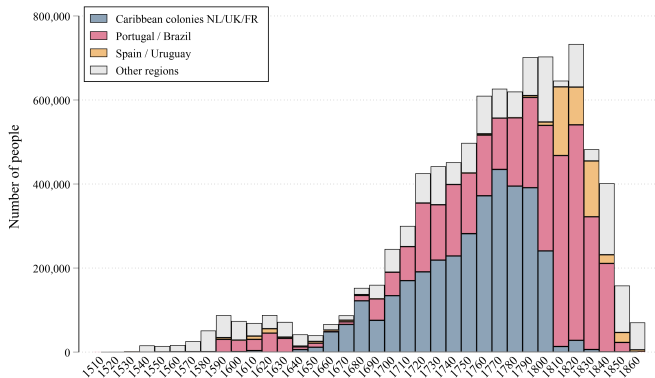


Finance and the Slave Trade

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Groningen & Monash | National Taiwan University | NYU Stern & Erasmus

Motivation



Number of enslaved forcibly displaced from Africa to the Americas.
Source: slavevoyages.org.

Transatlantic slave trade:

- Africa → the Americas (~1680–1850).
- Forced removal of at least 10.6 million people.
- English, French & Dutch Caribbean colonies accounted for ~ 40%.

Relevance:

- Important long-term societal and economic consequences.

To what extent did *metropolitan credit markets* contribute to slave shipments to the Caribbean in the 18th c.?

Dutch, British and French planters pledged their plantations, *including the enslaved*, as collateral to obtain credit in their metropolitan credit markets:

- **England.** Short-term bills of exchange discounted in London; long-term plantation mortgages routine after the Colonial Debts Act of 1732. Price (1991) and Sheridan (2006) suggest that this stimulated slave shipments.
- **France.** Bordeaux/Nantes banks advanced credit secured by plantations; enslaved bought on multi-year credit. Stein (1975) suggests that French slave shipments “depended on credit.”
- **Dutch Republic.** Dutch merchant banks provided bills of exchange and 20-year plantation mortgages. Van der Voort (1973) and Van Stipriaan (1993) suggest that planters used this credit to expand and acquire enslaved labor.

Yet, there is virtually no direct *quantitative* evidence on whether — and how much — credit markets contributed to slave shipments.

Why metropolitan credit markets may not have mattered

1. **Limited optimal size and non-binding financial constraints.**

Plantation size might have been capped by the availability of land or skilled plantation managers.

If plantations were as profitable as sometimes claimed (e.g. Burnard 2015), planters could purchase the optimal number of enslaved out of retained earnings. Metropolitan credit would then only replace internal funds, not raise shipments.

2. **Limited slave supply.**

If the number that could be shipped from Africa was limited, more credit would bid up prices and divert shipments from other colonies, leaving total slave shipments unchanged.

Whether — and how much — metropolitan credit markets mattered for slave shipments is therefore an open question.

Preliminary evidence: interest rates in Europe and slave shipments to the Caribbean (1701–1793)

	OLS						PPML (<i>elasticity</i>)		
	(1) England	(2) France	(3) Dutch Rep.	(4) Pooled	(5) Pooled	(6) Pooled	(7) Pooled	(8) Pooled	(9) Pooled
Sovereign Yield	-2,536*** (476)	-2,337*** (665)	-940* (557)	-2,431*** (385)	-2,589*** (492)	-2,879*** (509)	-0.699*** (0.141)	-0.884*** (0.216)	-0.918*** (0.215)
Mean dep. var.	19,709	13,982	3,467	12,047	12,107	12,107	.	.	.
Country FE	–	–	–	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	–	–	–	–	Yes	Yes	–	Yes	Yes
Controls	–	–	–	–	–	War	–	–	War
Observations	91	52	93	236	234	234	236	234	234
No. of clusters				93	91	91	93	91	91
Adjusted R ²	0.108	0.020	0.015	0.487	0.573	0.596			

Dependent variable: annual slave shipments to the Caribbean. Standard errors (robust or clustered at the year-level) in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

► Frisch-Waugh plot

Magnitude. Why was the **price** of credit this important for the **quantity** of shipments?

Endogeneity. Lower interest rates may be correlated with favorable economic and political conditions — more savings *and* more demand for plantation goods.

This paper: well-identified setting to deal with potential endogeneity

1. Causal evidence from the **Dutch colony Suriname** (1751–1771).
 - A fall in Dutch interest rates led to an increase in plantation lending.
 - Uniquely **detailed micro-data** on plantations, credit, and slave shipments (nothing comparable is available for English or French colonies).
 - **Exogenous** variation in plantations' access to credit.
2. Quantitative estimates of the effect of Dutch credit conditions on slave shipments.

Punchline:

1. Dutch credit conditions had a causal effect on slave shipments to Suriname.
2. A drop in the Dutch interest rate of $\sim 16\%$ increased slave shipments to Suriname by $\sim 16\%$ — an elasticity (in log points) of ~ -0.85 , in line with the preliminary estimates.

Related literature

Economic reasons for American slavery (coercion; disease resistance; property rights).

Curtin (1969); Fogel and Engerman (1974, 1977); Fenoaltea (1984); Steckel (1986); Fogel (1989); Wright (2006); Acemoglu and Wolitzky (2011); Bobonis and Morrow (2014); Hilt (2020); Dippel, Greif and Trefler (2020); Esposito (2022); Saleh (2024).

Credit and slavery — use of (metropolitan) credit markets.

U.S.: Wright (2006); Kilbourne (1995, 2006); González, Marshall and Naidu (2017); Koudijs and Salisbury (2020); Murphy (2023).

Dutch Guyanas: Van der Voort (1973); Van Stipriaan (1993); Hoonhout (2012); De Jong, Kooijmans and Koudijs (2023, 2025).

British Caribbean: Davies (1952); Checkland (1956, 1958); Pares (1960); Devine (1974); Sheridan (1960, 1974, 2006); Murdoch (1984); Ward (1988); Price (1991); Hancock (1994, 1995); Eltis (2000); Quintanilla (2004); Smith (2002, 2006); Menard (2006); Burnard (2015); Radburn (2015, 2023); Heblich, Redding and Voth (2022).

French Caribbean: Thésée (1972); Stein (1975, 1979, 1988); Trouillot (1982); Plessis (1989); Forestier (2011).

Others: Van der Voort (1973, Danish-American Islands); Martins (2025, Cape Colony).

Capitalism and American slavery (recent historical studies).

Johnson (2013); Baptist (2014); Beckert (2015); Beckert and Rockman (2016); Rosenthal (2018); Jones-Rogers (2019).

Our contribution: *causal* link between metropolitan credit markets and transatlantic slave shipments.

