Purpose of this course

- General orientation:
  - Economics is a tool to improve our understanding of history
  - History also an opportunity to see economics at work.
    - Improvement of understanding may be useful for the future
- Requirements:
  - Strong interest in history
  - Intermediate macroeconomics (if possible with some public economics)
  - Commitment to reading and participation

1

Lecture 1: Plan

1. Historical context: geography
2. Egypt
3. Mesopotamia
4. Agriculture and the state, extension of the argument
5. Additional studies

2

References

- Allen, Robert, C. (1997). "Agriculture and the Origins of the State in Ancient Egypt," EER, 34, 135-154.
- Mayshar Joram, Omer Moav and Zvika Neeman (2017). "Geography, Transparency, and Institutions," *American Political Science Review*, 111 (3) 622-636.
- Allen, Robert, C., Mattia C. Bertazzini, and Leander Heldring (2023). "The Economic Origins of Governments," *American Economic Review*, 113(10): 2507-2545. Citations.
- 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.

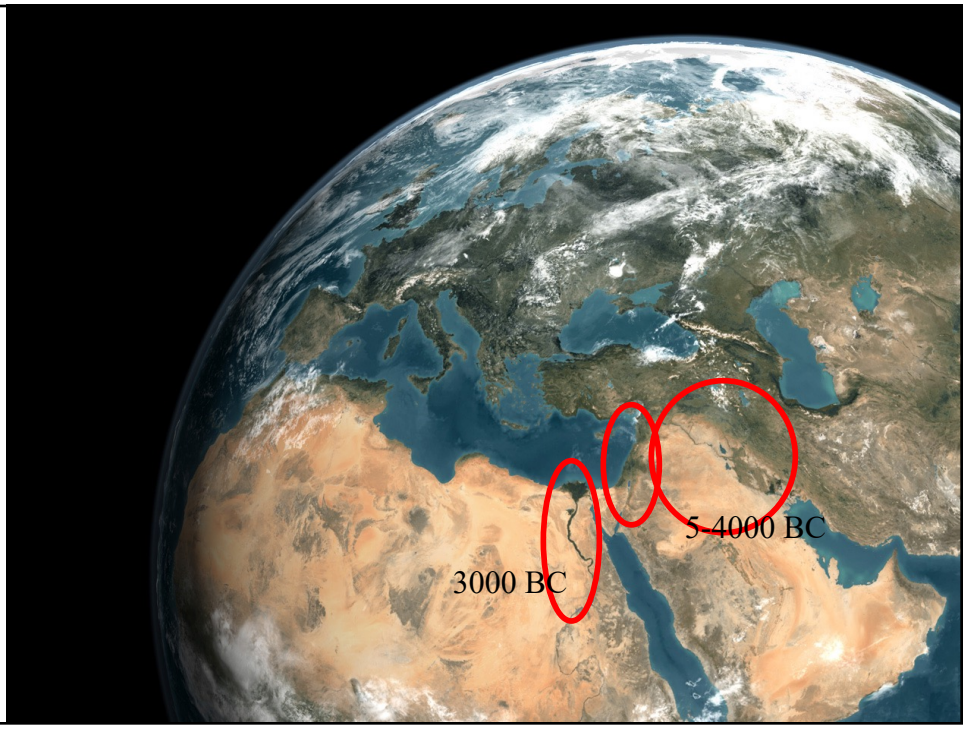
3

Beginnings

4

Main features?

- Sun
- Water
- Basin



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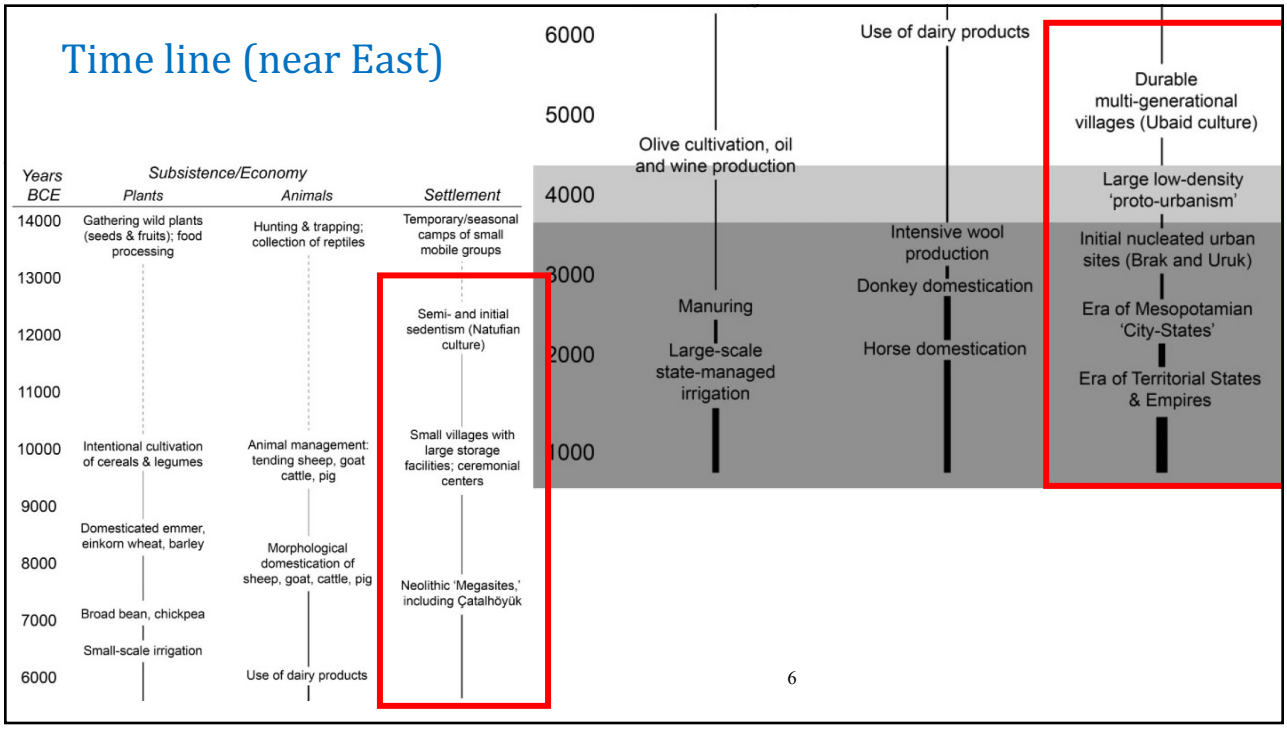
Time line (near East)



6

Hydraulic civilizations

Most early “civilizations: developed in river basins:

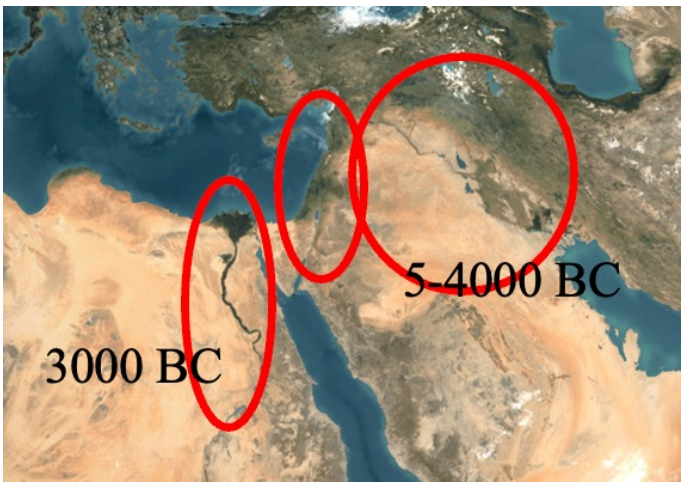
- Mesopotamia from 5-4000 BC
- around the Nile from 3000 BC
- around the Indus from 2500 BC
- Yellow River Basin from 1800 BC

7

7

Questions

- When did economic “growth” and social organization start?
- Where? Why? How?
- Importance of water
- “Fertile crescent”
- Mesopotamia and Egypt
- Here:
  - Egypt (simpler)



8

Study: Allen, Robert (1997),

"Agriculture and the Origins of the State in Ancient Egypt," EER, 34, 135-154.

In Egypt, state formation occurred much more rapidly after the adoption of farming than in many other parts of the ancient Near East. Furthermore, the Egyptian state lasted longer and was more stable than most Empires established elsewhere. This paper argues that successful states in the ancient world depended on the ability of elites to extract a surplus from farmers and other producers. This ability was greatest when the population was immobile. The success of the Pharaohs was due to the geography of Egypt—the deserts bordering the Nile meant that habitation was confined to the valley. Farmers could flee tax or rent collectors only along the river. The population control problem was, thus, simpler than elsewhere and was the reason a unified state was created and lasted for millenia.

9

Discussion of Allen (1997)

- "The origin of the state has been a central problem for anthropologists and archaeologists since the 1950s."
- Theories
  - Food surplus (Childe, *Man Makes Himself,* 1936);
  - Hydraulic theory of Steward (1949) and Wittfogel (1957);
    - Does not apply to Egypt (Butzer, 1957)
  - Others…
  - 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." (RA)
    - Question: is the closed space a sufficient condition?
- Allen:
  - for Egypt (important restriction): state avoided tax competition between local "elites".
  - Shortcoming: speculative (2d source), does not fit Mesopotamia.
  - Useful as textbook case (a test tube).

