

Online Appendix for “The Diffusion of Epichoric Scripts and Coinage in the Ancient Hellenic Poleis”

In this online appendix, we provide some additional robustness tables as supplementary evidence to our main results.

Robustness results correspond to Table 3 (Probit Regression: Coinage Indicator against Script Indicator)

	Table 3	Table S1	Table S2	Table S3
Centrality: poleis stochastic	X			
Centrality: segment stochastic		X		
Centrality: poleis nonstochastic			X	
Centrality: segment nonstochastic				X

Robustness results correspond to Table 4 (OLS Regression: Coinage Issue Date against Script Indicator)

	Table 4	Table S4	Table S5	Table S6	Table S7	Table S8	Table S9	Table S10
Centrality: poleis stochastic	X	X						
Centrality: segment stochastic			X	X				
Centrality: poleis nonstochastic					X	X		
Centrality: segment nonstochastic							X	X
Exclude poleis with century level coinage date	X		X		X		X	
Include poleis with century level coinage date		X		X		X		X

Robustness results correspond to Table 5, 6, and 7 (Probit and Seemingly Unrelated Regressions)

	Table 5	Table S11	Table 6	Table S12	Table 7	Table S13
Centrality: poleis stochastic	X		X		X	
Centrality: segment stochastic		X		X		X
Centrality: poleis nonstochastic	X		X		X	
Centrality: segment nonstochastic		X		X		X

Robustness results correspond to Table 8 (Survival Analysis: Date of Script Adoption)

	Table 8	Table S14	Table S15	Table S16	Table S17	Table S18	Table S26
At risk date: 726 BCE	X						X
At risk date: 776 BCE		X					
At risk date: 1050 BCE			X				
Centrality: poleis stochastic							X
Centrality: segment stochastic							X
Centrality: poleis nonstochastic	X	X	X				
Centrality: segment nonstochastic	X	X	X				
Distance: sailing + 5*walking	X	X	X				X
Distance: sailing + 10*walking				X			
Distance: sailing + 20*walking					X		
Distance: sailing + 0*walking						X	

Robustness results correspond to Table 9 (Survival Analysis: Date of Coinage Issue)

	Table 9	Table S19	Table S20	Table S21	Table S22	Table S23	Table S24	Table S25	Table S27	Table S28
Centrality: poleis stochastic									X	X
Centrality: segment stochastic									X	X
Centrality: poleis nonstochastic	X	X	X	X	X					
Centrality: segment nonstochastic	X	X	X	X	X					
Distance: sailing + 5*walking	X	X							X	X
Distance: sailing + 10*walking			X			X				
Distance: sailing + 20*walking				X			X			
Distance: sailing + 0*walking					X			X		
Exclude century level coinage date	X		X	X	X				X	
Include century level coinage date		X				X	X	X		X

Robustness results correspond to Table 10 (Pseudo Panel Analysis: Spatial Evolution of Script Adoption)

	Table 10	Table S29	Table S30	Table S31	Table S35
Centrality: poleis stochastic					X
Centrality: segment stochastic					X
Centrality: poleis nonstochastic	X	X	X	X	
Centrality: segment nonstochastic	X	X	X	X	
Distance: sailing + 5*walking	X				X
Distance: sailing + 10*walking		X			
Distance: sailing + 20*walking			X		
Distance: sailing + 0*walking				X	

Robustness results correspond to Table 12 (Pseudo Panel Analysis: Spatial Evolution of Coinage Issue)

	Table 12	Table S32	Table S33	Table S34	Table S36
Centrality: poleis stochastic					X
Centrality: segment stochastic					X
Centrality: poleis nonstochastic	X	X	X	X	
Centrality: segment nonstochastic	X	X	X	X	
Distance: sailing + 5*walking	X				X
Distance: sailing + 10*walking		X			
Distance: sailing + 20*walking			X		
Distance: sailing + 0*walking				X	

1 coinage - script regressions

Table S1: Probit Regression of coinage indicator against script indicator, segment stochastic centrality

	(1) Coin	(2) Coin	(3) Coin	(4) Coin	(5) Coin
script	0.566*** (0.0767)	0.592*** (0.0944)	0.598*** (0.0971)	0.372*** (0.106)	0.492*** (0.144)
Constant	-0.697*** (0.0600)	-1.584*** (0.594)	-1.537** (0.672)	-0.851 (0.837)	-2.416** (1.166)
Geo vars		X	X	X	X
Centrality			X	X	X
Membership				X	X
size					X
Observations	1215	1065	1065	890	631
Pseudo-R2	0.035	0.096	0.098	0.075	0.238
N(Coin=1)	437	424	424	424	334

Notes: Probit regression for coinage against script adoption indicator. Geographical variables here include ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability. Centrality variables include stochastic right eigenvector, authority, and hub centrality based on the poleis sample. Membership includes Delian and Koinon (Federation) memberships.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S2: Probit Regression of coinage indicator against script indicator, poleis nonstochastic centrality

	(1) Coin	(2) Coin	(3) Coin	(4) Coin	(5) Coin
script	0.566*** (0.0767)	0.592*** (0.0944)	0.587*** (0.0976)	0.313*** (0.106)	0.507*** (0.146)
Constant	-0.697*** (0.0600)	-1.584*** (0.594)	-2.248*** (0.712)	-3.157*** (0.892)	-3.959*** (1.370)
Geo vars		X	X	X	X
Centrality			X	X	X
Membership				X	X
size					X
Observations	1215	1065	1065	890	631
Pseudo-R2	0.035	0.096	0.099	0.064	0.240
N(Coin=1)	437	424	424	424	334

Notes: Probit regression for coinage against script adoption indicator. Geographical variables here include ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability. Centrality variables include stochastic right eigenvector, authority, and hub centrality based on the poleis sample. Membership includes Delian and Koinon (Federation) memberships.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S3: Probit Regression of coinage indicator against script indicator, segment nonstochastic centrality

	(1)	(2)	(3)	(4)	(5)
	Coin	Coin	Coin	Coin	Coin
script	0.566*** (0.0767)	0.592*** (0.0944)	0.587*** (0.0971)	0.311*** (0.104)	0.485*** (0.142)
Constant	-0.697*** (0.0600)	-1.584*** (0.594)	-1.945*** (0.687)	-2.209*** (0.852)	-3.142** (1.277)
Geo vars		X	X	X	X
Centrality			X	X	X
Membership				X	X
size					X
Observations	1215	1065	1065	890	631
Pseudo-R2	0.035	0.096	0.097	0.054	0.233
N(Coin=1)	437	424	424	424	334

Notes: Probit regression for coinage against script adoption indicator. Geographical variables here include ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability. Centrality variables include stochastic right eigenvector, authority, and hub centrality based on the poleis sample. Membership includes Delian and Koinon (Federation) memberships.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S4: OLS Regression of date of coinage against script indicator, poleis stochastic centrality, with century level coinage date

	(1)	(2)	(3)	(4)	(5)
	Date	Date	Date	Date	Date
script	-0.230*** (0.0782)	-0.284*** (0.0861)	-0.400*** (0.0937)	-0.382*** (0.0998)	-0.313*** (0.113)
Constant	-4.622*** (0.0631)	-4.173*** (0.537)	-4.437*** (0.925)	-4.302*** (0.947)	-3.831*** (0.982)
Geo vars		X	X	X	X
Centrality			X	X	X
Membership				X	X
size					X
Observations	437	424	424	424	334
R2-adj	0.015	0.099	0.120	0.191	0.271

Notes: OLS regression for date of coinage against script adoption indicator. Dependent variable is the century of coinage. Smaller coefficients imply earlier coinage issues. Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability. Centrality variables include stochastic right eigenvector, authority, and hub centrality based on the poleis sample. Membership includes Delian and Koinon (Federation) memberships.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S5: OLS Regression of date of coinage against script indicator, segment stochastic centrality

	(1)	(2)	(3)	(4)	(5)
	Date	Date	Date	Date	Date
script	-39.29*** (8.797)	-48.16*** (9.271)	-51.64*** (10.12)	-47.94*** (10.46)	-37.64*** (12.56)
Constant	-390.8*** (6.529)	-217.2*** (56.29)	-257.4*** (64.69)	-276.9*** (66.47)	-261.1*** (78.22)
Geo vars		X	X	X	X
Centrality			X	X	X
Membership				X	X
size					X
Observations	233	223	223	223	155
R2-adj	0.069	0.210	0.204	0.214	0.273

