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Marketplaces were important locations for households engaged in a domestic economy. Entrepreneurial households could accumulate wealth or offset risk by growing crops or producing goods with the specific purpose of exchanging them within a marketplace. Formal institutions operating within an institutional economy also relied on marketplaces for similar reasons; they too converted surplus and storable wealth into alternative commodities. Goods that moved through these tribute systems—such as shell, cacao, feathers, textiles, among others—thus, became available to all households provisioning themselves through marketplace exchanges. The frequency with which these costly items were consumed would, however, be conditioned by the availability of a given commodity and a household's purchasing power.

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Because of the challenges posed by the archaeological visibility of marketplaces, marketplace economies are often studied through evidence of marketplace exchange, specifically using distributional analyses of materials found in household contexts or Hirth's distributional approach. These analyses focus on household consumption patterns, although more specifically how consumed materials relate to local versus long-distance exchange networks. The distinction drawn between local and long-distance consumption directly relates to the types of exchange systems households enacted and/or were sponsored by formal institutions during market days. Regional production-distribution approaches help to characterize the nature of marketplace exchange and negate the potential contribution of reciprocity or gift giving to consumption arguments. Because marketplaces provide individual households, regardless of socioeconomic status, equal access to the same goods, the presence of a marketplace is indicated by a shared heterogeneity in consumed local and non-local goods in household assemblages. Patterns in household provisioning strategies that diverge from this baseline, then, have the potential to indicate alternative exchange networks.

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Studies employing the distributional approach frequently compare one or two variables, such as pottery or obsidian, across a large to moderate number of households what Smith and Peregrine refer to as a systematic comparison. In contrast to these applications, I apply it to an intensive comparison, a multiproxy analysis of ninety-four variables across five households at the site of Xultun, Guatemala. This approach was determined by a need to address the issue of equifinality.

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As Hirth states, "...the distributional approach may allow us only to approximate normative forms of exchange. A partial solution to this problem is the comparative analysis of multiple commodities with different use and exchange values...to reveal the multifaceted nature of provisioning networks." I respond to this with the inclusion of multiple commodities, specifically obsidian, chert, granite, quartzite, limestone, and pottery, which encompass a variety of low-, mid-, and high-valued local and imported goods widely consumed within Classic Maya society.

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In this paper, I present my application of a multiproxy distributional approach at the site of Xultun, Guatemala. After a summary of the contexts and material analyses, I will focus on an evaluation of the various exchange networks through which Xultun households and state institutions provisioned themselves.

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This comparative analysis focuses on five households from the site of Xultun, Guatemala. The identity of which merit mention. All are located with the urban core of Xultun, while also expressing variability in size and household composition. The *Taaj* group is tied to state intuitions as the household is composed of astronomers, knowledge keepers, and book makers. The *Tortugas* group is interpreted as household that managed of the city's reservoirs and intricate canal systems. I directed excavations at the remaining three groups in collaboration with Henry Perez. The *Tunil* group maintains the same footprint as these elite residences, whereas the *T'ob tunich* group is much smaller, though still containing vaulted architecture. The *Nokak* group is the largest in the sample and represents a royal administrative center and palatial residence. These socioeconomic identities will be employed as predictors of purchasing power and as a means of evaluating vertical and horizontal exchanges.

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To account for variability in the collection strategies and sample sizes, density measures are employed. Assemblages are limited to materials recovered in primary contexts (e.g., refuse disposal and contexts directly above living surfaces in final occupation levels). Using both radiocarbon dates and Xultun's ceramic chronology, I dated these assemblages to Xultun's Late to Terminal Classic period transition. Material analyses were extensive, designed to determine varieties and evaluate household consumption of local and non-local goods of varying values. As such, I sourced obsidian, chert, quartzite, granite, and limestone resources whenever possible and conducted attribute as well as functional analyses. For pottery, type-variety identifications are framed as varieties of goods consumed by a population engaged in multiple exchange networks

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Exchange Networks

Through my analysis of their household assemblages, I identify seven distinct consumption patterns, all of which suggest specific exchange networks and provisioning strategies. Let's take a deeper look at these patterns

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1.Low Density, Shared

Varieties were consumed by four to five households in low densities; however, densities were not distributed along existing social hierarchies, suggesting these resources were acquired through *marketplace exchange*.

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2.Non-Patterned Consumption

Resource varieties were consumed in low volumes by two to three groups where the distributions as well as the paired households did not create significant patterns. Perhaps with a larger comparative sample from Xultun as well as from other contemporaneous sites in the region these exchange networks would be clarified. As such, these potentially distinct networks are interpreted as *independent and/or alternative exchange networks*.

