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Domestic Material Culture and Wealth: Equality Bronze Age Houses and Intramural Tombs at Tiriş Höyük, Turkey

Abstract

This article measures differential accumulation of material wealth between houses at the intrasite level. The dwellings measured are located in two separate residential neighborhoods at the urban settlement of Tiriş Höyük in southeastern Turkey. As proxies of the measurement, the author employed various architectural spaces, built-in features, and portable artifacts exposed from primary floor contexts, as well as grave inclusions from burials within the houses that were completely or partially excavated. Gini values are calculated for thirteen variables derived from the material culture. The results show that occupants of the houses shared a similar economic status from about 2300 to 2100 BCE. It is thought that a centrally planned construction of this settlement around 2300 BCE played a role in the more or less equal wealth distribution. This type of comparative research necessitates a fine-grained excavation record of domestic floors and intramural tombs, both of which are available at Tiriş.

Keywords

household archaeology, economic inequality, Gini coefficient, Tiriş Höyük, northern Mesopotamia

Disciplines

Archaeological Anthropology | Near Eastern Languages and Societies | Social and Cultural Anthropology



Domestic Material Culture and Wealth Equality

Bronze Age Houses and Intramural Tombs at Titiş Höyük, Turkey

Yoko Nishimura

Goats in front of the high mound of Titiş Höyük; photograph by David Dorren.

Archaeologists are particularly well equipped to examine the emergence and development of economic inequality over a long duration across wide regions. Previous analyses of inequality in Mesopotamia have tended to center around comparisons between different settlements or regions through time (e.g., Stone 2018; Basri and Lawrence 2020; Squitieri and Altaweel 2022). Particularly deserving of more scholarly attention is the difference in economic status among a nonelite population within an ancient urban settlement in Mesopotamia, where nonelite populations tended to occupy the vast expanse of residential areas. The question addressed in this paper is if urban living quarters were homogeneous for status, or if wealthy and less wealthy lived side-by-side within the same neighborhoods.

This work measures wealth inequality using finely excavated houses from two residential neighborhoods. Seven houses are drawn from the third-millennium BCE urban settlement of Titiş Höyük in southeastern Turkey (fig. 1). To measure wealth levels, I employed various proxies such as architectural spaces, built-in features, and domestic artifacts exposed from primary floor contexts, as well as grave goods from intramural burials. Using the statistical model of the Gini coefficient, I calculated Gini values for thirteen variables based on the material culture. The results show that, when a planned construction of the settlement took place around 2300 BCE, occupants of the dwelling structures started off with a similar economic status. During the course of

the two-hundred-year occupation, built-in features and portable artifacts testify to continuity of a high degree of equality across the houses. At the same time, copious data for sherds and grave inclusions suggest distributive patterns that are more associated with noneconomic factors. It is thought that a centrally planned construction of this settlement played a role in the more or less equal wealth distribution across the excavated areas.

Archaeological Investigation of Economic Inequality

As a proxy for economic inequality, wealth differentials are archaeologically visible. Monique Borgerhoff Mulder and colleagues (2009) distinguish three types—embodied, relational, and material—as transmissible wealth from generation to generation. Material is the most important and recognizable form, compared to the other two, in agricultural and pastoralist societies (E. Smith et al. 2010). Therefore, many researchers who study complex societies assess inequality through the material form.

Some researchers investigate the development of wealth disparity at the macro scale, including spatial analyses across expansive geographical regions, temporal analyses elucidating diachronic changes, or a combination of both (e.g., Gurven et al. 2010; Shenk et al. 2010; Kohler et al. 2017; Bogaard, Fochesato, and Bowles 2019; Fochesato, Bogaard, and Bowles 2019). Others address the extent of disparities within contemporary neighborhoods at the household and intrasettlement levels (e.g., Folan et al. 2009; Chase 2017; Prentiss et al. 2018; Hutson and Welch 2021).