Outline

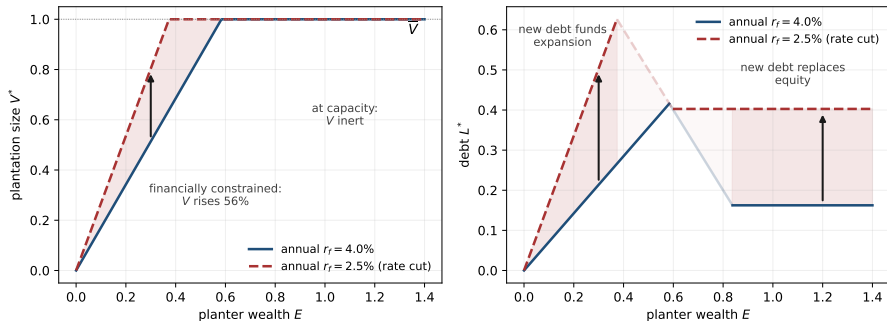
1. **A stylized model of plantation finance.**
 - **When** will credit conditions affect slave shipments?
 - **Why** would the **price** of credit have a large effect on the **quantity** of slave shipments?
2. **Dutch financial markets and slave shipments to Suriname, 1751–1771.**
 - Colony-level evidence.
 - Plantation-level evidence.
3. **Crowding out** — did extra Dutch shipments displace shipments by other Europeans?
4. **Micro-based elasticity calculation** — the effect of a drop in the interest rate on slave shipments.

A stylized model of plantation finance

Plantations. A unit continuum, identical but for planter wealth $E_i \sim U(0, \bar{E})$. One period, all agents risk neutral.

- **Technology.** Invest V ; per-unit return $\tilde{R} \sim U[0, \bar{R}]$. Revenue (output $\times$ price) $\tilde{R}V$ is linear up to a capacity ceiling $\bar{V}$ (pinned down by available land & managerial capacities); flat beyond it.
- **Financing.** Equity $e \leq E$ (idle wealth earns outside return $R_e > R_f$); borrow the gap $L = V - e$ from competitive lenders (funded at R_f) at gross rate π .
- **Moral hazard.** Revenue is unobservable / unseizable. After seeing $\tilde{R}$ the planter repays πL or diverts, keeping $\beta \tilde{R}V$ (rest dissipated). β = weakness of credit enforcement.
- **Leverage constraint.** Moral hazard limits borrowing: the planter walks away whenever $\tilde{R}$ falls below a threshold that *rises with leverage* $\lambda \equiv L/V$ — to break even, competitive lenders cap leverage at an equilibrium level λ^* .

Prediction 1. A lower interest rates leads to more credit; investment only increases if a plantation is financially constrained



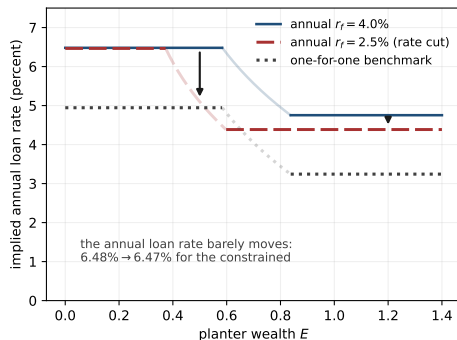
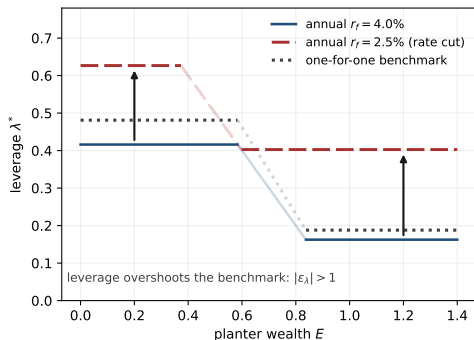
Aggregate: the effect on plantation assets $\mathcal{V} \equiv \int_i V_i di$ scales with the constrained fraction α and the leverage elasticity $\varepsilon_{\lambda_I^*, R_f} < -1$:

$$\varepsilon_{\mathcal{V}, R_f} \equiv \frac{d \ln \mathcal{V}}{d \ln R_f} = \frac{\alpha \lambda_I^* \varepsilon_{\lambda_I^*, R_f}}{2 - \alpha (1 - \lambda_I^*)} < 0.$$

Prediction 2. A lower interest rate primarily moves credit through quantities instead of prices

A change in the risk-free rate R_f can be absorbed two ways: a change in the loan rate π , or leverage λ^* . **The market predominantly clears through leverage.**

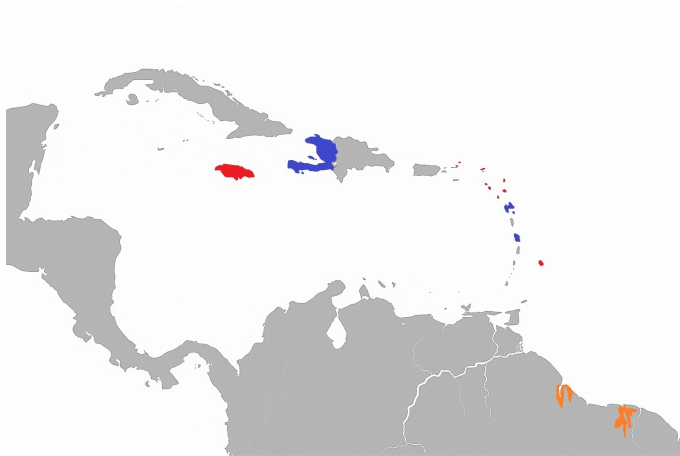
Why: charging a higher loan rate raises the default threshold — the planter walks away more often, destroying revenue both sides want to keep.



Dutch credit markets and slave shipments to Suriname (1751–1771)

1. **Developments in Dutch credit markets.**
2. **Suriname time series.**
3. **Colony-level.**
 - Suriname vs. Demerara-Essequibo.
 - Dutch vs. British and French colonies.
4. **Plantation-level.**
 - Staggered mortgage originations.
 - The 1770 mortgage-refusal shock.

The Caribbean plantation colonies



Dutch — Suriname and Demerara-Essequibo.

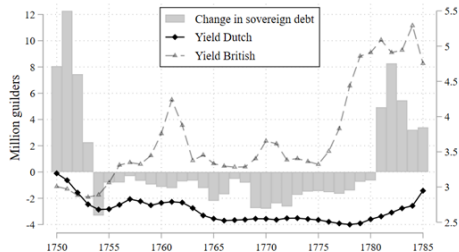
British — Barbados, Jamaica, and the Leeward Islands.

French — French Windward Islands (Guadeloupe and Martinique) and Saint-Domingue.

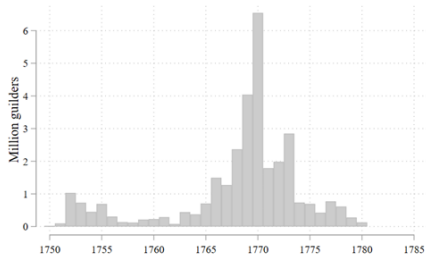
Grenada, Dominica and St. Vincent are omitted (French, then British after 1763).