10

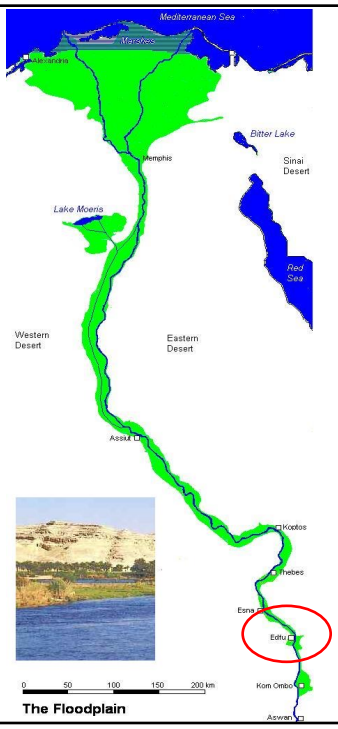
Geography matters

- Egypt provides a unique physical, archaeological, and historical record of environment, technology, land use, settlement, and economic history. In effect, the Nile constitutes an oasis corridor through a thinly inhabited desert, providing a test tube case for a society circumscribed by its environment and relatively isolated from external turmoil.

Karl Butzer

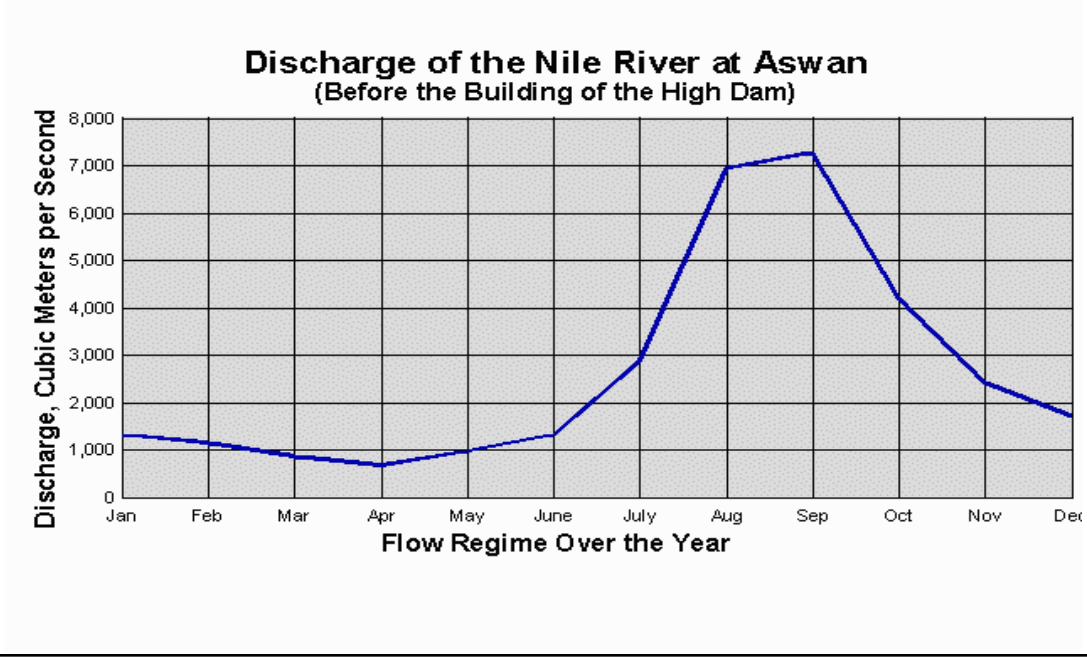
11

Egypt then and now



- Herodotes (5th BCE): ”Egypt is the gift of the river.

12



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Nile fluctuations

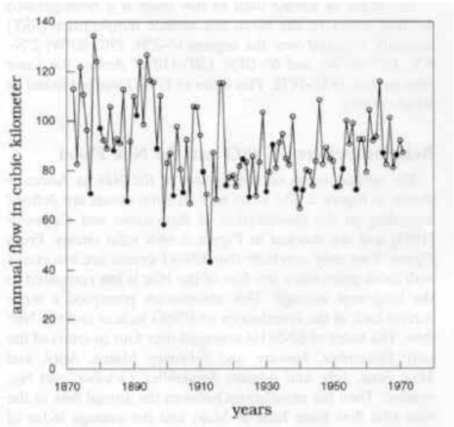
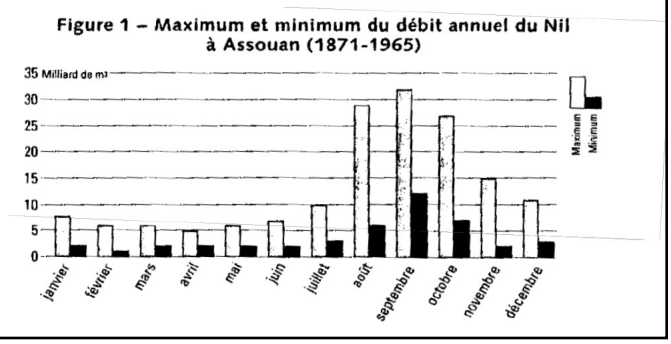


Figure 2.1: Fluctuations of the Nile (Manning, 2002, 2017)



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Before the unification of Egypt

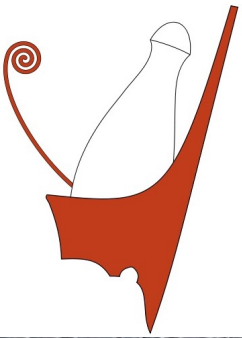
- Allen:

"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.

15

King Narmer (~ 3100 BCE)

Both sides of the Narmer Pale



Material	Siltstone
Size	c. 64 cm × 42 cm
Created	3200–3000 BC (circa)

16

The Old Kingdom

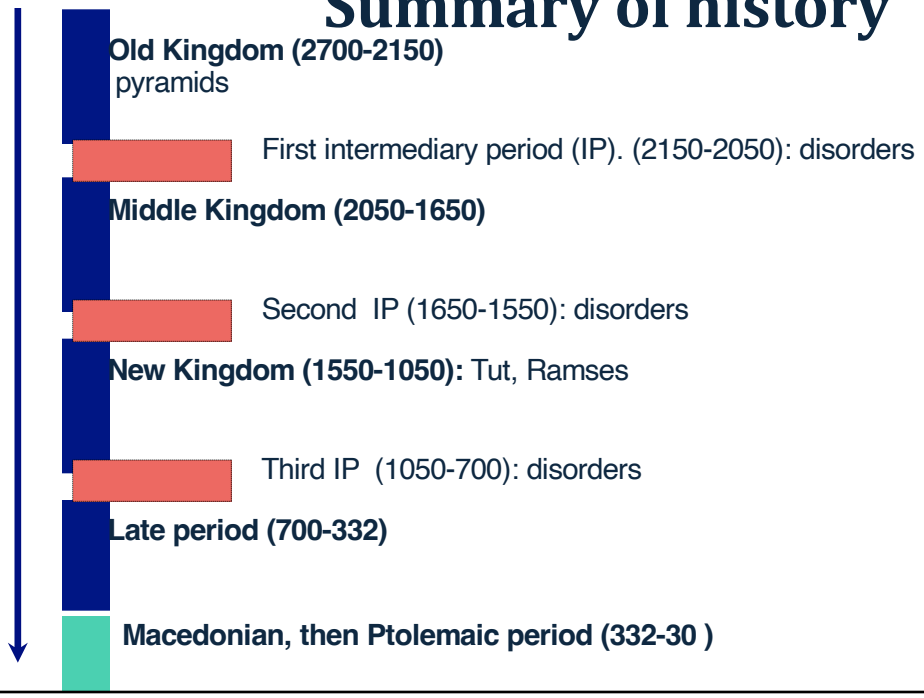
The Age of the Pyramids

Dynasty 3-6, ca. 2686-2181 BCE

King Djoser--step pyramid at Sakkara

17

Summary of history



18

The "Intermediate" periods

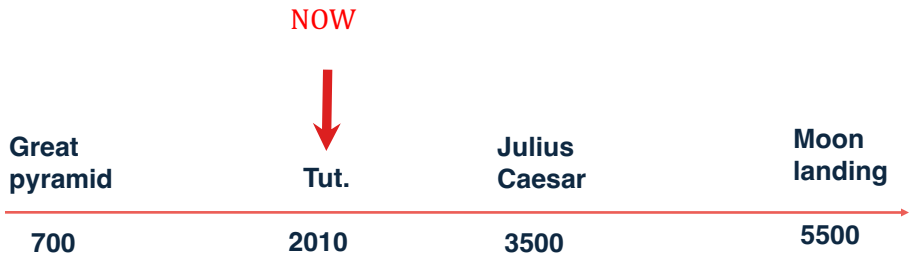
- After the Old, Middle and New Kingdoms
- A decline of central state authority
- Important, creative periods where there clearly were responses and adjustments
- Were the intermediate periods related to flood regimes of the Nile?