Since the household is the most basic social unit of analysis, certain types of data, such as house size, interior space,

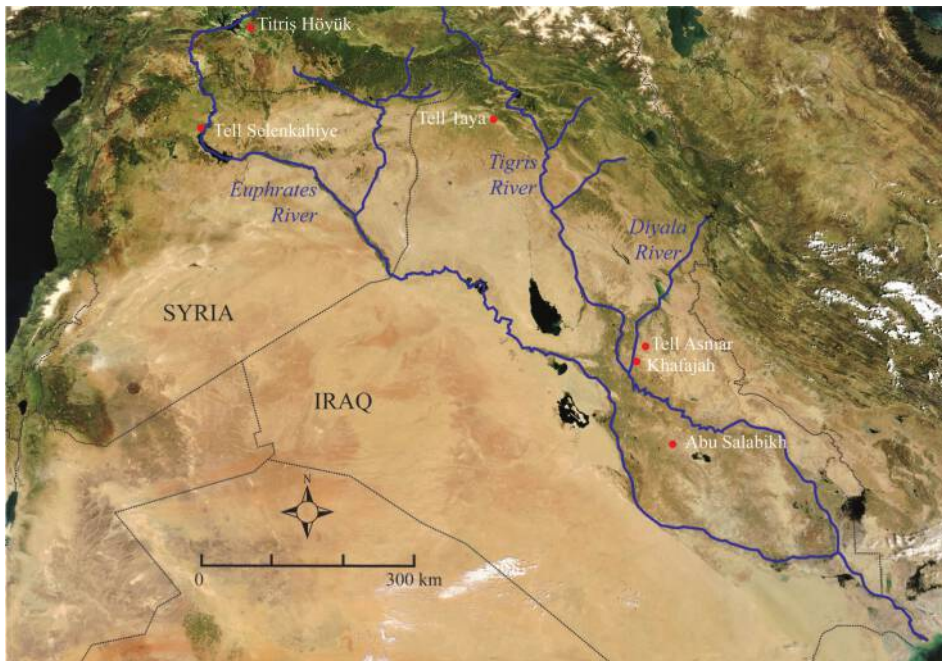


Figure 1. Location of Tiriş Höyük and other third-millennium urban settlements in northern Mesopotamia; base image by NASA.

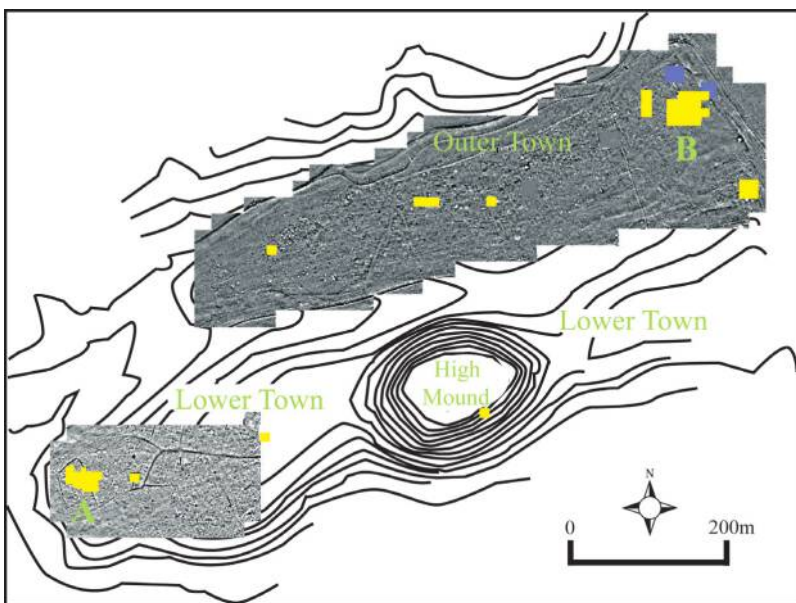


Figure 2. Site plan of Tiriş Höyük. A and B are two extensively excavated areas. Areas in gray (Outer Town and Lower Town) are where magnetic field gradient surveys were conducted.

courtyard presence or absence, and built-in features, facilitate geographical and temporal comparability. In particular, a growing number of recent archaeological studies primarily utilized the size of residential structure, especially floor area, as the main indicator of wealth (e.g., Kohler and Higgins 2016; Porčić 2019; Ames and Grier 2020; Fargher et al. 2020; Hutson et al. 2021). Other proxies to measure ancient inequality include grave architecture, domestic storage size and capacity, as well as labor cost and material volume for house construction. Also, the statistical model of the Gini coefficient has become a widely used tool to measure quantitatively the economic distribution at archaeological sites (e.g., Windler, Thiele, and Müller

