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AN EXAMINATION OF PRICES AND WAGES IN BABYLONIA – CA. 2000-1600 B.C.E.

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Acknowledgements

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Abstract

This dissertation identifies long term fluctuations in prices and wages in northern and southern Babylonia during the Isin-Larsa/Old Babylonian period (ca. 2000-1600 B.C.E.).

The introduction orients the reader to the study of prices and wages. It reviews previous studies, defines objectives, scope, and methodology, presents an overview of the sources for prices and wages, and outlines limitations.

The scope of this study includes the following categories:

1) prices paid for real estate (houses, fields, orchards), slaves, and livestock
2) prices for house rentals
3) prices paid for commodities (barley, oil, wool, dates, and sesame)
4) wages paid for hired labor.

Part I presents and analyzes the data for each category, utilizing charts and graphs to reveal regional price differences and price (or wage) fluctuation at a category level.

Part II looks at the data holistically, with the goals of identifying long-term fluctuations of prices and wages for northern and southern Babylonia and correlating their movements with political history. It shows that economic prosperity is, to a large degree, conditional on periods of political stability, which goes hand in hand with powerful rulers.

Supplementing the dissertation is the "Price and Wage Database," which contains the price and wage data used in this study. It provides filtering, sorting, and data extraction capabilities, allowing scholars to perform further analysis.

Introduction to the Study of Prices and Wages[1]

The ancient Near Eastern historian, seeking to reconstruct the history of Mesopotamia from the third through first millennium B.C.E., faces a daunting challenge. Historical sources for that period, such as royal inscriptions and chronographic texts, often survive in a fragmentary state. Even when well preserved, they present a biased account of events at best. At worst, they are totally unreliable. Consider, for example, the Old Babylonian (OB) period (2004-1595).[2] Although it is probably better documented and therefore better understood than most stages of Mesopotamian history, there are significant gaps in its historical record, leaving Assyriologists with many unanswered questions.

The Assyriologist must therefore make use of all available sources. By far, the majority of excavated cuneiform tablets are economic in content.[3] These tablets tell us something about the prices paid for real estate, slaves, and various commodities and the wages paid for hired labor. Unfortunately, the information contained therein has not been fully exploited.

The purpose of this study is to utilize these economic documents to trace the long-term movement of prices and wages in Babylonia during the Old Babylonian period in the hope that such an investigation will reveal periods of prosperity and economic decline which may, in turn, shed some light on the political history of the region.

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[1] Bibliographical abbreviations follow those of *The Assyrian Dictionary of the Oriental Institute of the University of Chicago* (CAD), vol. 20 (U and W) unless otherwise noted in the List of Abbreviations.

[2] Absolute dates in this study are based on the "middle chronology." See J.A. Brinkman's appendix to Oppenheim 1964: 335-347. All dates are B.C.E. (omitted after each date). See the List of Abbreviations for ruler abbreviations. The OB period begins with the downfall of the Third Dynasty of Ur (2004) and ends in 1595, the traditional date of the Hittite raid on Babylon.

[3] See I.4 below for a classification of source documents.

I.1 Previous studies

The need for a systematic study of the large body of wage and price data was recognized as early as 1915. In that year, Walter Schwenzner published the first economic study of the OB period.[4] Schwenzner determined the prices of various commodities, the wages paid for hired labor, the interest rates on loans, and the rental rates for land, houses, and draft animals. For his supporting materials, he drew on more than 1,400 cuneiform tablets compiled and translated by Kohler and Ungnad[5] and 30 additional economic texts from the British Museum.[6] He also discussed references to prices and wages found in the Code of Hammu-rabi and the inscriptions of Sin-kašid of Uruk and Samsi-Addu, ruler of upper Mesopotamia.

Two subsequent studies (Lutz 1931 and Meissner 1936) also discussed price and wage movements, but these surveyed 2,500 years of economic developments. Knowledge of OB economics therefore remained essentially at the stage of Schwenzner's research until 1958. In that year, Ronald Sweet reviewed the available evidence for OB economics in his doctoral dissertation.[7] He had hoped that raw price data could be analyzed to determine economic conditions, but later argued that, until several basic problems were resolved, price data could have only limited value. His attempt to determine long-term fluctuations in the price of barley supported his arguments. The remainder of his study elaborated on the role of silver in the Old Babylonian period.

Sweet's most serious objection to a study of prices and wages centered on the question of whether silver had maintained a stable value throughout the Old Babylonian period. His discovery that the silver:gold ratio changed from 9:1 to 3:1 over about three generations could,

[4] Schwenzner 1915.
[5] Kohler and Ungnad 1909-1911.
[6] King 1912.
[7] Sweet 1958.

in theory, signify two entirely different phenomena. On the one hand, it could mean that silver became frightfully scarce in the mid-Old Babylonian period, causing its value to rise in relation to gold. On the other hand, it could mean than gold became much more abundant in the mid-Old Babylonian period, resulting in a decrease in the value of gold in relation to silver. Changes in the value of gold, due to increased or decreased availability, may have had little effect on the silver value of commodities, although the silver:gold ratio would have reacted accordingly. Sweet's dilemma arose out of the assumption that one could not prove which of the two metals was responsible for the change.

In 1978, based on my Master's Thesis, I published an article on prices and wages, focusing on Northern Babylonia during the OB period (Farber 1978). The article addressed Sweet's objections to such a study and showed that, to a large extent, these can be mitigated, or at least accounted for. Using over 350 northern Babylonian texts containing price equivalences and wage rates, I was able to identify long-term price fluctuations for slaves, oxen/cows, house rentals, commodities (barley, oil, wool), and land, and compared these to wages paid for hired labor.

In the article, I reviewed the evidence for silver:gold price fluctuations and compared commodity price equivalences specified in the Ešnunna Law Code for barley, oil, and wool with actual price data from contracts and administrative texts. I was able to demonstrate that the change in the silver:gold ratio was due, in a large part, to the increased availability of gold, which meant: 1) gold became much more abundant during the period between the reigns of Sin-iddinam of Larsa and Hammu-rabi of Babylon, and 2) the declining value of gold would not have had a significant impact on prices, which are quoted in terms of silver, not gold.[8]

[8] Farber 1978: 3-7.

Unfortunately, only one (undated) additional text that tells us of the value of silver in relation to gold has come to light since the publication of the article.[9] The price and wage data collected and analyzed for this study continues to support my earlier conclusion that silver maintained a constant value during the Isin-Larsa/Old Babylonian period.

In the intervening years since the article's release, interest in prices and wages has not waned. Several other scholars have published their findings for other periods of Mesopotamian history.