Dutch credit markets and Suriname mortgages

Panel A: Government debt levels and yield



Panel B: Net plantation-mortgage issuance



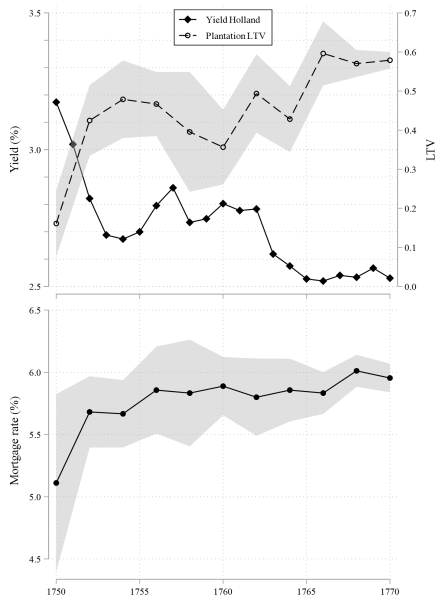
Dutch government reduces its borrowing and starts repaying its debt after 1751; yields fall below English.

Increase in credit to Suriname — mortgages on the collateral of plantations.

Mortgages originated by merchant-banks and sold on to investors.

► Credit growth: margins

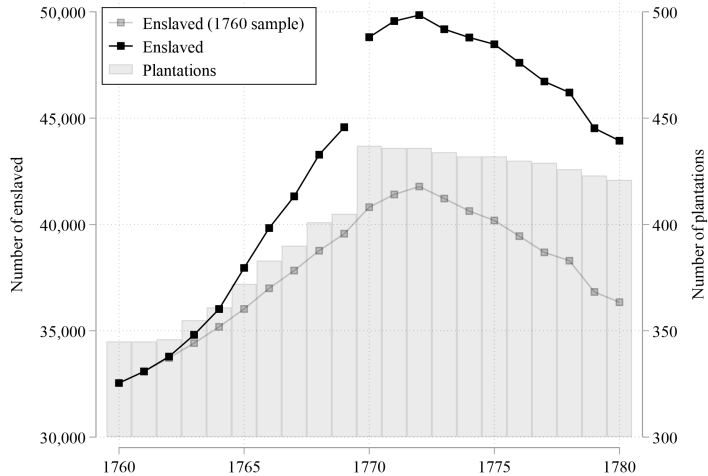
LTVs and mortgage rates



LTVs increase as government yield falls.

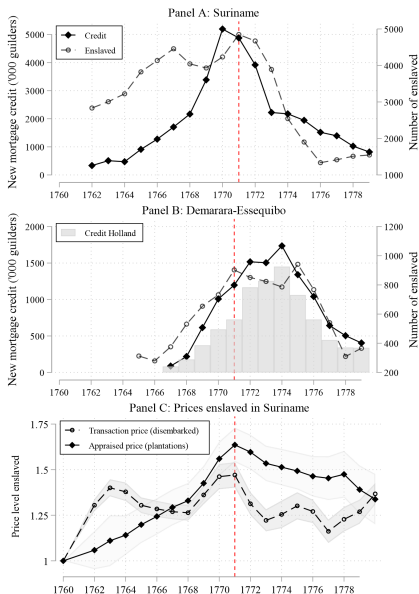
Mortgage rates largely stable between 5.5% and 6% (if anything, increasing).

Growth in plantations and enslaved



1760–1769: plantations +20%, enslaved +37.5%.

Colony-level I: Suriname vs. Demerara-Essequibo



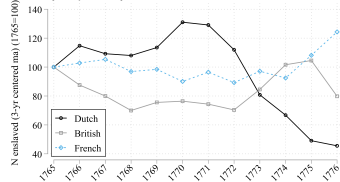
(A) Suriname: credit and slave imports strongly correlated in the time-series.

(B) Natural experiment: Demerara-Essequibo obtains access to Amsterdam credit only in 1771. Compared to Suriname: later increase in credit and slave imports.

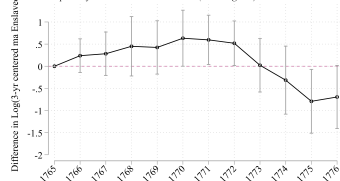
(C) Prices and valuations of enslaved in Suriname rise with imports — driven by a shock to the demand for enslaved, not the supply.

Colony-level II: Dutch vs. British and French colonies

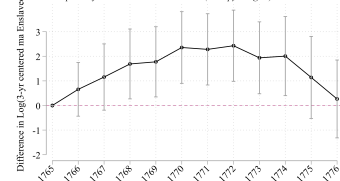
Panel A: Imports of enslaved per nation



Panel B: Imports of enslaved to Dutch colonies (size-weighted)



Panel C: Imports of enslaved to Dutch colonies (entropy-weights)

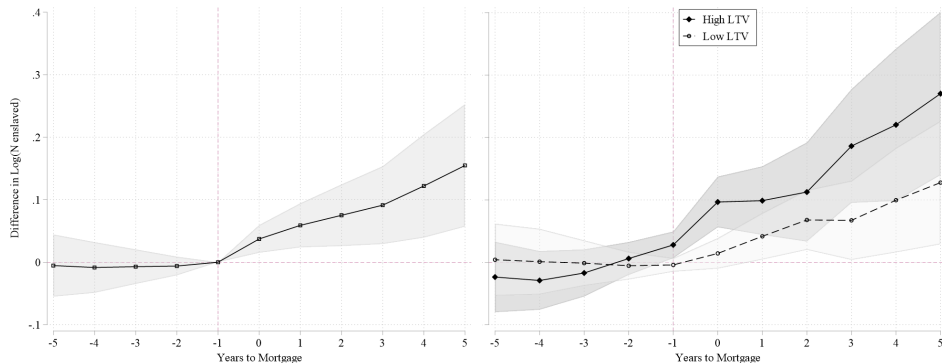


(A) After 1766 British and French imports stagnate, while Dutch imports keep rising to 1771.

(B–C) Diff-in-diff of Dutch vs. British and French imports, weighting comparison colonies by size (B) or by sugar share and colony age (C): differential Dutch increase of **>50 log points** by 1771.

► Sugar and Coffee Prices

Plantation-level I: staggered mortgage originations



ATT estimates from the staggered difference-in-differences estimator of Wooldridge (2021). No pre-trends; in the year of the mortgage the number of enslaved starts rising — +15% **after five years** (*Panel A*) — and *much* stronger for high loan-to-value mortgages (*Panel B*).