2013; M. Smith et al. 2014; Kohler and Smith 2018; Ellyson, Kohler, and Cameron 2019). A Gini value is based on a Lorenz curve that plots wealth share against percentiles of the population. The Gini ranges from the lowest value of zero representing perfect equality to the highest value of one representing absolute inequality. Previous works have pointed out a relatively low degree of inequality within urban residential neighborhoods in Mesopotamia during the second half of the third millennium BCE. For example, Pertev Basri and Dan Lawrence (2020) give Ginis of 0.35 and 0.27 for private dwellings, excluding palatial structures, at Tell Asmar, 0.17 for houses at Tell Taya, and 0.31 at Tell Selenkahiye. Elizabeth Stone (2018, 252) also shows a Gini of 0.37 for those at Tell Asmar, Khafajah, and Abu Salabikh dating to this time period.

This article advocates scholarly attention to examine if wealthy and less wealthy lived side-by-side and were spatially integrated. For this goal, this study emphasizes the importance of employing multiple variables as proxies to address the economic levels between houses. Archaeological works measuring uneven distribution of wealth based on various types of features and artifacts are not numerous. This type of research necessitates a fine-grained excavation record of domestic floors and intramural tombs, both of which are available at Tiriş. In particular, this enabled the examination of the accumulated sherd data in different contexts at this site.

Tiriş Höyük

In the mid-third millennium BCE northern Mesopotamia and its surrounding regions experienced a second surge of urbanism that resulted in the rapid growth of dozens of densely populated urban centers. Tiriş reached its maximum occupation area of about forty-three hectares in the mid-third millennium BCE (Algaze et al. 2001; fig. 2). A centrally planned construction at a suprahousehold level took place around 2300 BCE at this site, which built a massive wall on the eastern edge of the city and confined the settlement area to thirty-five hectares. The reconfiguration project is also seen in the preplanned nature of terracing, drainage, and street systems implemented before numerous dwelling structures were built upon or between them.

Magnetometry surveys were conducted across two sections that surround the high mound at Tiriş

(fig. 2). Visualized representations of the magnetometry data show plans of architectural structures and lines of streets in a crowded environment during the latest phases of occupation around 2100 BCE. Extensive horizontal excavations at this site brought to light two nonelite residential neighborhoods (“A” and “B” in fig. 2). These sectors were located at opposite ends of the site about nine hundred meters apart, but they contained very similar architectural structures and features.

Five houses were almost completely excavated (Houses 1, 2, 3, and 4 in the Outer Town and House 5 in the Lower Town), and two more were partially excavated (Houses 12 and 14; fig. 3). The absence of architectural features and artifacts such as thick walls with decorative niches, religious altars, podiums, and record-keeping devices allows for distinguishing these structures as private buildings. Material remains within the buildings are largely domestic in nature, including ovens, grinding stones, cooking pots, and garbage pits. Items distinctively associated with elite status are largely absent, although such valuable items may have been removed when the occupants abandoned the houses.

The occupants of the residential structures, except for House 2, used one or two cist tombs built underneath floors for burying some of their family members (fig. 3). The intramural tombs were usually built in the large rooms or courtyards, and the practice of depositing multiple interments in these cist tombs is well documented (Honça and Algaze 1998: 120–22; Laneri 2014).

It is expected that the degree of economic inequality was low among the houses at Titiş since a number of previous studies on the architectural, artifactual, floral, and skeletal data have pointed to a relatively homogeneous status. The overall similarity in the use of domestic space and everyday activities based on features and artifacts has been noted (Nishimura 2015). Mette Hald’s (Algaze et al. 2021: 39–44) comparative analysis on the paleobotanical data shows similarities in the types and the relative proportion of plants, as well as uniformity in the processing of crops across the houses. Benjamin Irvine’s (Algaze et al. 2021: 33–38) stable isotope analysis on dietary habits and subsistence practices also concluded that the occupants consumed similar foods in terms of relative amounts and proportions of plant and animal proteins. Timothy Matney and colleagues (2012) conducted a pilot study on the genetic relatedness of the individuals buried in the intramural tombs at this site. Even though the sample size was small, their result shows that