19

Time line

Assume we are in the reign of Tutankhamun (actual 1330 BC)

Assume it is now in year ~ 2010



20

Evidence

- Old and Middle Kingdom:
  - Epigraphes (inscriptions on stone) and indirect evidence
  - Biased support (skewed evidence)
- New Kingdom
  - Direct evidence
  - Fantastic conditions for preservation (dry air of the desert, tombs),
  - but very little from the delta.
- Ptolemies
  - Abundant documents (still to be exploited, more than one million papyrii)
- Fraction of documents that survived: 0.0001 ? (Posener)

21

Protection from the outside

- Peasant society
- Low population compared to the agricultural output
- Yields higher than in the rest of the world
- (more than 10, twice Europe's rate in 15th century)
- Taxable surplus went more into public projects rather than military expenditures

22

Irrigation

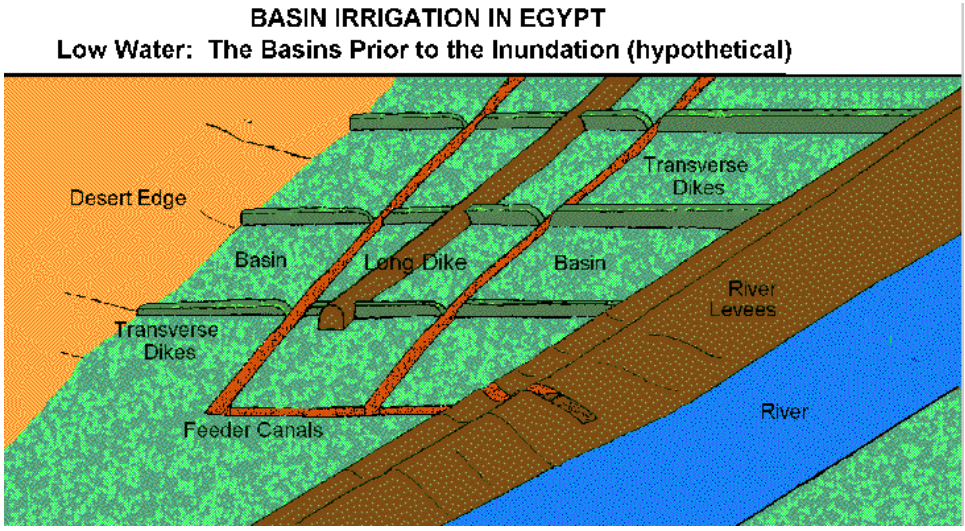
Decentralized system

- very powerful river
- irrigation upstream has no impact downstream
- no need for centralization, but:
  - local coordination and advice
  - overall evaluation of the flood for crop prediction and taxation
- Wittfogel's mechanism for despotism does not apply.

23

23

23



24

Basin irrigation

- Flooding late June in Aswan, reached Cairo area late August
- Natural, or recessional agriculture developed into a more controlled "artificial" system, split holdings as a risk-averse strategy
- The artificial system probably began quite early, Note the connection between canal digging for irrigation and for monumental building, i.e. pyramids in the Old Kingdom
- The system largely locally organized, in response to shocks, population pressure, with the ruler coordinating by decree and sanction
- Most basin land produced one crop per year, with rotation?
- Average wheat yield 1:10 in the basins, could be much higher with improvements in technology

25

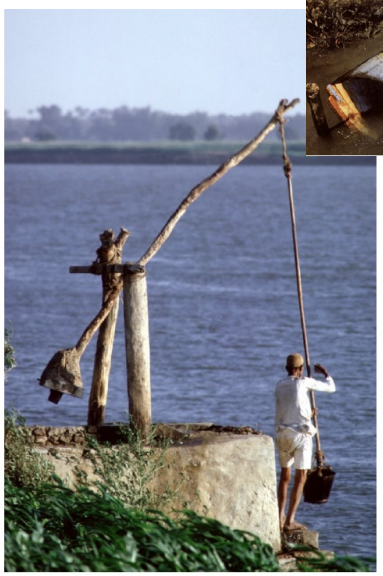
Technology

The technology was very primitive.[7] Three devices supplemented gravity irrigation.

The *shaduf* (in use by 2000 BC) lifted a bucket of water with a long lever. Its use was occasional, apparently for special purposes or in low-water years.

The *saquiyah* (inverted water mill for lifting water) was connected to a horizontal wheel operated by circling animals). It did not exist before the 4th century BC. Some of them were still in use in the second half of the 20th century.

The ingenious *Archimedian Wheel* (still in use in the 1950s)[8] was invented during the time of the Ptolemies (2nd century BC), when they pushed Egypt's manufacturing capabilities to a new limit.

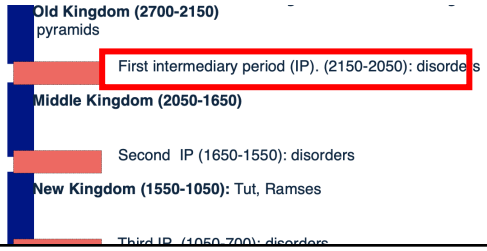


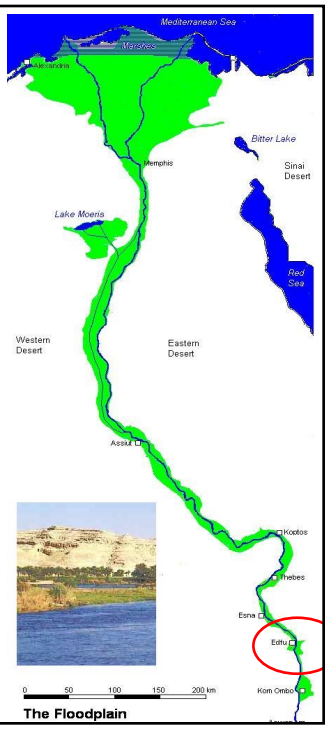
26

- State provides **public goods**
- First public good : **Law and order**

Account of a public official in Egypt around 2100 BC:

Horus wanted me to restore order [in the nome of Edfu] since he had brought me in that nome to restore order. I found the district of Khuhu flooded as a ??, neglected by the one who had been in charge and ruined by a wretched person. I acted such that a man would embrace the murderer of his father or of his brother, with a view to reestablish order in the nome of Edfu."





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Law and justice

"Maat" signified concepts of "justice, order, truth"

- The king was divine, born of a god. His word was law. Thus royal decrees set the law of the land.
- Everyone had a right to petition the king for justice
- Probably no written law codes as other places in the ancient Near East.
- The Vizier was responsible for administration of justice. Two such officials in the New Kingdom.

28

Capturing the surplus

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

- Argument:
  - for the sustainability of a state, an agricultural surplus is not sufficient.
  - A necessary condition is that the surplus can be captured
  - Condition of
    - observable,
    - transferable.

29

The surplus in Egypt

- Agricultural output
  - Cereals: wheat, ember
    - Yield 8-10 (15 in the Fayoum), compared with 5 in 16th century Europe
  - Fruits
  - Seeds (for oil)
- Perfect observability of cereals
  - Cropped at the same time
  - Thrashing is public
  - State provided the grains
  - All fields close to the river
  - Water level monitored daily by the vizier

30

MMN on Egypt

transparency.

Since few details about tenancy arrangements in ancient Egypt have survived, historians often employ evidence from the more recent past. In describing district life in Egypt from the medieval period up to the 19th century, Baer (1969, 17) contends that it was characterized by three phenomena: (a) the village head periodically redistributed land among the peasants, (b) the village inhabitants were collectively responsible for tax payments, and (c) the village as a whole was responsible for maintaining irrigation infrastructure and for providing labor for public works. Eyre (1997, 378; 1999, 51–52) similarly maintains that in ancient Egypt, farmers did not have secure tenure and the village community as a whole was responsible for paying taxes. The village head exercised tight control over village land and could reassign fields as he saw fit, even if by custom the same fields were annually assigned to the same farmer, or to his heir.[19]

with a practice by which much of the land was de facto owned by the temples, by various lay organizations, and by powerful individuals (Manning 2003, 65–98). In other words, even when land in the Nile Valley was privately held, it was owned by absentee landlords who did not work the fields.[20]

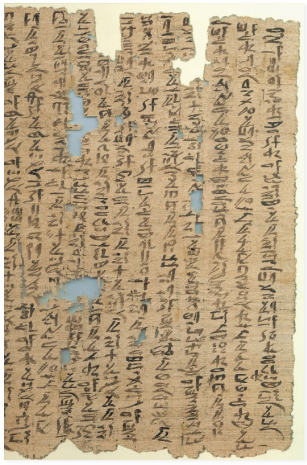
This state of affairs is consistent with prediction (1). The high local transparency of farming eliminated the main disadvantage of absentee land ownership and left peasants vulnerable by denying them an information advantage. Significantly, in the few known cases where private land lease documents survived from antiquity, the contracts were for one year only (Hughes 1952), providing further support for our proposed mechanism that tenants were constantly under the threat of eviction.[21]

peasantry." Indeed, at least in the early Old Kingdom period, the positions of governors and state bureaucrats were by a revocable appointment and nonhereditary.[23] The nonsecure status of these state bureaucrats is closely related to the relative weakness of the cities in the different districts. These cities essentially remained administrative centers, without amassing substantial independent wealth to threaten the predominance of the center.

