Early states

Ec 764

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content: four papers

1 Mesopotamia and Egypt

❏ Mayshar Joram, Omer Moav and Zvika Neeman (2017), "Geography, Transparency, and Institutions," American Political Science Review, 111 (3) 622-636.

❏ Jones, "Taxation in the Antiquity."

2 Egypt revisited

❏ Allen, Robert, C., Mattia C. Bertazzini, and Leander Heldring (2023). "The Economic Origins of Governments," *American Economic Review*, 113(10): 2507-2545

3 Cereals and roots

❏ Mayshar, J., O Moav and L. Pascali (2022). "The origin of the state: Land productivity or appropriability," *Journal of Political Economy*, 130(4), 1091-1144.

Mesopotamia and Egypt (assignment)

- Mayshar Joram, Omer Moav and Zvika Neeman (2017), "Geography, Transparency, and Institutions," American Political Science Review, 111 (3) 622-636.

- Jones, "Taxation in the Antiquity."

- Assignment 1: answers

The same principle is observable in the collection of the land revenue in Ptolemaic Egypt. The revenue from arable land was assessed and collected by state officials, that from vineyards and orchards and gardens was farmed. The task of assessing the arable land was immensely laborious and complicated. Each village clerk had to make up annually a complete survey of the land in the village territory, with the dimensions and area of each plot and the name of its occupier. He had also to mark in the legal classification of each plot, since cleruchic land [assigned to soldiers or officials] and some other categories of land paid a fixed tax of one *artaba* of corn per *arura*, whereas the royal land was leased to royal peasants at rents (in *artabae*) which varied in rate from plot to plot. Further records had to be kept of the effects of the Nile flood. If it was a low flood, rebates would have to be allowed for unirrigated land, and if it was a high flood, for land which was waterlogged and saline. A further complication was the loan of seed corn: royal peasants—and some others—were granted a loan by the government, and this—with an additional percentage—had to be added to the rent. When the harvest arrived guards had to be posted to prevent landholders from reaping their crops surreptitiously. All grain had to be brought to the village threshing floor, and the collectors (the *sitologoi*) took and stored the government's share, and then the cultivator could remove the rest.[32]

Egypt revisited

- Allen, Robert C. (1997). "Agriculture and the Origins of the State in Ancient Egypt," Explorations in Economic History, 34, 135-154.

- successful states can extract a surplus (...)

- Conditions for Egypt: circumscription theory of Carneiro
  - ❏ Nile Valley
  - ❏ Conquest by the South of the North
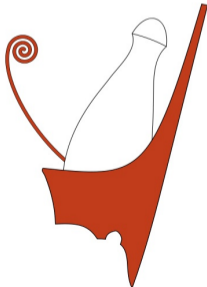
Egypt revisited (2)

- Carneiro (1970): all early states "have one thing in common: they are all areas of circumscribed agricultural land. Each of them is set off by mountains, seas, or deserts, and these environmental features sharply delimit the area that simple farming peoples could occupy and cultivate."

- Allen: the creation of a social surplus:
    1. storability
    2. production per ha
    3. production per worker
    4. seasonability of labor

- Migration and exploitation: "The Egyptian state was essentially an institution for exploiting farmers, so the importance of geography can be explained only in terms of the economics of exploitation."

- Land scarce / labor abundant: private property generates rent (Domar, 1970)

- Land abundant / labor scarce: restrict movements (unification of Egypt, serfdom in Russia in the XVI)

Egypt revisited (3)

- "Recent evidence situates Egypt in this paradigm. During the fourth millenium, two distinct cultures developed in Egypt-the Maadi in the North and the Nagada in the South. The Maadi culture remained relatively egalitarian during the fourth millenium, while Bard?s (1994b, pp. 111-112) analysis of Nagada tombs indicates a rise in inequality and social hierarchy beginning in 3600 B.C. (the Nagada II period). This change in the mortuary evidence is probably the counterpart of early state formation in Upper Egypt."

Egypt revisited (4)

1. control of population: "labor utilization was largely under state control and most Egyptians could be forced to work for the state. Peasant labor was conscripted during the floods and these corve?es provided the workforce to build the pyramids. Hassan has argued that Herodotus? account of the building of the Great Pyramid was essentially correct and that it involved 84,000 men working 80 days a year for 20 years (Butzer, 1976, p. 87n4). If the Egyptian population was 2 million, there were perhaps 500,000 adult males, so the pyramid building labor force was about one sixth of the adult male population. An administration that could conscript labor at that rate had firm control over the labor force"

2. "A biennial cattle census was carried out for taxation purposes, but most property could be taxed. One must imagine a network of government agencies spread throughout the country, attempting by bureaucratic methods total assessment and management of resources."