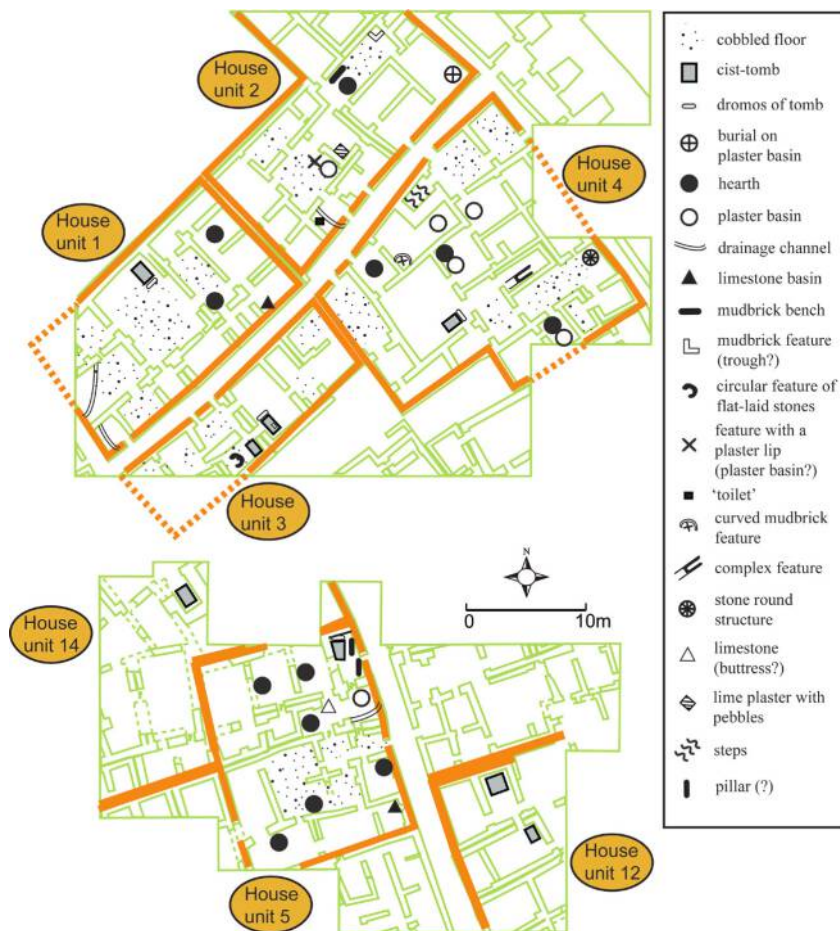


Figure 3. Two horizontally excavated residential quarters. Architectural features excavated on the house floors of Houses 1, 2, 3, and 4 in Outer Town (top) and Houses 5, 12, and 14 in Lower Town (bottom).

the mtDNA sequence had little intragroup variation among the individuals in the two neighborhoods. Contrary to these results is Haskel Greenfield’s (Algaze et al. 2021: 44–52) argument that, by investigating the faunal remains, there was significant difference in terms of the distribution of domestic and wild animal resources and disposal behaviors between the two living quarters.

The reconstruction of the residential areas at Titiş may have concomitantly created clusters of neighbors with a similar economic status. Central planning as one of the driving forces that promote social clustering has been suggested (York et al. 2011: 2404–5). The preplanned project, intentionally or unintentionally, generated economic divisions within the city. It is conjectured that the elite and more wealthy population lived in other locations at this site, such as near the high mound.

Measuring Material Wealth Disparity from Titiş Houses

At Titiş, excavation of the residential quarters recovered large amounts of diverse remains from the floor levels. The assemblage exhibits similar types and amounts of material culture across the houses. Built-in architectural features included fire installations, intramural tombs, cobbled floors, door sockets, drainage channels, plaster basins, benches, shelves, and pits (fig. 3). Portable artifacts unearthed from the primary house floors (defined as “floor and in situ” and “suprafloor” [ca. ten centimeters above the floor and in situ level])



Figure 4. Examples of pottery recovered from the excavated houses; photographs by the Titrış Höyük Archaeological Project.



Figure 5. Examples of stone tools recovered from the excavated houses; photographs by the Titrış Höyük Archaeological Project.

were mostly utensils for food preparation; personal items and ornaments; ceramic containers and terracotta lids; and weaving, spinning, and sewing tools (figs. 4–6). Many of the artifacts were stored collectively in courtyards or in small rooms in the back of the residential buildings.