The high transparency at all levels of the state hierarchy can also explain the rapidity of the formation of a strong central state in Egypt and its remarkable subsequent stability.

31

The Hekanakhte letters



- Middle Kingdom
- Economic decisions of an individual
- Household consumption/ budgets
- Household size= 18 + 1
- Owned more than 70 arouras-providing for household, 23 ar. Leased out (one aroura=2700m2) one acre 4000m2
- Crops-emmer & flax for consumption, cloth, surplus barley for purchase of other items
- 2 bad years (low Nile floods)-no income, hence the urgency of the letters
- Note: half the Nile valley floodplain still used as unimproved pasture or fallow

32

A message from the *ka*-priest Heqanakhte to Merisu. Whatever can be inundated on our land, you are the one who ploughs it. A warning to all my people, and to you! Listen, I consider you responsible for it. Put your back into ploughing, do your utmost; look after my seed corn, look after all my property. See, I consider you responsible for it; take great care with all my property!

Take great care! Hoe all my land, sieve with the sieve, hack with your noses into the work. Look, if they are diligent god will be thanked for you and I will not have to make things hard for you.

33

33

The bureaucracy

- In Old Kingdom, largely tied to the royal family
- Taxation, bureaucracy tied to monumental building
- Rise of a "professional" bureaucracy by end of Old K.
- Articulated in Middle Kingdom, and increased in New Kingdom
- Centered on the nomes (districts about 20), with royal appointment, but inherited
- Unlike the Han, no recruitment/examination system as far as we know

34

The Middle Kingdom

Dynasty 11-13 2181-1650 BCE

- The Classic Age of Egyptian literature
- Beginnings of imperial expansion south
- the rise of Thebes ("middle Egypt", near Luqsor)
- The rise of a bureaucracy
- Perhaps no coincidence that it is then that the Fayyum is first developed-the first evidence of direct state involvement in expansion
- A period of environmental stress

35

The New Kingdom

Dynasty 18-20 1570-1069 BCE

Imperial Egypt, new technology

Queen Hatshepsut

King Tutankhamun

King Akhenaten

King Ramses II

36

- Detailed census on the population, land ownership and productivity of each plot of land.
- Nile is great setting for monitoring the agricultural output.
- Since everything depended on the Nile, Egyptian kings kept track of the water level.
- ``When the corn began to ripen in Egypt, the fields were measured by two scribes, the `holder of the cord' and the `stretcher of the cord'' and on the data obtained an assessment would be made of bushels or sacks of corn per unit of land.
- Scribes play a critical role
- Problem of
- controlling the scribes
- controlling the controllers

37

Ptolemaic and Roman period

332 BCE-ca 323 CE

- Conquest by Alexander
- Macedonian and Roman domination
- Very important for legacy
- Rosetta Stone
- Cleopatra

38

The Rosetta stone

found during the expedition of Bonaparte in Egypt (1798)

provides the same text in three languages: hieroglyphs, demotic, and greek characters.

was deciphered by Champollion in the early-19th century. Like in other important official documents (*e.g.* Magna Carta) later in this course), taxes play a prominent role.

39

TEXT OF THE ROSETTA STONE

In the reign of the young one who has succeeded his father in the kingship, lord of diadems, most glorious, who has established Egypt and is pious towards the gods, triumphant over his enemies, who has restored the civilized life of men, lord of the Thirty Years Festivals, even as Ptah the Great, a king like Ra, great king of the Upper and Lower countries, offspring of the Gods Philopatores, one whom Ptah has approved, to whom Ra has given victory, the living image of Amun, son of Ra, PTOLEMY, LIVING FOR EVER, BELOVED OF PTAH, in the ninth year, when Aetos son of Aetos was priest of Alexander, and the Gods Soteres, and the Gods Adelphoi, and the Gods Euergetai, and the Gods Philopatores and the God Epiphanes Eucharistos; Pyrrha daughter of Philinos being Athlophoros of Berenike Euergetis, Areia daughter of Diogenes being Kanephoros of Arsinoe Philadelphos; Irene daughter of Ptolemy being Priestess of Arsinoe Philopator; the fourth of the month of Xandikos, according to the Egyptians the 18th Mekhir.

DECREE. There being assembled the Chief Priests and Prophets and those who enter the inner shrine for the robing of the gods, and the Fan-bearers and the Sacred Scribes and all the other priests from the temples throughout the land who have come to meet the king at Memphis, for the feast of the assumption by PTOLEMY, THE EVER-LIVING, THE BELOVED OF PTAH, THE GOD EPIPHANES EUCHARISTOS, of the kingship in which he succeeded his father, they being assembled in the temple in Memphis on this day declared: Whereas King PTOLEMY, THE EVER-LIVING, THE BELOVED OF PTAH, THE GOD EPIPHANES EUCHARISTOS, the son of King Ptolemy and Queen Arsinoe, the Gods Philopatores,

40

has been a benefactor both to the temple and to those who dwell in them, as well as all those who are his subjects, being a god sprung from a god and goddess like Horus the son of Isis and Osiris, who avenged his father Osiris, being benevolently disposed towards the gods,

has dedicated to the temples revenues of money and corn and has undertaken much outlay to bring Egypt into prosperity, and to establish the temples, and has been generous with all his own means; and of the revenues and taxes levied in Egypt some he has wholly remitted and others has lightened, in order that the people and all the others might be in prosperity during his reign; whereas he has remitted the debts to the crown being many in number which they in Egypt and the rest of the kingdom owed;

and whereas those who were in prison and those who were under accusation for a long time, he has freed of the charges against them; and whereas he has directed that the gods shall continue to enjoy the revenues of the temples and the yearly allowances given to them, both of corn and money, likewise also the revenue assigned to the gods from the vine land and from gardens and the other properties which belonged to the gods in his father's time; and whereas he directed also, with regard to the priests, that they should pay no more as the tax for admission to the priesthood than what was appointed them throughout his father's reign and until the first year of his own reign; and has relieved the members of the priestly orders from the yearly journey to Alexandria; and

41

Money

- Inscription near the sphinx (Khafre, around 2500):
- I have purchased this house from the scribe Tjenti. I gave him 10 shats for it; one piece of cloth with four thread (?), 3 shats; one bed, 4 shats; one piece of cloth with two threads (?), 3 shats.
- Money: unit of account
  - Not a store of value
  - Not much precious metal for money
    - Some copper rings ?
  - No trade for money
  - Would a despot allow money (underground economy) ?
- Introduction of money by the Greeks (300BC)

42

Main taxes

- Direct and indirect taxes.
- Corvée: (french term which has become part of the technical jargon) not a very efficient device, but useable when administration and trade sphere is underdeveloped.
- Rates on income tax seems to have been high, about 20 percent.
- In Mesopotamia lower around 10 percent but sometimes more up to 50 percent (clay tablets in Babylonia).
- Additional revenues from the merchants (guilds). (1/3).
- centralized knowledge of the exact extent of each nome, measured by its length along the Nile— in essence a theological statement of the political control of Egypt — can be traced back to the Middle Kingdom (Dynasty 12, ca. 1991-1783 BC)

43

The Ptolemies

- Dynasty after Alexander the Great (332 BC)
- Rulers from Greek origin
- Main sources of documents for fiscal issues
- However, there is a great deal of inertia in tax systems.
- Throughout history, a dominant feature: there is almost no comprehensive tax reform. Changes built on previous institutions and traditions.
- There is a deep economic reason for this: a critical issue in taxation is information: how much resources? how much can the individual pay. The precedent of history is the best source of information. Any tax reform makes tremendous demand on information.
- Main source of documents is an incredible wealth of papyri.

44

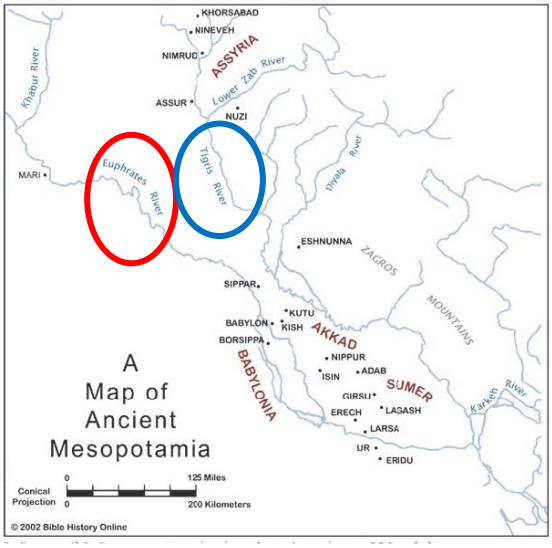
Revenues structure under the Ptolemies

- Tighter control of the economy
- public projects (irrigation in the Fayum), guidances for crops, strict control for taxation. High tax rates (up to 50 percent of the output)
- Wheat: direct taxation
- Oil: mill monopolies
- Grapes: tax farming (Jones)
  - Special conditions of harvest: information!!
  - Incentives for the tax collector

45

Mesopotamia ("between rivers" in Greek)

Then ....