3. Projects: Fayum

Cereals and Roots

- Mayshar Joram, Omer Moav and Luigi Pascali (2022). "The Origin of the State: Land Productivity or Appropriability?," *Journal of Political Economy*, 130(4), 1091-1144.
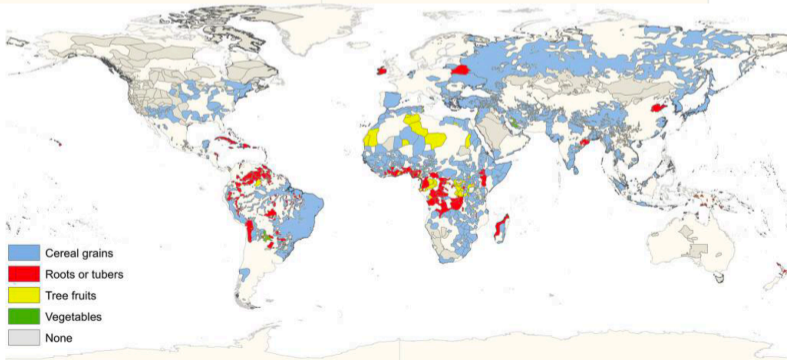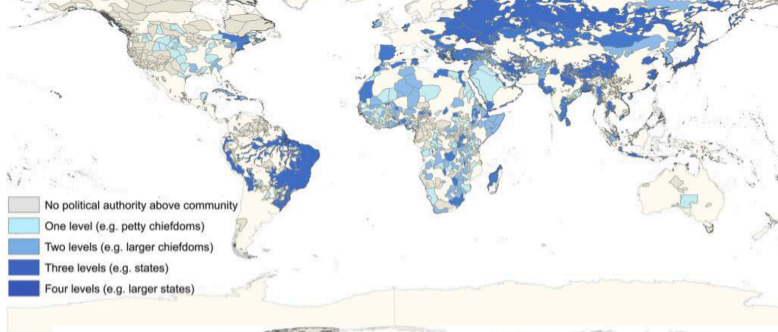
"The conventional theory about the origin of the state is that the adoption of farming increased land productivity, which led to the production of food surplus. This surplus was a prerequisite for the emergence of tax-levying elites and, eventually, states. We challenge this theory and propose that hierarchy arose as a result of the shift to dependence on appropriable cereal grains."

" McNeill (1999, 71) reports that European farmers initially resisted adopting the potato and did so only during the Dutch Wars in 1557-1609, when ?villagers along the route [of the Spanish army] swiftly discovered that by leaving the tubers in the ground and digging them only as needed for their own consumption, they could safely survive even the most ruthless military requisitioning. Foraging parties were unwilling to dig for their food when stores of grain were available in barns."

Ethnoatlas (1967)

- Around 1200 societies

- 3% before 1800, 1/4 19th century, 70% first half of 20th century

Ethnoatlas (1967)

No political authority above community
One level (e.g. petty chiefdoms)
Two levels (e.g. larger chiefdoms)
Three levels (e.g. states)
Four levels (e.g. larger states)

Cereal grains
Roots or tubers
Tree fruits
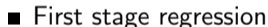Vegetables
None

Estimates using the Ethnoatlas

-

$$Y_i = \alpha_1 CerMain_i + \alpha_2 LandProd_i + X_i'\beta + u_i. \tag{1}$$

Y_i measure of hierarchy,
$CerMain$ dummy for society relying mainly on cereals,
$LandProd$ a mesure of land productivity.

- First stage regression

$$Cermain_i = \beta_1 CerAdv_i + \beta_2 LandProd_i + X_i'\beta + \epsilon_i. \tag{2}$$

$CerAdv$: difference between the maximum potential caloric yield of cereals and that of roots or tubers under a rainfed subsistence agriculture