Notes: OLS regression for date of coinage against script adoption indicator. Smaller coefficients imply earlier coinage issues. Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability. Centrality variables include stochastic right eigenvector, authority, and hub centrality based on the segment sample. Membership includes Delian and Koinon (Federation) memberships.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S6: OLS Regression of date of coinage against script indicator, segment stochastic centrality, with century level coinage date

	(1)	(2)	(3)	(4)	(5)
	Date	Date	Date	Date	Date
script	-0.230*** (0.0782)	-0.284*** (0.0861)	-0.348*** (0.0915)	-0.315*** (0.0973)	-0.248** (0.114)
Constant	-4.622*** (0.0631)	-4.173*** (0.537)	-4.386*** (0.607)	-3.968*** (0.664)	-3.526*** (0.769)
Geo vars		X	X	X	X
Centrality			X	X	X
Membership				X	X
size					X
Observations	437	424	424	424	334
R2-adj	0.015	0.099	0.107	0.174	0.273

Notes: OLS regression for date of coinage against script adoption indicator. Dependent variable is the century of coinage. Smaller coefficients imply earlier coinage issues. Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability. Centrality variables include stochastic right eigenvector, authority, and hub centrality based on the segment sample. Membership includes Delian and Koinon (Federation) memberships.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S7: OLS Regression of date of coinage against script indicator, poleis nonstochastic centrality

	(1)	(2)	(3)	(4)	(5)
	Date	Date	Date	Date	Date
script	-39.29*** (8.797)	-48.16*** (9.271)	-55.62*** (9.696)	-50.93*** (10.07)	-44.40*** (12.45)
Constant	-390.8*** (6.529)	-217.2*** (56.29)	-312.5*** (57.30)	-298.5*** (57.24)	-271.7*** (64.43)
Geo vars		X	X	X	X
Centrality			X	X	X
Membership				X	X
size					X
Observations	233	223	223	223	155
R2-adj	0.069	0.210	0.238	0.255	0.283

Notes: OLS regression for date of coinage against script adoption indicator. Smaller coefficients imply earlier coinage issues. Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability. Centrality variables include nonstochastic right eigenvector, authority, and hub centrality based on the poleis sample. Membership includes Delian and Koinon (Federation) memberships.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S8: OLS Regression of date of coinage against script indicator, poleis nonstochastic centrality, with century level coinage date

	(1)	(2)	(3)	(4)	(5)
	Date	Date	Date	Date	Date
script	-0.230*** (0.0782)	-0.284*** (0.0861)	-0.331*** (0.0872)	-0.313*** (0.0945)	-0.299*** (0.110)
Constant	-4.622*** (0.0631)	-4.173*** (0.537)	-4.719*** (0.598)	-4.161*** (0.659)	-3.265*** (0.774)
Geo vars		X	X	X	X
Centrality			X	X	X
Membership				X	X
size					X
Observations	437	424	424	424	334
R2-adj	0.015	0.099	0.108	0.190	0.272

Notes: OLS regression for date of coinage against script adoption indicator. Dependent variable is the century of coinage. Smaller coefficients imply earlier coinage issues. Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability. Centrality variables include nonstochastic right eigenvector, authority, and hub centrality based on the poleis sample. Membership includes Delian and Koinon (Federation) memberships.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S9: OLS Regression of date of coinage against script indicator, segment nonstochastic centrality

	(1)	(2)	(3)	(4)	(5)
	Date	Date	Date	Date	Date
script	-39.29*** (8.797)	-48.16*** (9.271)	-57.23*** (9.847)	-53.37*** (10.23)	-42.38*** (12.26)
Constant	-390.8*** (6.529)	-217.2*** (56.29)	-279.5*** (58.44)	-269.6*** (58.89)	-237.7*** (77.69)
Geo vars		X	X	X	X
Centrality			X	X	X
Membership				X	X
size					X
Observations	233	223	223	223	155
R2-adj	0.069	0.210	0.233	0.250	0.262

Notes: OLS regression for date of coinage against script adoption indicator. Smaller coefficients imply earlier coinage issues. Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability. Centrality variables include nonstochastic right eigenvector, authority, and hub centrality based on the segment sample. Membership includes Delian and Koinon (Federation) memberships.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S10: OLS Regression of date of coinage against script indicator, segment nonstochastic centrality, with century level coinage date

	(1)	(2)	(3)	(4)	(5)
	Date	Date	Date	Date	Date
script	-0.230*** (0.0782)	-0.284*** (0.0861)	-0.337*** (0.0902)	-0.316*** (0.0960)	-0.287*** (0.111)
Constant	-4.622*** (0.0631)	-4.173*** (0.537)	-4.419*** (0.586)	-3.637*** (0.657)	-2.967*** (0.837)
Geo vars		X	X	X	X
Centrality			X	X	X
Membership				X	X
size					X
Observations	437	424	424	424	334
R2-adj	0.015	0.099	0.106	0.181	0.255

Notes: OLS regression for date of coinage against script adoption indicator. Dependent variable is the century of coinage. Smaller coefficients imply earlier coinage issues. Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability. Centrality variables include nonstochastic right eigenvector, authority, and hub centrality based on the segment sample. Membership includes Delian and Koinon (Federation) memberships.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

2 biprobit regressions: segment centrality

Table S11: Bivariate probit model

	Stochastic centrality			Nonstochastic centrality			
	(1) RightEV	(2) Auth	(3) Hub	(4) RightEV	(5) LeftEV	(6) Auth	(7) Hub
script centrality	-1396.9*** (288.7)	-1335.9 (836.7)	-993.5** (451.9)	-137.2 (271.4)	1688.7*** (438.2)	1973.2*** (417.8)	1083.9*** (379.3)
Constant	-2.173** (0.859)	-1.099 (0.802)	-1.417* (0.843)	-0.979 (0.871)	-2.462*** (0.901)	-1.260 (0.781)	-0.337 (0.784)
coin centrality	128.1 (293.5)	-1952.0** (807.3)	-580.0 (430.0)	-528.4** (259.6)	959.1** (378.3)	-763.6* (392.6)	-950.9*** (362.4)
Constant	-1.703** (0.787)	-2.373*** (0.768)	-2.250*** (0.790)	-2.638*** (0.835)	-2.882*** (0.850)	-1.655** (0.727)	-2.323*** (0.752)
/ athrho	0.187*** (0.0612)	0.169*** (0.0605)	0.172*** (0.0605)	0.175*** (0.0605)	0.164*** (0.0611)	0.212*** (0.0618)	0.202*** (0.0612)
Observations	890	890	890	890	890	890	890

Robust standard error in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Note: Control variables including ruggedness, malaria index, temperature, precipitation, elevation, crop suitabilities, Federal state and Delian League Membership, and crops suitability are not showed to save space.

Table S12: Seemingly unrelated regression

	Stochastic centrality			Nonstochastic centrality			
	(1) RightEV	(2) Auth	(3) Hub	(4) RightEV	(5) LeftEV	(6) Auth	(7) Hub
script_date							
centrality	-118444.1*** (29766.9)	-167208.8** (66869.6)	-90003.0*** (33889.8)	-53383.3*** (19085.4)	23920.6 (30708.3)	44784.9 (35987.5)	-18577.7 (30818.2)
Constant	-465.4*** (69.99)	-396.6*** (67.30)	-414.3*** (69.09)	-440.8*** (72.49)	-374.2*** (74.51)	-351.1*** (64.76)	-358.6*** (68.35)
coin_date							
centrality	564.5 (362.2)	2548.2*** (791.4)	910.0** (405.0)	370.0 (229.3)	254.1 (365.9)	1112.3*** (425.1)	1146.6*** (361.5)
Constant	-2.537*** (0.852)	-2.328*** (0.797)	-2.412*** (0.826)	-2.447*** (0.871)	-3.415*** (0.888)	-3.252*** (0.765)	-2.292*** (0.802)
Observations	307	307	307	307	307	307	307

Standard error in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Note: Control variables including ruggedness, malaria index, temperature, precipitation, elevation, crop suitabilities, Federal state and Delian League Membership, and crops suitability are not showed to save space.