In 1982, Daniel Snell published the results of his study of Ur III silver balanced accounts, which contain commodity price data (Snell 1982). Snell found that, for some commodities, notably resinous products and copper, there was a tendency for prices to rise over time. For other products, like honey, barley, and wool, there was a tendency for prices to fall over time. And some products, dates for example, did not show significant price changes over time.[10] To test Jacobsen's contention that rampant inflation during the reign of Ibbi-Sin helped fuel the collapse of the Ur III state, Snell attempted to correlate higher prices to Ibbi-Sin's reign, but all he could say was that "Jacobsen's observations are corroborated in a very general way."[11] The data was not sufficient for him to draw definitive conclusions. Snell also compared prices from Ur III silver accounts and related texts to price information from other periods in Babylonian history.[12] For example, he noted that "the OB period apparently saw much wider fluctuations in prices than Ur III."[13] Lastly, he compared median Ur III account prices to "tariff" prices found in the Ešnunna law code (discussed below) or royal inscriptions (Sin-kašid

[9] OLA 21, 18 (5:1 silver:gold ratio).
[10] Snell 1982: 193-195.
[11] Snell 1982: 198.
[12] Snell 1982: 202-203.
[13] Snell 1992: 203.

and Samsi-Addu) and concluded that median Ur III prices for grain, copper, sesame oil, lard, and salt corresponded closely to prices in the Ešnunna law code.[14] Snell's book is the most definitive study on Ur III prices published to date, and his thoroughness and attention to detail is obvious to anyone who reads his work. I hope to accomplish the same in the present study.

Also in 1982, Jean-Robert Kupper published a short article on prices at Mari where he discussed prices for barley, wool, cattle, wood, furniture, and metals (Kupper 1982).

In 1984, Johannes Renger published an article on markets and trade. In the second half of the article, he discussed and surveyed OB prices (Renger 1984).

In 1988, Muhammad H. Dandamayev published an article based on a paper he had prepared for the Ninth International Economic History Conference, held in Bern, Switzerland, two years earlier (Dandamayev 1988). Focusing on the Neo-Babylonian period (6th and 5th centuries), he surveyed prices for barley, emmer, dates, sesame, beer, wool, livestock, garments, rentals and real estate. He also looked at wages paid for hired workers and slaves. He concluded that prices and wages were generally rising in the Neo-Babylonian period. During that time, the ratio of silver to gold varied from 9:1 to 14:1.

In 1990, Marvin A. Powell documented long-term fluctuations in the price of barley over a period spanning Early Dynastic through the Neo-Babylonian period, approximately 2,500 years.[15] He also traced fluctuations in the ratios of gold to silver and silver to copper. Powell was able to demonstrate that barley prices were considerably higher in the pre-Sargonic period

[14] Snell 1992: 204-206.
[15] Powell 1990. On p. 76 note 1, Powell cites Daniel Snell's study of Ur III prices, Dandamayev's study of Neo-Babylonian prices, and other studies of prices in ancient Babylonia.

than the "customary" 1 gur barley = 1 shekel silver[16] specified by the Ešnunna Law Code, which approximates the mean price of barley during the reign of Hammu-rabi.[17]

In his article entitled "Prices and price formation in the Ancient Near East. A methodological approach," Carlo Zaccagnini also focused on barley prices. (Zaccagnini 1997).

In 1999, Alice Slotsky published her analysis of late first millennium commodity prices based on market price quotations found in astronomical diaries.[18] In 2010, focusing on the late Babylonian and Persian periods, Michael Jursa analyzed prices for barley, dates, sesame, and land with the goal of detecting long and short-term changes in supply.[19] Jursa also analyzed wages, comparing fluctuations in wages with fluctuations in barley and date prices.[20] A smaller study in 2011 by R. Pirngruber and C. Waerzeggers focused on first millennium sales of temple prebends[21] followed in 2017 by Pirngruber's detailed analysis of commodity prices during the late Achaemenid and Seleucid periods (ca. 400-140).[22] For the Kassite, middle Babylonian, and early neo-Babylonian periods, Kristin Kleber's article in 2016 on Kassite gold and post-Kassite silver standards discussed prices in the context of silver and gold used as money and the relationship between the two.[23]

In 2017, Eric L. Cripps published the results of his investigation of Ur III barley:silver price equivalences found in silver balanced accounts, other accounts dealing with barley

[16] See I.5.4 for a list of frequently encountered Babylonian measures and their modern day equivalents.
[17] Powell 1990: 88-92 and Farber 1978: 17-21.
[18] Slotsky 1999. This is a full-fledged price study for six commodities: barley, dates, mustard, cress, sesame, and wool. Using sophisticated statistical analysis, she found wide fluctuations in the value of these commodities over short periods of time. See pp. 104-106 for her conclusions.
[19] Jursa 2010: 443-468. Like Slotsky, Jursa utilized statistical analysis and graphs to identify and plot price fluctuations.
[20] Jursa 2010: 669-679.
[21] Pirngruber and Waerzeggers 2011. Prices per prebend type are graphed over time with a trend line inserted to show general price direction.
[22] Pirngruber 2017: 93-163. Like Slotsky, he used astronomical diaries as sources for commodity prices.
[23] Kleber 2016: 39-60. Note especially Table 2 on pages 48-49 with references to earlier studies.

expenditures, loans and receipts of silver with repayments in barley, and miscellaneous silver and barley disbursements. He concluded that, from an accounting standpoint, 1 gur barley was generally valued at 1 shekel of silver in the Ur III period.[24] He attributed fluctuations in barley prices in the source documents over time to abundance, shortage, and market factors. A similar study of Ur III wool price fluctuations by Cripps showed overall stability in wool prices, at approximately 10 shekels silver per talent of wool with prices fluctuating around that number.[25]

Two socio-economic studies, although they are not price studies in the strictest sense, deserve mention. As part of her study of Nippur in the OB period, Elizabeth Stone analyzed real estate transactions and correlated a drop in the prices of houses and fields to an economic crisis that took place in Nippur in 1739, the eleventh year of the reign of Samsu-iluna.[26] And Anne Goddeeris published a study of northern Babylonia in the early Old Babylonian period touching on a wide range of economic and social issues utilizing family archives she reconstructed on the basis of prosopographical research.[27]

I.2 Objectives of this study

1) Determine long-term fluctuations in prices and wages for northern and southern Babylonia during the Isin-Larsa and OB periods.
2) Compare fluctuations of prices and wages between northern and southern Babylonia at a regional and city-state level.
3) Determine if, and to what extent, fluctuations in wages and prices correlate with political history.
4) If a correlation is determined, utilize price and wage data to improve our understanding of the region's political history where gaps exist in the historical record.
5) Create a database of prices and wages and make it available to scholars.

[24] Cripps 2017a: 46.
[25] Cripps 2017b: 6 and 34.
[26] Stone 1977.
[27] Goddeeris 2002.

I.3 Scope

To achieve the study's objectives, its scope is defined by geography, chronology, and sources.