Now

46

Mesopotamia

Basin with two rivers

- Euphrates: main use
  - 700 km from the sea: elevation 50 m.
- Tigris: more volume but more dangerous

Basin is relatively wide

- cities can develop an area of supply
- evidence of returns to scale (pottery)

47

River regime

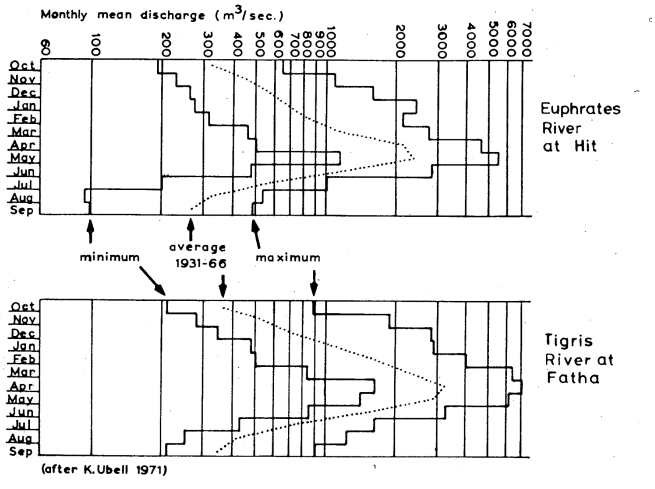


Fig. 1. Variations in Euphrates and Tigris River discharge.

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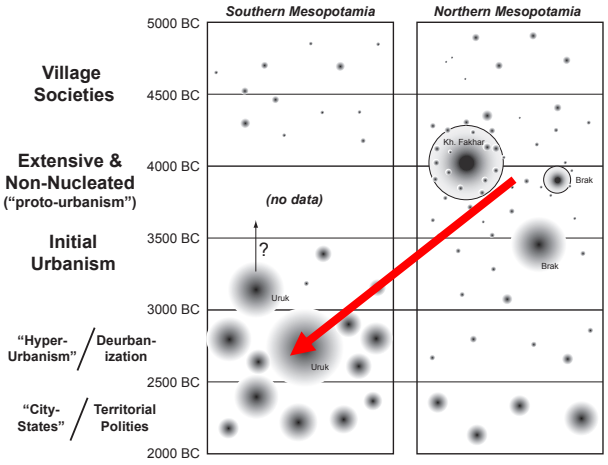
Time line of "urban" development



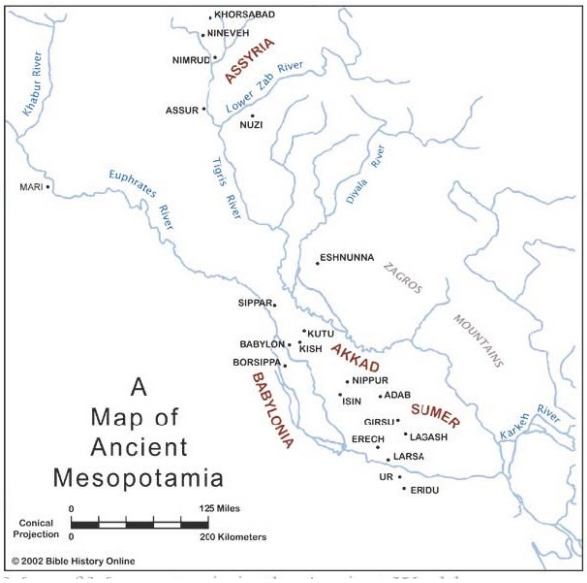
Source: Ur (2010), Fig. 2.

- Villages
- Cities
- Empire

49

49

Cities



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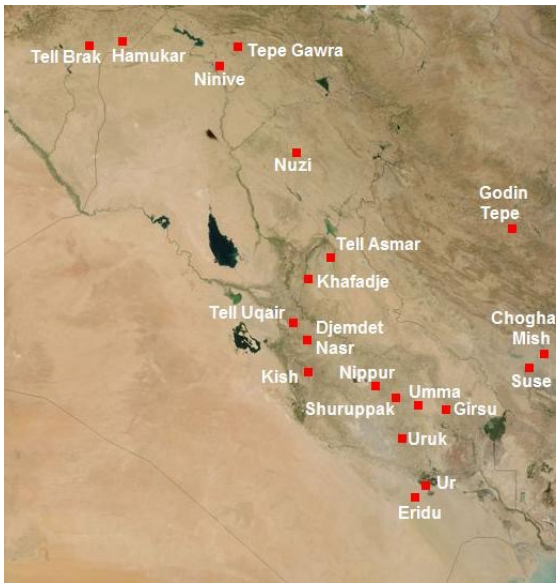
Cities



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MMN on Northern Mesopotamia

- "Farming started in northern Mesopotamia long before it was adopted in southern Mesopotamia. And urbanization was identified there already in the late fifth and early fourth millennia BCE but declined in the later part of the fourth millennium.
- The geographic conditions in the highlands of northern Mesopotamia are quite different from those in riverine southern Mesopotamia and Egypt. Agriculture was mostly rain fed.
- Due to the uncertain and idiosyncratic nature of rainfall, and to the relative unevenness of the terrain, farming was comparatively opaque even at the local level."

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MMN on Northern Mesopotamia (2)

- In contrast to the tenancy pattern in Egypt and southern Mesopotamia, owner-operated farming was prevalent in northern Mesopotamia from early on.
- Cuneiform documents from the mid-second millennium BCE from Nuzi (near modern Mosul) reveal that while the local kings and the elite owned large estates, the temples did not possess economic power or land, and much land was owned by nuclear families who worked their patrimonial property.
- The prevalence of ownercultivated private farming in northern Mesopotamia is consistent with prediction (1) that low transparency makes tenancy less profitable to absentee owners.

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Southern Mesopotamia

- Flat lands, (Bagdad elevation 50m, 500km from the sea), dangerous rivers
- Coordinated irrigation necessary (completely different from the Nile)
- Wide plain (not Egypt)
- Cities

54

Farming conditions in southern Mesopotamia were complex (Wilkinson 2013). Even fields within the same zone could vary in quality, depending on how high they were above the saline water table in the adjacent marsh. The overriding factor, however, was the dependency of cultivation on rationed water, which was controlled upstream, and which could have been directed elsewhere. Farmers were thus completely dependent on the local elite who controlled the flow of water at various canal junctures. In turn, the elaborate canal system provided basis" (Hunt 1987, 172). Unlike the case of Egypt, the local managing elite in southern Mesopotamia were thus indispensable and irreplaceable. In other words, we interpret farming activity in southern Mesopotamia as rather opaque to any distant central government. Consistent with prediction (3), this opacity explains why the local elite in southern Mesopotamia were extremely resilient, and why strong cities were one of the most distinctive features of Mesopotamian civilization. Thus, even when an early city-state in southern Mesopotamia managed to conquer a competing city-state, it still needed the cooperation of the elite of the subjugated city to obtain ongoing tax revenue from the conquered territory. It was the specific knowledge possessed by the local elites, we contend, that assured the autonomy of southern Mesopotamian cities.

Accordingly, we categorize farming activity in southern Mesopotamia as highly transparent to the local elite. Consistent with prediction (1), we contend that this transparency explains why owner-cultivated farming was practically nonexistent in southern Mesopotamia. As in Egypt, cultivation was conducted by sharecroppers, who were overseen by a hierarchy of intermediaries, under the ultimate control of dominant elite families who resided in the urban centers and controlled each city's temple (Renger 1995; Liverani 2006).[27] In accord with prediction (2), this high local transparency explains why powerful early city-states were able to form and to persist in southern Mesopotamia. Indeed, once irrigation agriculture was introduced, it led to relatively rapid development of civilization. More than 30 major city-states have been identified in southern Mesopotamia in the late fourth and third millennia BCE. Writing originated in about 3200 to 3100 BCE in the largest of these cities, Uruk, when its population reached about 20,000 (Yoffee 2005, 43).

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This helps explain why several aggressive attempts to unify southern Mesopotamia under one of the rival city-states in the third and second millennia BCE ended in failure after a relatively short period—in marked contrast to the quick and durable unification of Egypt. The rival city-states of southern Mesopotamia fought each other periodically for a millennium before they were first consolidated under Sargon of Akkad in about 2350 BCE. However, Sargon's central state lasted less than two centuries and started to disintegrate well before that. In about 2100 BCE, another territorial state was formed, under the third dynasty of the city of Ur. This highly oppressive and bureaucratic state lasted only one century before it too collapsed. The next territorial state was established by Hammurabi of Babylon in 1790 to 1760 BCE, but it weakened substantially under his heirs and collapsed by about 1600 BCE. Thus, until the first millennium, Mesopotamia was ruled most of the time by rival city-states, with only brief intermittent periods of a central territorial state.[28] Our explanation of this historic pattern is consistent with Yoffee's (2005) description of the fate of Sargon's earliest central state. According to Yoffee, Sargon was well aware of the intermediation problem. When he ascended to power, he sought "to disenfranchise the old landed aristocracy" (p. 37). But after conquering the diverse city-states in southern Mesopotamia, he ruled them through appointed "royal officials, who served alongside the traditional rulers of the conquered city-states" (p. 142). It was this "uneasy sharing of power . . . [that] led to a power struggle" and to the ultimate demise of Sargon's territorial states (Yoffee 1995, 292–93; 2005, 143).