Table S13: Seemingly unrelated regression, dropping poleis with imprecise coinage date

	Stochastic centrality			Nonstochastic centrality			
	(1) RightEV	(2) Auth	(3) Hub	(4) RightEV	(5) LeftEV	(6) Auth	(7) Hub
script_date							
centrality	-50207.8 (59440.0)	-103041.8 (109485.4)	-29368.0 (59733.2)	-23132.7 (31020.0)	9922.3 (36941.6)	-8667.5 (47534.9)	-9302.0 (47747.6)
Constant	-554.0*** (71.74)	-535.9*** (66.94)	-538.9*** (68.42)	-552.1*** (72.13)	-540.5*** (74.17)	-530.5*** (67.52)	-533.9*** (67.73)
coin_date							
centrality	24513.3 (73148.2)	160695.4 (134208.8)	34301.7 (73364.0)	6426.5 (38164.4)	64056.7 (45068.4)	108893.2* (57684.5)	80194.2 (58269.6)
Constant	-225.2** (88.29)	-229.9*** (82.06)	-227.9*** (84.03)	-230.4*** (88.75)	-291.1*** (90.48)	-254.9*** (81.94)	-219.4*** (82.65)
Observations	146	146	146	146	146	146	146

Standard error in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Note: Control variables including ruggedness, malaria index, temperature, precipitation, elevation, crop suitabilities, Federal state and Delian League Membership, and crops suitability are not howed to save space.

3 script survival: alternative at risk date

Table S14: Script survival regression, at risk date: 776 BCE

	Dependent var: survival time until adopting a script							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MA: Phoenician Sites	1.275*	1.033	0.969	0.544	0.158	1.046	0.693	0.944
	(0.701)	(0.704)	(0.684)	(0.738)	(0.724)	(0.774)	(0.748)	(0.764)
MA: Potential Origins		-5.462***		-9.905***		-7.449***		-7.264***
		(1.342)		(3.545)		(1.383)		(1.853)
Authority Centrality	-642.1**	-1090.2***	-260.7***	-634.9***	-805.7***	343.8	-309.6***	90.06
	(282.8)	(288.0)	(88.24)	(137.9)	(274.5)	(338.9)	(88.95)	(132.5)
Hub Centrality	-15.26	875.4***	-109.2	447.6**	22.19	-53.18	-106.0	-12.63
	(249.4)	(319.6)	(69.03)	(186.2)	(251.4)	(245.8)	(69.31)	(71.17)
_cons	7.241***	6.852***	7.502***	7.299***	7.081***	7.354***	7.418***	7.270***
	(0.376)	(0.365)	(0.415)	(0.386)	(0.358)	(0.363)	(0.405)	(0.384)
lnsigma	-0.576***	-0.603***	-0.587***	-0.693***	-0.573***	-0.619***	-0.586***	-0.617***
	(0.0370)	(0.0362)	(0.0379)	(0.0679)	(0.0373)	(0.0373)	(0.0382)	(0.0370)
lntheta	-15.32***	-14.87***	-15.19***	-1.444*	-15.73***	-13.92***	-16.32***	-14.74***
	(0.337)	(1.205)	(0.354)	(0.804)	(0.323)	(4.078)	(0.355)	(1.882)
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Elasticity: MA: Potential Origins		-0.189		-0.342		-0.253		-0.247
Elasticity: Authority Centrality	-0.100	-0.170	-0.115	-0.280	-0.125	0.054	-0.136	0.040
Elasticity: MA: Phoenician Colonies	0.061	0.050	0.047	0.026	0.006	0.039	0.026	0.036
Observations	1065	1065	1065	1065	1065	1065	1065	1065
chi-squared	228.477	257.118	256.902	286.753	235.117	281.855	259.131	285.864
log likelihood	-787.192	-769.433	-777.935	-760.631	-789.069	-755.681	-778.621	-756.350

Notes: Survival analysis for script adoption. All poleis are assumed to adopt a script at 400 BCE (censored at 400 BCE). Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crop (barley, millet, summer wheat and winter wheat) suitability are not shown to save space. Centralities are non-stochastic centralities.

Elasticity is computed as coefficient times standard deviation.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S15: Script survival regression, at risk date: 1050 BCE

	Dependent var: survival time until adopting a script							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MA: Phoenician Sites	0.511 (0.313)	0.484 (0.354)	0.373 (0.304)	0.0814 (0.325)	0.0288 (0.343)	0.548* (0.333)	0.273 (0.342)	0.448 (0.335)
MA: Potential Origins		-4.337*** (0.725)		-4.654*** (0.721)		-4.391*** (0.545)		-4.533*** (0.736)
Authority Centrality	-352.5*** (117.1)	-485.2*** (121.9)	-133.3*** (38.05)	-292.2*** (45.27)	-415.8*** (114.2)	346.8** (140.4)	-152.2*** (38.33)	110.9** (55.28)
Hub Centrality	11.57 (99.95)	579.3*** (120.8)	-52.81* (30.50)	199.2*** (46.34)	23.68 (102.3)	-70.53 (95.57)	-51.64* (30.87)	-3.944 (30.16)
_cons	7.026*** (0.174)	6.886*** (0.181)	7.139*** (0.186)	7.049*** (0.174)	6.958*** (0.169)	7.087*** (0.158)	7.105*** (0.183)	7.008*** (0.171)
lnsigma	-1.346*** (0.0400)	-1.674*** (0.0955)	-1.363*** (0.0396)	-1.613*** (0.0802)	-1.344*** (0.0401)	-1.511*** (0.0629)	-1.362*** (0.0396)	-1.486*** (0.0605)
lntheta	-14.96 (887.0)	-0.272 (0.351)	-14.01 (841.6)	-0.617* (0.372)	-14.51 (661.5)	-1.358*** (0.497)	-16.83 (6056.8)	-1.563*** (0.560)
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Elasticity: MA: Potential Origins		-0.136		-0.145		-0.256		-0.265
Elasticity: Authority Centrality	-0.158	-0.218	-0.125	-0.274	-0.186	0.156	-0.143	0.104
Elasticity: MA: Phoenician Colonies	0.047	0.045	0.034	0.007	0.004	0.068	0.034	0.056
Observations	1065	1065	1065	1065	1065	1065	1065	1065
chi-squared	308.653	349.346	327.745	369.050	306.011	375.968	326.886	373.072
log likelihood	-252.922	-232.576	-243.376	-222.724	-254.243	-219.265	-243.806	-220.713

Notes: Survival analysis for script adoption. All poleis are assumed to adopt a script at 400 BCE (censored at 400 BCE). Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crop (barley, millet, summer wheat and winter wheat) suitability are not shown to save space. Centralities are non-stochastic centralities.

Elasticity is computed as coefficient times standard deviation.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4 script survival: alternative distance

Table S16: Script survival regression, distance parameter for walking cost: 10

	Dependent var: survival time until adopting a script							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MA: Phoenician Sites	-0.846 (1.304)	2.277 (1.570)	1.613 (1.540)	1.529 (1.532)	1.667 (1.394)	1.907 (1.455)	2.668* (1.412)	2.594* (1.388)
MA: Potential Origins		-13.76*** (2.823)		-22.02*** (6.266)		-11.97*** (3.287)		-17.51*** (5.050)
Authority Centrality	-1306.1** (601.6)	-30.11 (557.2)	-448.3*** (165.8)	516.2* (279.1)	-1214.1** (614.6)	-1768.2*** (659.8)	-350.3** (157.9)	-788.1*** (207.6)
Hub Centrality	-150.4 (544.0)	-235.6 (533.5)	-145.7 (126.5)	31.47 (142.1)	-126.2 (547.2)	1162.2 (715.5)	-156.4 (126.9)	607.6** (250.1)
_cons	8.263*** (0.698)	8.907*** (0.749)	8.715*** (0.756)	8.499*** (0.707)	8.431*** (0.733)	7.902*** (0.672)	8.928*** (0.796)	8.743*** (0.731)
lnsigma	-0.0188 (0.0752)	-0.0404 (0.0760)	-0.0192 (0.0771)	-0.0482 (0.0758)	-0.0201 (0.0748)	-0.0375 (0.0733)	-0.0212 (0.0763)	-0.0469 (0.0724)
lntheta	-17.43*** (0.126)	-17.40*** (0.128)	-17.21*** (0.126)	-17.31*** (0.187)	-16.46*** (0.124)	-16.60*** (0.131)	-16.38*** (0.127)	-16.18*** (0.162)
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Elasticity: MA: Potential Origins		-0.325		-0.521		-0.275		-0.403
Elasticity: Authority Centrality	-0.203	-0.005	-0.200	0.231	-0.189	-0.275	-0.157	-0.352
Elasticity: MA: Phoenician Colonies	-0.029	0.077	0.054	0.052	0.066	0.076	0.106	0.103
Observations	1065	1065	1065	1065	1065	1065	1065	1065
chi-squared	169.343	186.943	174.175	184.253	164.552	176.183	174.438	189.633
log likelihood	-1123.330	-1105.654	-1123.407	-1102.418	-1122.779	-1111.340	-1121.886	-1105.979

Notes: Survival analysis for script adoption. All poleis are assumed to adopt a script at 400 BCE (censored at 400 BCE). Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crop (barley, millet, summer wheat and winter wheat) suitability are not shown to save space. Centralities are non-stochastic centralities.

