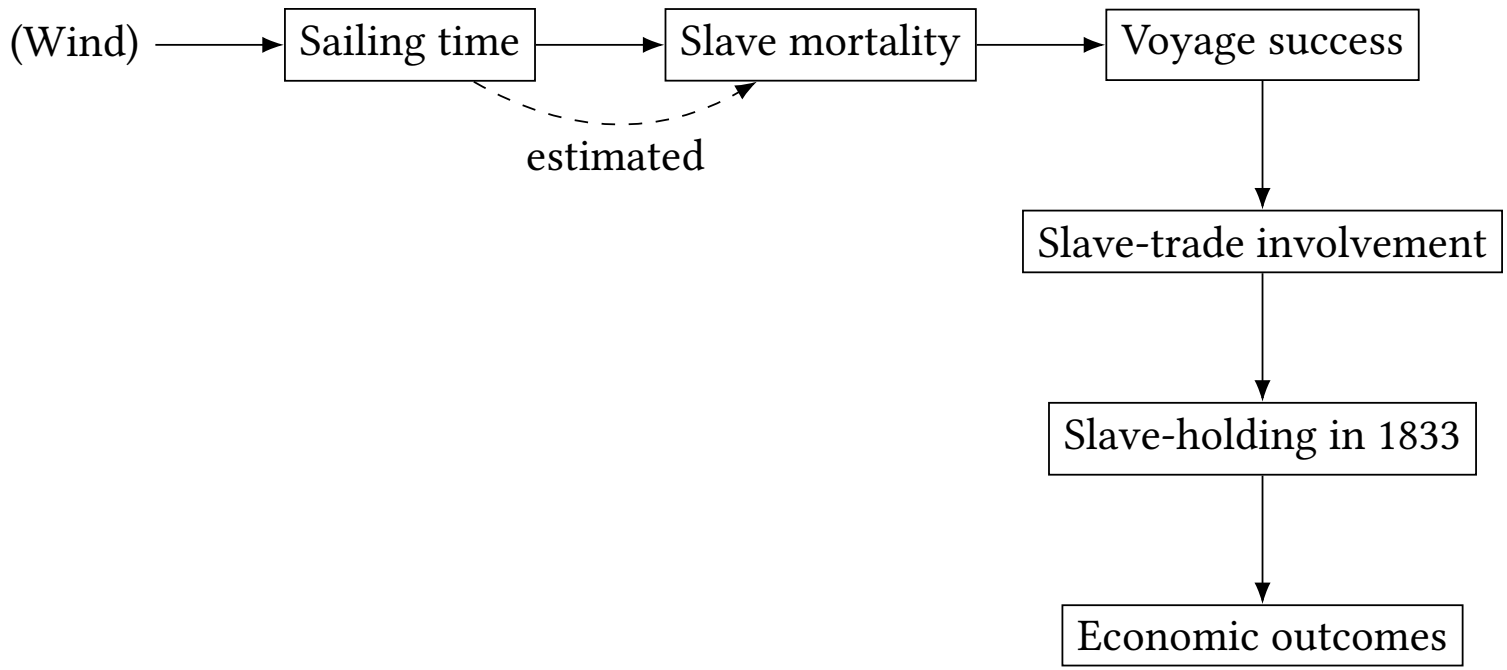
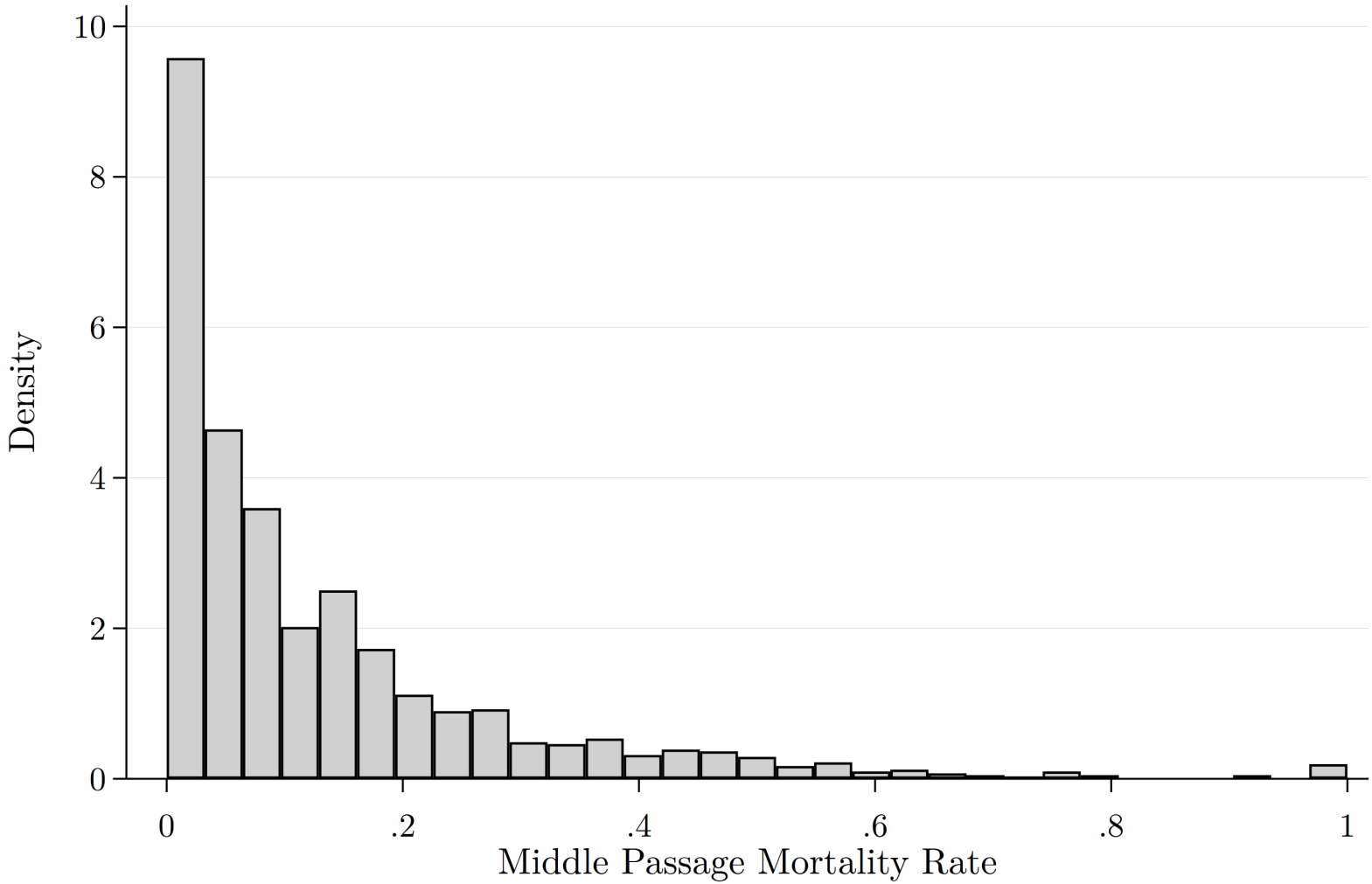
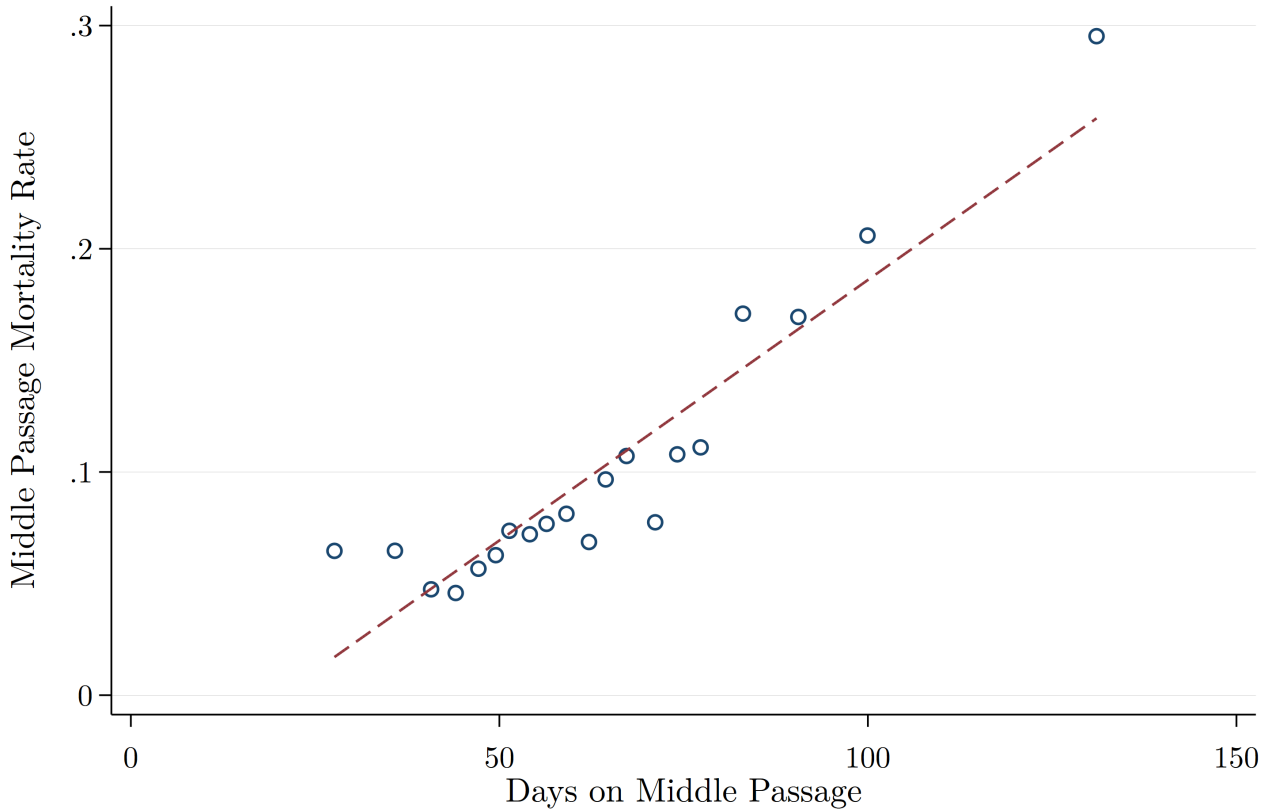
Identification Strategy