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Network of canals

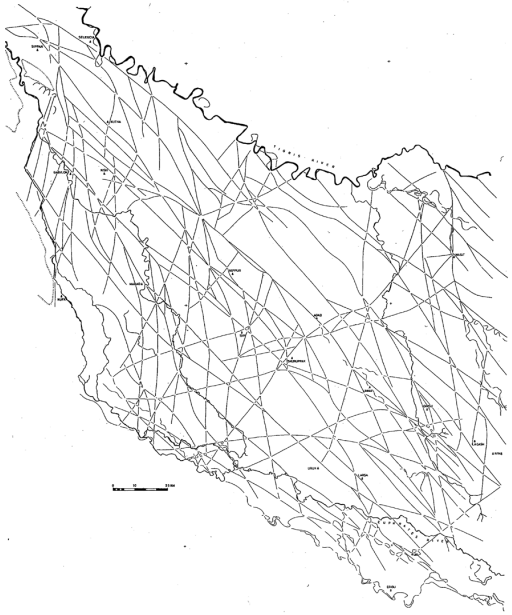
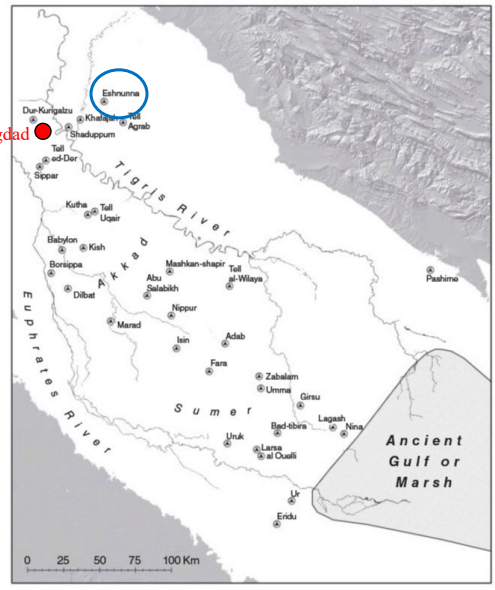


Fig. 6. Major ancient levees identifiable in LANDSAT imagery.

57

Southern Mesopotamia

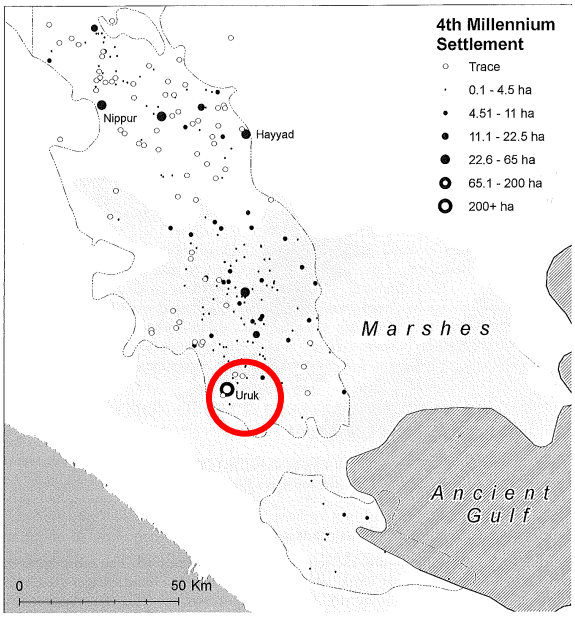


Source: Ur (2013)

Terrain above 100m is shaded

58

4th Millennium Settlement



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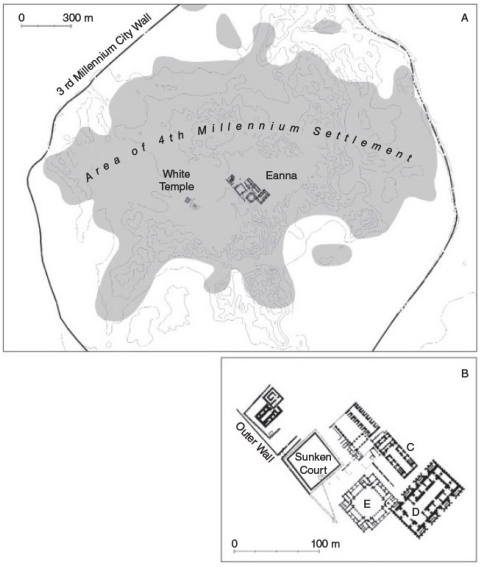
Cities

- Definition?
- Buildings for common function
  - Burial
  - Palace
  - Temple

Uruk c. 3100 BC



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Uruk

"Unfortunately, almost all objects found in the great structures at Uruk were in a secondary context and cannot be tied directly to them. These include the world's first written documents, clay tablets (the so-called Archaic Texts) with a pictographic script (Englund 1998). The 5,400 tablets recovered are primarily concerned with economic matters and record great quantities of sheep, agricultural products, beer, and land. They are often assumed to be the economic records of temples, but this assumption is complicated by their secondary archaeological context"

Jason Ur (2012)

61

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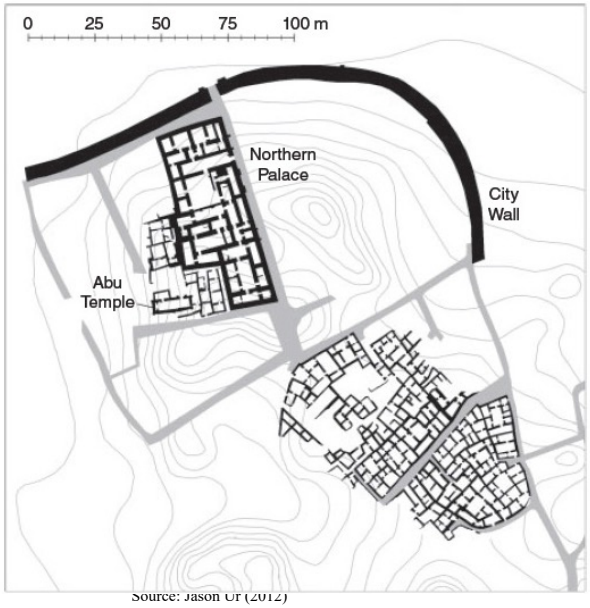
Urban fabric in Eshnunna (2200 BC)



Source: Jason Ur (2012)

62

62

Invention of writing

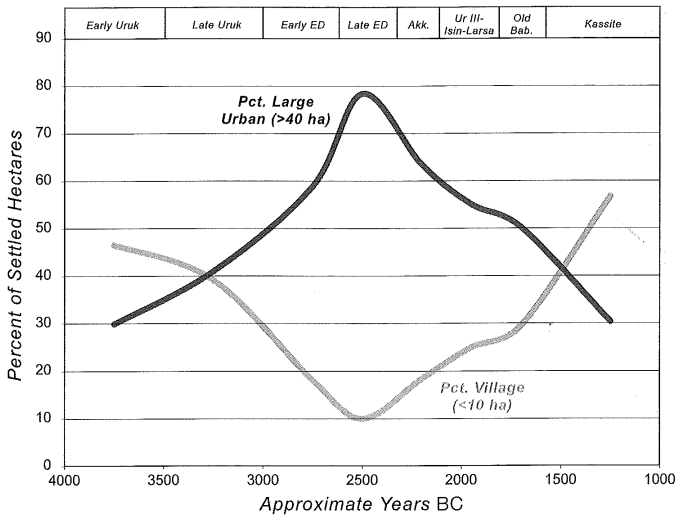
- around 7500 BCE, tokens for accounting
- ~ 3400, bullae (clay balls) for token
- ~ 3300, pictograms on boxes
- ~ 3200, tablets with numbers and logograms

~ 3000 BCE

63

Urbanization and ruralization

Note the minimum scale for a city



Urban > 40 ha. Rural <10 ha.

64

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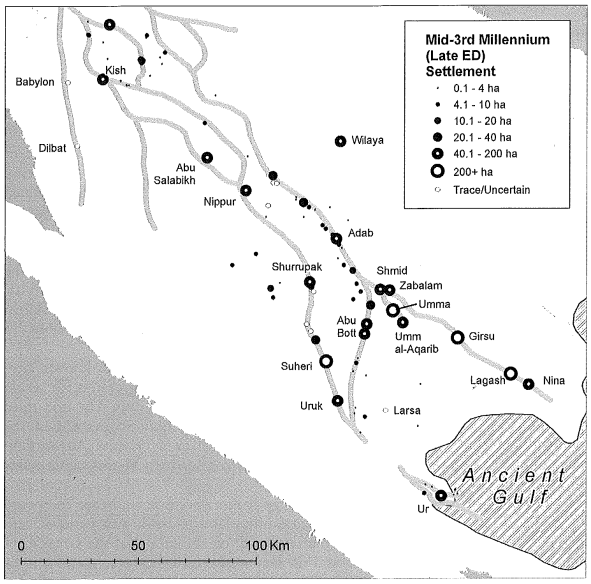
Competing cities 2600-2100 BC



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Contracts and private property

Sale of Real Estate, Sumer, around 2000 BCE

Sini-Ishtar, the son of Ilu-eribu, and Apil-Ili, his brother, have bought one third Shar of land with a house constructed, next the house of Sini-Ishtar, and next the house of Minani; one third Shar [about 400 sq ft] of arable land next the house of Sini-Ishtar, which fronts on the street; the property of Minani, the son of Migrat-Sin, from Minani, the son of Migrat-Sin. They have paid four and a half shekels of silver, the price agreed. Never shall further claim be made, on account of the house of Minani. By their king they swore. (The names of fourteen witnesses and a scribe then follow.) Month Tebet, year of the great wall of Karra-Shamash.