Elasticity is computed as coefficient times standard deviation.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S17: Script survival regression, distance parameter for walking cost: 20

	Dependent var: survival time until adopting a script							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MA: Phoenician Sites	-2.480*	2.293	1.776	0.797	-0.169	1.043	2.694	2.870*
	(1.451)	(1.991)	(1.985)	(1.941)	(1.651)	(1.795)	(1.727)	(1.721)
MA: Potential Origins		-17.11***		-43.02***		-13.98***		-30.82***
		(4.198)		(12.14)		(5.136)		(9.026)
Authority Centrality	-1234.2**	-405.0	-410.7**	921.8**	-1368.0**	-1644.1**	-334.1**	-780.3***
	(598.4)	(554.8)	(167.6)	(366.9)	(612.5)	(644.7)	(149.2)	(210.9)
Hub Centrality	-227.6	-261.0	-117.2	80.63	-100.8	751.9	-137.9	768.4***
	(543.0)	(536.0)	(124.3)	(144.4)	(547.8)	(707.8)	(125.8)	(290.8)
_cons	8.311***	8.959***	8.628***	8.518***	8.243***	7.948***	8.813***	8.727***
	(0.701)	(0.760)	(0.739)	(0.704)	(0.724)	(0.684)	(0.784)	(0.736)
lnsigma	-0.0192	-0.0318	-0.0166	-0.0430	-0.0188	-0.0279	-0.0179	-0.0380
	(0.0753)	(0.0756)	(0.0770)	(0.0758)	(0.0751)	(0.0741)	(0.0764)	(0.0727)
lntheta	-17.38***	-17.20***	-16.35***	-16.59***	-16.40***	-16.49***	-16.39***	-17.29***
	(0.120)	(0.129)	(0.132)	(0.167)	(0.122)	(0.123)	(0.129)	(0.136)
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Elasticity: MA: Potential Origins		-0.271		-0.681		-0.204		-0.450
Elasticity: Authority Centrality	-0.192	-0.063	-0.187	0.421	-0.213	-0.256	-0.153	-0.356
Elasticity: MA: Phoenician Colonies	-0.074	0.069	0.053	0.024	-0.005	0.033	0.087	0.092
Observations	1065	1065	1065	1065	1065	1065	1065	1065
chi-squared	173.082	185.156	172.407	182.124	170.332	177.499	173.583	186.028
log likelihood	-1122.298	-1111.752	-1126.728	-1106.752	-1123.501	-1117.699	-1125.765	-1113.598

Notes: Survival analysis for script adoption. All poleis are assumed to adopt a script at 400 BCE (censored at 400 BCE). Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crop (barley, millet, summer wheat and winter wheat) suitability are not shown to save space. Centralities are non-stochastic centralities.

Elasticity is computed as coefficient times standard deviation.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S18: Script survival regression, distance parameter for walking cost: 0

	Dependent var: survival time until adopting a script							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MA: Phoenician Sites	1.580** (0.702)	0.924* (0.559)	1.488** (0.601)	0.926 (0.573)	2.913*** (0.862)	2.129*** (0.725)	3.490*** (0.856)	2.553*** (0.712)
MA: Potential Origins		-4.709*** (0.613)		-4.019*** (0.548)		-2.547*** (0.821)		-2.277*** (0.754)
Authority Centrality	-1451.8** (603.4)	512.8 (490.4)	214.3*** (53.38)	153.5*** (36.96)	-586.7 (631.4)	-1013.8* (581.4)	210.5*** (54.50)	176.0*** (41.36)
Hub Centrality	35.31 (544.9)	605.9* (366.2)	-201.5*** (42.26)	-124.6*** (30.58)	-114.6 (539.1)	830.5 (550.4)	-187.2*** (42.84)	-157.6*** (33.48)
_cons	8.415*** (0.708)	7.160*** (0.542)	7.527*** (0.605)	7.086*** (0.507)	9.011*** (0.764)	8.124*** (0.659)	8.753*** (0.737)	7.474*** (0.641)
lnsigma	-0.0214 (0.0751)	-0.196*** (0.0669)	-0.0259 (0.0778)	-0.188*** (0.0643)	-0.0314 (0.0746)	-0.106 (0.0698)	-0.0430 (0.0761)	-0.113 (0.0699)
lntheta	-17.39*** (0.130)	-16.80*** (1.425)	-16.58*** (0.132)	-15.36*** (0.649)	-17.32*** (0.120)	-15.18*** (2.085)	-16.51*** (0.125)	-15.73*** (0.814)
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Elasticity: MA: Potential Origins		-0.495		-0.422		-0.265		-0.237
Elasticity: Authority Centrality	-0.226	0.080	0.727	0.521	-0.091	-0.158	0.714	0.598
Elasticity: MA: Phoenician Colonies	0.145	0.085	0.136	0.085	0.662	0.485	0.793	0.581
Observations	1064	1060	1064	1060	1064	1060	1064	1060
chi-squared	156.851	245.337	165.758	238.595	154.102	175.549	168.816	193.636
log likelihood	-1118.045	-1008.800	-1116.683	-1004.514	-1108.295	-1060.042	-1096.797	-1051.954

Notes: Survival analysis for script adoption. All poleis are assumed to adopt a script at 400 BCE (censored at 400 BCE). Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crop (barley, millet, summer wheat and winter wheat) suitability are not shown to save space. Centralities are non-stochastic centralities.

Elasticity is computed as coefficient times standard deviation.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5 coin survival: include century level coinage date date

Table S19: coin survival: include century level coinage date date

	Dependent var: survival time until issuing a coin							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MA: Poleis with known mines	0.507 (0.524)	-0.299 (0.574)	-1.537 (1.020)	-1.152 (0.975)	-1.061 (0.864)	-1.025 (0.772)	-2.458** (1.054)	-1.309 (0.925)
Authority Centrality	130.1 (335.0)	-698.2** (348.8)	59.18 (110.4)	-139.9 (111.5)	220.2 (359.8)	-616.4* (366.5)	196.0 (127.5)	-63.81 (131.2)
Hub Centrality	582.8* (312.1)	619.8* (360.1)	463.8*** (122.1)	253.8* (132.8)	598.2** (301.7)	515.6 (347.1)	293.1*** (89.81)	128.0 (102.0)
Federal State Membership	-0.266*** (0.0703)		-0.266*** (0.0669)		-0.288*** (0.0719)		-0.303*** (0.0700)	
Delian League Membership	-0.400*** (0.0779)		-0.388*** (0.0794)		-0.347*** (0.0807)		-0.365*** (0.0822)	
_cons	7.432*** (0.476)	7.510*** (0.425)	7.572*** (0.518)	7.560*** (0.463)	7.703*** (0.544)	7.712*** (0.460)	7.771*** (0.532)	7.631*** (0.468)
Insigma	-0.645*** (0.0837)	-0.547*** (0.0781)	-0.636*** (0.0895)	-0.541*** (0.0769)	-0.613*** (0.0912)	-0.536*** (0.0810)	-0.612*** (0.0915)	-0.534*** (0.0782)
Intheta	0.462** (0.235)	0.618*** (0.211)	0.378 (0.264)	0.604*** (0.217)	0.349 (0.291)	0.577** (0.231)	0.273 (0.302)	0.578** (0.228)
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Elasticity: MA: Origins/Mines	0.030	-0.017	-0.089	-0.066	-0.058	-0.053	-0.134	-0.068
Elasticity: Hub Centrality	0.106	0.112	0.229	0.133	0.108	0.093	0.145	0.067
Observations	890	1064	890	1064	890	1064	890	1064
chi-squared	141.887	156.060	160.397	150.171	134.905	153.621	154.821	146.246
log likelihood	-759.289	-848.076	-752.839	-848.549	-758.685	-847.178	-750.442	-848.150

Notes: Survival analysis for Coinage adoption. All poleis are assumed to have a coin at 250 BCE (censored at 250 BCE). Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crop (barley, millet, summer wheat and winter wheat) suitability are not shown to save space. Centralities are non-stochastic centralities.