Plantation-level I: estimates

	(1) ATT	(2) ATT	(3) ATT	(4) ATT
<i>Panel A: Slave purchases (MCC & C&R, ~30% of imports)</i>				
Mortgage	0.054* (0.030)			
HighLTV		0.093** (0.044)		0.104** (0.042)
LowLTV			0.020 (0.031)	-0.022 (0.034)
<i>N</i> plantations	433	433	433	433
<i>N</i>	5,328	4,352	4,705	4,762
<i>R</i> ²	0.19	0.23	0.21	0.22
<i>Panel B: Number of enslaved on plantation</i>				
Mortgage	0.110*** (0.031)			
HighLTV		0.143*** (0.036)		0.166*** (0.034)
LowLTV			0.070** (0.031)	0.039 (0.033)
<i>N</i> plantations	404	404	404	404
<i>N</i>	4,416	3,592	4,034	3,833
<i>R</i> ²	0.93	0.94	0.93	0.94
Sample	Full	High LTV	Low LTV	Ex. LTV unknown

* $p < .10$, ** $p < .05$, *** $p < .01$.

After a mortgage: purchases +5%,
enslaved +11%; driven by
high-LTV.

Plantation-level I: financial constraints

	(1) ATT	(2) ATT
Mortgage	0.110*** (0.031)	
Small plantation × Mortgage		0.162*** (0.031)
Large plantation × Mortgage		0.028 (0.037)
Sample	Full	Full
<i>N</i> plantations	404	404
<i>N</i>	4,416	4,416
<i>R</i> ²	0.94	0.94

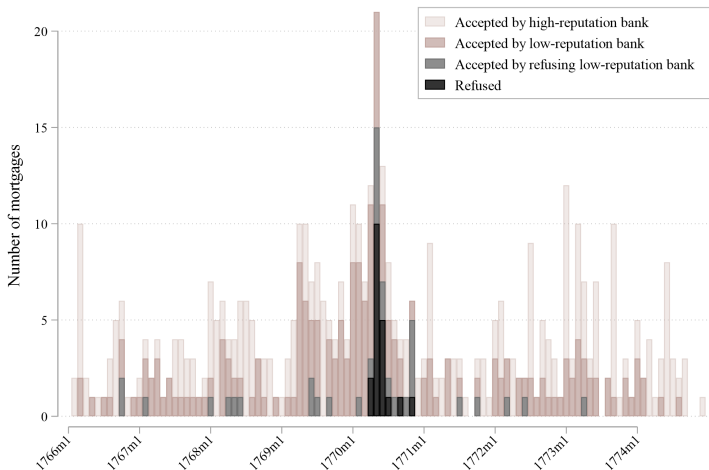
* $p < .10$, ** $p < .05$, *** $p < .01$.

Mortgage → enslaved +11%;
concentrated in *small* plantations,
about zero for large plantations (top
25% in size distribution).

► Size Distributions

► Take-up & LTVs: small vs. large

Plantation-level II: the 1770 mortgage-refusal shock



Two types of Dutch banks originating and selling mortgages: high and low-reputation.

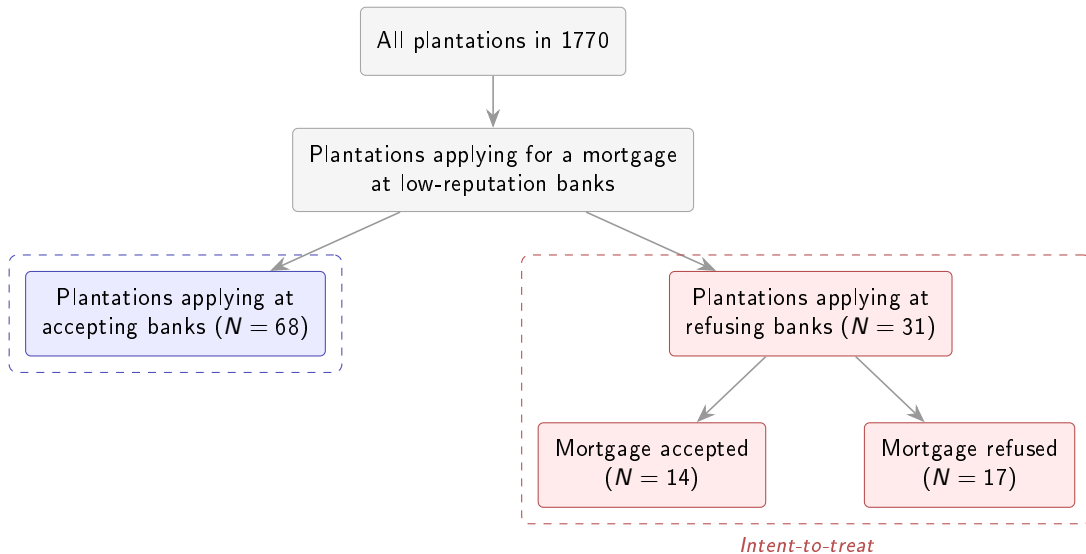
One low-reputation bank *refused* mortgages it already originated (investors pulled back).

Black bars = refused, concentrated *just after* April 1770.

► Bank reputation: figure

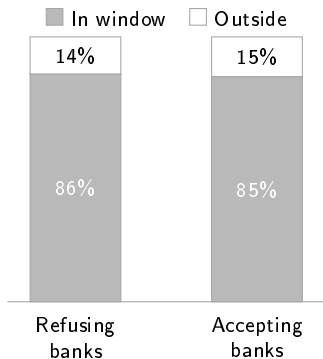
► Bank reputation: table

Plantation-level II: empirical design



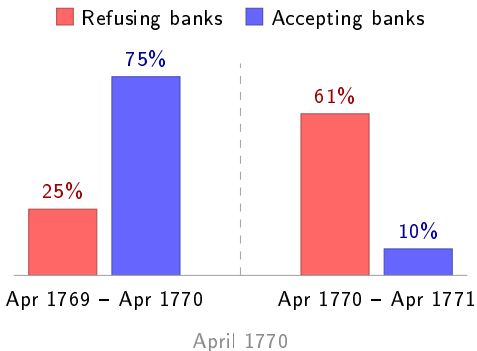
Plantation-level II: empirical design (cont.)

Panel A: Mortgages during event window (Apr 1769 – Apr 1771)



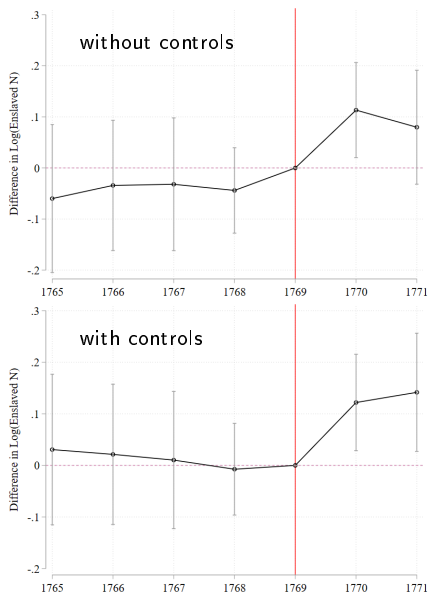
No difference ($t = 0.16$).