Southern/central Babylonia is defined geographically as the territory under the control of the city-state of Larsa just after Rim-Sin's conquest of Isin (1793): bounded by Nippur in the north, Ur in the south, the Euphrates River in the west, and the Tigris River in the east (see Figure Intro-1). The texts from southern and central Babylonia used in this study come from the cities of Ur, Larsa, Kutalla (an outlying settlement situated about 9 miles from Larsa),[28] Nippur and Isin.

Northern Babylonia is defined as the heartland of the 1st Dynasty of Babylon prior to Hammu-rabi's conquests: bounded by Sippar and Babylon in the north, up to the border of

Figure Intro-1: Map of Babylonia SOURCE: Seri 2013: 28

[28] Charpin 1980: 1. Tablets from Kutalla will be cited "TS" (for Tell Sifr), following Charpin's convention.

Nippur in the south, the Euphrates in the west, and the Tigris in the east. The northern Babylonian texts used in this study come from the cities of Sippar/ed-Dēr,[29] Dilbat, Kish, Babylon, and the military settlement of Dur-Abiešuh.[30] These have been augmented with a few tablets from Lagaba, Marad, and Kisurra.

Mari and Ešnunna lie outside these boundaries and are not in scope for this study (apart from the Ešnunna Law Code, which is discussed below). Because no tablets containing prices or wages were unearthed from Uruk, it has been excluded.

Chronologically, for southern and central Babylonia, the scope of this study covers the years 2017–1720, beginning with the reign of Išbi-Irra of Isin (2017-1985).[31] The majority of the texts from southern Babylonia used in this study are dated either under the rulers of the Larsa dynasty (Gungunum through Rim-Sin) or the rulers of the 1st Dynasty of Isin. Also in scope are texts from Ur, Larsa, and Nippur, which begin using Hammu-rabi year dates in his 31st year (1762), following his conquest of Larsa. Texts from the south dated with Hammu-rabi and Samsu-iluna year names run through Samsu-iluna's eleventh year (1739), after which Larsa and Ur were likely abandoned.[32] Included as well are a few texts from Ur and Larsa dated under Rim-Sin II, one of several rulers who led a short-lived revolt of southern Babylonia against Samsu-iluna in 1742.[33]

Although Samsu-iluna lost southern Babylonia, he retained control of Nippur, where texts dated with his year names persist until his 29th year. Ili-ma-ilum, the first ruler of the

[29] Sippar was a twin city in the OB period. Tell ed-Dēr was called Sippar Amnānum, and Tell Abu Habbah was called Sippar Jaḫrūrum (Goddeeris 2002: 33). In this study, "Sippar" refers to both sites, unless specified otherwise.
[30] See CUSAS 8: 4-6 and CUSAS 29: 4 (map). Dur-Abiešuh was most likely situated northwest of Nippur, at the confluence of the Euphrates and the Hammurabi-*nuhuš-niši* canal. Its exact location remains unknown as all tablets from the site have come from illicit excavation. See also Charpin 2015: 145-150.
[31] The earliest text used in this study is a loan of dates, dated to the sixth year of Išbi-Irra (2012).
[32] Charpin 2004: 342.
[33] Charpin 2004: 337-338.

Sealand Dynasty, wrested control of Nippur from Samsu-iluna in 1720.[34] A few texts from Nippur used in this study are dated under him. 1720 therefore marks the lower end of the chronological scope of this study for southern Babylonia.

Chronologically, for northern Babylonia, scope is defined by the 1st Dynasty of Babylon (1880-1595), also known as the Hammu-rabi dynasty, beginning with the reign of Sumu-la-El[35] and ending with the Hittite raid on Babylon and collapse of the dynasty in Samsu-ditana's 31st year.

The scope of this study includes the following categories:

1) prices paid for real estate (houses, fields, orchards), slaves, and livestock
2) prices for house rentals
3) prices paid for commodities (barley, oil, wool, dates, and sesame)
4) wages paid for hired labor.

These categories were chosen based on their frequency of occurrence and/or their importance to the overall economy.

Having defined the scope of this study, it is equally important to define what is "out of scope."

The following contract types are excluded from the study:

1) Field rental contracts. These are common but do not contain pricing information.
2) Sales of temple offices (prebends). These are common in southern Babylonia but do not provide enough information to quantify their value and compare their prices.
3) Sales of doors, interior furnishings, and commodities such as honey and spices occur too infrequently to be of use in tracking price fluctuations.
4) Contracts for renting boats or draft animals occur too infrequently to be of use.

[34] Charpin 2004: 360. For a comprehensive history of the Sealand Dynasty, see Boivin 2018.
[35] Sumu-abum (1894-1881) was traditionally considered the founder of the dynasty, but more recent research points to Sumu-la-El as the founder. Sumu-abum was actually a contemporary of Sumu-la-El. See Goddeeris 2002: 170-173 and 321; Charpin 2004: 80-84; and, more recently, De Boer 2018; and Farber and Wilent 2018.

Scholars have focused on the use of silver as a monetary standard and debated the extent to which silver actually changed hands in transactions (Powell 1979, 1996, and 1999; Renger 1989; Jursa 2010; Kleber 2016).[36] For the purposes of this study, I will sidestep these issues and consider silver simply as an "index of value." Another out of scope topic is the nature of the Old Babylonian economy. Much has been written regarding to what extent ancient Mesopotamia was a free market economy or a regulated economy, or one based on "reciprocal traditional agreements between trading partners."[37] As you read through this study, it will become apparent that we are dealing with a free market economy, with prices determined based on supply and demand.

I.4 Sources

Sources for prices and wages fall into four categories: legal, administrative, letters, and royal. Legal is sub-divided into 1) contracts, 2) partition of property agreements, and 3) court cases/judgements. Royal is sub-divided into 1) law codes and 2) inscriptions. These are discussed in the following sections.

I.4.1 Legal sources

I.4.1.1 Contracts

[36] Powell 1979: 83 makes an intriguing argument against the use of silver as a medium of exchange for small transactions. Based on his analysis of weights, he determined that "Mesopotamian precision weights tolerated an inaccuracy of about 3% of the mass of the object being weighed." (p. 83) He goes on to say that this inaccuracy approximated one-day's pay in silver. "Given these circumstances, it is not surprising that there is little evidence for the actual exchange of silver in the Old Babylonian period or earlier." (p. 83). See also Powell's comments about the quality of silver in Powell 1996: 230-234.

[37] See, e.g., Powell 1999, Van De Mieroop 1992: 188-190, and Snell 1982: 186 n. 21. All three scholars favor an economy based on supply and demand and profit motive, rejecting assertions by K. Polanyi, J. Renger, and R.K. Englund that markets in ancient Mesopotamia did not exist, prices were determined by the state, and the ancient Babylonian economy was essentially "redistributive." See Renger 1984 and Powell 1999: 6-9 for summaries of earlier studies and Dale 2013 for an overview and assessment of the pros and cons of Polanyi's theses.