In addition to complete pots, many pottery sherds of the same pottery types were collected from both the floors and the intramural tombs. Although the remains of the grave inclusions were dominated by ceramic pots, the funerary artifact types resemble closely those found in the house contexts (Nishimura 2015; figs. 7–8). It seems that the occupants recycled their mundane items that had once been used in daily life and deposited them when they buried deceased members of the family. Using the architectural features and artifacts, I selected thirteen economic variables to measure the degree of material wealth (see [supplementary materials](#)):

- house size with walls;
- house size without walls;
- courtyard size;
- number of rooms;
- built-in architectural features;
- tools and ornaments;
- clay vessels;
- ceramic sherds by count;
- ceramic sherds by weight;
- tools and ornaments from cist tombs;
- clay vessels from cist tombs;
- ceramic sherds by count from cist tombs;
- ceramic sherds by weight from cist tombs.

The use of house size, both with or without walls, as the main indicator of wealth has been employed for ancient settlements in the Near East (e.g., Stone 2018; Basri and Lawrence 2020; Squitieri and Altaweel 2022). This study also considered courtyard size as an economic proxy, since Stone (2018: table 9.2) presents a strong correlation between courtyard size and house size in excavated Mesopotamian sites. Number of rooms was also incorporated as it likely reflects the affordability of storage rooms. The validity of the use of built-in features and domestic artifacts at the house level has been discussed in detail (Olson and Smith 2016; Smith 1987). However, owing to the small sample sizes for the features, intact pots, tools, and ornaments, it was not feasible further to subdivide these categories to make them more overt measures of wealth differences (e.g., bronze and silver objects, decorated pots, and “toilet” facilities).

The large dataset for sherds, on the other hand, made it possible to test decorated and undecorated pottery groups separately given that



Figure 6. Examples of other artifacts recovered from the excavated houses; photographs by the Titriş Höyük Archaeological Project.

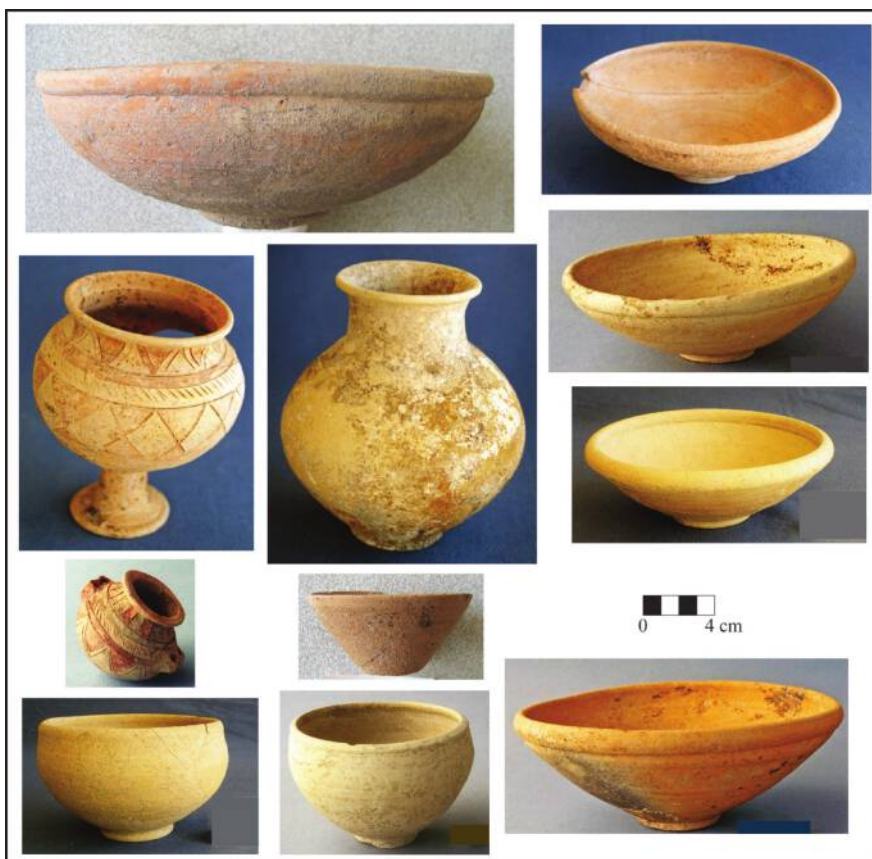


Figure 7. Examples of pottery recovered from the intramural tombs; photographs by the Titriş Höyük Archaeological Project.