Panel B: But within the event window...



Post-April 1770 share: 61% vs. 10% — difference of 51 pp ($t = 3.91$).

Plantation-level II: more enslaved with accepting banks



Standard diff-in-diff plots (reduced form) show parallel pre-trends. In 1770–71 plantations with accepting banks have **10–15% more enslaved**.

Controls ($\times$ year): bank office value, high-LTV dummy, log plantation age (all as of 1769), and location (river) fixed effects.

IV: mortgage acceptance raises the number of enslaved by **~20%** in 1770:

	(1) OLS	(2) Red. form	(3) 1st stage	(4) IV
Mortgage accepted	0.153** (0.059)			0.197** (0.083)
Accepting bank		0.121** (0.051)	0.615*** (0.074)	
Controls	Yes	Yes	Yes	Yes
<i>N</i>	98	98	98	98
First-stage <i>F</i>			68.5	

► Balance: banks

► Balance: plantations & planters

► Plantation-level III: tightening of credit

What the evidence shows

1. **Suriname.** After the Dutch government started to repay its debts and yields fell, mortgage credit expanded. Contemporaneous increase in enslaved.
2. **Colony-level.** Demerara-Essequibo obtains access to Amsterdam credit later than Suriname: later increase in slave imports. By 1771, Dutch imports rise >50 log points above the British and French.
3. **Plantation-level.** Three designs agree: +15% enslaved after a mortgage (stronger at high LTV); +20% at banks that kept lending in 1770; –17% once a bank tightens credit. ► Plantation-level III: tightening of credit

Each research design points to the same conclusion.

4. **Consistent with the model:** a mortgage raises the number of enslaved only for *smaller*, (financially constrained) plantations — for large ones it merely substitutes for internal funds.

External validity: the aggregate effect scales with the fraction of financially constrained plantations (α).

Crowding out? Did extra Dutch imports displace other Europeans?



African regions and ports of departure by colonizer (England, Portugal, France, Dutch, Denmark), 1760–1780. Regions per Lovejoy et al. (2019).

Concern. Extra Dutch shipments may have crowded out other Europeans' shipments from Africa — limited net effect on total forced displacement.

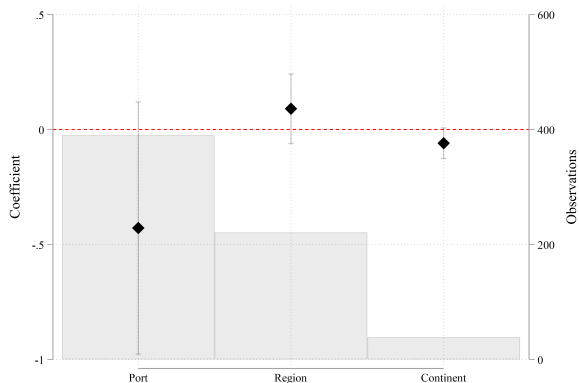
Test. Do African locations where the Dutch were active see *fewer* shipments by others during the Dutch credit boom (1767–1772)?

$$S_{clt} = \exp(\beta \text{Boom}_{lt} + \gamma_{cl} + \delta_t) \cdot \epsilon_{clt}$$

S_{clt} : shipments by colonizer c from location ℓ , in year t ; Boom_{lt} : boom years $\times$ Dutch-active locations; colonizer-location FE γ_{cl} , and year FE δ_t . PPML; β = elasticity (log-point change in others' shipments). Sample 1764–1776, Dutch shipments omitted, SE clustered by location-period. $\beta < 0$ = crowding out.

~32% of all shipments came from ports where Dutch traders were active.

Crowding out? Little evidence



$\hat{\beta}$ (diamonds, 95% CI) at the port, region and continent level;
bars = number of observations (right axis).

Port level. A negative point estimate ($\hat{\beta} \approx -0.4$, implying $\sim 33\%$ fewer shipments), but *not* statistically significant — the CI spans zero.

Region & continent. Tightly estimated effects close to zero: any port-level displacement is made up by shipping from alternative locations.

Conclusion. Little evidence of crowding out — the credit-driven Dutch imports *added* to total forced displacement rather than reallocating it.

Micro-based elasticity calculation

Key expression from the model:

$$\varepsilon_{\mathcal{V}, R_f} \equiv \frac{d \ln \mathcal{V}}{d \ln R_f} = \frac{\alpha \lambda_I^* \varepsilon_{\lambda_I^*, R_f}}{2 - \alpha (1 - \lambda_I^*)} < 0.$$

We know how much R_f changed in the Dutch Republic — what was its impact on the shipments of enslaved?

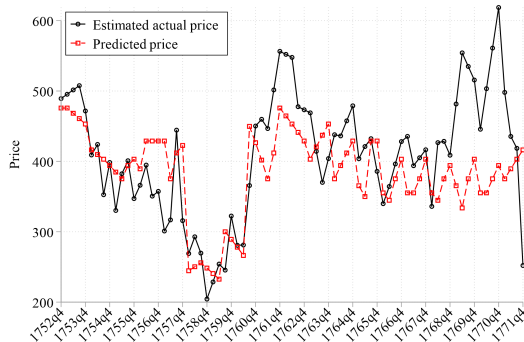
We aggregate our micro-estimates of the change in the number of enslaved on Suriname plantations:

1. Sum the plantation-level diff-in-diff effects over all plantations (existing + new entrants).
2. Net out *general-equilibrium effects for prices of the enslaved*: more credit $\rightarrow$ higher demand $\rightarrow$ higher prices $\rightarrow$ fewer imports of enslaved.
3. Inputs needed: the *demand elasticity for enslaved* and the *credit-driven price increase*.

Estimating the demand elasticity and the credit-driven price effect

	(1) OLS	(2) Reduced	(3) 1st stage	(4) 2SLS
Log(Price)	-0.304** (0.119)			-0.546** (0.217)
Log(Premium $t-4$)		-0.253** (0.100)	0.464*** (0.137)	
N	49	49	49	49
First-stage F			11.4	

Dependent variable: log imports (1, 2, 4), log price (3); quarter and war controls. Column 4 is the demand elasticity.



Instrument the price of enslaved with *Amsterdam insurance premia* — a supply shifter (ships to Suriname passed West Africa), 1752–1764. Elasticity ≈ -0.55 : a 1% higher price $\rightarrow$ 0.55% fewer imports.

Prices spike above the insurance-premium prediction in 1769–70 — the credit-driven price effect.

From micro-estimates to aggregate imports

Existing plantations

- With a mortgage: demand shifts out $\Rightarrow$ more imports relative to plantations without (our diff-in-diff γ).
- All existing plantations: higher equilibrium price $\Rightarrow$ fewer imports (the price effect).