The majority of the texts used in this study are contracts: sales of real estate, slaves and livestock; contracts for hired labor and house rentals, loan contracts, and exchanges. It is interesting to note that, throughout the entire Isin-Larsa/OB period (and as far back as the Ur III period), in both northern and southern Babylonia, contracts preserved a standard phraseology and form. The following scheme is most often encountered:[38]

1) Subject of the transaction (what is being sold/hired/rented/loaned)
2) Seller or provider
3) Buyer or receiver
4) Characterization of the transaction as a contract of sale, hire, rental, or loan[39]
5) Agreed upon remuneration (silver, barley or combination of both)[40]
6) Guarantor (who is responsible in case of a lawsuit)
7) Oath by the parties involved to abide by the terms of the agreement (sworn in the name of the king and/or the local gods)
8) Witnesses
9) Month, day
10) Year date formula
11) Seal(s)

The largest percentage of contracts from the OB period are loans of barley or silver. Most do not contain pricing information. For those that do, their interpretation (hence their usefulness), is not nearly as straightforward as a sales contract. Characterized by the Sumerian verbal form ŠU BA.AN.TI "(the debtor) received," a typical loan records small quantities of barley or silver (to purchase barley) loaned to people in need, typically 2-4 months prior to the

[38] See Kraus 1951: 89-107, Matouš 1950, and Harris 1975: 213-217 for a detailed discussion of contract format and terminology.

[39] The following Sumerian phrases are typically (although not exclusively) encountered:
a) Sales contracts: ŠÁM.TIL.LA.BI.ŠÈ or ŠÁM.TIL.LA.NI.ŠÈ <remuneration> IN.NA.AN.LAL "as its full price, he (the buyer) weighed out…"
b) Contracts of hire (and some rentals): IN.HUN "he hired/rented" (or ÍB.TA.È.A)
c) Loans: ŠU BA.AN.TI "he (the debtor) received."

[40] In the tablets used in this study, sales almost always use the Sumerian verb ŠÁM (Akk. *šâmum)* "buy," or "purchase" to indicate that the remuneration is an actual price. In texts which are not sales, such as accounts, memoranda, or receipts/expenditures, one most often encounters the phrase: KÙ.BI <amount> GÍN/MA.NA "<commodity or asset> its silver is <amount> shekels/mina" This study uses the term "price equivalency" to designate these kinds of payments. A price equivalency can, in fact, be a previously paid actual price (e.g., TS 43), or it can denote an asset's estimated value at the time the tablet was written. It's not always possible to tell.

harvest. The terms of these loans require repayment of barley, usually at the "going rate" at harvest time. When an interest rate is specified, it is almost always the "standard" interest rate of 20% on silver loans or 33% on barley or commodity loans. Because these kinds of loans do not contain pricing information, they are not useful for this study.[41]

Occasionally, however, a loan of silver specified a quantity of barley to be repaid instead of an interest rate (e.g., UET 5, 358: interest of 100 sila barley per shekel of silver borrowed). If one assumes that 100 sila equals 33% interest (one-third of a gur of barley), one can derive an "underlying" or "implied" price for the barley being loaned (one gur barley equals one shekel silver in this example). Conversely, a loan of barley, dates, or wool sometimes specified repayment in terms of silver (e.g., BIN 7, 162:1-3: "30 mina wool at an exchange rate of 6 mina wool per shekel of silver"), which this study considers a usable price equivalency.

One must, however, exercise caution when using loans to draw conclusions regarding commodity prices for several reasons. First, interest rates varied. It would be a mistake to always assume that a quantity of barley to be repaid was determined solely on the "standard" 33% interest rate.[42] Greed and altruism certainly played a part in a creditor's decision regarding the interest he would charge. Second, the interest on the loan was sometimes included in the amount to be repaid.[43] This is not always apparent but should be factored into calculating the

[41] For an in-depth discussion of Old Babylonian loans, see Skaist 1994, and for loans from Ur, Jacquet 2020.

[42] This is evident from a number of early Old Babylonian loans (from Kisurra) published in Goddeeris 2009, where silver is loaned but interest is specified in barley, payable at harvest time, at the rate of 60 sila barley per shekel silver loaned (e.g., nos. 95, 101, 138, and 139). Interest of 60 sila barley (that is, 1/5th of a gur) per shekel silver in the Kisurra loans implies an interest rate of 20%, assuming 1 gur barley is worth 1 shekel of silver. Other loans in the same volume clearly show differing rates of interest (e.g., nos. 108, 250, and 255). Discussing (Ur III) silver loans to be repaid in barley, Cripps found considerable variation in the value of barley repaid. He noted: "The widely dispersed values of barley per shekel may reflect different rates of interest and penalty payments." (Cripps 2017: 46).

[43] Loans of barley valued in silver (ŠÁM x GÍN KÙ.BABBAR) with repayment in silver likely fall into this category. See, e.g., BE 6/2, 120; CT 4, 30d; and loans made by Sin-nadin-šumi, "the diviner" (TLOB 87; Richardson diss. II p. 268, 269, 273, 276, 278, 279, 280, and 282). In all of these, the barley is valued from 25-150% above its "fair" price.

commodity's silver equivalent price when it can be determined. Third, some loans are more accurately described as "sales on credit" or "receipt of goods on consignment." Boyer Contribution 111, an interest free loan of dates made by the palace to Šep-Sin, "merchant of Larsa," likely falls into this category. Here, the price equivalency may represent a discounted price, which Šep-Sin is obligated to repay after he has sold the dates at a higher price.[44]

There are also several examples where silver is loaned, and the debtor puts up his land as collateral (Westbrook 2001). In UET 5, 427, for example, the debtor puts up 10 sar of orchard as collateral against a loan of 2 shekels silver. If the silver isn't repaid, the contract stipulates that the 2 shekels is considered "the price of the whole orchard," meaning, the creditor takes the orchard. UET 5, 401 and TCL 10, 48 seem to have a similar intent.

I.4.1.2 Partition of property agreements and exchanges

Partition of property (inheritance) agreements and property exchange agreements can also be sources for price equivalences. In inheritance agreements, land, houses, slaves, home furnishings, staples, and silver are divided between heirs. In an effort to ensure equitable division of assets, some agreements specified silver price equivalences for slaves or real property. Such is the case in ARN 46, where Erṣija receives a 900 sar field of hanging garlic valued at 30 shekels, 1 sar of house valued at 10 shekels, and a male slave valued at 20 shekels, corresponding in value (Sum.: GABA.RI) to a prebend given to Dingir-mansum, the elder brother. In exchanges, a parcel of land or house may be exchanged for similar property or another asset, and as is the case in partitions of property, one of the parties can be compensated with silver. For example, in ARN 41, Ur-Pabilsag gives Narubtum, his (adopted) daughter, a

[44] See Stol 1982: 149 note 68.

female slave valued at 20 shekels. In return, Narubtum gives Ur-Pabilsag 3 parcels of land totaling 720 sar.