Large Variation in Mortality

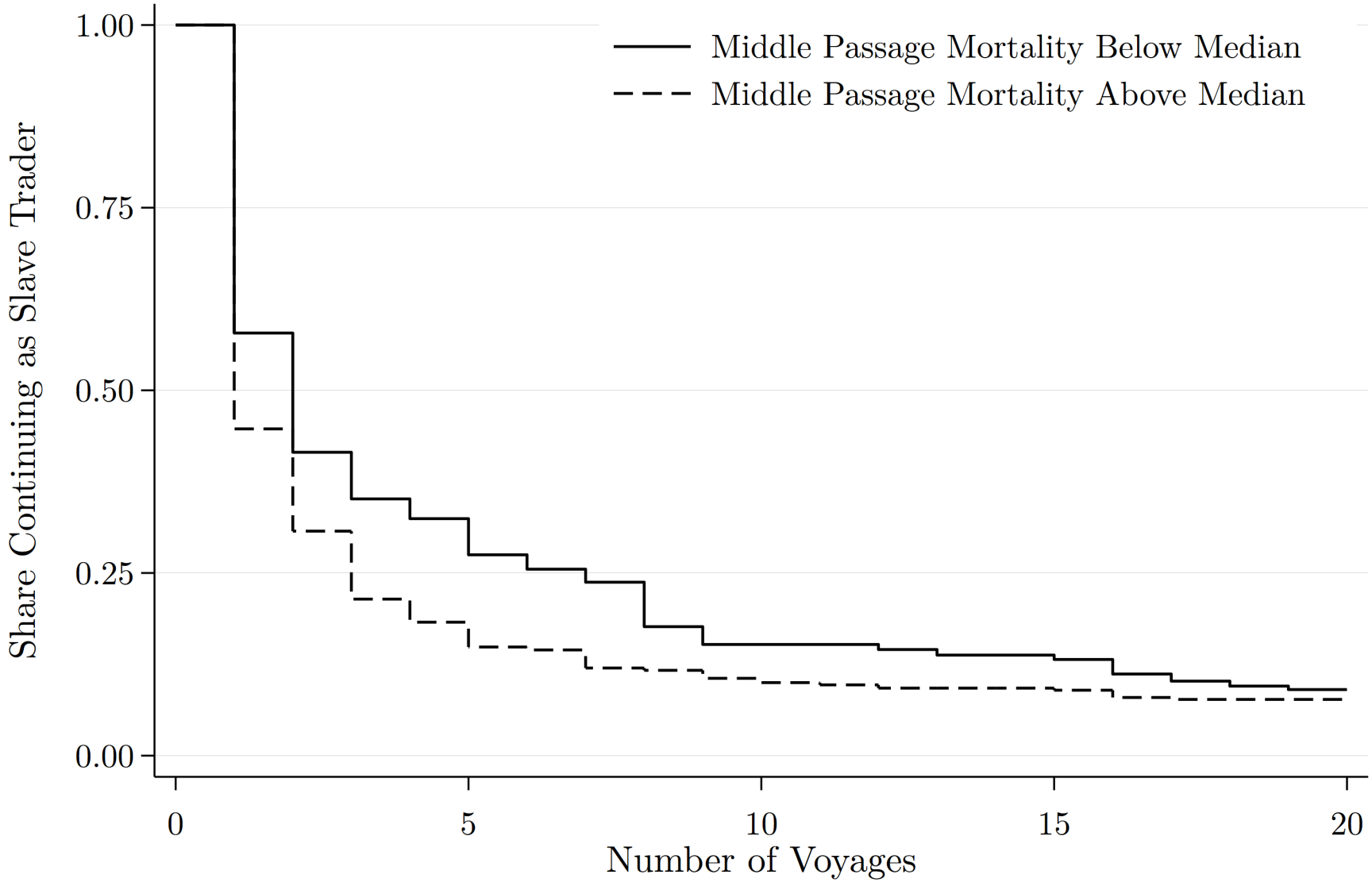


Duration and Mortality

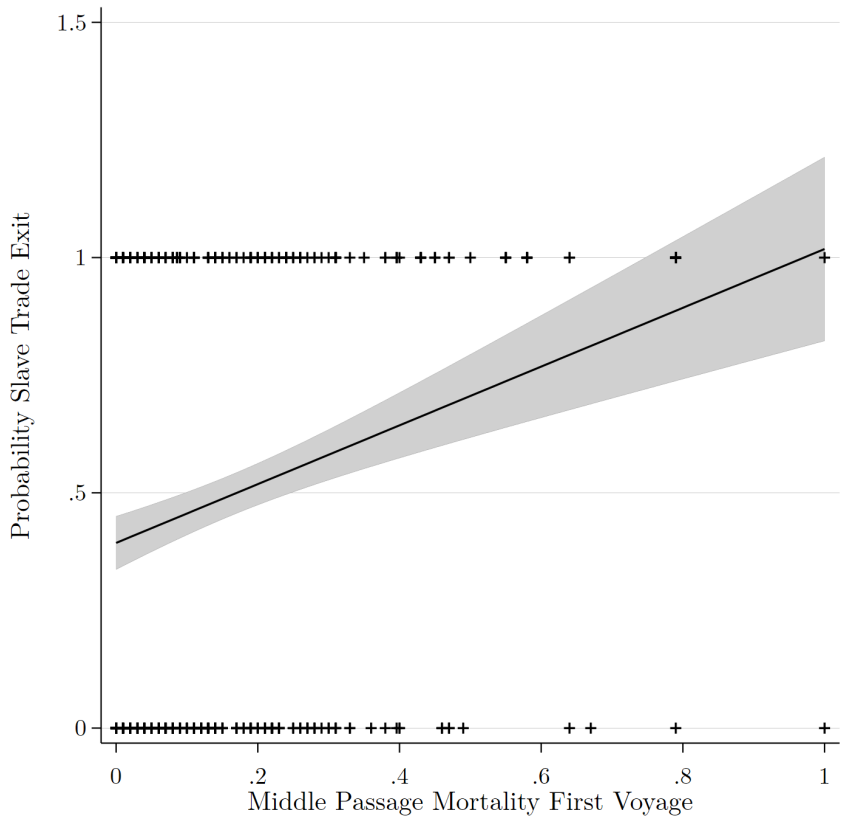


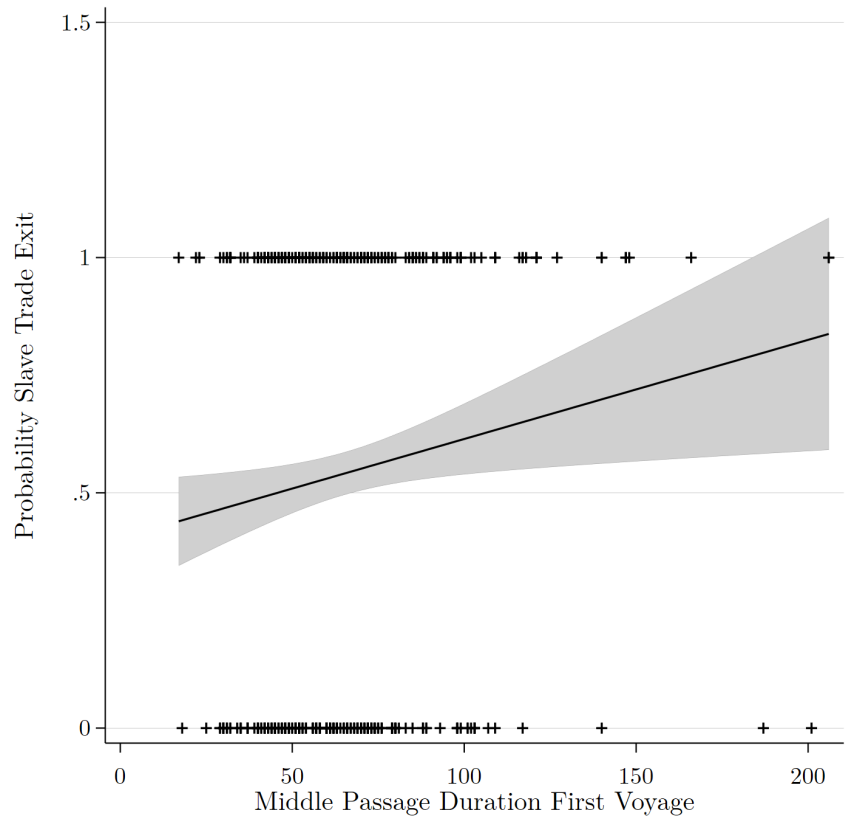
- Variation in duration largely driven by weather in age of sail