Century level coinage date is imputed as the mid of each century.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

6 coin survival: alternative distance

Table S20: Coin survival regression, distance parameter for walking cost: 10

	Dependent var: survival time until issuing a coin							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MA: Origins/Mines	-4.598*** (1.698)	-6.582*** (2.271)	-7.076*** (2.340)	-7.226*** (2.494)	0.304 (1.247)	-1.704 (1.567)	-4.877* (2.563)	-4.058 (2.661)
Authority Centrality	882.4 (591.0)	68.03 (650.0)	192.9 (257.9)	30.30 (251.8)	617.7 (574.5)	-328.5 (635.7)	-110.0 (202.1)	-303.3 (184.4)
Hub Centrality	1625.5*** (540.6)	895.9 (623.3)	674.1*** (165.1)	294.5* (175.8)	1659.4*** (610.0)	1117.1 (853.6)	1063.8*** (240.2)	626.9** (296.0)
Federal State Membership	0.243* (0.132)		0.116 (0.144)		0.268** (0.128)		0.197 (0.130)	
Delian League Membership	-0.559*** (0.105)		-0.560*** (0.117)		-0.647*** (0.106)		-0.580*** (0.113)	
_cons	9.120*** (0.713)	8.725*** (0.669)	9.498*** (0.770)	8.864*** (0.703)	8.391*** (0.625)	7.894*** (0.559)	9.121*** (0.792)	8.519*** (0.685)
Insignia	-0.324*** (0.116)	-0.307 (0.206)	-0.414*** (0.151)	-0.356* (0.204)	-0.396*** (0.110)	-0.427** (0.167)	-0.419*** (0.142)	-0.371** (0.174)
Intheta	-0.805 (1.149)	0.331 (1.107)	-0.0644 (0.877)	0.577 (0.894)	-0.114 (0.606)	0.922* (0.542)	0.0227 (0.746)	0.683 (0.680)
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Elasticity: MA: Origins/Mines	-0.166	-0.229	-0.256	-0.251	0.012	-0.068	-0.198	-0.162
Elasticity: Hub Centrality	0.289	0.158	0.345	0.158	0.295	0.197	0.544	0.337
Observations	689	863	689	863	689	863	689	863
chi-squared	151.621	123.846	139.731	111.423	148.830	123.146	141.682	105.106
log likelihood	-457.355	-528.641	-456.739	-528.659	-461.467	-534.750	-460.585	-532.890

Notes: Survival analysis for Coinage adoption. All poleis are assumed to have a coin at 250 BCE (censored at 250 BCE). Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crop (barley, millet, summer wheat and winter wheat) suitability are not shown to save space. Centralities are non-stochastic centralities.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S21: Coin survival regression, distance parameter for walking cost: 20

	Dependent var: survival time until issuing a coin							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MA: Origins/Mines	-7.807*** (2.782)	-11.38*** (3.667)	-11.19*** (4.242)	-11.36*** (4.304)	0.664 (2.050)	-3.242 (2.442)	-4.451 (3.797)	-3.407 (4.405)
Authority Centrality	918.4 (590.1)	133.8 (644.1)	79.87 (285.3)	-26.14 (268.3)	612.4 (574.1)	-296.6 (638.4)	-287.2 (204.9)	-395.4* (204.7)
Hub Centrality	1604.5*** (540.4)	862.5 (621.1)	639.4*** (180.4)	258.6 (185.9)	1650.2*** (602.1)	1145.0 (826.6)	902.4*** (266.3)	447.9 (364.1)
Federal State Membership	0.248* (0.131)		0.145 (0.156)		0.268** (0.128)		0.227* (0.137)	
Delian League Membership	-0.558*** (0.105)		-0.507*** (0.114)		-0.649*** (0.107)		-0.535*** (0.111)	
_cons	9.296*** (0.734)	8.971*** (0.694)	9.894*** (0.858)	9.168*** (0.756)	8.392*** (0.623)	7.883*** (0.560)	9.420*** (0.844)	8.660*** (0.735)
lnsigma	-0.322*** (0.120)	-0.305 (0.215)	-0.403** (0.177)	-0.358 (0.226)	-0.396*** (0.109)	-0.426*** (0.164)	-0.409*** (0.153)	-0.387* (0.198)
lntheta	-0.827 (1.230)	0.311 (1.172)	-0.0174 (1.032)	0.597 (0.979)	-0.111 (0.598)	0.914* (0.529)	0.0687 (0.814)	0.758 (0.745)
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Elasticity: MA: Origins/Mines	-0.171	-0.245	-0.245	-0.244	0.017	-0.085	-0.116	-0.089
Elasticity: Hub Centrality	0.285	0.152	0.327	0.139	0.293	0.202	0.461	0.241
Observations	689	863	689	863	689	863	689	863
chi-squared	150.496	124.906	127.257	108.247	149.037	125.060	128.291	100.562
log likelihood	-457.154	-527.758	-463.014	-529.420	-461.442	-534.429	-466.938	-533.409

Notes: Survival analysis for Coinage adoption. All poleis are assumed to have a coin at 250 BCE (censored at 250 BCE). Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crop (barley, millet, summer wheat and winter wheat) suitability are not shown to save space. Centralities are non-stochastic centralities.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S22: Coin survival regression, distance parameter for walking cost: 0

	Dependent var: survival time until issuing a coin							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MA: Origins/Mines	-0.667** (0.269)	-0.767** (0.371)	-0.405 (0.353)	-0.599 (0.380)	-0.177 (0.222)	-0.173 (0.223)	0.0707 (0.252)	-0.0889 (0.199)
Authority Centrality	723.7 (576.7)	-264.2 (650.1)	-328.0** (152.0)	-240.4* (139.2)	593.4 (579.6)	-404.9 (648.2)	-351.9** (155.8)	-270.7* (156.1)
Hub Centrality	1766.6*** (556.2)	939.0 (716.6)	455.4** (199.2)	322.8* (180.1)	1874.0*** (583.1)	966.7 (776.0)	486.9** (204.2)	364.0* (203.0)
Federal State Membership	0.238* (0.129)		0.156 (0.134)		0.268** (0.128)		0.174 (0.135)	
Delian League Membership	-0.625*** (0.0983)		-0.388*** (0.0920)		-0.646*** (0.101)		-0.417*** (0.0979)	
_cons	8.609*** (0.667)	8.032*** (0.579)	8.765*** (0.663)	8.147*** (0.536)	8.451*** (0.648)	7.888*** (0.547)	8.670*** (0.618)	8.014*** (0.503)
lnsigma	-0.359*** (0.117)	-0.413** (0.164)	-0.457*** (0.152)	-0.446*** (0.152)	-0.375*** (0.113)	-0.449*** (0.151)	-0.473*** (0.140)	-0.469*** (0.142)
lntheta	-0.382 (0.802)	0.886 (0.556)	0.443 (0.575)	0.991** (0.446)	-0.205 (0.668)	1.042** (0.437)	0.519 (0.484)	1.084*** (0.371)
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Elasticity: MA: Origins/Mines	-0.127	-0.135	-0.077	-0.105	-0.034	-0.031	0.013	-0.016
Elasticity: Hub Centrality	0.316	0.166	1.661	1.059	0.335	0.171	1.776	1.194
Observations	680	854	680	854	680	854	680	854
chi-squared	154.071	116.581	109.926	113.253	147.463	120.817	112.222	115.279
log likelihood	-450.385	-523.996	-462.938	-521.852	-453.564	-527.333	-464.078	-524.115

Notes: Survival analysis for Coinage adoption. All poleis are assumed to have a coin at 250 BCE (censored at 250 BCE). Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crop (barley, millet, summer wheat and winter wheat) suitability are not shown to save space. Centralities are non-stochastic centralities.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S23: Coin survival regression, includes century level coinage date, distance parameter for walking cost: 10