I.4.1.3 Court cases

Court cases and judgments (legal decisions) record conflicts over inheritance shares or suits that arise after a sale. In summarizing the history of a case, they occasionally provide details of a previous sale. SAOC 44, 22, for example—a judgment regarding a dispute over a sale of 4 sar of a house in disrepair— gives the price and date when the property was first sold. CT 6, 29 (dated in Ammi-ditana's accession year) is an interesting case concerning Warad-Bunene, whose master sold him to Ešnunna for 90 shekels silver in Abi-ešuh year 24. After five years, he escaped from the city, fled to Babylon, and was considered a free man. The court allowed him to return to his father's house to perform *ilkum*-service with his brothers.

Lawsuits can even be initiated many years after the original sale, as in the case of RA 9, 22, (dated Samsu-iluna year 18), which concerns a house that sold 52 years earlier for 10 shekels.[45]

I.4.2 Administrative sources

Administrative texts undoubtedly comprise the majority of excavated cuneiform tablets. Lumped into this category are a myriad of texts, institutional (palace and temple) and private: lists of expenditures, receipt of goods, and (balanced) accounts. Expenditures record quantities of silver, foodstuffs, and/or commodities for rations and/or wages. Receipts record payments to

[45] The suit was initiated by the son of the original seller, presumed dead at the time of the suit. Interesting to note: As described in the proceedings, the (sealed) tablet recording the original sale still existed (kept by the current owner). The judges had the envelope broken, and the tablet inside was used to validate the original sale. See www.archibab.fr/T16968 for edition and bibliography.

the temple and temple donations, such as silver, (precious) objects or foodstuffs. Apart from balanced accounts (e.g., TCL 10, 17 and 100) and a few expenditure lists (e.g., UET 5, 607), administrative texts rarely contain price equivalences.

I.4.3 Letters

Old Babylonian letters cover a wide range of subjects – political, economic, and personal.[46] A considerable number of these deal with purchases that have been or will be made, most of which do not provide enough information to determine a price equivalency. All told, about 70 prices, price equivalences and wage rates collected by this study come from letters.

Compared to other sources of prices and wages, letters have one big advantage and one big disadvantage. Their advantage: Prices in letters are, for the most part, actual (or anticipated) sale prices. This is especially helpful for understanding commodity pricing because there are very few commodity sales contracts. Most of the commodity price equivalences come from loans, which means that the value of the commodity must be derived (approximated) based on the terms of the loan contract. Their disadvantage: letters are undated, which limits their usefulness in determining long term fluctuations. Following are a few examples of letters with prices.

In AbB 1,4 the sender writes "…have them bring me either 60 sila of sesame or 1 shekel of silver" (line 27). In AbB 2, 83 the sender instructs the recipient to "…send him either 1/2 shekel silver or 2 minas of wool" (lines 23-24). In AbB 14, 156 the sender informs the recipient that Ibni-Marduk, "the diviner," (Akk.: *bārû*) complained to him regarding a slave girl he sold Ibizu for 10 shekels silver but did not receive the full purchase price.

[46] Over 2,700 were collected, transliterated and translated in the series Altbabylonische Briefe. This series is comprised of 14 volumes, published between 1964 and 2006 by the University of Leiden. Per Charpin, Archibab has cataloged over 3900 letters.

Letters also deal with hired workers and wages, but rarely do they specify enough information to calculate wage rates. One exception is AbB 6, 179, where ten children are hired for ten days to pick up clods in a field (rev. 15-19). Wages are 2 sila barley and 1 sila dates per day (=2.40 gur barley + 1.20 gur dates per year). Another exception, AbB 11, 26, indicates that one shekel silver will be paid to a worker for 2 months and 9 days of work to grind 60 sila of barley into groats (lines 7-12).

Even though the vast majority of letters are undated, it is sometimes possible to determine the date range when a letter was composed based on its archaeological context (e.g., letters found in private houses Woolley excavated at Ur) and/or information contained therein, making it a "datable" letter. Several examples follow. In AbB 9, 105, Nabium-malik, writing to Šumi-ahija, refers to 6 shekels of silver, price of 40 mina of wool, and 80 gur of barley, worth 40 shekels of silver (lines 9-11). The letter also mentions Šep-Sin. Although the letter is undated, all three names occur passim in texts published in Stol 1982,[47] allowing us to narrow the date of its composition from 1761 to 1743. In AbB 4, 38 Hammu-rabi instructs Šamaš-hazir, his subordinate in Larsa, to investigate the sale of a field of 18 iku for 1 mina of silver. This letter must have been written sometime between 1761 and 1750, after Hammu-rabi's conquest of Larsa but before his death. AbB 13, 52 is a letter written by King Abi-ešuh to officials in Sippar regarding the purchase of 60 donkeys for 20 shekels silver apiece. The letter must be dated between 1711 and 1684, the duration of his reign.

Prices and wages from letters are not included in the graphs in Parts I and II unless they are datable, but they are incorporated into averages and counts (in tables) where appropriate.

[47] See in his article p. 131 and appendix 3.

I.4.4 Royal

I.4.4.1 Law codes

Two law codes—the law code of the city of Ešnunna (LE) and the Hammu-rabi law code (CH)—provide information on prices and wages.[48] The Ešnunna code was probably written under the reign of Daduša,[49] who ruled Ešnunna around 1792.[50] The Hammu-rabi code was compiled toward the end of Hammu-rabi's 43 year reign.[51]

The first law of the Ešnunna law code stipulates prices for basic commodities:

1) barley (one gur for one shekel silver),
2) top-quality oil[52] (3 sila per one shekel silver),
3) sesame oil (12 sila for one shekel silver)
4) wool (6 mina for one shekel silver).[53]

The third law, which establishes the rate of remuneration for the hire of a wagon, team of oxen and driver, states the rate of hire in both sila of barley and shekels of silver, giving us a relationship of one gur barley equals one shekel silver (reiterated in law 7).

Laws 7, 8, and 10 specify daily wages for harvesters at 20 sila barley, winnowers at 10 sila barley, and donkey-drivers at 10 sila barley. Law 11 specifies wages of a hired man at 1 shekel silver per month (plus 60 sila per month, or 2 sila per day as provender).

Laws 18a, 20, and 21 regulate interest rates charged on loans: 20% on silver loans and 33% on barley loans.

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[48] See Roth 1995 for translations of the Ešnunna and Hammu-rabi and law codes and Stol 2004: 654-658 for additional comments and bibliography on the Hammu-rabi code.
[49] Roth 1995: 57.
[50] Charpin 2004: 155.
[51] Roth 1995: 71.
[52] See below, section 3.2.2 for terminology.
[53] In chapter 5, these are considered "fair" or baseline prices.