TABLE 1
CEREALS AND HIERARCHY: OLS AND 2SLS

	OLS (1)	2SLS (2)	2SLS (3)	2SLS (4)	2SLS (5)	2SLS PDS (6)
	DEPENDENT VARIABLE: JURISDICTIONAL HIERARCHY BEYOND LOCAL COMMUNITY					
	A. Second Stage					
CerMain	.707	1.170	.892	1.064	.830	.797
	{.114}***	{.352}***	{.447}**	{.556}*	{.554}	{.378}**
	[.097]***	[.292]***	[.352]**	[.459]**	[.426]*	. . .
	(.131)***	(.359)***	(.420)**	(.538)**	(.511)	
LandProd				−.037		. . .
				{.086}		
				[.067]		
				(.071)		
Dependence on agriculture					.259	. . .
					{.544}	
					[.398]	
					(.478)	
Continent fixed effects	No	No	Yes	Yes	Yes	. . .
Observations	952	952	952	952	952	877
F-statistic[a]		{52.15}	{33.13}	{13.06}	{20.38}	{16.11}
		[74.90]	[52.50]	[29.20]	[37.83]	
		(49.34)	(34.76)	(19.70)	(23.18)	
R^2	.113					
	B. First Stage					
CerAdv		.209	.155	.258	130	.256
		{.029}***	{.027}***	{.071}***	{.068}***	{.063}***
		[.024]***	[.021]***	[.047]***	[.021]***	
		(.029)***	(.026)***	(.059)***	(.027)***	

Early Civilizations Cross Section of Archaeological Sites

TABLE 4
Wild Relatives of Domesticated Crops and the Location of Ancient Cities

| | Dependent Variable: Presence of Cities/Large Settlements Founded by: | | | | | | | | |
| | 400 CE | | | | | 450 CE | | 500 BCE | |
	OLS (1)	OLS (2)	OLS (3)	OLS (4)	PDS (5)	OLS (6)	PDS (7)	OLS (8)	PDS (9)
WR_Cer	.197***	.195***	.195***	.0965***	.145***	.0232***	.0136***	.00941***	.00358
	(.0325)	(.0326)	(.0377)	(.0280)	(.0268)	(.00500)	(.00434)	(.00264)	(.00310)
WR_RT		−.00809	.00478	−.0277	. . .	−.00243	. . .	−.00179	. . .
		(.00700)	(.0145)	(.0232)		(.00157)		(.00133)	
WR_Cer&RT		−.00901	.0245	−.00191	. . .	−.00307**	. . .	−.00244**	. . .
		(.00694)	(.0201)	(.0221)		(.00142)		(.00115)	
Continent FE	No	No	Yes	No	. . .	No	. . .	No	. . .
Country FE	No	No	No	Yes	. . .	No	. . .	No	. . .
R^2	.124	.124	.144	.407		.0125		.00398	
Observations	17,076	17,076	17,076	17,076	8,568	17,076	8,568	17,076	8,568

Note.—The table reports cross-sectional OLS and PDS estimates, and the unit of observation is the 1×1–decimal degree square. Robust standard errors, clustered at the country level, are in parentheses. FE = fixed effects.
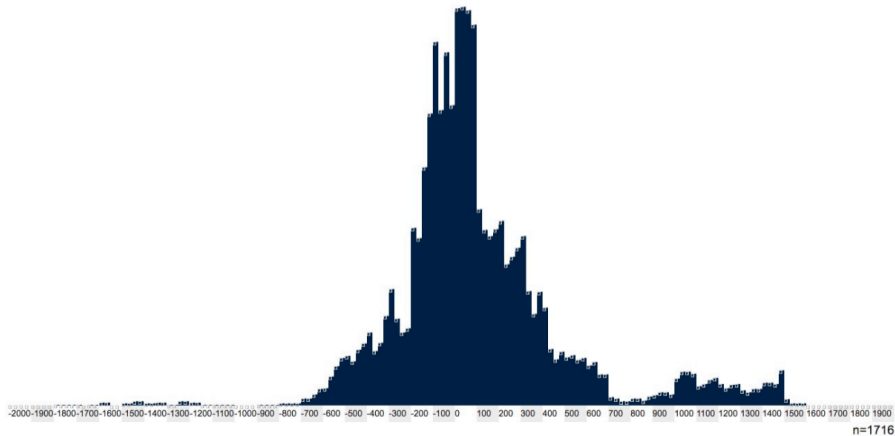** Significant at the 5% level.
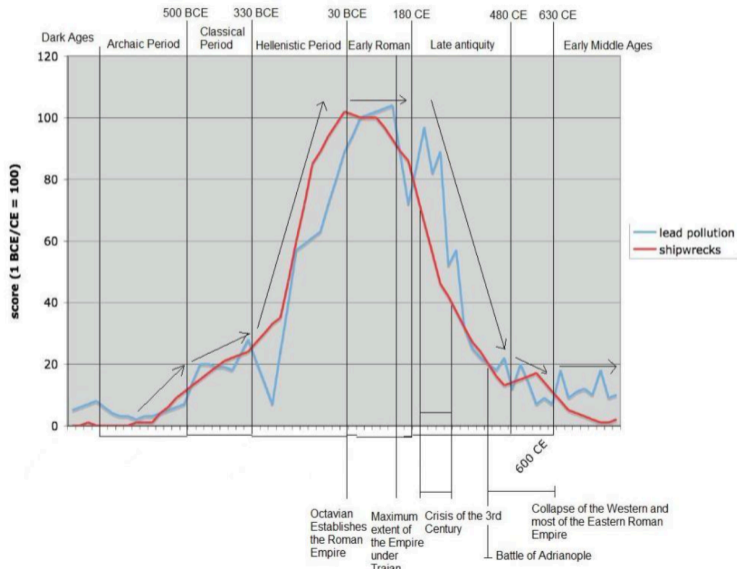*** Significant at the <1% level.