New plantations

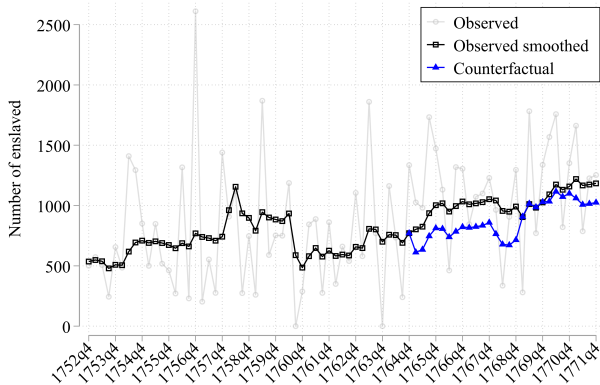
- Estimate the probability that entry *with a mortgage* was credit-driven π_t : compare entry before and after 1764 — excess entry with a mortgage after 1764 is attributed to credit.

Net effect = extra imports from the demand shift – imports lost to the price increase + imports by credit-driven new entrants:

$$\Delta S_t^M = \frac{1}{1-\rho} \left(\sum_{i \in M_t} \gamma s_{i,t} - \sum_{i \in P_t} \varepsilon \Delta p_t \max \{0, s_{i,t} - s_{i,t-1}(1-\delta)\} + \sum_{i \in NM_t} \pi_t s_{i,t} \right)$$

ΔS_t^M : additional credit-driven slave imports in year t ; P_t : existing plantations, of which M_t have a mortgage; NM_t : new plantations entering with a mortgage; $s_{i,t}$: number of enslaved on plantation i in year t ; ε : demand elasticity (in absolute value); Δp_t : credit-driven price increase; δ : attrition rate; ρ : fraction of plantations missing from the data.

Aggregated micro-estimates



An increase in slave imports of 15.8% compared to the counterfactual.

Dutch sovereign yields fell by 15.9% in relative terms between 1751 and 1771.

Implied elasticity using log points is ~ -0.85 — in line with preliminary estimates where we found an elasticity of $\sim -0.7 - -0.9$.

► Lower bound? Non-mortgage credit

► Cross-colony comparison

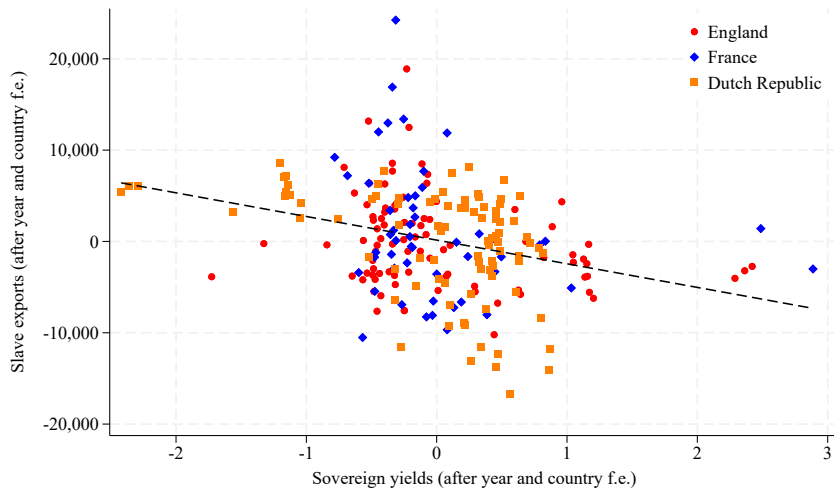
Conclusion

Metropolitan credit was an important contributor to the slave trade. This deepens our understanding of slavery as an institution.

- Pledgeability of plantations (incl. the enslaved) and deep metropolitan financial markets increased transatlantic slave shipments in the 18th c.
- An additional, quantitatively important factor — alongside coercion, disease resistance, and property rights more generally — behind the transatlantic slave trade.

Appendix

Frisch-Waugh plot (after country and year fixed effects)



Equilibrium contract

Incentive constraint. The planter repays only if the return is high enough, $\tilde{R} \geq \tilde{R}^*$, where

$$\tilde{R}^* = \frac{\pi\lambda}{1-\beta}, \quad \lambda \equiv \frac{L}{V} \text{ (leverage).}$$

Default — strategic — occurs with probability $\tilde{R}^*/\bar{R} \in (0, \frac{1}{2})$.

Competitive lender breaks even:

$$\int_{\tilde{R}^*}^{\bar{R}} \pi L \, dF(\tilde{R}) + \int_0^{\tilde{R}^*} 0 \, dF(\tilde{R}) = R_f L.$$

Three regimes by wealth E :

- **Case 1 — financially constrained** (low E): all wealth inside, $e^* = E$, plantation below the ceiling; size $V^* = E/(1 - \lambda_l^*)$.
- **Case 2 — wealth-rich** (high E): ceiling binds, $V^* = \bar{V}$, and equity is interior.
- **Case 3 — transitional**: both constraints bind (an artifact of the hard cap).

Prediction 3. A higher output price acts like a lower interest rate

A rise in the expected output price $\bar{R}$ has the same effect as a fall in the interest rate R_f .

Intuition: a higher expected output price alleviates the borrowing constraint the same way that a lower R_f does.

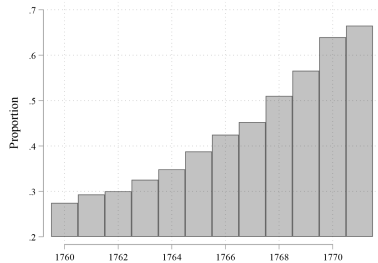
Write the financially constrained planter's leverage in terms of the ratio $\rho \equiv \bar{R}/R_f$:

$$\lambda^* = \frac{(1+d)(\rho-1-d)}{\rho-1+d}, \quad d \equiv \sqrt{\beta(\rho-1)^2 + (1-\beta)}, \quad \rho \equiv \frac{\bar{R}}{R_f}.$$

Leverage depends on the price and the interest rate *only* through their ratio ρ . Raising $\bar{R}$ by 1% and cutting R_f by 1% change ρ identically.

Credit growth: extensive and intensive margins

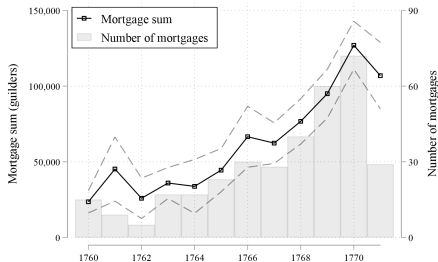
Panel A: Proportion of plantations financed by mortgage



Share of plantations with a mortgage 27% → 66%.