the former may be more sensitive to wealth disparity. It has been argued that ceramic serving ware is a strong indicator of household wealth (Smith 1987). At Titriş, nevertheless, the distributive pattern of the decorated and finer wares was not noticeably different from that of the undecorated and culinary wares in both the floor and grave contexts. The pottery proxies were, therefore, separated only between

the intact and fragmentary groups. The distribution of the pottery sherds was examined by both count and weight, since a large sherd count may be attributed to a highly fragmentary condition of a few vessels, while differences in sherd weights among lightweight pots (e.g., small cups) may not be sufficiently prominent to evaluate patterns of their quantitative distributions.

The artifact assemblage in the dwelling contexts was taken only from the primary floor levels, while the burial contents were reconstructed from both the bottoms and the fills of the tombs. House 2 was used only for its domestic assemblage because there was no cist tomb found in this house. Houses 12 and 14 were included only for their grave goods because these structures were only partially exposed. Other houses were used for the wealth comparison in both the domestic and mortuary contexts.

Portable objects found in fragmentary condition were counted as whole objects so long as they were not from the same item. It is assumed that the material culture in each of the variables required labor and monetary investment by the occupants of the residential structures who made, procured, or maintained it. Different types of architectural features, portable artifacts, and ceramic sherds were weighed equally in each category of the economic variables.

Domestic assemblages were subject to depositional biases in the past, particularly because household objects and waste are movable (LaMotta and Schiffer 1999). While the absence of later occupation layers greatly helped the preservation of the floor contexts, the assemblages at Titriş must have experienced varied formation processes during the course of occupation. This study is based on the premise that the remains preserved and excavated from the floor levels are not completely random and reflect the material culture that was used and abandoned there by the occupants of the houses.

The grave inclusions were calculated in proportion to the number of individuals buried in each of the cist tombs. This is because the amount of grave goods in some of the tombs was clearly inflated by how often they were reused and new contents were added. In addition, while each deceased adult was counted as one individual, I counted adolescents, children, and infants as half (0.5) for the calculation of the material wealth. This is

Table 1. Gini coefficients for the thirteen economic variables.

Material variables	Standard error (bootstrap)	Unbiased estimator of population Gini coefficient	Bias-corrected and accelerated boot strap 95% confidence interval	
			Low	High
House area with wall	0.05	0.19	0.16	0.30
House area without wall	0.06	0.20	0.17	0.32
Courtyard area without wall	0.05	0.23	0.23	0.25
Number of rooms	0.05	0.20	0.14	0.31
Domestic architectural feature	0.03	0.15	0.15	0.17
Domestic tool and ornament	0.03	0.19	0.17	0.24
Domestic clay pot	0.07	0.40	0.33	0.52
Domestic sherd by count	0.05	0.27	0.23	0.35
Domestic sherd by weight	0.07	0.35	0.29	0.49
Tomb tool and ornament	0.11	0.55	0.44	0.91
Tomb clay pot	0.10	0.53	0.41	0.69
Tomb sherd by count	0.08	0.29	0.15	0.42
Tomb sherd by weight	0.08	0.39	0.30	0.61

because there is also a pattern of a larger quantity of grave goods being associated with adult members across the family crypts. For instance, House 4 contained only a child and an infant in a small cist tomb with almost no grave goods (two artifacts and fifty-one sherds weighing only 260 g). One of the cist tombs at House 12, on the other hand, had only one adult burial in it but contained considerably more grave goods (ten artifacts and twenty-seven sherds weighing 1195 g).

Gini Values at the Tiriş Houses

Using StatsDirect, I calculated unbiased estimator of population Ginis for the thirteen variables. Owing to the small sample sizes in some of the proxies, I used bootstrapping with one hundred thousand replicates. The bias-corrected and accelerated bootstrap gave error ranges to the Ginis so that the confidence level was increased to 95 percent.

The Ginis showed consistently low values for the house area (0.19), floor area (0.20), courtyard area (0.23), number of rooms (0.20), architectural features (0.15), and domestic tools and ornaments (0.19; table 1). These six variables clearly testify that, even though House 3 is considerably smaller in size than the others, the different house size or the contents within the structures did not indicate a high level of material inequality. The bootstrapping for all of these variables recorded a relatively narrow error range (0.14–0.32) at this confidence level (fig. 9).