66

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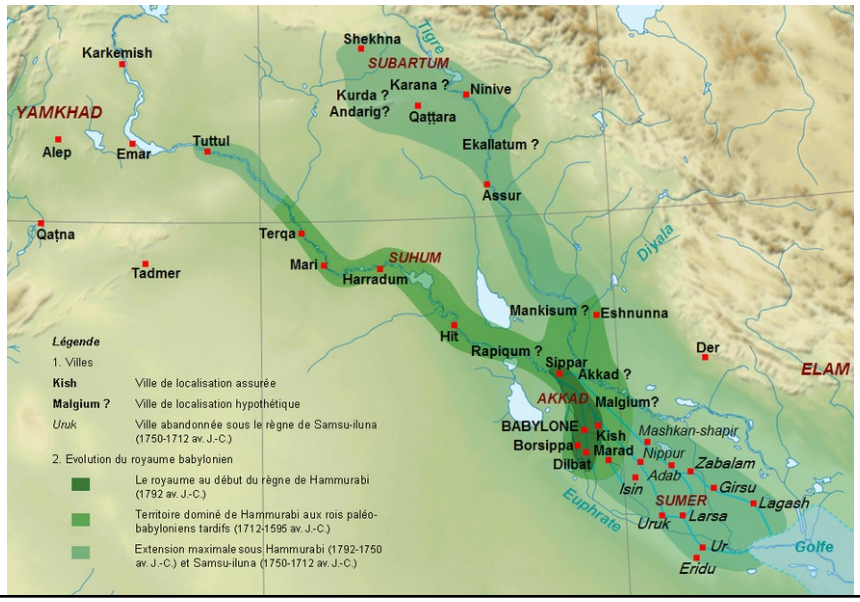
Empire: Hammurabi (~ 1750)



67

Justice

- Code of King Ur-Nammu (2250 BC)
  - Probably, encoding of previous rules
- Code of Hammurabi (1792-1750 BC)
  - 282 cases
  - Very harsh punishments: "an eye for an eye."
- Demonstration of private property rights
- God Shamash (sitting) legitimizes King Hammurabi (left)

Louvre museum

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Extension of the argument

- 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.

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. Our empirical investigation, utilizing multiple data sets spanning several millennia, demonstrates a causal effect of the cultivation of cereals on hierarchy, without finding a similar effect for land productivity. We further support our claims with several case studies.

69

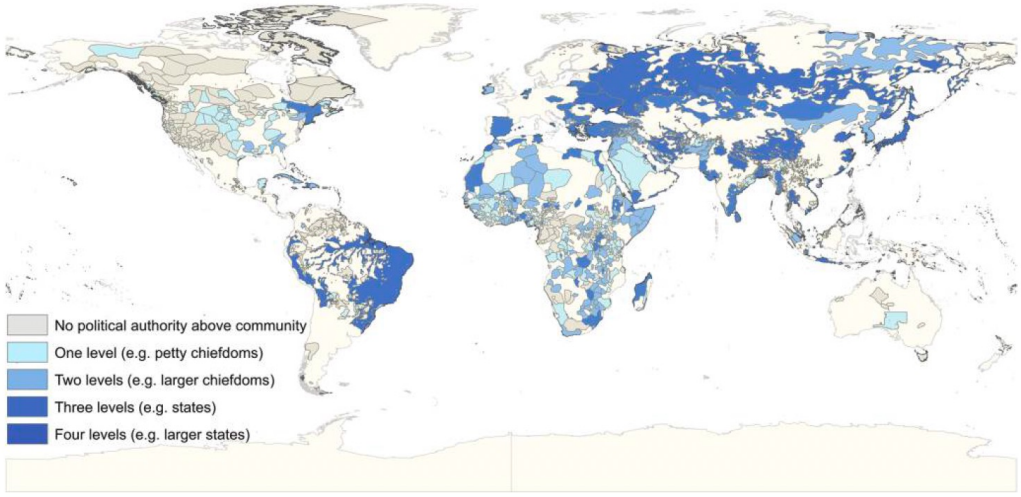
- Some regions had "complex hierarchies" after the develpment of agriculture
- "It is surely striking that virtually all classical stateswere based on grain. . . . History records no cassava states, no sago, yam, taro, plantain, breadfruit, or sweet potato states (Scot, 2017, *Against the Grain: A Deep History of the Earliest States*).
- Hunter-gatherers: no taxable surplus (…)
- Agricutlture
  - Cereal grains: …
  - Roots and tubers
    - Cassava: harvested year-round, not storable.
- Main prediction of the argument:

  a state can exist only if cereals are sufficiently more productive than tubers.

70

Data

- Murdock's (1967) *Ethnographic Atlas* (or Ethnoatlas)
  - 1,267 societies from around the world.
  - information on cultural, institutional, and economic features
  - Use variable *hierarchies*: 5 types up to "large state"



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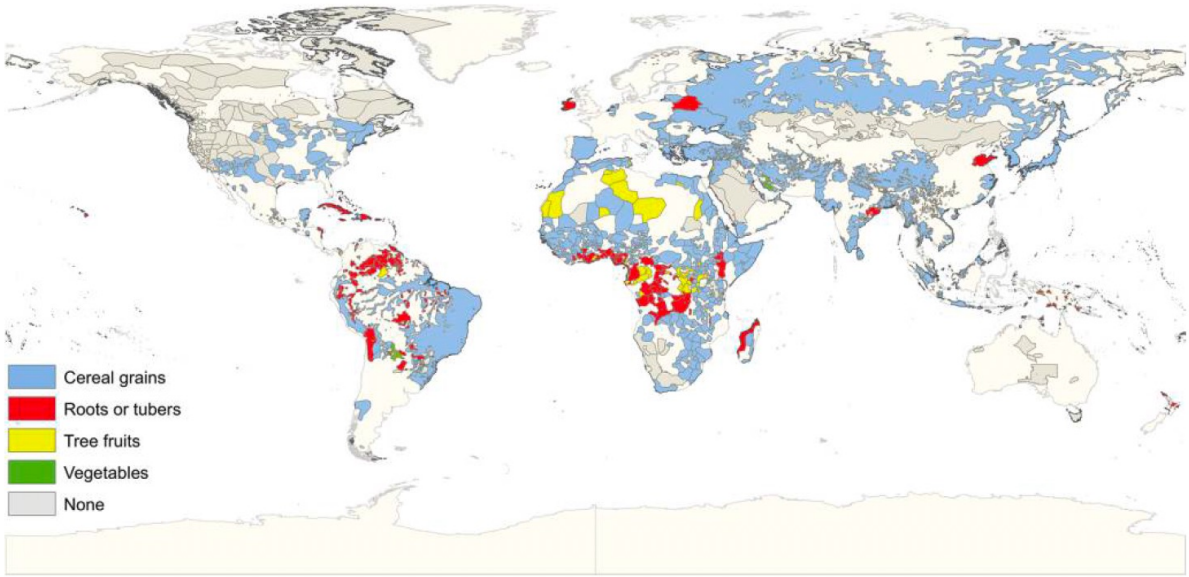

FIG. 2.—Major crops in preindustrial societies.

72

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

- Discussion in the paper a bit weak.
- Two "cluster theories"
  - Cooperation in a social contract
  - Extraction
- Both?
- Group, associations. (Aristotle, "man is a political animal").
- Religion, community

73

73

Potential contribution of the paper

- Where do states form?
- When?
  - Related to agriculture
    - Surplus, extractable (Mayshar et al., JPE 2022)

In sum, although cooperation-based theories are prominent in the theoretical literature, most empirical studies have focused on the relationship between the presence of the state and various measures of incentives for extraction. The contribution of our paper is to try to distinguish between the two clusters of theories.[19] We predict that states will form where the returns to cooperation are high enough. The returns to cooperation may depend on many factors, and we use river shifts to exogenously increase them.