	Dependent var: survival time until issuing a coin							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MA: Poleis with known mines	-1.970 (1.434)	-2.006 (1.286)	-5.111*** (1.858)	-2.726 (1.691)	1.264 (0.873)	-0.218 (0.900)	-2.713 (1.805)	-1.828 (1.683)
Authority Centrality	247.4 (366.2)	-578.7 (371.2)	230.7* (132.8)	-44.20 (137.5)	113.7 (331.8)	-703.8** (348.5)	21.95 (104.6)	-162.8 (105.9)
Hub Centrality	582.7* (303.9)	495.0 (348.6)	309.1*** (86.42)	135.9 (101.0)	535.4* (313.9)	595.5 (362.1)	526.8*** (140.9)	280.7* (157.1)
Federal State Membership	-0.290*** (0.0719)		-0.291*** (0.0695)		-0.261*** (0.0703)		-0.243*** (0.0667)	
Delian League Membership	-0.341*** (0.0813)		-0.358*** (0.0830)		-0.411*** (0.0785)		-0.388*** (0.0795)	
_cons	7.805*** (0.569)	7.817*** (0.478)	8.009*** (0.552)	7.789*** (0.485)	7.417*** (0.472)	7.498*** (0.423)	7.669*** (0.534)	7.652*** (0.475)
Insigma	-0.609*** (0.0925)	-0.534*** (0.0815)	-0.622*** (0.0922)	-0.534*** (0.0789)	-0.650*** (0.0838)	-0.548*** (0.0782)	-0.651*** (0.0899)	-0.542*** (0.0781)
Intheta	0.330 (0.301)	0.567** (0.236)	0.309 (0.297)	0.574** (0.232)	0.475** (0.232)	0.622*** (0.210)	0.439* (0.253)	0.605*** (0.220)
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Elasticity: MA: Origins/Mines	-0.067	-0.066	-0.174	-0.090	0.049	-0.009	-0.106	-0.071
Elasticity: Hub Centrality	0.106	0.090	0.158	0.073	0.097	0.108	0.270	0.151
Observations	890	1064	890	1064	890	1064	890	1064
chi-squared	134.084	153.381	155.139	144.432	144.903	155.382	160.395	148.983
log likelihood	-758.433	-846.766	-750.338	-847.343	-758.811	-848.159	-754.132	-848.295

Notes: Survival analysis for Coinage adoption. All poleis are assumed to have a coin at 250 BCE (censored at 250 BCE). Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crop (barley, millet, summer wheat and winter wheat) suitability are not shown to save space. Centralities are non-stochastic centralities.

Century level coinage date is imputed as the mid of each century.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S24: Coin survival regression, includes century level coinage date, distance parameter for walking cost: 20

	Dependent var: survival time until issuing a coin							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MA: Poleis with known mines	-3.151 (2.284)	-3.660* (2.102)	-9.935*** (3.312)	-5.822* (3.104)	2.505* (1.413)	-0.0975 (1.438)	-3.580 (2.988)	-2.593 (2.856)
Authority Centrality	254.8 (368.3)	-551.3 (372.9)	255.9* (144.9)	-1.650 (149.4)	101.0 (329.3)	-709.1** (348.5)	-45.03 (100.7)	-188.1* (104.3)
Hub Centrality	582.1* (304.2)	481.5 (349.1)	316.5*** (86.67)	145.3 (104.6)	522.6* (309.3)	578.8 (358.7)	520.9*** (156.5)	285.6 (181.2)
Federal State Membership	-0.289*** (0.0717)		-0.280*** (0.0689)		-0.256*** (0.0701)		-0.229*** (0.0669)	
Delian League Membership	-0.342*** (0.0808)		-0.337*** (0.0822)		-0.420*** (0.0789)		-0.374*** (0.0790)	
_cons	7.856*** (0.584)	7.913*** (0.495)	8.252*** (0.568)	7.944*** (0.503)	7.410*** (0.470)	7.490*** (0.422)	7.761*** (0.543)	7.707*** (0.483)
Insigma	-0.611*** (0.0919)	-0.533*** (0.0816)	-0.629*** (0.0915)	-0.537*** (0.0791)	-0.655*** (0.0841)	-0.549*** (0.0782)	-0.654*** (0.0888)	-0.541*** (0.0787)
Intheta	0.337 (0.296)	0.563** (0.237)	0.344 (0.286)	0.580** (0.233)	0.487** (0.231)	0.625*** (0.210)	0.462* (0.246)	0.602*** (0.224)
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Elasticity: MA: Origins/Mines	-0.066	-0.075	-0.207	-0.120	0.064	-0.003	-0.091	-0.067
Elasticity: Hub Centrality	0.105	0.087	0.163	0.079	0.095	0.105	0.268	0.155
Observations	890	1064	890	1064	890	1064	890	1064
chi-squared	133.996	153.766	152.071	142.623	147.422	154.978	153.443	147.046
log likelihood	-758.467	-846.442	-751.160	-846.637	-758.337	-848.180	-756.096	-848.239

Notes: Survival analysis for Coinage adoption. All poleis are assumed to have a coin at 250 BCE (censored at 250 BCE). Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crop (barley, millet, summer wheat and winter wheat) suitability are not shown to save space. Centralities are non-stochastic centralities.

Century level coinage date is imputed as the mid of each century.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S25: Coin survival regression, includes century level coinage date, distance parameter for walking cost: 0

	Dependent var: survival time until issuing a coin							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MA: Poleis with known mines	-0.471*	-0.373	-0.490*	-0.445	-0.0698	-0.181	0.0462	-0.172
	(0.281)	(0.315)	(0.288)	(0.292)	(0.176)	(0.197)	(0.191)	(0.185)
Authority Centrality	243.5	-629.4*	-35.49	-20.56	144.9	-711.7**	-32.70	-22.12
	(349.7)	(368.3)	(32.21)	(30.80)	(340.7)	(348.5)	(32.23)	(31.20)
Hub Centrality	570.0*	509.5	54.43	27.05	684.3**	644.8*	52.12	30.64
	(302.4)	(352.7)	(39.30)	(38.39)	(308.2)	(359.9)	(39.71)	(39.12)
Federal State Membership	-0.298***		-0.291***		-0.269***		-0.264***	
	(0.0718)		(0.0721)		(0.0699)		(0.0713)	
Delian League Membership	-0.362***		-0.275***		-0.387***		-0.314***	
	(0.0767)		(0.0742)		(0.0784)		(0.0743)	
_cons	7.629***	7.628***	7.613***	7.366***	7.473***	7.514***	7.397***	7.171***
	(0.516)	(0.443)	(0.505)	(0.420)	(0.488)	(0.429)	(0.462)	(0.392)
lnsigma	-0.618***	-0.539***	-0.596***	-0.528***	-0.631***	-0.545***	-0.611***	-0.532***
	(0.0848)	(0.0776)	(0.0816)	(0.0743)	(0.0836)	(0.0785)	(0.0795)	(0.0742)
lntheta	0.380	0.613***	0.331	0.587***	0.443*	0.639***	0.403*	0.612***
	(0.262)	(0.218)	(0.259)	(0.222)	(0.240)	(0.210)	(0.232)	(0.212)
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Elasticity: MA: Origins/Mines	-0.084	-0.062	-0.087	-0.074	-0.012	-0.031	0.008	-0.029
Elasticity: Hub Centrality	0.104	0.093	0.197	0.090	0.125	0.117	0.189	0.102
Observations	879	1053	879	1053	879	1053	879	1053
chi-squared	133.781	146.360	120.169	132.620	136.057	152.853	117.782	136.403
log likelihood	-748.497	-837.488	-751.618	-838.999	-750.924	-838.501	-754.270	-840.624

Notes: Survival analysis for Coinage adoption. All poleis are assumed to have a coin at 250 BCE (censored at 250 BCE). Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crop (barley, millet, summer wheat and winter wheat) suitability are not shown to save space. Centralities are non-stochastic centralities.

Century level coinage date is imputed as the mid of each century.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

7 script survival: stochastic centrality

Table S26: Script survival regression, stochastic centrality

	Dependent var: survival time until adopting a script							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MA: Phoenician Sites	0.389 (1.248)	2.358* (1.301)	1.292 (1.314)	1.990 (1.310)	3.952*** (1.289)	3.254*** (1.252)	3.879*** (1.201)	3.287*** (1.145)
MA: Potential Origins		-11.26*** (2.041)		-10.51*** (2.107)		-10.96*** (2.776)		-8.657*** (3.038)
Authority Centrality	-3303.5 (2063.6)	2341.9 (1892.3)	-3423.4*** (1246.6)	-23.11 (1130.1)	-1261.9 (2117.6)	611.9 (2019.6)	-2702.7** (1176.5)	-2107.0* (1102.6)
Hub Centrality	2148.6 (1347.5)	-996.6 (1255.3)	749.0 (457.9)	-70.11 (422.9)	964.9 (1401.3)	1507.6 (1375.6)	525.1 (442.6)	911.5** (458.7)
_cons	8.363*** (0.714)	8.750*** (0.728)	9.686*** (1.198)	8.677*** (1.098)	8.781*** (0.763)	7.782*** (0.702)	9.922*** (1.198)	9.035*** (1.090)
lnsigma	-0.00966 (0.0769)	-0.0568 (0.0761)	-0.0224 (0.0758)	-0.0553 (0.0757)	-0.0168 (0.0758)	-0.0556 (0.0742)	-0.0283 (0.0748)	-0.0498 (0.0715)
lntheta	-16.61*** (0.131)	-17.34*** (0.163)	-16.34*** (0.129)	-17.45*** (0.158)	-18.11*** (0.143)	-16.03*** (0.308)	-17.14*** (0.126)	-16.64*** (0.194)
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Elasticity: MA: Potential Origins		-0.382		-0.357		-0.379		-0.299
Elasticity: Authority Centrality	-0.354	0.251	-0.555	-0.004	-0.135	0.066	-0.438	-0.342
Elasticity: MA: Phoenician Colonies	0.015	0.089	0.049	0.075	0.190	0.157	0.187	0.158
Observations	1065	1065	1065	1065	1065	1065	1065	1065
chi-squared	152.801	184.749	170.379	186.379	150.105	175.337	169.691	178.879
log likelihood	-1134.358	-1094.032	-1123.769	-1094.920	-1127.910	-1098.649	-1117.832	-1105.498

Notes: Survival analysis for script adoption. All poleis are assumed to adopt a script at 400 BCE (censored at 400 BCE). Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crop (barley, millet, summer wheat and winter wheat) suitability are not shown to save space. Centralities are stochastic centralities.