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3.Asymmetrical, Shared:

This presents as a relatively low but equal distribution among all but one household, which corresponds to an outlier with a proportionally higher density. This suggests that goods were not redistributed along social rank, but rather circulated within a marketplace. As the Nokak household is a royal administrative complex and palatial residence, we can observe strategies for marketplace management and value/price control. I argue that this pattern indicates a bureaucratic provisioning strategy where the Xultun state was *converting its surplus or tributary wealth* through *marketplace exchange*.

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4. Independent Consumption

This pattern shows a material independently consumed by one household.

The lack of variety representation may be a product of preservation, an indication of consumer agency or choice, or an engagement in alternative networks shared with households or marketplaces not represented in this comparison.

Considering the varieties independently consumed by the *Nokak* household, those with slightly higher densities are within the range of varieties that had been *wealth goods converted through the marketplace*. These varieties may indicate stored tribute or materials exchanged through an exclusive network of gift exchange among the political elite. **Thus, the varieties included here may not have been intended for conversion.** For example, one ceramic type-variety exclusively consumed in a high density is the Saxche-Palmar: Saxche-Palmar Variety, an unspecified variety of the Saxche-Palmar type that is dominant within the exclusive, palace-school exchange network. These patterns of independent consumption are interpreted as evidence of *independent exchange networks*.

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5. Limited Consumption

I identified three limited networks. The first illustrates a shared distribution between two households, suggesting they were part of a *horizontal exchange network* that excluded other households.

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The second and third present patterns that vary from resource to resource. This variability makes evident the complexity and entanglement of coexisting exchange networks. Although the resources are exclusive to these networks, the lack of consistency in distribution patterns does not indicate a *horizontal exchange network* that excluded other households. Instead, these patterns are understood as *marketplace exchange* and *limited horizontal exchanges*, depending on the given resource.

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6. Irregular, Shared

Here, the flow of goods consumed by four to five households creates a distinct pattern that does not follow existing social hierarchies. In some cases, goods flow from the *Nokak* household to the *T'oh tunich'* household or vice versa. It is possible that these resources reflect household occupation or surplus storage and thus a potential for *wealth conversion* as well as purchasing power and *marketplace exchange*.

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7. Social Hierarchies, Shared

The last pattern shows the flow of goods that follow existing social hierarchies. This may reflect a vertical exchange network or differences in purchasing power and marketplace exchange. As Hirth explains, marketplace exchange is differentiated from vertical exchange by the overall patterning in the distribution of multiple goods of different values: all households, regardless of status, would consume a shared diversity of goods of all values.

Let's consider the diversity of consumed value within each assemblage to contextualize this pattern and determine its implications for the Xultun economy...

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To accomplish this, I estimated values for each material variety based on use, occurrence, and trade network. I then categorized each resource variety by its average estimated value in terms of being a low-, mid-, or high-value good and summed a household's consumption of those varieties. I also conducted exploratory statistical analyses to evaluate the significance of these findings.

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These results illustrate that all households consumed a shared diversity of low-value goods, whereas variability is present within the mid- and high-value categories. All households, for example, consumed differing diversities of mid-value goods; however, most households consumed a similar diversity of high-value goods whereas the *Nokak* household consumed a significantly higher diversity.

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As discussed above, this household corresponds to a royal administrative complex and palatial residence. The high-value goods included in their independent and limited exchange networks were frequently those that did not circulate through the marketplace, such as palace school-style pottery.

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If these non-circulating resources are removed from the consideration of value diversity tied to household provisioning through marketplace exchanges, then these distributions present a diversity of consumed goods of all values that is consistent with socioeconomic status apart from the *Las Tortugas* household, which appears to be an outlier resulting from sample size. Based on these results, the resource varieties within the **social hierarchy, shared pattern** are interpreted as indications of household purchasing power within the marketplace.

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The results of this project illustrate both the presence and prevalence of a central marketplace at Xultun, corroborating the recent findings of Canuto and colleagues which state that Xultun's population, 174% over carrying capacity, was dependent on imports.

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From obsidian to granite, quartzite to chert, and the various types and varieties of pottery, the marketplace was an integral component in the domestic economy of these city dwellers. Not only did they acquire the goods they consumed through these exchanges, but Xultun households also demonstrated their purchasing power and converted their surplus wealth, a pattern also noted for the institutional economy. The Xultun state converted its surplus wealth through the marketplace in nearly equal proportions to the frequencies of goods it acquired for consumption through the same marketplace. This pattern of converting wealth goods acquired through the tribute system into staple foods or goods is a strategy noted for many Mesoamerican economies. These findings provide

evidence of this practice in Classic Maya society due in no small part to the application of Hirth's distributional approach. By shifting the comparative method from systematic to intensive, this research was able to respond to critiques of equifinality. This application of a multiproxy distributional approach, therefore, offers an opportunity to evaluate a local economy, specifically the multifaceted nature of its exchange networks that tie together households, state institutions, and their shared marketplace.

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