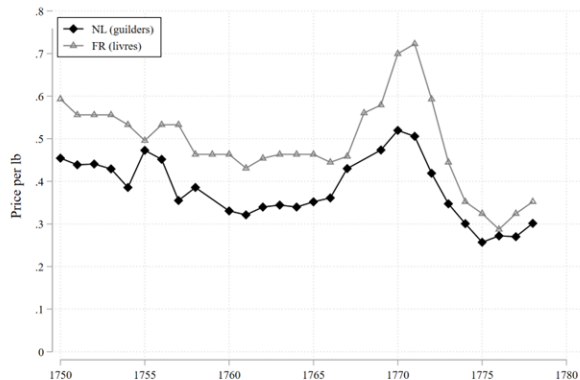
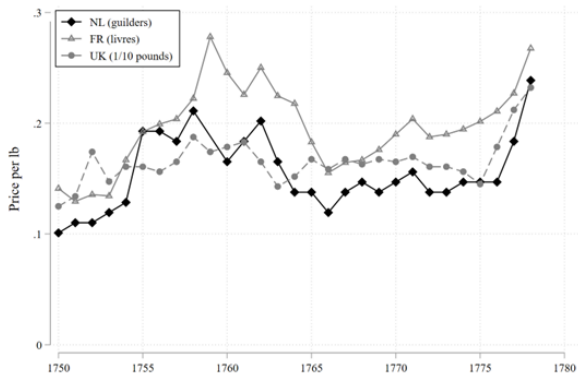
New mortgages ~10/yr
→ ~65/yr (1769–70); average
size 33k → 112k guilders.

Panel B: Average new mortgage size



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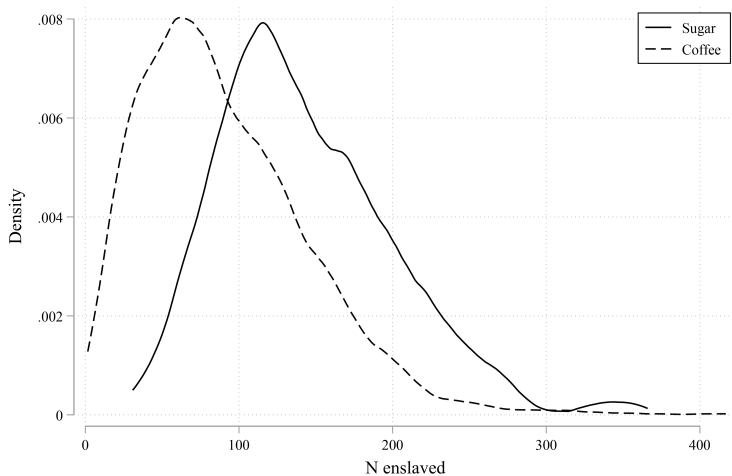
Sugar and coffee prices



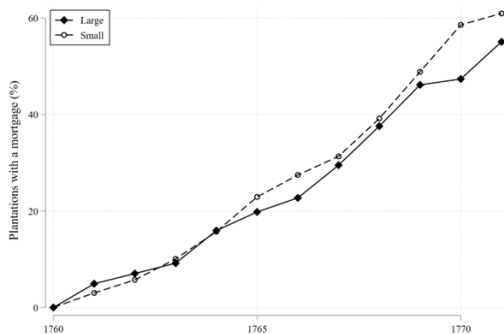
Commodity prices in local currency.

[◀ Back to colony-level II](#)

Plantation Size Distributions



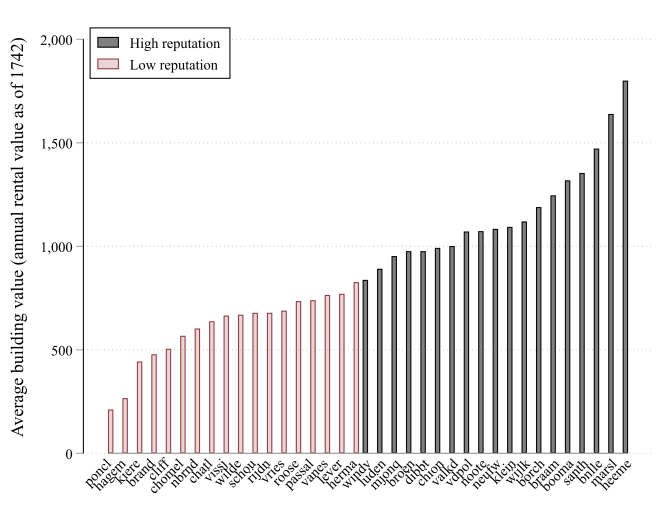
Mortgage take-up and LTVs: small vs. large plantations



Variable	Year	Large			Small			Diff
		Mean	Median	<i>N</i>	Mean	Median	<i>N</i>	
LTV	1764	0.447	0.460	11	0.457	0.460	30	-0.010
LTV	1770	0.560	0.625	45	0.581	0.625	123	-0.021

Large = above the crop-specific size threshold (p75) of enslaved; small = at or below. Welch *t*-test of means (large vs. small) within year. * $p < .10$, ** $p < .05$, *** $p < .01$.

High and low-reputation banks



High and low-reputation banks (cont.)

	High-reputation		Low-reputation		Difference	
	N	Mean	N	Mean	Mean dif.	t-stat
<i>Panel A: Partner characteristics</i>						
City government (1/0)	19	0.47	18	0.00	0.47***	3.91
Family high wealth (1/0)	91	0.41	83	0.28	0.13**	1.99
Family house value (000s)	91	0.70	83	0.53	0.16**	2.19
Family income (000s)	112	4.12	84	2.44	1.67**	2.54
<i>Panel B: Merchant-bank size</i>						
ABE account (1/0)	19	0.68	18	0.61	0.07	0.45
ABE vol. (000s)	19	0.47	18	0.12	0.35**	1.97
ABE vol. (000s) ABE account	13	0.69	10	0.22	0.47**	2.49
N deeds	19	88	18	34	54	1.59
N non-Suriname deeds	19	80	18	26	54*	1.81
<i>Panel C: Size MBS business</i>						
MBS volume (millions)	19	0.94	18	1.08	-0.14	-0.38
MBS volume yearly (millions)	19	0.31	18	0.23	0.08	0.56
<i>Panel D: Relative size outside activities</i>						
Outside activities (1/0)	19	0.74	18	0.33	0.40**	2.62
Non-Suriname deeds ratio	19	0.74	18	0.53	0.21**	2.63
Non-MBS deed ratio	19	0.93	18	0.70	0.22**	2.31

* $p < .10$, ** $p < .05$, *** $p < .01$.

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Refusal shock — balance: banks

Unit of observation: plantations with a new mortgage from a low-reputation bank that was either refused or accepted ($N = 31$ vs. 68). Each plantation linked to the characteristics of the relevant issuing bank. Means; t for the difference.

	Refused ($N=31$)	Accepted ($N=68$)	t
Prop. mortgages in event window	0.86	0.85	0.16
Prop. post-April 1770 (in window)	0.61	0.10	3.91
Bank office value	0.72	0.62	2.02
MBS volume	1,005	1,338	-0.87
Log(MBS volume)	6.85	6.57	0.43
MBS experience	2.74	2.32	0.53

Only *timing* differs: refused mortgages were originated late, just before the wave of refusals. Other bank characteristics are similar.