Elasticity is computed as coefficient times standard deviation.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

8 coin survival: stochastic centrality

Table S27: Coin survival regression, stochastic centrality

	Dependent var: survival time until issuing a coin							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MA: Origins/Mines	-2.256** (0.884)	-3.566*** (1.342)	-2.247** (0.976)	-3.038** (1.414)	0.336 (0.917)	-0.832 (0.765)	-0.111 (0.916)	-0.920 (0.906)
Authority Centrality	11005.5*** (2377.3)	3283.6 (2472.0)	2608.4** (1144.5)	-1786.3 (1231.9)	10268.1*** (3138.0)	2353.8 (2737.6)	2573.0** (1212.8)	-2130.9* (1141.6)
Hub Centrality	-4486.5*** (1408.2)	-899.9 (1479.1)	42.78 (396.2)	923.1** (402.9)	-4379.5*** (1471.3)	-443.3 (1562.9)	12.08 (429.8)	1047.0** (410.9)
Federal State Membership	0.252* (0.146)		0.248* (0.136)		0.242 (0.154)		0.258** (0.129)	
Delian League Membership	-0.507*** (0.110)		-0.503*** (0.112)		-0.597*** (0.113)		-0.579*** (0.111)	
_cons	8.080*** (0.775)	8.241*** (0.682)	8.008*** (1.131)	9.897*** (1.059)	7.549*** (0.683)	7.689*** (0.598)	7.475*** (1.069)	9.594*** (0.997)
lnsigma	-0.252* (0.139)	-0.307 (0.196)	-0.275** (0.140)	-0.352* (0.195)	-0.373 (0.250)	-0.429*** (0.164)	-0.361** (0.168)	-0.441*** (0.156)
lntheta	-2.260 (6.540)	0.328 (1.056)	-1.502 (3.062)	0.555 (0.844)	-0.225 (1.855)	0.920* (0.521)	-0.322 (1.289)	0.941** (0.472)
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Elasticity: MA: Origins/Mines	-0.131	-0.197	-0.131	-0.168	0.021	-0.049	-0.007	-0.055
Elasticity: Hub Centrality	-0.659	-0.153	0.019	0.420	-0.644	-0.076	0.005	0.476
Observations	689	863	689	863	689	863	689	863
chi-squared	124.533	105.226	137.488	110.329	117.397	103.421	126.597	109.796
log likelihood	-461.512	-529.265	-460.617	-528.787	-464.563	-534.466	-463.578	-532.733

Notes: Survival analysis for Coinage adoption. All poleis are assumed to have a coin at 250 BCE (censored at 250 BCE). Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crop (barley, millet, summer wheat and winter wheat) suitability are not shown to save space. Centralities are stochastic centralities.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S28: Coin survival regression, includes century level coinage date, stochastic centrality

	Dependent var: survival time until issuing a coin							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MA: Poleis with known mines	-1.084 (0.827)	-1.182 (0.775)	-1.018 (0.817)	-1.025 (0.753)	0.591 (0.527)	-0.554 (0.609)	0.263 (0.562)	-0.530 (0.600)
Authority Centrality	5184.1*** (1770.7)	-354.1 (1700.7)	1200.7 (847.1)	-1516.3* (901.0)	4686.0*** (1808.0)	-235.3 (1782.3)	1111.0 (820.1)	-1596.6* (864.5)
Hub Centrality	-2327.1** (979.6)	695.1 (978.0)	-11.18 (275.8)	600.9** (296.5)	-2092.6** (973.1)	727.5 (990.1)	0.967 (268.3)	672.1** (286.6)
Federal State Membership	-0.279*** (0.0717)		-0.252*** (0.0704)		-0.258*** (0.0708)		-0.234*** (0.0695)	
Delian League Membership	-0.334*** (0.0816)		-0.334*** (0.0844)		-0.397*** (0.0770)		-0.382*** (0.0799)	
_cons	7.304*** (0.561)	7.693*** (0.473)	7.270*** (0.803)	8.675*** (0.751)	7.049*** (0.497)	7.449*** (0.441)	7.043*** (0.762)	8.561*** (0.747)
lnsigma	-0.608*** (0.0901)	-0.536*** (0.0801)	-0.626*** (0.0964)	-0.532*** (0.0824)	-0.642*** (0.0830)	-0.546*** (0.0784)	-0.654*** (0.0877)	-0.542*** (0.0791)
lntheta	0.317 (0.299)	0.579** (0.232)	0.374 (0.302)	0.555** (0.243)	0.439* (0.241)	0.617*** (0.217)	0.474* (0.246)	0.592*** (0.222)
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Elasticity: MA: Origins/Mines	-0.059	-0.062	-0.055	-0.053	0.034	-0.032	0.015	-0.030
Elasticity: Hub Centrality	-0.364	0.120	-0.005	0.277	-0.328	0.126	0.000	0.310
Observations	890	1064	890	1064	890	1064	890	1064
chi-squared	126.215	153.168	144.071	155.581	130.210	155.091	146.009	156.593
log likelihood	-757.203	-847.037	-756.322	-846.170	-757.728	-847.984	-757.169	-846.886

Notes: Survival analysis for Coinage adoption. All poleis are assumed to have a coin at 250 BCE (censored at 250 BCE). Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crop (barley, millet, summer wheat and winter wheat) suitability are not shown to save space. Centralities are stochastic centralities.

Century level coinage date is imputed as the mid of each century.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

9 script pseudo panel: alternative distance

Table S29: Script pseudo panel regression, distance parameter for walking cost: 10

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	script	script	script	script	script	script	script	script
1-MAScript	1.221*** (0.228)	2.571*** (0.361)	1.192*** (0.224)	2.499*** (0.359)	0.679*** (0.219)	1.223*** (0.402)	0.669*** (0.220)	1.336*** (0.402)
MAScript(1-MAScript)	3.623*** (0.657)	4.670*** (1.035)	3.892*** (0.671)	4.793*** (1.047)	4.760*** (0.709)	6.141*** (1.158)	4.671*** (0.696)	5.684*** (1.138)
size		0.00351 (0.00704)		0.00473 (0.00673)		0.00886 (0.00719)		0.0103 (0.00703)
_cons	-1.234*** (0.240)	-2.875*** (0.408)	-1.247*** (0.238)	-2.956*** (0.416)	-0.768*** (0.245)	-1.454*** (0.461)	-0.785*** (0.244)	-1.711*** (0.475)
Period FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Observations	3870	1952	3870	1952	3870	1952	3870	1952
R2-adj	0.089	0.088	0.093	0.090	0.093	0.081	0.096	0.082

Notes: Pseudo panel analysis for script adoption. Geographical variables including ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability are not shown to save space.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S30: Script pseudo panel regression, distance parameter for walking cost: 20

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	script	script	script	script	script	script	script	script
1-MAScript	1.556*** (0.308)	3.169*** (0.473)	1.482*** (0.305)	3.053*** (0.471)	0.650** (0.290)	1.159** (0.534)	0.590** (0.294)	1.338** (0.538)
MAScript(1-MAScript)	4.239*** (0.871)	5.107*** (1.353)	4.567*** (0.895)	5.325*** (1.375)	5.175*** (0.921)	6.500*** (1.516)	5.080*** (0.914)	5.892*** (1.499)
size		0.00348 (0.00706)		0.00430 (0.00665)		0.00833 (0.00721)		0.00896 (0.00695)
_cons	-1.607*** (0.323)	-3.519*** (0.519)	-1.545*** (0.321)	-3.582*** (0.527)	-0.758** (0.319)	-1.414** (0.592)	-0.695** (0.321)	-1.756*** (0.612)
Period FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Observations	3870	1952	3870	1952	3870	1952	3870	1952
R2-adj	0.087	0.086	0.089	0.089	0.089	0.077	0.091	0.079