Middle-Passage Survival



Middle-Passage Exit



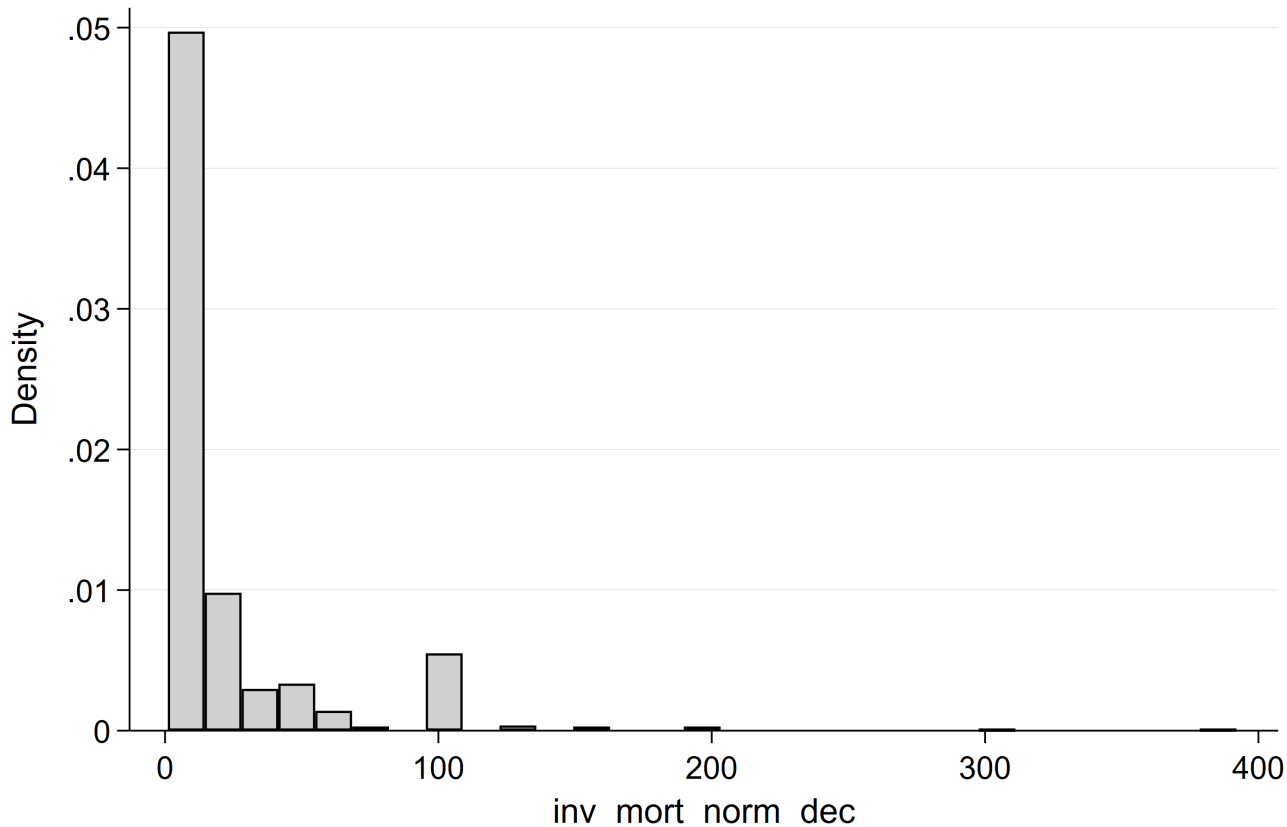


Two Instruments

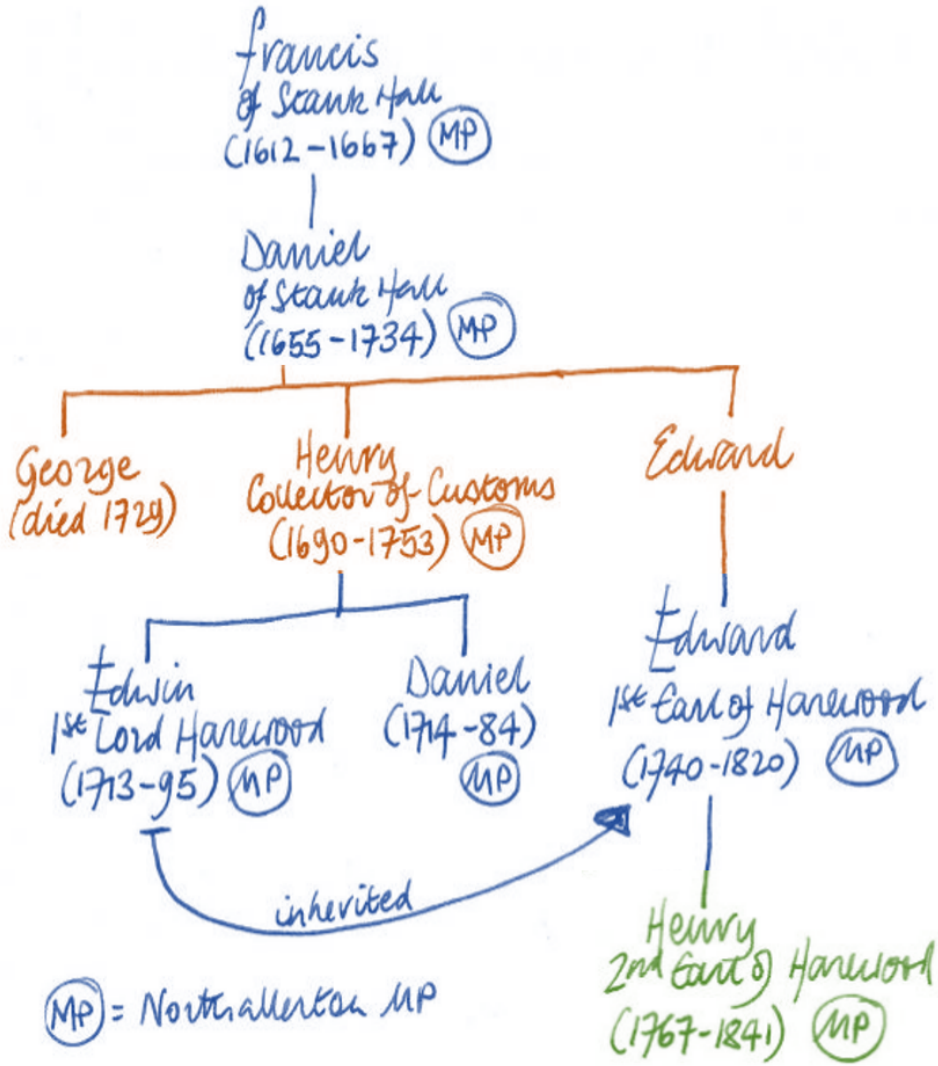
- **Challenge**: assign exogenous varition in voyage success across space
- Two strategies to predict familial connections to slave voyagers
  1. Voyager family trees reported on Ancestry
  2. Voyager surnames from the 1851 fullcount Census

Voyage Success Measure

- Normalize mortality by decade
- Define voyager v's average *voyage success* as $VS_v = \sum_{vj} \frac{1}{mortality_{vj}}$

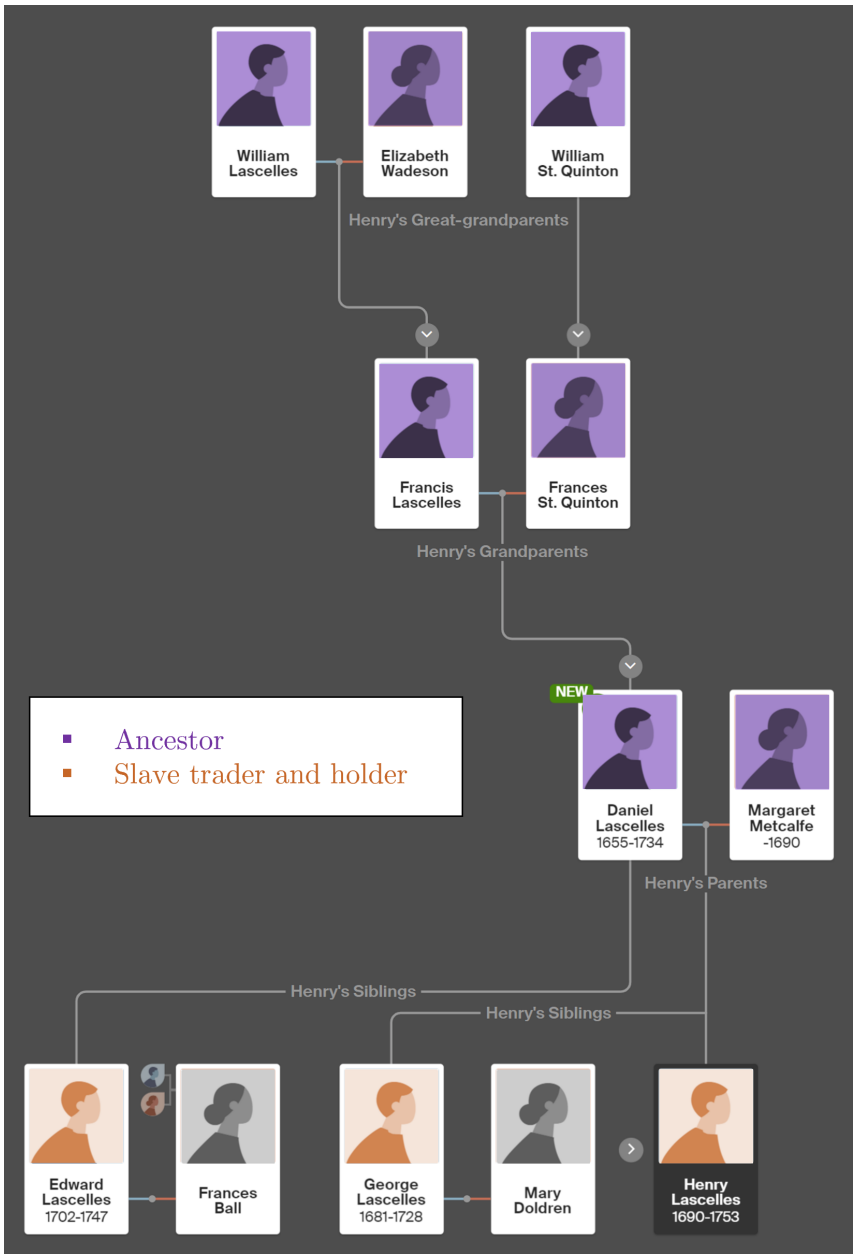


Family Tree



- Slave holder
- Slave trader and holder
- Awardee

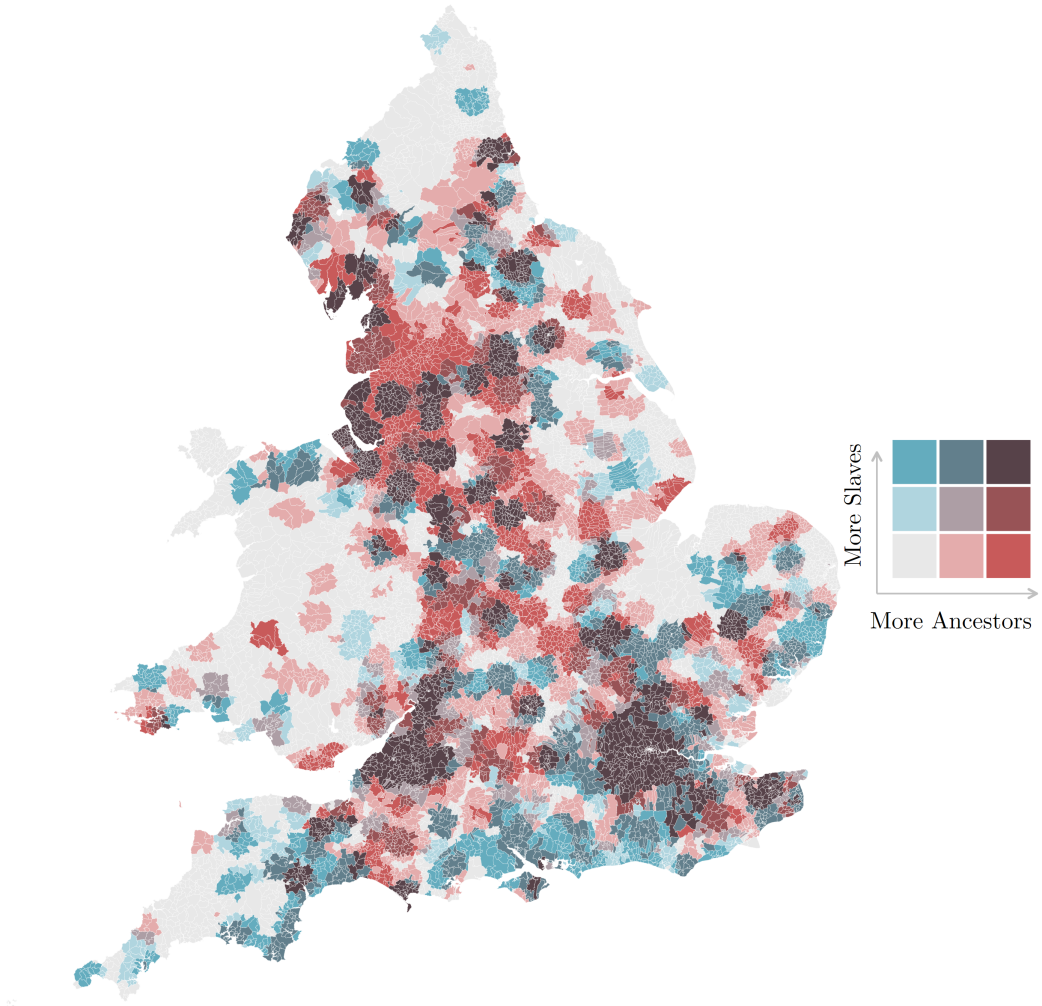
Ancestry.com Tree



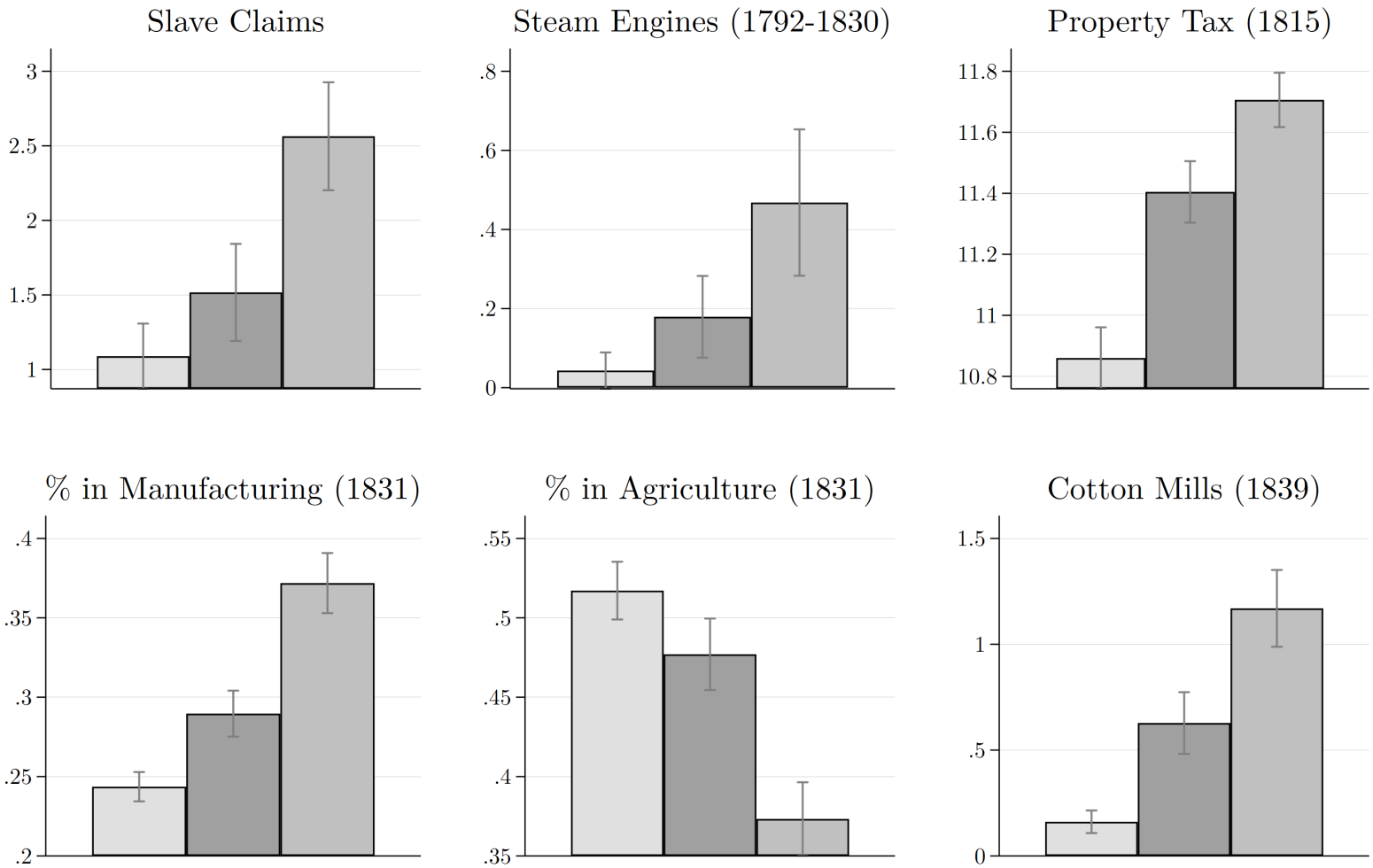
- Use Ancestry.com to find ancestors of slave-trading Lascelles
- Collect birth, death locations
- Use ancestor locations to map middle-passage mortality to parishes