Law 55, concerning the death of a slave, requires the party responsible to pay 15 shekels silver to compensate the owner.

Although the CH does not specify commodity prices, it does stipulate wage rates for agricultural workers and hired labor (§257, §258, §261, §273, §274). Similar to those found in the LE, these rates vary depending on the work performed and skill level of the worker, with agricultural workers receiving up to 1 shekel silver per month (§273, months one to five) and other workers receiving up to 200 sila barley per month (8 gur barley per year). The CH also specifies rental rates for draft animals and boats (§§268–272, 275-277). It sets 20 shekels silver as compensation to a slave owner (§116, §214, and §252), payable by the person responsible for the slave's death.

Laws "t" and "u" (Roth 1995: 97), specify interest rates on loans, the same rates of 20% on loans of silver and 33% on barley loans found in the LE.

The Ešnunna and Hammu-rabi law codes give us a sense of what was considered a "fair" price or wage at the time they were promulgated. For the purposes of this study, we will consider "fair" prices and wages to be baseline values. This is explained below, under I.5.4 (Methodology).

I.4.4.2 Royal inscriptions

Royal inscriptions commemorate the building of walls, canals, or temples. They occasionally provide information on commodity prices and wages. Rulers used these inscriptions as "propaganda,"[54] boasting about low prices during their reigns, and the high wages they paid workers on their projects. Compared with other sources, commoditiy prices in them

[54] As pointed out by Zaccagnini 1997: 368.

range from inexpensive to improbable; wages from generous to fanciful.[55] Prices and wages found in royal inscriptions are reviewed in Chapter 6.

I.5 Limitations of the study

As discussed in I.1, one of the chief obstacles to a study of this kind -- the instability Sweet observed in the ratio of silver to gold -- can be mitigated, or at least accounted for. There are, however, other challenges that are more difficult to overcome. These allow only the most general conclusions to be drawn regarding the movement of prices and wages. Chief among them are the following:

I.5.1 Insufficient data

The evidence available for tracing the fluctuations of prices and wages in the OB period is simply not sufficient for detailed analysis. For example, to trace fluctuations in house prices, I have utilized 374 prices from southern, central, and northern Babylonia spanning roughly 400 years, which is the largest number of attestations in any category. (See Table Intro-1 for a breakdown of the data.) More data would help "firm up" the conclusions I draw.

I.5.2 Uneven chronological distribution

As is apparent from Table Intro-1,[56] in the south, tablets with prices and wages dated to rulers prior to Warad-Sin of Larsa and Damiq-ilišu of Isin are rare. Tablets dated to Rim-Sin, Hammu-rabi, and Samsu-iluna predominate. In the north, tablets with prices and wages dated to rulers prior to Hammu-rabi are similarly scarce, whereas Hammu-rabi and Samsu-iluna are well represented. As for the successors of Samsu-iluna, Ammi-ditana and Ammi-ṣaduqa are well represented, but the reigns of Abi-ešuh and Samsu-ditana are characterized by a dearth of

[55] See Vargyas 1997 and Richardson 2012: 36-44 for their comments on prices found in OB royal inscriptions.
[56] For simplicity sake, texts dated to Sumu-abum have been included under the 1st Dynasty of Babylon.

evidence. What this means is that we do not have a continuous record of prices covering the entire Isin-Larsa/OB period for any category used in this study, which makes it more difficult (but not impossible) to track long-term price fluctuations.

I.5.3 Uncertainty of provenience

Determining the provenience of a tablet ranges from simple to impossible. The majority of the tablets used in this study come from legitimate excavations carried out at sites such as Ur, Larsa, Kutalla, Nippur, and Sippar. Findspots were recorded for tablets excavated at Ur and Nippur, and these are helpful in archival reconstructions, even though they are not entirely accurate. Illicitly excavated tablets are also included in this study. Their provenience can sometimes be determined based on prosopography. For example, in the introduction to YOS 8, tablets were said to have "probably" come from Senkereh (Larsa), which likely means they were purchased from antiquities dealers. Some of the tablets published in YOS 8 do, in fact, come from Larsa because they deal with slave purchases of Balmunamhe, whose archive was excavated at Larsa.[57] Provenience can sometimes be ascertained from place names mentioned in the tablets, as in the case of tablets published in YOS 5, which record inflows and outflows from the Ganunmah, the great storage house at Ur.[58] An oath sworn by a city's patron deity (or deities) can be used to determine provenience: For example, an oath by Šamaš and Aja (his consort) indicate the provenience is Sippar.[59] An oath by Nanna is typically associated with Ur, Larsa, or the Manana Dynasty (Damrum). An oath by Uraš indicates Dilbat, by Zababa indicates Kish, and an oath by Marduk points to Babylon.

[57] Van De Mieroop 1987: 1.
[58] Van De Mieroop 1992: 41, 77-79.
[59] Harris 1975: 144 and 150.

Kingdom	Ruler	Category												
		houses	land	slaves	Livestock	Rentals	wool	barley	oil	sesame	dates	metal	hire	Totals
Larsa	Gu		1				5	1						7
	AS	4	1										2	7
	Se	9	11	5	1		4	2	3	3				38
	NA	2	2	1			1							6
	Sid	1			2		1					1		5
	Sir		1											1
	Siq	5												5
	ṢA			1										1
	WS	27	11	8	3		1	1		1				52
	RS	85	83	46	29	12	5	13	16	5	1	13	22	330
	RS II	2	1	2		1		2					2	10
Isin	IšI										1			1
	Ši													0
	ID				1									1
	IšD													0
	LI													0
	Unin	1												1
	BS	2												2
	Len	1	3											4
	Irim	2	2											4
	Eb	6	8											14
	Zam	2												2
	Itp	3	3											6
	Urd	1	1											2
	Smag	1	3											4
	DI	7	18	1										26
Babylon	(Suab)	1	4	1										6
	Sl	3	8	2										13
	Sa	1	2	2	1									6
	ApS	2	2	3		1			1				2	11
	Sm	8	8	1									5	22
	Ha	65	32	15	1	26	6	7	2	1	4	1	28	188
	Si	92	52	30	1	36	13	24	10	1	3	1	41	304
	Ae	6	9	5	4	8	1						5	38
	Ad	12	6	19	19	8	13	3		1		2	17	100
	Aṣ	2	5	23	16	16	14	22	7		1		17	123
	Sd			4	4	1	3	3	2		1		1	19
Local Dyn.	LD	16	62	8	2			2					1	91
Sealand	Ilim	1	2											3
Other	Und. date	4	3	20	16	1	8	18	8	6	1	1	6	92
	law code						1	1	2				9	13
Total		374	344	197	100	110	76	99	51	18	12	19	158	1558

Table Intro-1 Number of price (equivalences) and wages by category by ruler

Terminology can even be used to assign provenience: for example, field sales characterized as GUG$_4$.ŠE "field in stubble" are found only on tablets from Nippur or Isin.