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Refusal shock — balance: plantations and planters

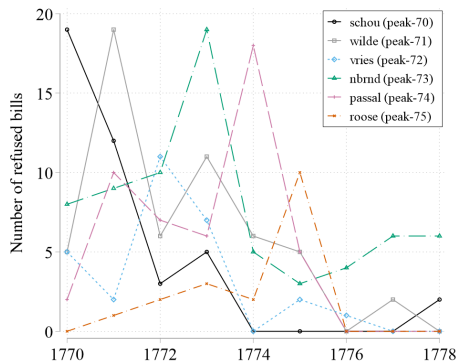
	Refused ($N=31$)	Accepted ($N=68$)	t
<i>Plantations</i>			
Mortgage (1/0)	0.74	0.84	-1.12
High LTV (1/0)	0.32	0.51	-1.79
Low LTV (1/0)	0.42	0.32	0.92
Plantation age	71.6	57.1	2.11
Log(age)	4.12	3.86	1.71
N enslaved	81.0	104.8	-2.36
Log(N enslaved)	4.26	4.50	-1.87
Acres	1,321	898	1.86
Log(Acres)	6.62	6.46	0.79
Enslaved-acres ratio	0.15	0.18	-1.30
Sugar (1/0)	0.23	0.24	-0.10
Upland (1/0)	0.71	0.57	1.29
<i>Planters</i>			
Local (1/0)	0.83	0.81	0.29
Administration (1/0)	0.07	0.15	-1.11
Planter experience	2.17	2.17	0.00

Broadly similar; if anything, refused plantations look more established (older, smaller existing mortgage).

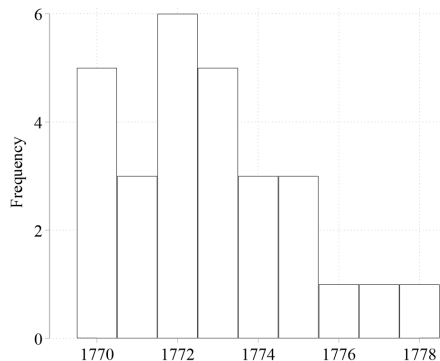
Plantation-level III: staggered tightening of credit

After 1770 banks retrenched, refusing the bills of exchange planters drew and cutting off credit. *Panel A*: examples of six banks, each peaking in a different year. *Panel B*: peak year varies widely (median 1773); we use this timing as treatment.

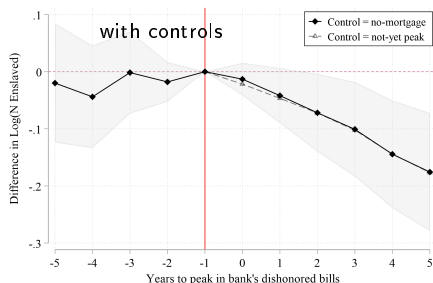
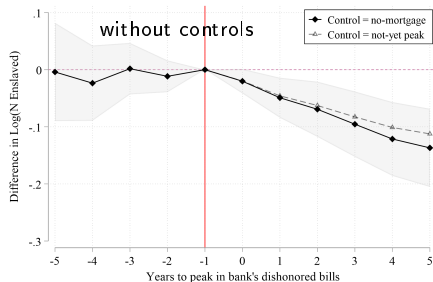
Panel A: Yearly number of dishonored bills for selected banks



Panel B: Yearly number of banks with peaks in dishonored bills



Plantation-level III: tightening of credit reduces number of enslaved



Event-study diff-in-diff: the number of enslaved declines after a bank tightens credit, both without and with controls.

Staggered difference-in-differences: five years after tightening, the number of enslaved falls by **~17%**.

Controls: planter experience and place of residence.

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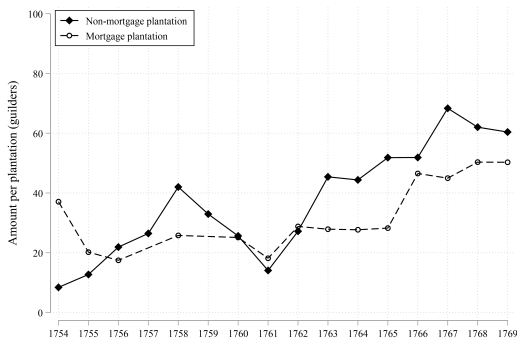
Plantation-level III: hazard of a bank's peak in refusals

Unit of observation: plantations. We take the peak in refusals of the bank that provided the last mortgage. This date is right-censored at 1778.

Plantation/planter char.	<i>N</i>	Haz. ratio	<i>z</i>
N enslaved	339	1.00	-1.24
Log(N enslaved)	339	0.98	-0.24
LTV	127	0.76	-0.63
Sugar	339	1.13	0.94
Plantation age	339	1.00	0.35
Log(Acres)	334	0.93	-1.11
Upland	339	1.12	1.03
Local	306	1.44	2.79
Administration	309	1.07	0.40
Planter exp.	309	0.88	-2.25

Why are aggregate results smaller when based on micro estimates?

	<i>N</i>	Mean	Med.
<i>Panel A: Current account debt as share of appraised value</i>			
All plantations	31	0.161	0.127
Without mortgage	6	0.196	0.193
With mortgage	25	0.153	0.118
<i>Panel B: Current account debt as share of mortgage</i>			
Plantations with mortgage	25	0.290	0.210



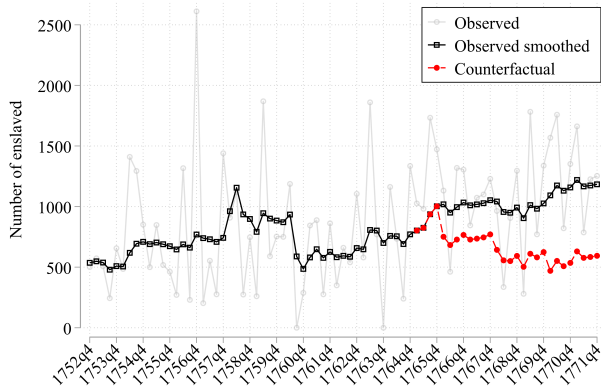
Apart from mortgages, plantations also obtained non-mortgage credit (bills of exchange drawn on current accounts).

Anecdotal evidence from plantation balance sheets suggests that plantations without a mortgage had more non-mortgage credit as a fraction of a plantation's appraised value.

Based on bills of exchange recorded in Suriname, plantations without a mortgage saw a bigger increase in the value of bills of exchange drawn on the Dutch Republic during the 1760s.

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Cross-colony comparison



An increase in slave imports of 68.3% compared to the counterfactual.

Dutch sovereign yields fell by 15.9% in relative terms between 1751 and 1771, while a weighted average of British and French yields rose by 25.4%.

Implied elasticity using log points, relative to the difference in yield changes (Dutch vs. British–French) of ~ -1.3 .