Ancestors of Slave Traders

- Family trees with ancestors for 1,484 slave traders
- 20,849 ancestors of slave traders
- Ancestors spread over 1,582 parishes

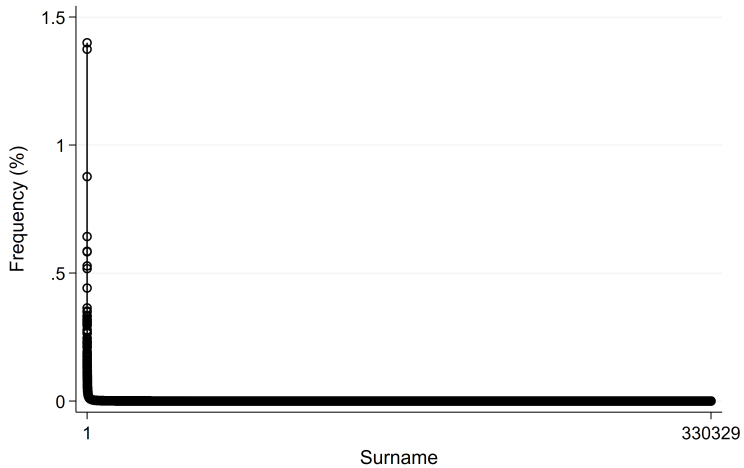


Ancestor Share and Industrialization

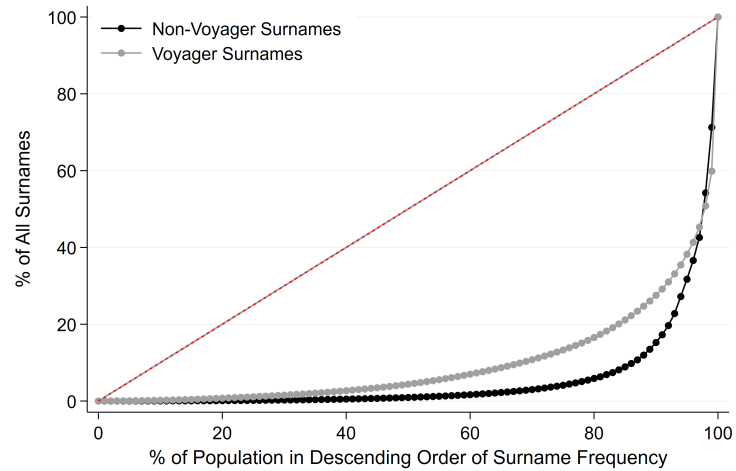


- First stage and reduced forms over terciles of ancestor share.

Surnames in the 1851 Census



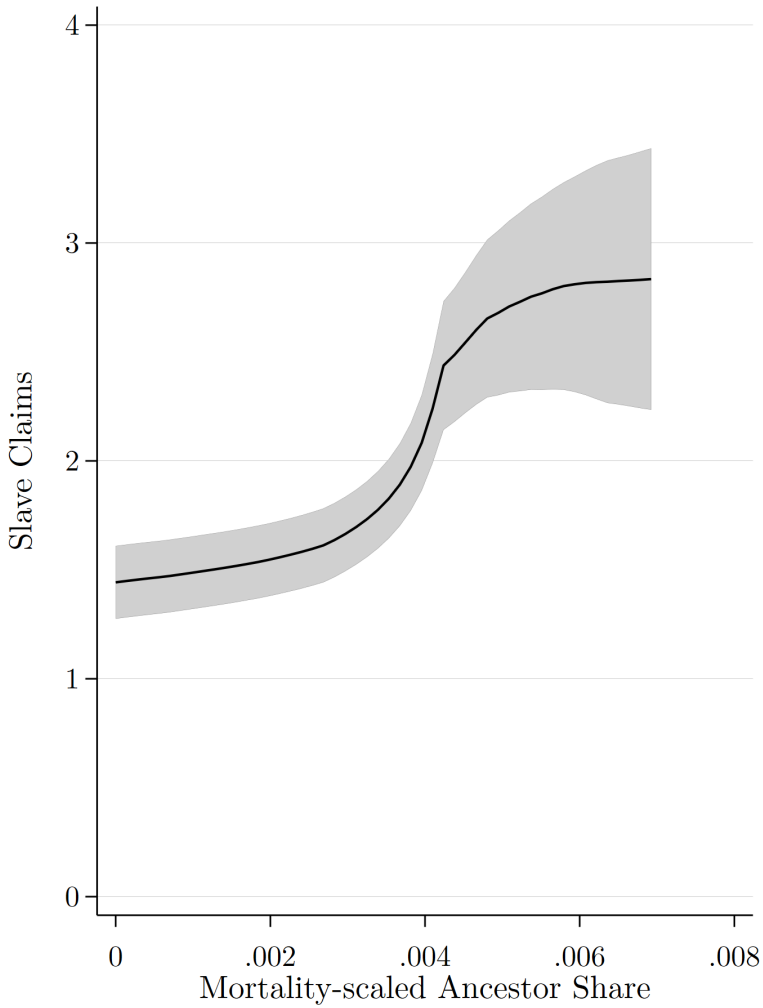
(a) Surname Distribution

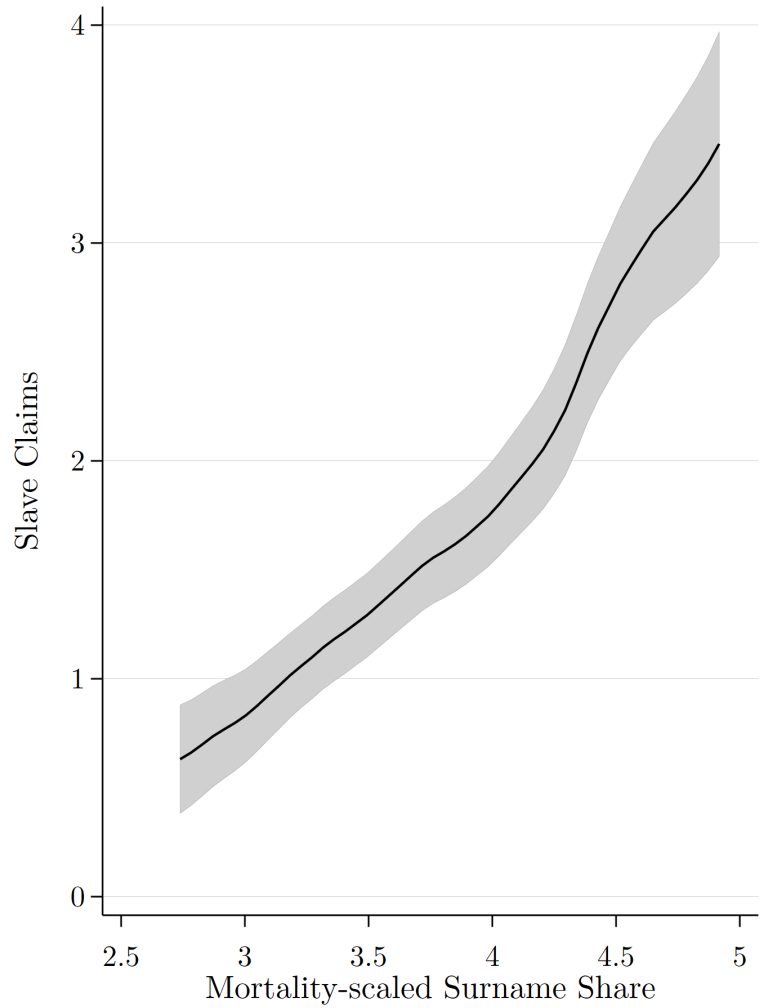


(b) Lorenz Curve of Surname Distribution

- 17,474,083 individuals with 330,329 distinct surnames
- 91% of 2,230 distinct voyager surnames matched
- Voyager surnames are more common than non-voyager surnames

First-stage


Slave Claims
0
1
2
3
4
0
.002
.004
.006
.008
Mortality-scaled Ancestor Share


Slave Claims
0
1
2
3
4
2.5
3
3.5
4
4.5
5
Mortality-scaled Surname Share

Outline

- Historical background
- Data
- Descriptive evidence
- Theoretical model
- Identification
- Empirical Results
  - Baseline Estimates
- Conclusions

Mortality-scaled Family Tree Instrument

- *Voyage Success Instrument* (VSI) using ancesters in the family tree:

$$VSI_i^{tree} = \frac{1}{A} \sum_{a=1}^{m} \frac{1}{VS_{a(v)i}} \tag{1}$$

- i: parishes
- $a(v)$: voyager v's ancestors
- $VS_{a(v)}$: avg middle-passage mortality assigned to voyager v's ancestors
- A: set of all ancestors

IV Estimation Mortality

- First-stage regression

$$S_i = C_1 + \alpha VSI_i + \gamma X_i' + \rho_i$$

- Second-stage regression

$$Y_i = C_2 + \beta \widehat{S_i} + \delta X_i' + \epsilon_i$$

- where
  - i: parish
  - S_i : slaveholding
  - **$\mathbf{VSI_i}$: mortality-scaled ancestor instrument**
  - X_i : controls
  - Y_i : economic outcome of interest

Mortality-scaled Surname Instrument

- *Voyage Success Instrument* (VSI) using surnames in the 1851 Census
- Monte Carlo simulations account for frequency and spatial dispersion
  - Randomly match slave voyagers to individuals in 1851 census
  - Repeat this procedure $l = 1, \ldots, 1000$ times
  - Aggregate in each iteration the voyager-specific successes measures VS_{vil} across all randomly matched voyager-surnames k in parish i
- Calculate parish i's voyage success as average across all iterations i:

$$VSI_i^{sname} = \frac{1}{n} \sum_{l=1}^{n} \sum_{v=1}^{k} VS_{vil} \tag{2}$$

Balance Table Mortality

Variable	(1) None Mean/SE	(2) Unsucessful Mean/SE	(3) Successful Mean/SE	T-test Difference (1)-(2)	(1)-(3)	(2)-(3)
Domesday Wealth (1086)	3.16	4.47	4.27	-1.31***	-1.11***	0.20
	(0.11)	(0.15)	(0.15)			
Wealth Subsidy (1334)	4.14	4.33	4.40	-0.19	-0.26	-0.06
	(0.04)	(0.08)	(0.08)			
Property Wealth (1690)	21.35	22.03	21.92	-0.68***	-0.57**	0.11
	(0.05)	(0.07)	(0.08)			
Cotton Mills (1788)	0.05	0.30	0.24	-0.25***	-0.19***	0.07
	(0.01)	(0.05)	(0.05)			
Longitude	-1.98	-1.64	-1.68	-0.34	-0.30	0.04
	(0.08)	(0.10)	(0.11)			
Latitude	52.50	52.46	52.46	0.04	0.04	0.00
	(0.06)	(0.09)	(0.09)			
Dist Historic Port	19.44	22.68	21.73	-3.24**	-2.28	0.95
	(0.65)	(1.21)	(1.33)			
Dist Liverpool	214.56	187.46	187.64	27.10***	26.93***	-0.18
	(3.81)	(7.53)	(7.33)			
N	510	163	170			