Two useful references that provide provenience for northern Babylonian texts are Goddeeris 2002 (for early OB texts: local dynasts, Sumu-abum, and Sumu-la-El through Sin-muballiṭ) and Pientka 1998 (for late OB texts: Abi-ešuh through Samsu-ditana).

I.5.4 Metrology[60]

The coexistence of several variant measuring standards during the OB period poses an additional challenge to the investigator of long-term fluctuations in prices and wages.

The following measures are most frequently encountered:[61]

Surface measures

še		=0.01 sq. m.
gín	=180 še	=0.60 sq. m.
sar	=60 gín	=36 sq. m.
ubu	=50 sar	=1800 sq. m.
iku	=100 sar	=3600 sq. m. (approx. 0.90 acres)
eše$_3$	=6 iku	=21,600 sq. m.
bur	=3 eše$_3$	=64,800 sq. m. (approx. 16 ½ acres)

Capacity measures (Akkadian or English equivalent in parentheses)

gín		=0.016 liter
sila$_3$ (*qûm*)	=60 gín	=1 liter (or quart)
bán (*sūtum*)	=10 sila$_3$	=10 liters
nigida (*parsiktum*)	=6 bán	=60 liters
gur	= 5 nigida	=300 liters

Measures of weight (Akkadian or English equivalent in parentheses)

še		=44 miligrams

[60] To spare the non-Assyriologist the pain of having to learn Babylonian mathematics, decimals are used to express fractional surface, capacity, and weight measures. Examples: 1 SAR 30 GÍN = 1.50 SAR (area); 1 GUR 3 PI = 1.60 GUR (capacity); 1 GÍN 135 ŠE = 1.75 shekels (weight).

[61] See Powell 1987-1990: 457-517 for an overview of Babylonian weights and measures.

gín (shekel)	=180 še	=8 grams
mana (mina)	=60 gín	=0.50 kilogram
gú (talent)	=60 mana	=30 kilograms

In the OB period, the smallest unit in which barley was measured was the sila (Sumerian) or *qûm* (Akkadian), roughly equivalent to one quart. The relationships: 10 sila equals 1 *sūtum*, 6 *sūtum* equals 1 *parsiktum*, and 5 *parsiktum* equals one gur (or 300 sila) are well established. In a number of texts, quantities of barley or oil are stated as being measured according to a *sūtum* of a specific temple, which could mean the capacity of the *sūtum* varied. Furthermore, there is evidence that the *parsiktum* measure may not have been of uniform capacity. *Parsiktum*-measures of 64 and 72 sila are attested, sometimes referred to in the texts as "thick" or "fat."[62]

In my article on prices and wages, I discussed measures of capacity and found no reason to treat *sūtum*-measures of different temples differently than any other measure.[63] Fortunately, the use of *sūtum*-measures of different temples or *parsiktum*-measures containing other than 60 sila is confined, for the most part, to texts from northern Babylonia and rarely occurs in texts dated before Hammu-rabi, (although their usage becomes more common by the reign of Samsu-iluna). Again, fortunately, there are only a few occurrences of variant *parsiktum*-measures, too few to affect my results.

I.6 Methodology

The following describes the methodology that has been employed to achieve the objectives of this study.

Step 1 – determine the categories: discussed above.

[62] CAD P under *parsiktum*, p. 192.
[63] See, however, de Boer 2013: 108, who notes (citing Veenhof) that the "measure of Marduk" was supposedly smaller that the "measure of Šamaš." On the same page, he shows that the {giš}BÁN {d}UTU was optionally specified, implying that barley measured with or without it weighed the same.

Step 2 – identify relevant texts for chosen categories: By this I mean texts containing prices, price equivalences, or wages. Using the "full search screen" provided by the Cuneiform Digital Library Initiative (CDLI) (www.cdli.ucla.edu) was a good first step to identify candidate texts.[64] An added benefit of the CDLI is that it contains copies and/or photos for many of the texts used in this study. Unfortunately, the CDLI is incomplete. Texts are missing, not all fields are populated, nor are they always populated correctly. As a result, one must still check each volume of OB published texts. Another invaluable website for identifying candidate texts is Archibab (www.archibab.fr), which focuses solely on the OB period.[65] Clicking on the bibliography tab brings up a search screen that allows one to search for books, series, or journals containing OB texts. Clicking on the text tab provides a similar function for displaying text transliterations. Additional tabs under the text tab give one the flexibility to select texts using different criteria. Most useful to this study was the ability to display texts by category (real estate, slaves, etc.) and/or provenience.

Step 3 – store the data: Excel is well suited for this purpose.[66] A separate worksheet (spreadsheet tab) was first created for each category within the workbook. For each relevant text, basic information such as text reference, museum/excavation number, CDLI number, provenience, text description, and date was entered as well as miscellaneous observations/commentary such as collations, transliteration/translation, philological commentary, CAD references, and references to other authors' work. Specific to each category, additional information such as area (for sales of real property), quantity sold/loaned (for

[64] Search for genre "legal" or "administrative" and period "Old Babylonian" or "Early Old Babylonian."
[65] See Charpin 2010b and 2014c for a detailed description of the Archibab project with a progress update in Charpin 2018a.
[66] For those readers who are Information Technology "purists," Excel is not a database tool. One cannot join multiple tables in Excel nor utilize a structure query language to extract information. On the plus side, however, Excel's filtering and sorting capabilities provide almost the same flexibility as a true database management system.

commodities), duration (for rentals or hire), price/price equivalency, wages paid (in silver or barley), buyers/sellers, or creditors/debtors was also entered. One text may record multiple prices or price equivalences requiring multiple rows within or across spreadsheet tabs.

Step 4 – analyze the data: After the texts were entered, each was "scrubbed" (verified to ensure accuracy) and evaluated for data quality and integrity.[67] To facilitate searching and filtering of data, worksheet column headings and text descriptions were normalized (standardized), and the individual worksheets were consolidated into a single workbook (which I refer to as the Price and Wage Database). Then, the analysis phase of the study began. Excel contains several powerful features to aid in analysis. Formulas were utilized wherever possible for repetitive mathematical calculations to improve accuracy (e.g., compute price paid per iku of land, per sar of house, or gur of barley). Excel's filtering and sorting capabilities allow one to "drill down" to analyze subsets of data. Using filtering and sorting in conjunction with Excel's graphing and statistical analysis capabilities revealed trends or fluctuations in prices and wages. Calculating a mean, median, or mode price was useful to discern price fluctuations when there was enough data for a category to do so. A similar result was obtained by using "fair" prices or wage rates found in the Hammu-rabi and Ešnunna law codes. Mean, median, mode or "fair" prices defined a baseline price or wage. Percent deviation from the baseline was then calculated for each price, price equivalency, or wage. Plotting percent deviation versus time helped reveal cross-category pricing trends, hence periods of high and low prices.