The Ginis for the pottery (0.40) and the sherd data from the floors calculated by count (0.27) and by weight (0.35) showed

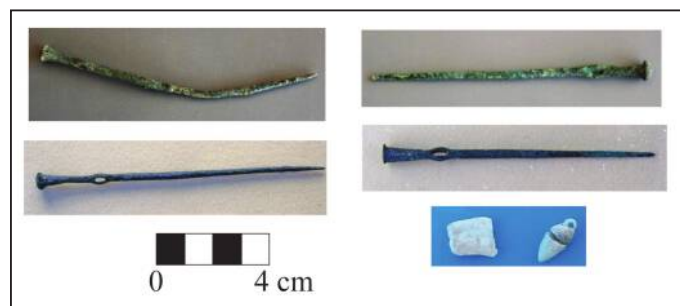


Figure 8. Examples of other artifacts recovered from the intramural tombs; photographs by the Tiriş Höyük Archaeological Project.

slightly higher values. The bootstrapping for the intact pot and sherd variables also exhibited a slightly elevated error range (0.23–0.52). The results were closely aligned with the Ginis of the sherd data from the tombs by count (0.29) and by weight (0.39). Because of the higher values of standard error (0.08), the bootstrapping ranged widely for the funerary sherd variables (0.15–0.61).

Significantly deviated from those of all other variables were the Ginis of the tomb artifacts: tools, ornaments, and intact pots. The Ginis for the tools and ornaments (0.55) and the pots (0.53) in the tombs equally point to the noticeably higher degree of material wealth difference. Owing to the higher value of standard error (0.10–0.11), the bootstrapping also ranges widely for the grave goods (0.41–0.91).

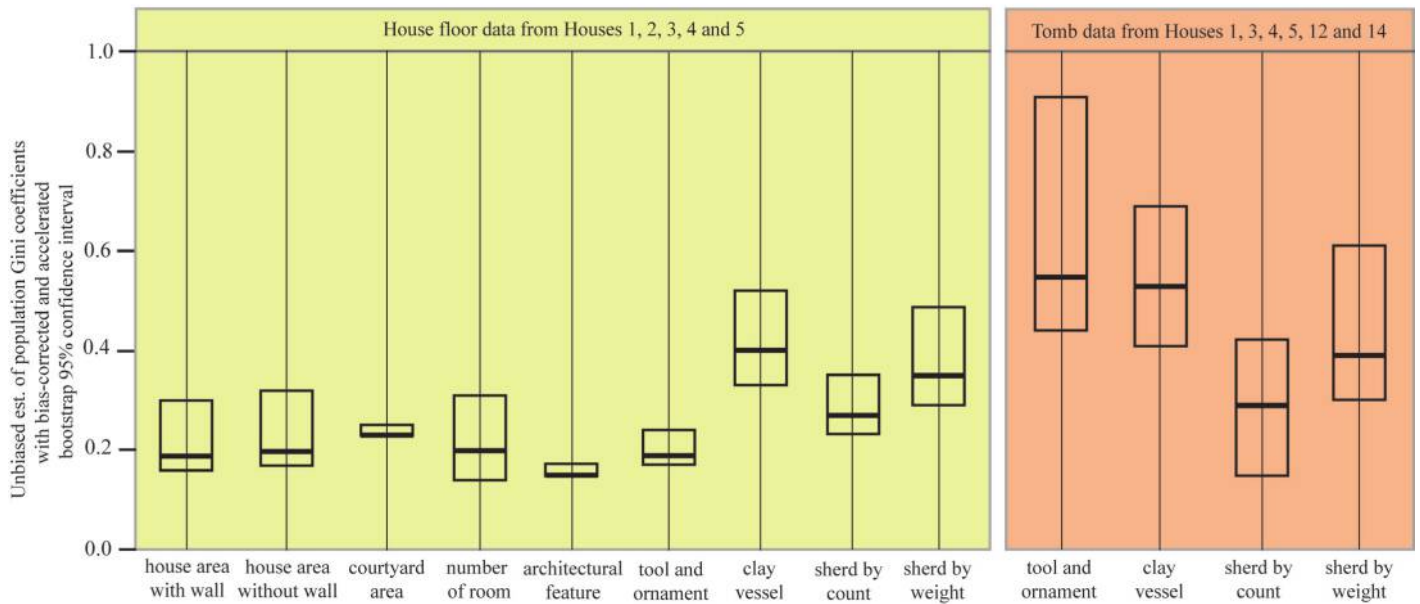


Figure 9. The thirteen Gini coefficients with bootstrap 95 percent confidence intervals.