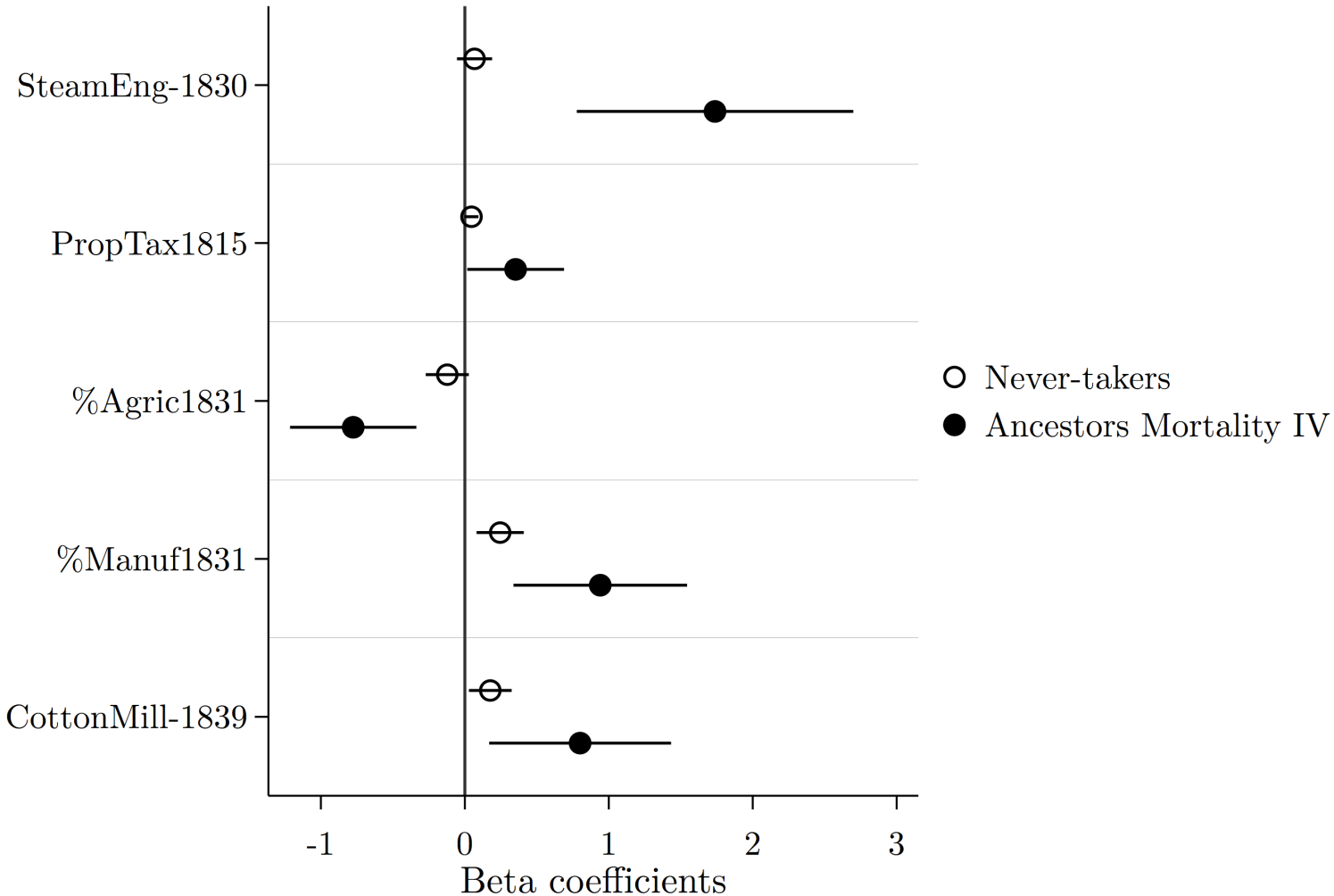
First Stage

	(1)	(2) +Controls
A. Ancestor Share	0.249***	0.200***
	(0.04)	(0.03)
KPW F-Stat	40.74	36.64
B. Ancestor Share (mort. cells)	0.198***	0.160***
	(0.04)	(0.03)
KPW F-Stat	28.16	26.13
C. Mortality Scaling	0.207***	0.164***
	(0.03)	(0.03)
KPW F-Stat	36.07	30.68
D. Mort-Scaled Surnames	0.384***	0.429***
	(0.04)	(0.05)
KPW F-Stat	118.33	75.12
Observations	849	849

IV Voyage Success

	(1) SlaveClaims	(2) SteamEng-1830	(3) PropTax1815	(4) %Agric1831	(5) %Manuf1831	(6) CottonMill-1839
A. Mort-Scaled Ancestors	0.164***					
	(0.03)					
Slave Claims		1.738***	0.353**	-0.775***	0.941***	0.801***
		(0.42)	(0.15)	(0.19)	(0.27)	(0.28)
N Voyagers	286	286	286	286	286	286
KPW F-Stat		30.68	30.68	30.68	30.68	30.68
AR p-value		0.00	0.02	0.00	0.00	0.00
B. Mort-Scaled Surnames	0.429***					
	(0.05)					
Slave Claims		0.732***	0.341***	-1.500***	1.306***	0.681***
		(0.20)	(0.07)	(0.19)	(0.19)	(0.12)
N Voyagers	2082	2082	2082	2082	2082	2082
KPW F-Stat		75.12	75.12	75.12	75.12	75.12
AR p-value		0.00	0.00	0.00	0.00	0.00
Observations	849	849	849	849	849	849
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Comparison NT-IV



▸ Mortality Table ▸ Surname Table

Steam Engines and Slavery

	(1) Pre-1792	(2) 1792-1830	(3) 1830-1850	(4) Post-1850
A. OLS	0.0925*	0.0982**	0.107**	0.0688*
	(0.05)	(0.05)	(0.04)	(0.04)
F-Stat	3.34	4.26	5.84	2.99
B. IV	0.305	1.738***	1.399***	1.287***
	(0.26)	(0.42)	(0.35)	(0.31)
KPW F-Stat	30.7	30.7	30.7	30.7
Observations	849	849	849	849

Quantitative Model

- Parameter calibration

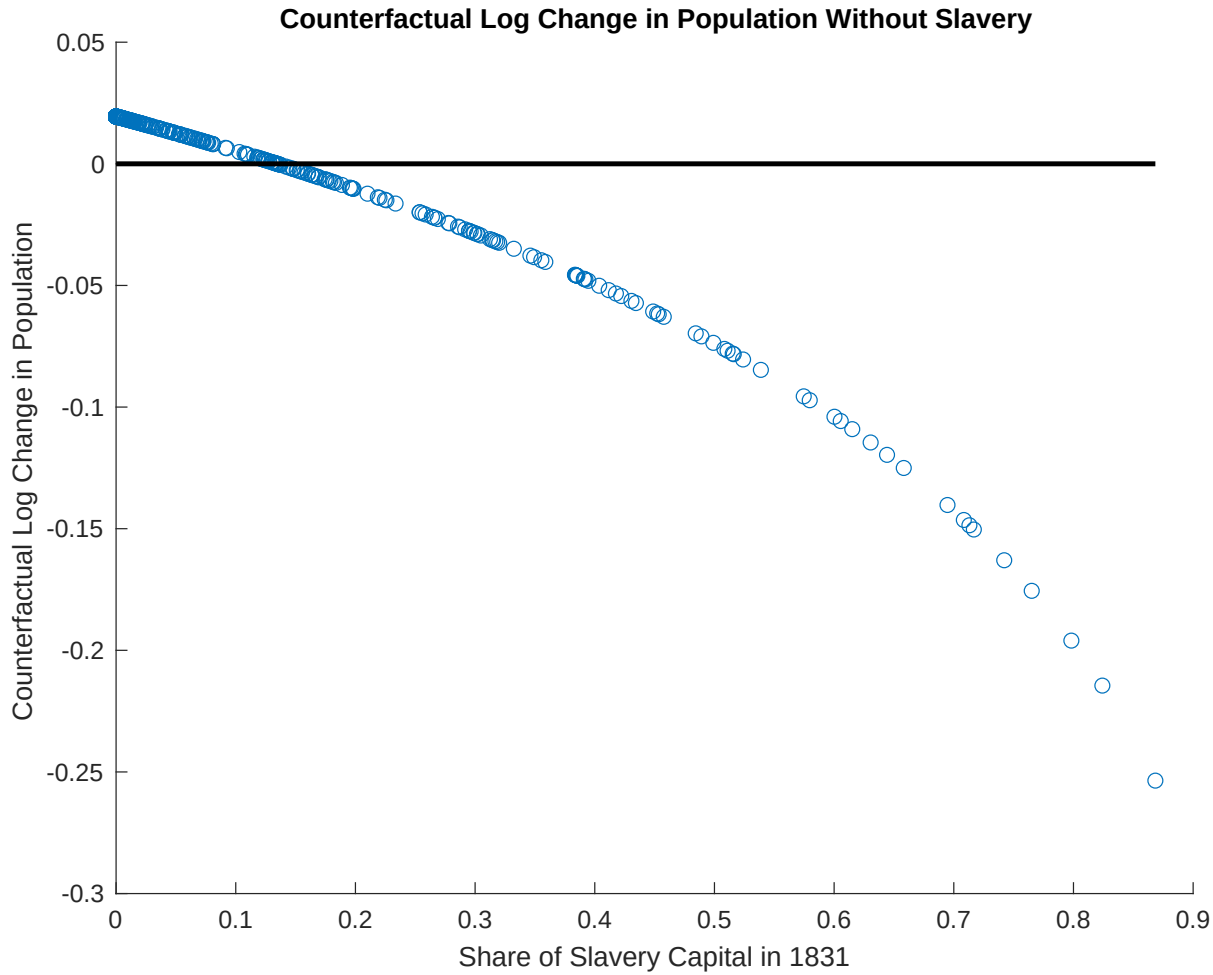
Parameter	**Value**
Labor Share Manufacturing (α^M)	0.65
Labor Share Agriculture (α^A)	0.60
Migration Elasticity (κ)	2
Tightness collateral constraints (λ)	2
Investment Substitutability (θ)	8

- Data sources

Variable	**Source**
Sector Employment	Population Census
Domestic Capital and Land Values	Rateable Values
Slavery Capital	Slavery Compensation Data