The Roman empire
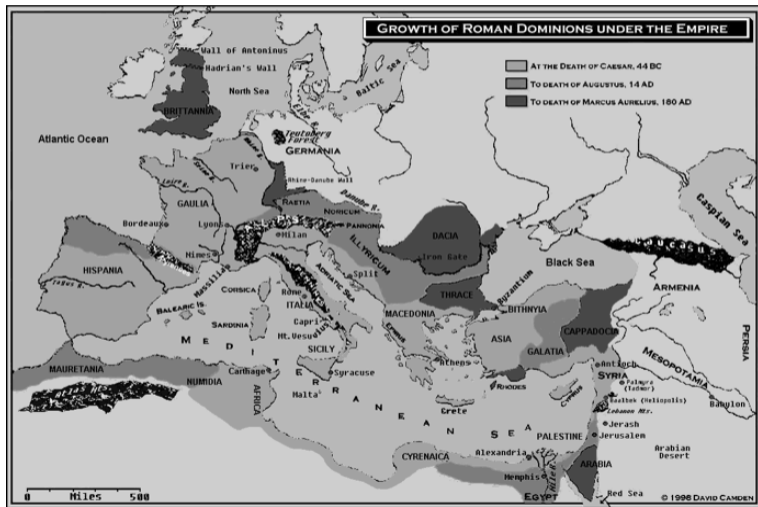
Shipwrecks

Timeline: Shipwrecks Database

n=1716

Source: **

Silver production: the mines

Period	Average production (tons/year)
350-250 BCE	25
250-150 BCE	60
150-50 BCE	100
50 BCE - 100 CE	200
100 BCE - 200 CE	100
200 BCE - 300 CE	30
300 BCE - 400 CE	25

Source: Patterson (1972).

Rome: army size

Legionnaire pay
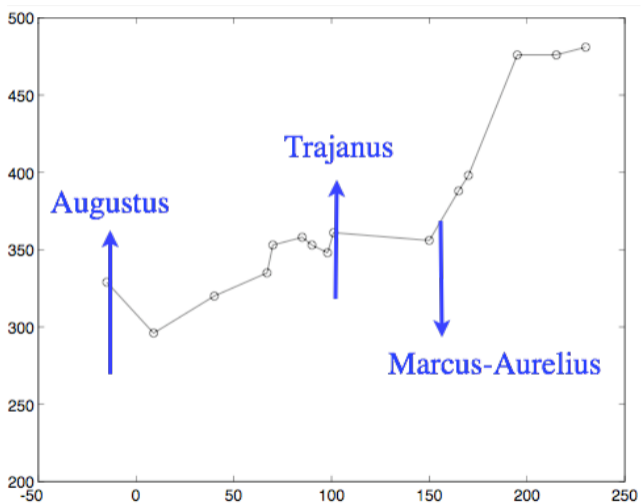
A roman legionnaire's yearly pay
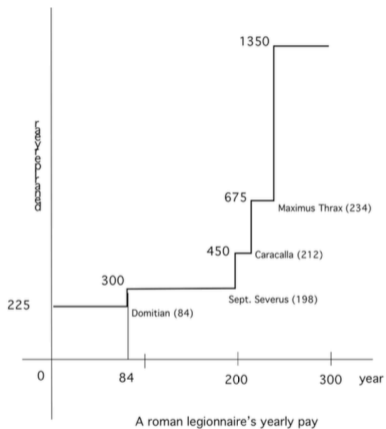
Source:

Pay in denarius withy round numbers: 9 aurei per year = 225 denarii.

Pay increase: 1 aureus = 3 aureii per year = 75 denarii (in y. 84)