Interpretations of the Gini Values

Based solely on the floor contents, the results are in accordance with the expectation that the occupants of the nonelite dwelling structures in the two separate neighborhoods shared a relatively homogeneous economic status. At the same time, the use of the multiple variables illuminates slight variations in wealth at different times during the two-hundred-year occupation of the houses. The high degree of equality in terms of house areas and number of rooms clearly reflects the central planning of the settlement around 2300 BCE. When the settlement was reconstructed through a preconceived plan, it seems basic lots for residential space were allotted for the private dwellings (Matney 2000). In other words, differences in construction were kept to a minimum during the reconfiguration of the settlement.

The built-in architectural features and portable artifacts may reflect the nature of the accumulated material culture during the two hundred years of occupation in the residential buildings. It is, therefore, significant that the very low Ginis for the architectural features along with home tools and personal ornaments confirm the continuation of the largely equal status from 2300 to 2100 BCE. It seems that the centrally planned construction of the settlement played a role not only in initiating the more or less equal wealth distribution but also in creating clustering of people with a similar economic status.

The slightly increased inequality in the quantity of pots from the floors and sherds must be partially attributed to preservation biases, and it does not derive from the occupants' differential acquisition of certain pottery types. The pottery assemblage is dominated by the undecorated and more practical pottery types, including plain simple ware and cooking pot ware, which seem to have been mass produced during the second half of the third millennium BCE in this region (see Algaze 1990). Along with

these everyday pots, there are other pottery types that are decorated on the surface or have finer wares, such as metallic ware, band-painted ware, combed-wash ware, reserved slip ware, and Karababa painted ware. The pottery assemblage at this site can also be divided into two groups—grit-tempered wares affiliated with the northern and northwestern Syrian tradition and cooking pot wares possibly related to central eastern Anatolian tradition (Algaze 1990: 311–33). The differential distribution of pottery, nevertheless, is not linked to any of the wares or functional types of the pottery. In other words, each house contained the different pottery types at a relatively similar ratio.

The distribution of the grave inclusions deviates from the overall picture of low economic inequality. It has been pointed out that grave goods tend to show higher degrees of economic disparity than those based on house sizes because the former represents individuals whereas the latter reflects households (M. Smith et al. 2014: 313; Fochesato, Bogaard, and Bowles 2019: 860; Porčić 2019: 374). The deviated Ginis and the wide range of standard error for the grave goods, moreover, question the validity of using these funerary items as a proxy to measure wealth. The inconclusiveness of these values reconfirms the archaeological debate that grave goods serve more than displaying status. Michael Pearson (1999), for example, states that artifacts found in graves can be possessions of the deceased, gifts from mourners, heirlooms buried with the last of the line, and items to use in economically difficult times. Heinrich Härke (2014) also emphasizes the variability of meanings and functions of grave goods, which may be remains of funerary feasts, articles related to religious beliefs in the afterlife, objects of personal identity, and biographical representation and symbolic items. Nicola Laneri (2014) argues for the symbolic value of the residential cist burials at Titiş. Deployed in ancestor worship rituals by emerging affluent merchant families, the intramural cist tombs served to

strengthen the lineages of the families. According to Laneri's interpretation, therefore, grave accompaniments in the family crypts do not necessarily reflect economic inequality.

In summary, this article centered around the interhousehold analysis to elucidate wealth disparity within the nonelite neighborhoods at the ancient urban settlement. The third-millennium site of Titiş Höyük was an ideal case in point owing to the availability of the fine-grained excavation record of both floors and intramural tombs. This study also emphasized the importance of employing multiple proxies to assess wealth among houses for a more nuanced understanding of inequality. Located in the densely crowded areas surrounding the high mound, their houses were relatively large and their domestic furniture and artifacts were very similar to each other. The nonelite population started with and maintained a largely homogeneous status for two hundred years from the preplanned reconstruction of the settlement around 2300 BCE, while simultaneously using some of their material culture in variable ways unrelated to economic differences.

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