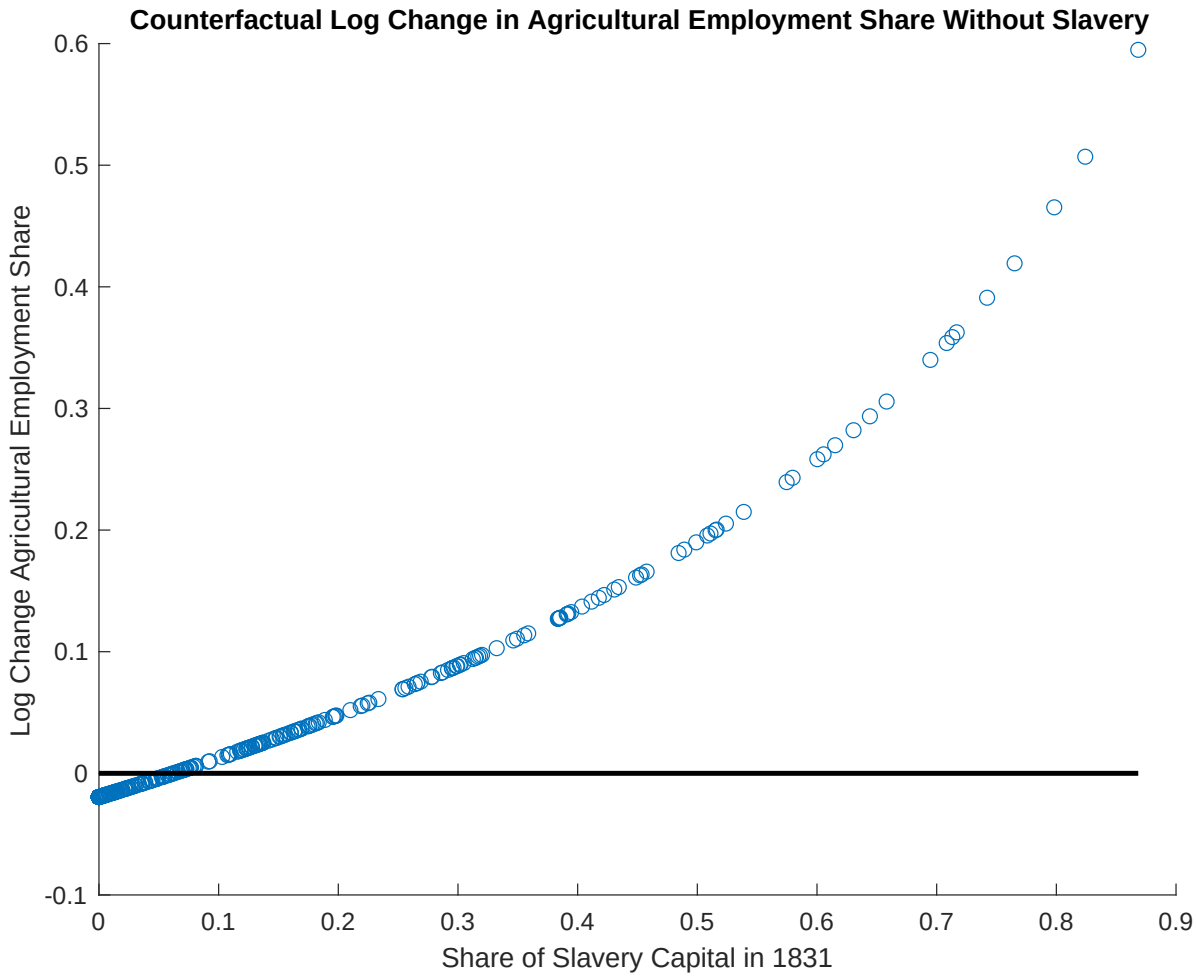
- Start at the observed equilibrium in the data in 1831 and undertake a counterfactual for the steady-state impact of removing access to slavery investments

Population Redistribution



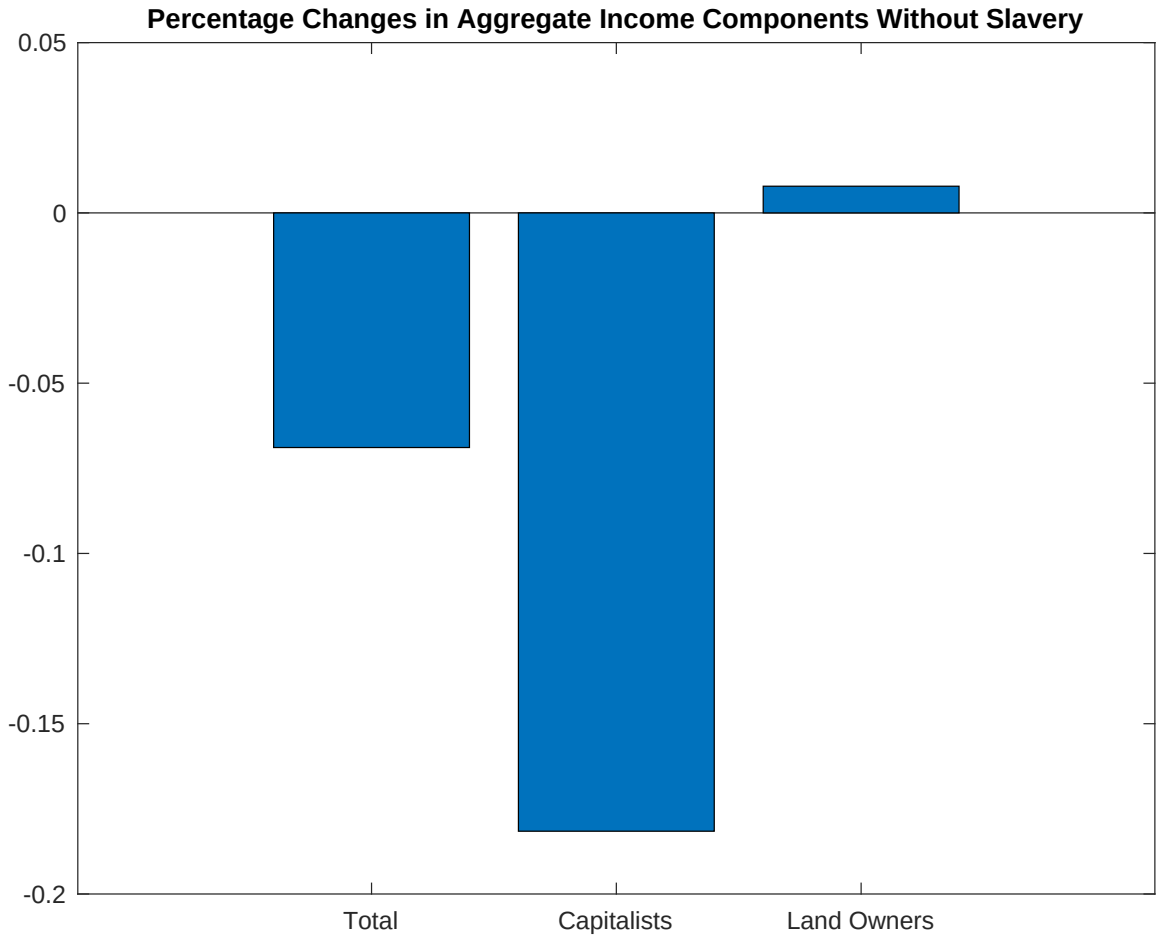
- Removing access to slavery investments redistributes population away from locations with high 1831 slavery capital shares

(De)Structural Transformation



- Employment reallocation towards agriculture within locations with high 1831 slavery capital shares

Aggregate Effects



- Removing access to slavery investments reduces aggregate income, with capitalists experiencing the largest income losses, and landowners experiencing income gains

Outline

- Historical background
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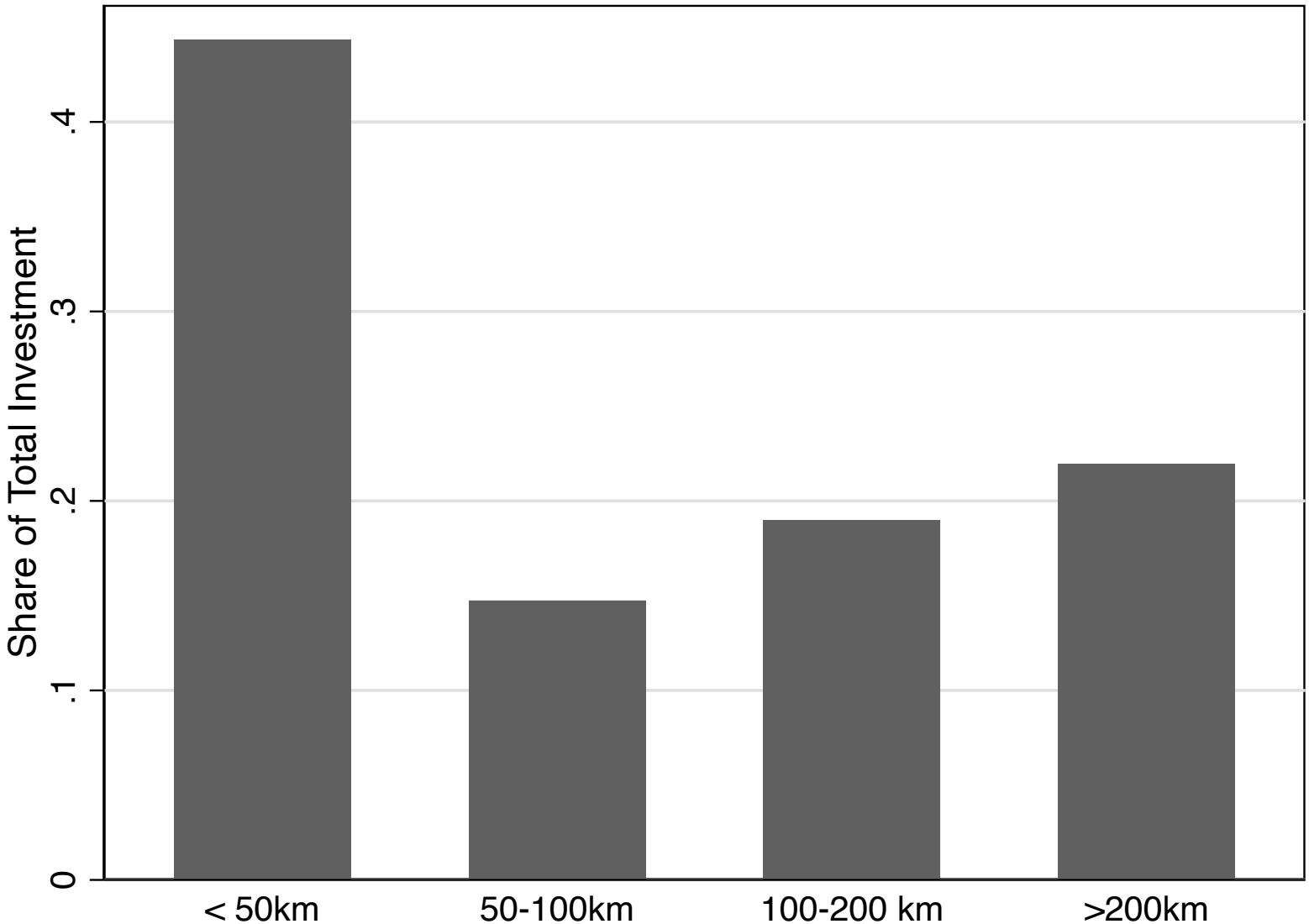
Conclusions