Notes: Pseudo panel analysis for script adoption. Geographical variables including ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability are not shown to save space.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S31: Script pseudo panel regression, distance parameter for walking cost: 0

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	script	script	script	script	script	script	script	script
1-MAScript	0.329*** (0.101)	0.883*** (0.170)	0.319*** (0.0998)	0.865*** (0.171)	0.328*** (0.0699)	0.529*** (0.110)	0.224** (0.0886)	0.306** (0.137)
MAScript(1-MAScript)	0.947*** (0.258)	1.470*** (0.418)	1.157*** (0.256)	1.851*** (0.424)	2.279*** (0.211)	2.625*** (0.317)	2.148*** (0.227)	2.017*** (0.353)
size		0.00467 (0.00708)		0.00687 (0.00674)		0.00719 (0.00712)		0.0104 (0.00678)
_cons	-0.259** (0.120)	-1.046*** (0.234)	-0.0546 (0.116)	-0.997*** (0.229)	-0.340*** (0.0994)	-0.685*** (0.196)	-0.113 (0.107)	-0.455** (0.193)
Period FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Observations	3870	1952	3870	1952	3870	1952	3870	1952
R2-adj	0.082	0.079	0.085	0.096	0.103	0.091	0.104	0.099

Notes: Pseudo panel analysis for script adoption. Geographical variables including ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability are not shown to save space.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

10 coin pseudo panel: alternative distance

Table S32: Coin pseudo panel regression, distance parameter for walking cost: 10

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	coin	coin	coin	coin	coin	coin	coin	coin
1-MACoin	14.23*** (3.696)	17.27 (25.62)	13.26*** (3.634)	16.58 (25.30)	24.33 (14.81)	24.87 (26.66)	25.07* (14.62)	25.14 (26.96)
MACoin(1-MACoin)	18.78*** (4.290)	22.05 (28.76)	17.53*** (4.209)	21.15 (28.40)	31.25* (16.42)	32.54 (29.64)	32.01** (16.21)	32.77 (29.98)
size		0.0498*** (0.00715)		0.0503*** (0.00705)		0.0481*** (0.00719)		0.0486*** (0.00708)
_cons	-14.35*** (3.710)	-17.42 (25.71)	-13.44*** (3.649)	-16.84 (25.41)	-24.55* (14.85)	-25.17 (26.75)	-25.36* (14.65)	-25.56 (27.06)
Period FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Observations	3938	1987	3938	1987	3938	1987	3938	1987
R2-adj	0.029	0.101	0.030	0.102	0.036	0.110	0.038	0.111

Notes: Pseudo panel analysis for coinage. Poleis with imprecise coinage date only are dropped. Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability are not shown to save space.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S33: Coin pseudo panel regression, distance parameter for walking cost: 20

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	coin	coin	coin	coin	coin	coin	coin	coin
1-MACoin	21.46** (10.38)	10.42 (37.68)	19.73* (10.20)	11.91 (37.56)	31.49 (26.45)	30.35 (41.69)	33.50 (25.95)	30.98 (41.45)
MACoin(1-MACoin)	27.55** (11.71)	14.93 (42.24)	25.37** (11.51)	16.47 (42.12)	40.40 (29.32)	39.91 (46.34)	42.48 (28.77)	40.49 (46.11)
size		0.0504*** (0.00716)		0.0509*** (0.00707)		0.0485*** (0.00719)		0.0491*** (0.00709)
_cons	-21.64** (10.41)	-10.57 (37.81)	-19.97* (10.24)	-12.19 (37.71)	-31.80 (26.52)	-30.75 (41.82)	-33.89 (26.01)	-31.51 (41.59)
Period FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Observations	3938	1987	3938	1987	3938	1987	3938	1987
R2-adj	0.028	0.101	0.029	0.102	0.036	0.109	0.038	0.110

Notes: Pseudo panel analysis for coinage. Poleis with imprecise coinage date only are dropped. Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability are not shown to save space.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table S34: Coin pseudo panel regression, distance parameter for walking cost: 0

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	coin	coin	coin	coin	coin	coin	coin	coin
1-MACoin	3.252*	2.181	2.990	1.889	7.321***	9.730**	7.675***	8.306*
	(1.937)	(3.604)	(1.932)	(3.540)	(2.602)	(4.908)	(2.674)	(4.938)
MACoin(1-MACoin)	4.880**	3.374	4.559**	3.017	10.07***	13.17**	10.54***	11.51**
	(2.267)	(4.179)	(2.262)	(4.104)	(3.016)	(5.595)	(3.109)	(5.620)
size		0.0509***		0.0517***		0.0487***		0.0494***
		(0.00719)		(0.00723)		(0.00710)		(0.00714)
_cons	-3.219*	-2.168	-2.943	-1.797	-7.336***	-9.818**	-7.676***	-8.287*
	(1.947)	(3.639)	(1.943)	(3.571)	(2.610)	(4.941)	(2.682)	(4.958)
Period FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Observations	3938	1987	3938	1987	3938	1987	3938	1987
R2-adj	0.025	0.097	0.023	0.095	0.037	0.113	0.035	0.109

Notes: Pseudo panel analysis for coinage. Poleis with imprecise coinage date only are dropped. Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability are not shown to save space.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

11 script pseudo panel: stochastic centrality

Table S35: Script pseudo panel regression, stochastic centrality

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	script	script	script	script	script	script	script	script
1-MAScript	0.988*** (0.170)	2.165*** (0.285)	0.991*** (0.173)	2.153*** (0.291)	0.618*** (0.165)	1.310*** (0.307)	0.560*** (0.165)	1.186*** (0.306)
MAScript(1-MAScript)	3.150*** (0.507)	4.319*** (0.827)	3.062*** (0.509)	4.187*** (0.843)	4.427*** (0.533)	5.300*** (0.879)	4.380*** (0.533)	5.373*** (0.886)
size		0.00373 (0.00660)		0.00388 (0.00664)		0.00965 (0.00681)		0.0113 (0.00690)
_cons	-0.996*** (0.185)	-2.449*** (0.337)	-1.147*** (0.198)	-2.614*** (0.370)	-0.747*** (0.191)	-1.542*** (0.370)	-0.797*** (0.199)	-1.499*** (0.401)
Period FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Observations	3870	1952	3870	1952	3870	1952	3870	1952
R2-adj	0.088	0.093	0.088	0.091	0.097	0.086	0.098	0.085

Notes: Pseudo panel analysis for script adoption. Geographical variables including ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability are not shown to save space.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

12 coin pseudo panel: stochastic centrality

Table S36: Coin pseudo panel regression, stochastic centrality

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	coin	coin	coin	coin	coin	coin	coin	coin
1-MACoin	8.561*** (1.833)	21.84 (15.01)	8.063*** (1.738)	19.35 (15.01)	18.45*** (6.960)	24.08** (12.06)	16.19** (7.173)	20.65* (12.09)
MACoin(1-MACoin)	11.90*** (2.236)	26.86 (16.94)	11.28*** (2.139)	23.94 (16.93)	23.84*** (7.759)	30.88** (13.57)	21.25*** (7.999)	26.86** (13.59)
size		0.0508*** (0.00705)		0.0497*** (0.00703)		0.0492*** (0.00708)		0.0481*** (0.00706)
_cons	-8.607*** (1.845)	-21.97 (15.06)	-8.146*** (1.745)	-19.39 (15.05)	-18.59*** (6.977)	-24.33** (12.13)	-16.34** (7.189)	-20.79* (12.14)
Period FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MA Direction	FROM	FROM	FROM	FROM	TO	TO	TO	TO
Centrality Sample	Segment	Segment	Poleis	Poleis	Segment	Segment	Poleis	Poleis
Observations	3938	1987	3938	1987	3938	1987	3938	1987
R2-adj	0.030	0.108	0.029	0.105	0.037	0.118	0.036	0.114

Notes: Pseudo panel analysis for coinage. Poleis with imprecise coinage date only are dropped. Geographical variables include ruggedness, malaria index, temperature, precipitation, elevation, and crops (barley, millet, summer wheat and winter wheat) suitability are not shown to save space.

Robust standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$