- Incentive for the state to be efficient?
- Stalinist coordination meets a "demand"

74

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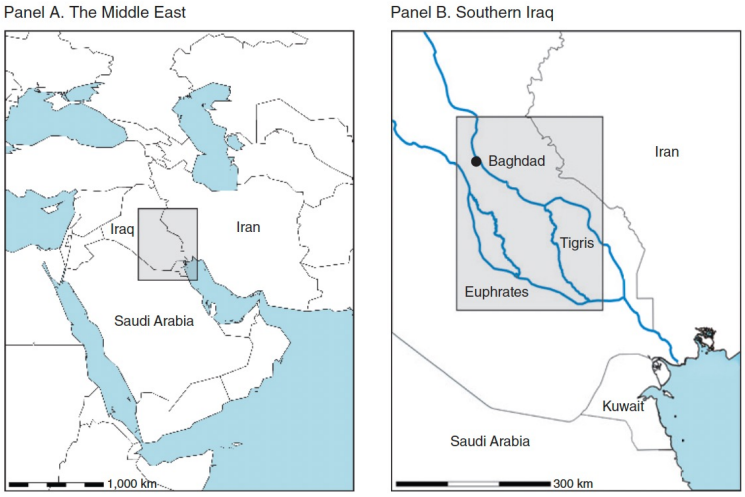

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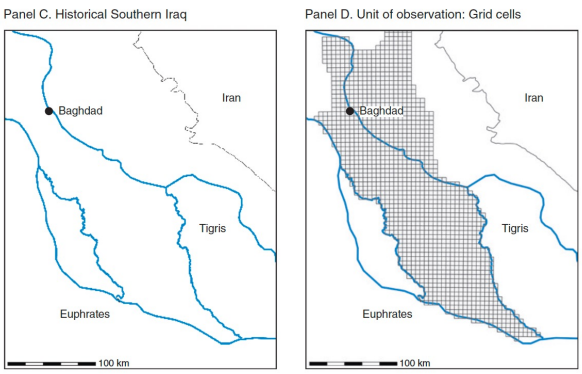
Expectations of the study

- A river shifting away should have three main effects:
  1. communities form states where the river shifted away
  2. observe the provision of public goods and services.
  3. resources flow to the government.

- Grid cells 5x5km
- Cells affected by river shifts
  unaffected,
  the shift.



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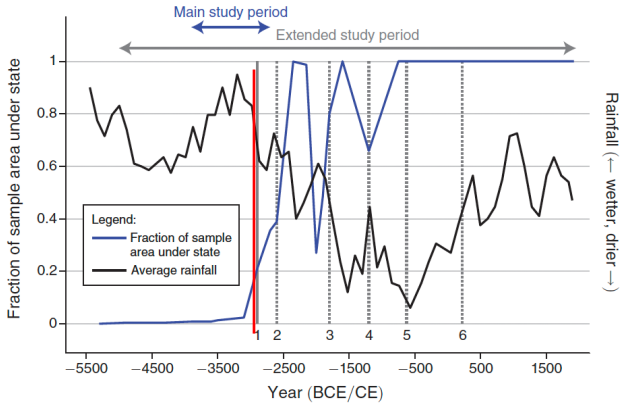
River shifts

- Main study, 2850 (dated by documents)
  - Last of 5 sub-periods 3900-2700
  - Previous periods included for tests about trends of causality



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Measurement

- Main study: river shift in 2850BC
- Treatment: treated cell: on the rive in period t-1, no longer in t.
  - River shift 30-40 km.
- Outputs
  - Villages and cities
  - States and bureaucracy
  - Public good provision and public administration
  - Tablets

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DATA

- Archeological ”sweep survey” avoids some of the selection biases
  - Sample
    - excavation
  - Treatment
    - Where rives shifted
  - Hypothesis
    - Archeologists search with preconceived ideas
- Exogenous shocks: river shifts
  - Some examination on the reverse causality (cities could prevent river shifts).
- Definition of ”states”? (Buildings, borders…)

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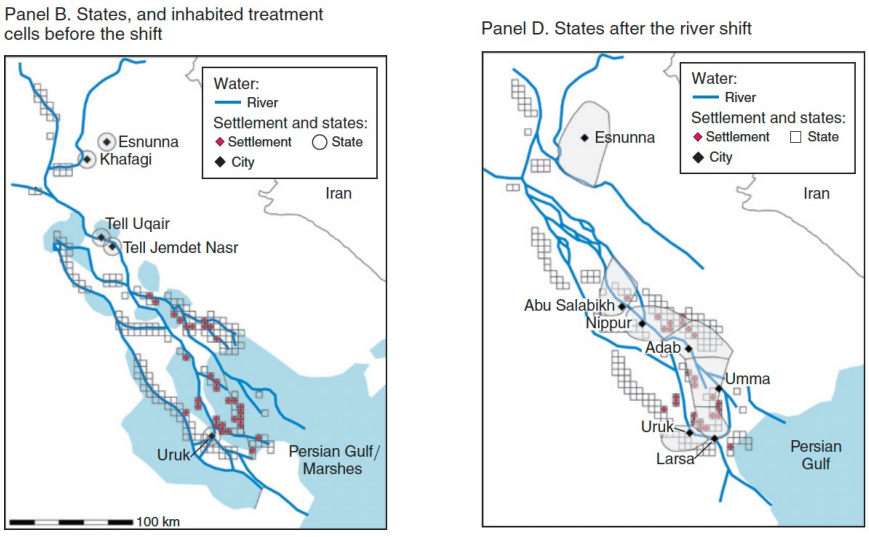
Intuitive illustration (main study)



80

Results

TABLE 3—MAIN RESULT: A RIVER SHIFT LEADS TO THE FORMATION OF NEW STATES

Dependent variable:	Under city state (yes/no)		New state (yes/no)	Existing state (yes/no)
	(1)	(2)	(3)	(4)
River shift (*yes/no*)	0.14	0.16	0.11	0.02
	(0.04)	(0.05)	(0.04)	(0.02)
	[0.03]	[0.04]	[0.03]	[0.01]
p-value pretrend	0.23	0.26	0.24	0.84
Mean dependent variable	0.06	0.12	0.03	0.03
Observations	4,631	4,424	4,631	4,631
Clusters	932	932	932	932
Using reconstructed borders	Y	N	Y	Y

However, the main effect in column 1 is entirely driven by new states. This result is consistent with communities forming states to solve the coordination problems created by a river shifting away.[45]

81

81

Results

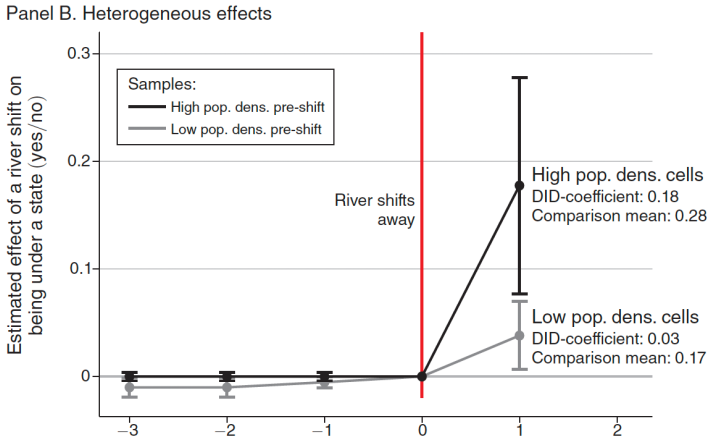


FIGURE 5. THE EFFECT OF A RIVER SHIFT ON STATE FORMATION

82

82

Output of the state public good

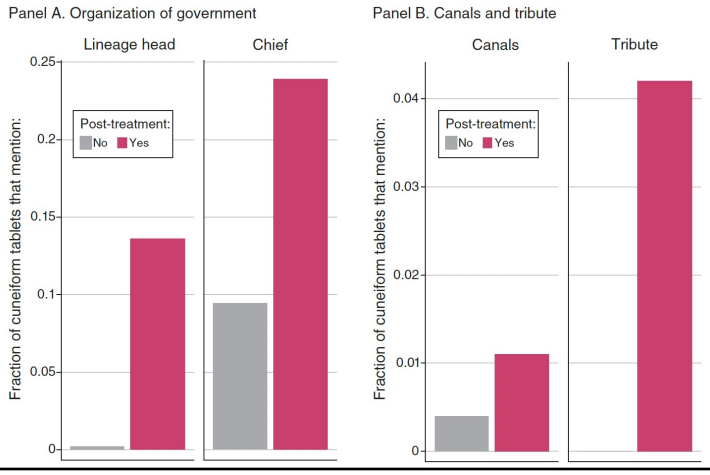
- Canal: output is 1 when the center of the cell is within 5km of a canal.
- The other indicators are about the nearest city.
  - Tribute measured by the presence of tablets

	Public good provision (yes/no)		Administration	
Dependent variable:	Canal (1)	Wall (2)	Tribute (yes/no) (3)	N. admin. build. (4)
River shift (*yes/no*)	0.12	0.11	0.21	0.44
	(0.03)	(0.04)	(0.06)	(0.15)

83

Internal organization of the state

although likely of inferior rank compared to the *lugal*. For both *lugal* and *gal* we record the fraction of tablets that mention either. In addition, we record the fraction of tablets that mention canals and tribute, both to validate our approach to using these tablets as well as an additional way to measure cooperation. A complication



84

- Allen, Robert C. (1997). “Agriculture and the Origins of the State in Ancient Egypt.” Explorations in Economic History 34 (2): **135–54**.
- Allen, Robert, C., Mattia C. Bertazzini, and Leander Heldring (2023). “The Economic Origins of Governments,” *American Economic Review*, 113(10): **2507-2545**.
- 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**.

Next week:

- Van Zanden, Jan Luiten, Eltjo Buringh and Maarten Bosker (2012). “The rise and decline of European parliaments, 1188—1789,”*The Economic History Review*, Vol. 65 (3), 835-861.
- Angelucci, C.I S. Meraglia and N. Voigtländer (2022). "How Merchant Towns Shaped Parliaments: From the Norman Conquest of England to the Great Reform Act," *American Economic review*, 112(10), **3441-3487**

85

85