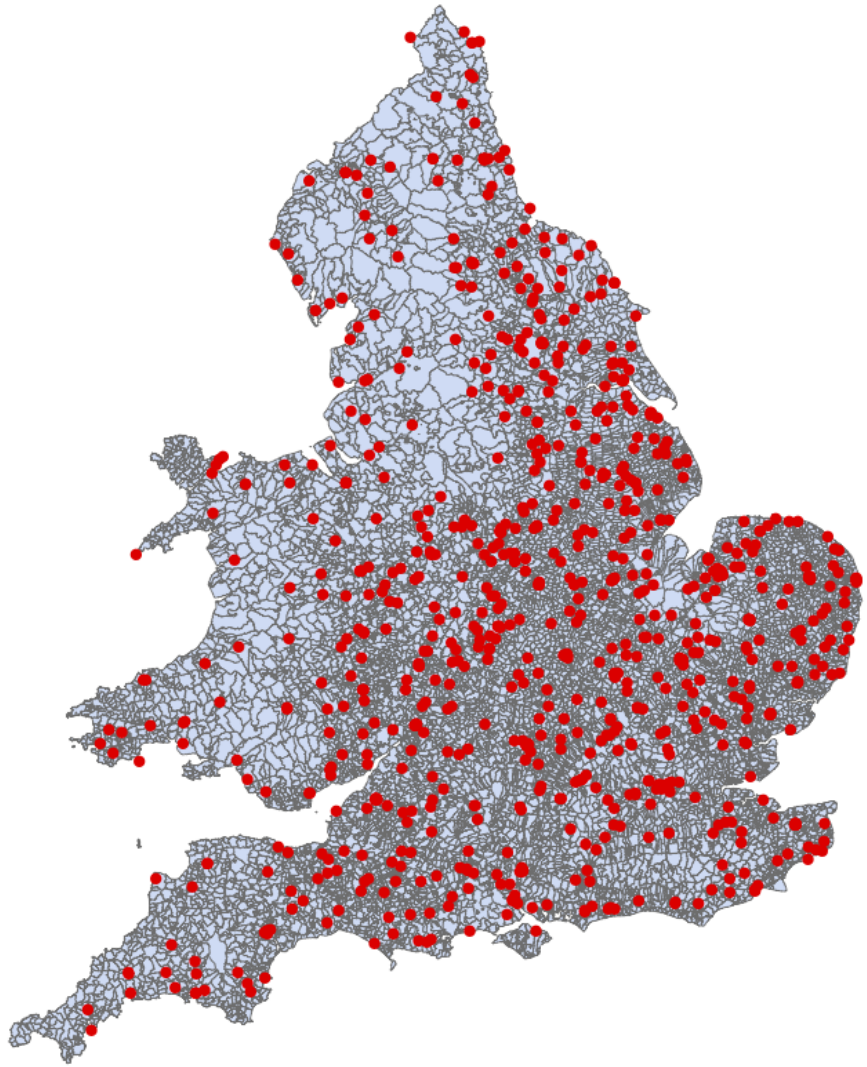
- To what extent was the development of enslaving countries achieved through the enslavement and exploitation of black Africans?
- Provide evidence of a substantial, positive impact of slavery wealth on structural transformation and economic growth in Britain
  - Individual compensation claims from Slavery Abolition Act 1833
  - Slave holding rather than slave trading
  - Exploit geographic variation in slavery wealth within Britain using slave holders' and slave traders' family trees.
  - Exogenous variation in slavery wealth from middle-passage mortality
- Develop a spatial general equilibrium model that rationalizes these findings in terms of collateral constraints. Slavery wealth
  - relaxes collateral constraints
  - increases capital accumulation
  - induces structural transformation

Thank You

Investment Gravity in the Data

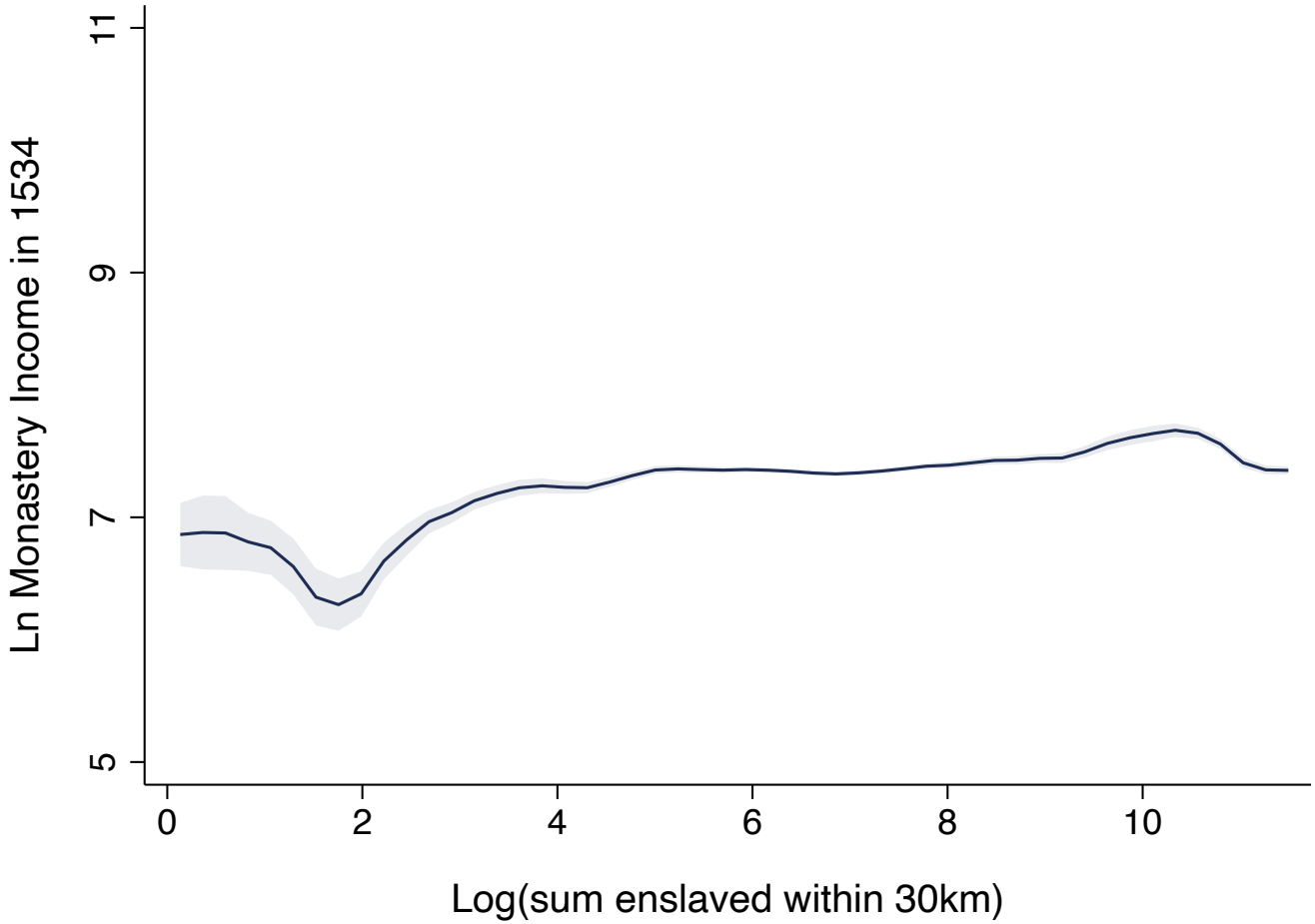


Valor Ecclesiasticus 1535



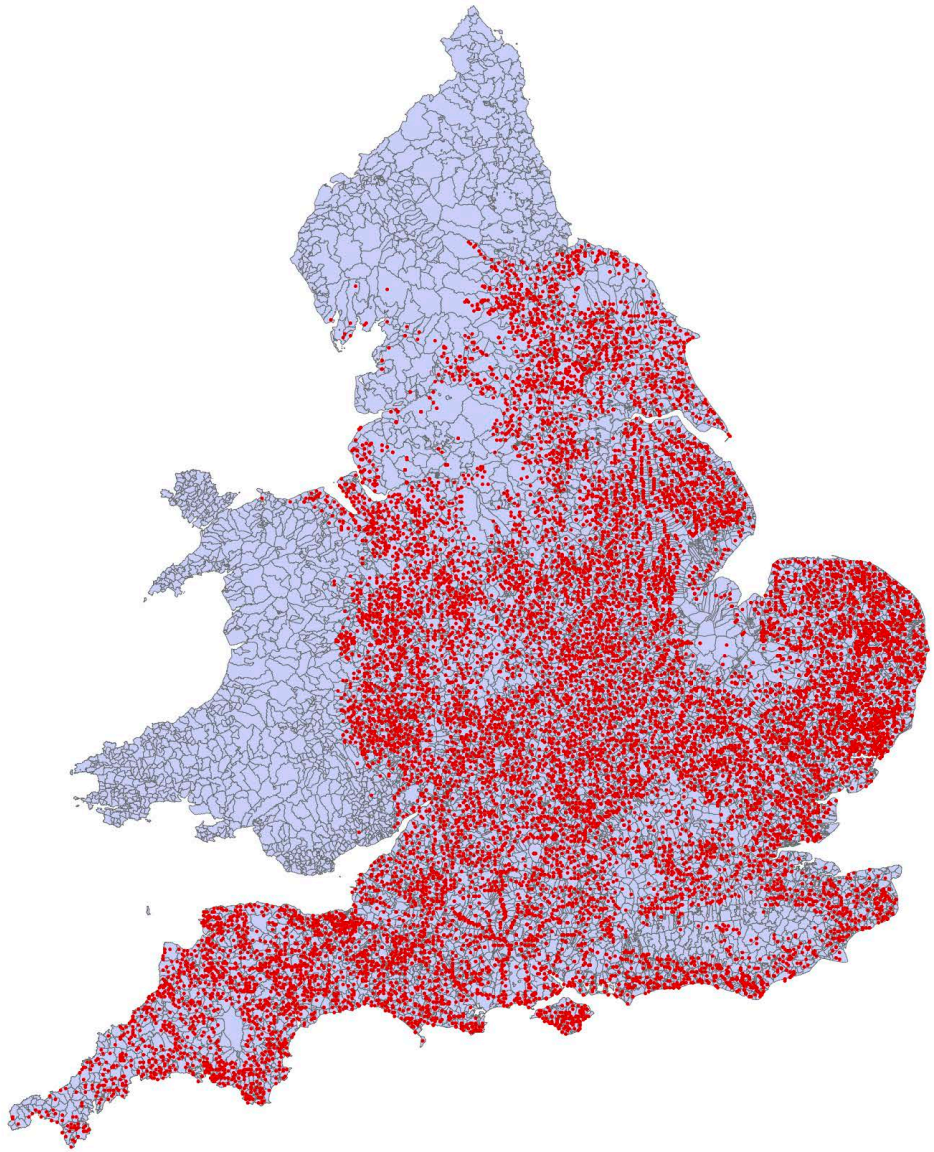
- Distribution of monasterial wealth before large-scale British participation in slaveholding from the 1640s onwards

Valor Ecclesiasticus 1535



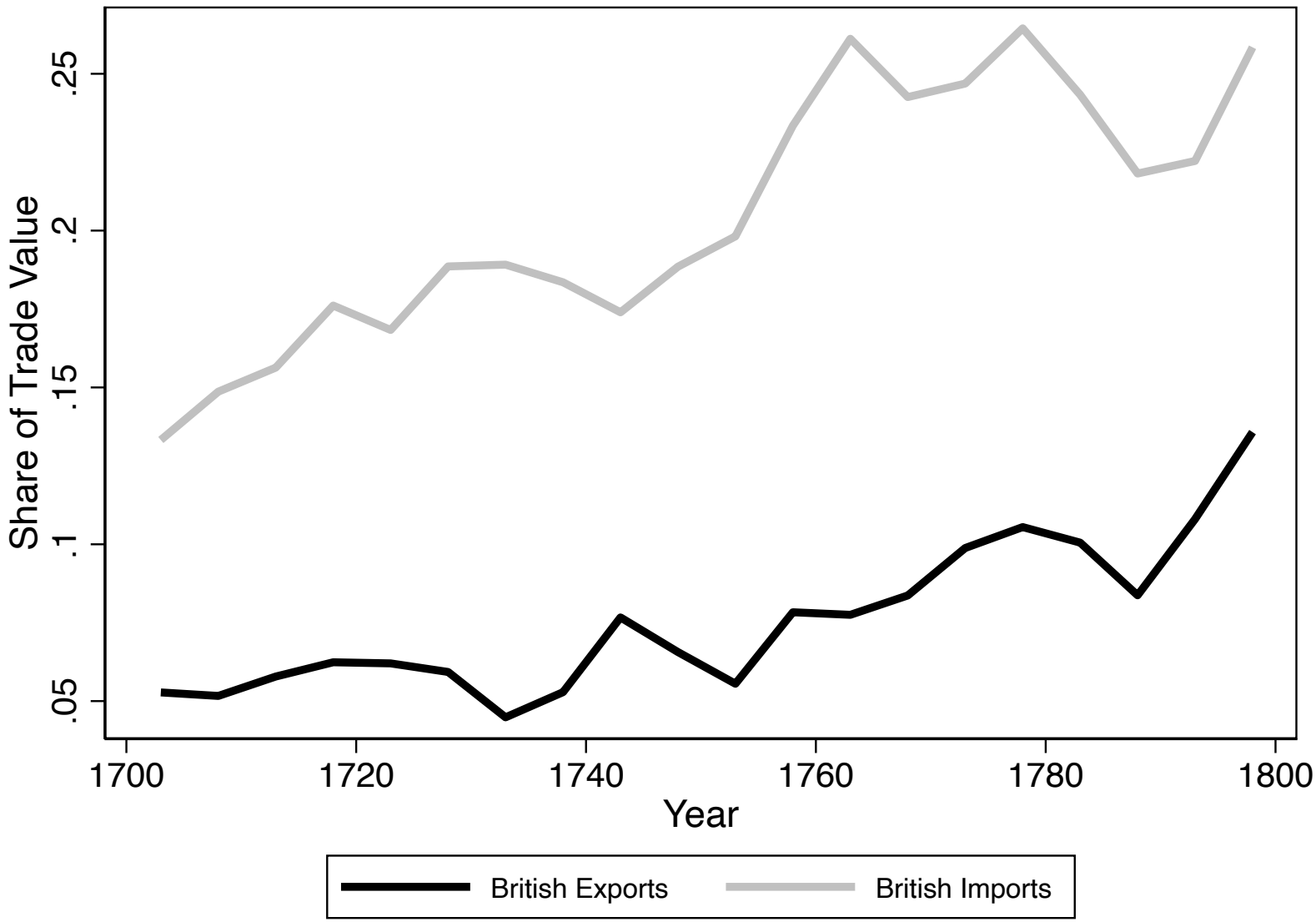
- Little relationship between monastery income in 1534 and future slave-holding in 1833 (excluding London)

Domesday 1088

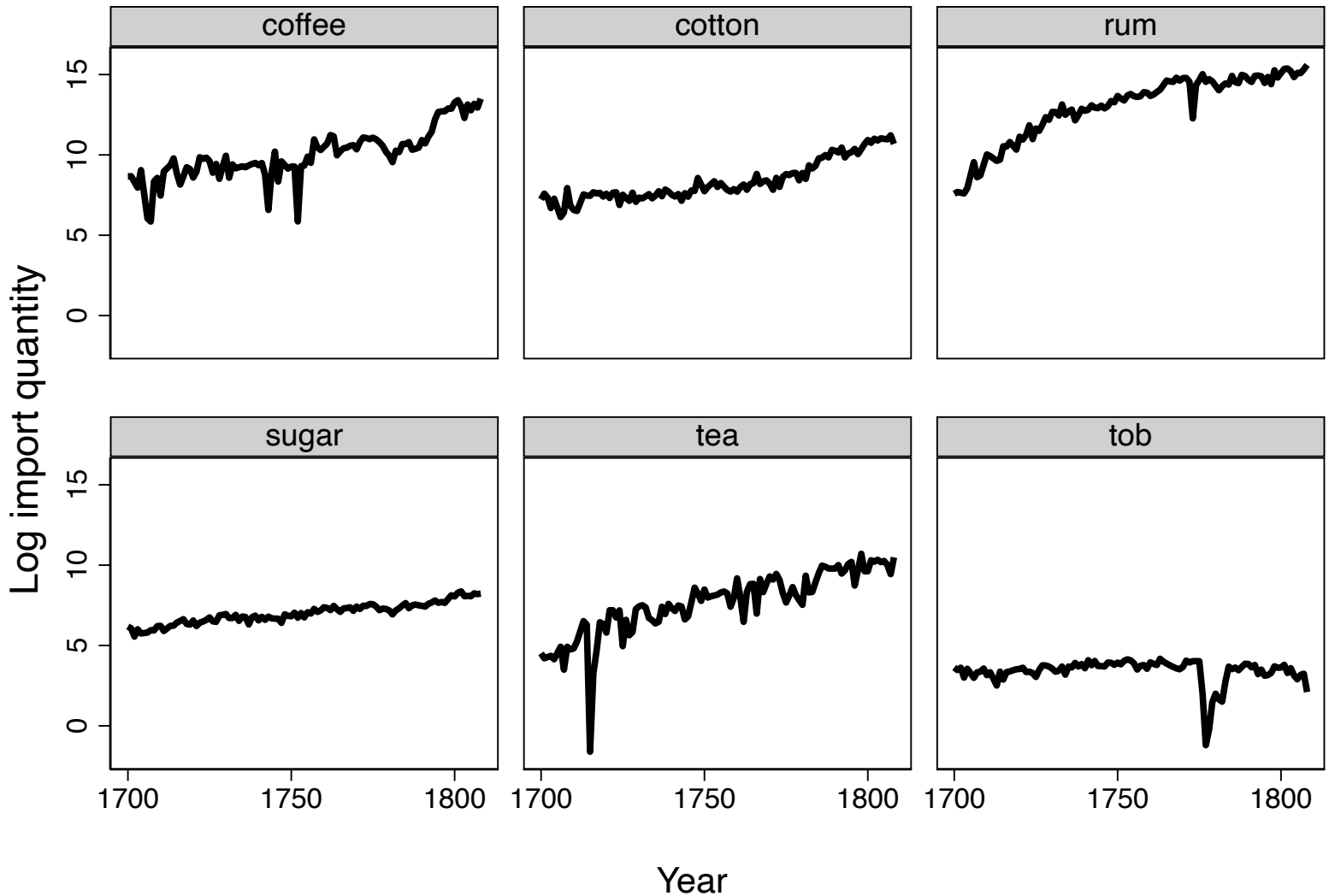


back

Direct Trade with the West Indies



Direct Trade with the West Indies



Graphs by good

Never-Taker Mortality

	(1) SteamEng-1830	(2) PropTax1815	(3) %Agric1831	(4) %Manuf1831	(5) CottonMill-1839
Mort-Scaled Ancestors	0.07	0.05*	-0.12	0.25***	0.18**
	(0.06)	(0.02)	(0.08)	(0.08)	(0.08)
Population (1780)	-0.01	0.08***	-0.20***	0.13***	0.03
	(0.02)	(0.03)	(0.04)	(0.04)	(0.03)
Latitude	-0.03**	0.36***	-0.11***	0.07***	0.06***
	(0.02)	(0.02)	(0.04)	(0.03)	(0.02)
Longitude	-0.00	-0.18***	0.10***	-0.06***	-0.01
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
Dist Country Bank (1780)	-0.05	-0.08**	0.32***	-0.27***	-0.22***
	(0.06)	(0.03)	(0.07)	(0.06)	(0.05)
Cotton Mills (1788)	-0.03	-0.01	-0.47***	0.73***	1.01***
	(0.05)	(0.04)	(0.11)	(0.15)	(0.13)
Dist Post Town (1791)	-0.10**	-0.06*	0.33***	-0.20***	-0.04
	(0.05)	(0.03)	(0.06)	(0.06)	(0.05)
Dist Coast	0.03*	0.02**	0.04	0.06***	0.05***
	(0.01)	(0.01)	(0.03)	(0.02)	(0.02)
Property Wealth (1690)	0.01	0.87***	0.18**	0.02	0.01
	(0.02)	(0.05)	(0.07)	(0.04)	(0.03)
N	567	567	567	567	567
F-stat	1.4	204.8	19.1	20.7	26.4

back

IV Count of Voyages

	(1) SlaveClaims	(2) SteamEng-1830	(3) PropTax1815	(4) %Agric1831	(5) %Manuf1831	(6) CottonMill-1839
Voyages-Scaled Ancestors	0.13***					
	(0.03)					
Slave Claims		1.77***	0.33**	-0.72***	1.15***	0.80*
		(0.38)	(0.15)	(0.25)	(0.43)	(0.42)
Observations	849	849	849	849	849	849
Controls	Yes	Yes	Yes	Yes	Yes	Yes
N Voyagers	1484	1484	1484	1484	1484	1484
KPW F-stat		19.18	19.18	19.18	19.18	19.18
AR p-value		0.00	0.06	0.01	0.00	0.07

Never-Taker Count of Voyages

	(1) SteamEng-1830	(2) PropTax1815	(3) %Agric1831	(4) %Manuf1831	(5) CottonMill-1839
Voyages-Scaled Ancestors	0.07	0.04	-0.13*	0.32***	0.23***
	(0.07)	(0.03)	(0.08)	(0.09)	(0.08)
Population (1780)	-0.01	0.08***	-0.20***	0.13***	0.03
	(0.02)	(0.03)	(0.04)	(0.04)	(0.03)
Latitude	-0.03**	0.36***	-0.11***	0.06**	0.05**
	(0.02)	(0.02)	(0.04)	(0.03)	(0.02)
Longitude	-0.00	-0.18***	0.10***	-0.06***	-0.01
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
Dist Country Bank (1780)	-0.05	-0.08**	0.31***	-0.25***	-0.21***
	(0.06)	(0.03)	(0.07)	(0.05)	(0.05)
Cotton Mills (1788)	-0.03	-0.00	-0.48***	0.70***	1.00***
	(0.05)	(0.04)	(0.11)	(0.14)	(0.12)
Dist Post Town (1791)	-0.11**	-0.07*	0.34***	-0.23***	-0.06
	(0.05)	(0.03)	(0.06)	(0.06)	(0.05)
Dist Coast	0.03**	0.02**	0.03	0.07***	0.05***
	(0.02)	(0.01)	(0.03)	(0.02)	(0.02)
Property Wealth (1690)	0.01	0.87***	0.18***	0.01	0.01
	(0.02)	(0.05)	(0.07)	(0.04)	(0.03)
N	567	567	567	567	567
F-stat	1.4	205.9	19.4	22.0	27.3

back

Never-Taker Mort-scaled Surnames

	(1) SteamEng-1830	(2) PropTax1815	(3) %Agric1831	(4) %Manuf1831	(5) CottonMill-1839
Mort-Scaled Surnames	0.11**	0.06*	-0.58***	0.55***	0.21***
	(0.05)	(0.04)	(0.06)	(0.06)	(0.06)
Population (1780)	-0.03	0.07***	-0.10***	0.04*	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Latitude	-0.06**	0.34***	0.03	-0.06**	0.01
	(0.02)	(0.03)	(0.04)	(0.03)	(0.02)
Longitude	-0.00	-0.17***	0.08***	-0.05***	-0.01
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
Dist Country Bank (1780)	-0.03	-0.08***	0.19***	-0.15***	-0.18***
	(0.06)	(0.03)	(0.06)	(0.05)	(0.05)
Cotton Mills (1788)	-0.04	-0.02	-0.25***	0.61***	1.02***
	(0.08)	(0.04)	(0.09)	(0.12)	(0.11)
Dist Post Town (1791)	-0.07*	-0.07**	0.21***	-0.08	0.00
	(0.04)	(0.03)	(0.06)	(0.05)	(0.06)
Dist Coast	0.03**	0.03**	0.02	0.07***	0.05***
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)
Property Wealth (1690)	-0.01	0.82***	0.36***	-0.14***	-0.04
	(0.02)	(0.05)	(0.06)	(0.05)	(0.03)
N	566	566	566	566	566
F-stat	1.4	219.0	40.7	33.3	26.7

back