[67] In the database, the column labelled "Tier" refers to data quality or integrity. For example, with respect to houses and land, to be classified tier 1, a text must have a readable (or restorable) area, property description, price or price equivalency, and year date formula (or an oath giving the king's name). When it is possible to restore missing information based on another tablet (e.g., from the same archive) or from persons named within, that text is classified as tier 1. Tier 1 texts are utilized in computing mean prices and are plotted. Tier 2 texts are missing one or more key pieces of data (that are not restorable), or the phraseology employed makes it difficult to interpret the text. They can sometimes be used in computing mean prices and/or to support conclusions drawn from Tier 1 texts. But, in general, they have limited value.

Unfortunately, a mean, median, or mode price does not always adequately represent its category. Its ability to do so can, in some cases, be enhanced through "subcategorization," that is, dividing an all-inclusive category (e.g., slaves) into its components (males, females, and children) and calculating a mean price for each.

Calculation of a mean, median, or mode price, if not done with forethought, can lead to spurious conclusions. Part I goes into greater detail regarding these calculations.

I.7 Organization

The introduction was intended to orient the reader to the study of prices and wages.

Part I presents and analyzes the data for each category, utilizing charts and graphs to reveal regional price differences and price (or wage) fluctuation at a category level.

Part II looks at the data holistically, with the goals of identifying long-term fluctuations of prices and wages for northern and southern Babylonia and correlating their movements with political history.

The conclusion summarizes the findings of this study and identifies next steps.

I.8 The value of archives

As mentioned above, Goddeeris utilized private family archives to study the economy of northern Babylonia during the early Old Babylonian period. In so doing, she was one of many Assyriologists who recognized their importance.[68] While this study is neither a study of archives nor an archival study per se, I'd estimate that over half of the sources for prices and wages come from private family archives. Whether an archive was found *in situ*, as is the case

[68] For an introduction to Old Babylonian family archives, who possessed archives, the types of documents found in archives, and why they were retained, see Jacquet 2013. Jacquet also discusses the collection of archival documents in the Archibab database. Besides Goddeeris, other archive based studies include Ormsby 1972; Charpin 1980 and 1986; Stol 1982; Van De Mieroop 1987 and 1992; Stone 1987, 1991, and 1996; Tanret 2012; and Fiette 2018.

of archives unearthed from private residences at Ur, Nippur, and Sippar through legitimate excavation, or whether the archive was reconstructed from illicitly excavated texts, both are useful for identifying price fluctuations.

Private family archives provide pricing continuity over time, which helps in the determination of mean prices and the identification of price fluctuations. For example, the archive of Balmunamhe of Larsa contains over 30 slave sale and slave guarantee contracts, shedding light on slave prices during the latter years of Warad-Sin and the first half of the reign of Rim-Sin. The archives of Ṣissu-nawrat and Šumšunu-watar from Kish/Damrum do the same for real estate prices under the rulers of the Manana dynasty.

Archives frequently contain real estate purchase contracts. These allowed the purchaser to establish right of ownership and protect against future claims. For that reason, they tended to be retained over time and passed on from one family member to another. Archives that contain a *ṭuppi ummatim*[69] "original (sales) document" provide the purchase history or "chain of transmission" of a single property.[70] Examination of all the real estate contracts in a private archive reveal what kinds of property family members were purchasing, from whom they were purchasing, and the prices they were paying. Analyzed in context with other contract types often found in private archives such as field or house rentals, loans and other purchases, they provide an overall picture of a family's income and expenditures over time.

Archives are invaluable in document reconstruction. In the case of damaged sale contracts, where critical pricing information may be missing, other tablets in the archive can provide the missing information. In the case of undated tablets, it is often possible to assign a

[69] CAD U/W p. 118. The full phrase is *ṭuppi ummatim u ṭuppāt šurdê*.
[70] See Charpin 2010c: 53-69 for a discussion of the transfer of property deeds and their value in reconstructing private archives.

date range based on dated tablets in the archive. This proved crucial for dating UET 5, 607 and 636, two important texts that list commodities and their silver equivalents.[71]

To summarize: This study utilizes archives whenever possible to draw conclusions regarding price and wage fluctuations.

I.9 Naming conventions

Before moving to Part I, it is also important to comment on how I have chosen to transcribe personal names (PNs) and deity names (DNs).

The transcription of Akkadian PNs has evolved over time and differs between Assyriologists. I have used Stamm and the Chicago Assyrian Dictionary (CAD) as my primary sources,[72] supplemented by the index of names in Pientka 1998. To simplify transcription and avoid debate over how names were pronounced (and therefore how they should be rendered), I have opted to transcribe PNs and DNs without diacritical marks with the exception of "Š," "Ṣ," and "Ṭ."

For identifying and transcribing Sumerian PNs, I have adopted the following conventions. If a Sumerian verbal form or the Sumerian genitive is used, the PN is considered to be Sumerian. Thus, {d}IM-MA.AN.SUM is transcribed Iškur-mansum and not Adad-mansum; and LU-{d}EN.LÍL.LA is transcribed Lu-Enlila and not Awil-Enlil. If a PN is written logographically or with a combination of logograms and syllabograms, but not with a Sumerian verbal form or Sumerian genitive, it is considered to be Akkadian. Thus, GEMÉ-{d}UTU is

[71] Charpin 1986: 69.

[72] Based on Stamm: a) PN's following the pattern DN-i-din-nam are transcribed DN-iddinam (Stamm 1939: 37 and 138 note 2, b) PN's following the pattern i-din-DN are transcribed Iddin-DN, c) {d}EN.ZU is transcribed "Sin" and d) "ia" is transcribed "ja". In a few instances, I have opted to use the CAD over Stamm. PN's derived from *râšu* "to rejoice" are, for example, transcribed Riš-DN (CAD) instead of Reš-DN (Stamm). KASKAL x KUR (ILLAT) in PN's is transcribed "tillatu" (not ellatu as in Stamm) based on CAD I p. 84 and CAD T p. 408. {d}EN.ZU-APIN is transcribed Sin-eriš "desire Sin" (imperative) based on CAD E p. 284 d.

transcribed Amat-Šamaš; ÌR-{d}EN.ZU is transcribed Warad-Sin, and DUMU-er-ṣe-tim is transcribed Mar-erṣetim. An exception is UR-{d}UTU, which is transcribed Ur-Utu, following the general convention.

Part I: Analysis of Prices and Wages by Category

Chapter 1: Real Estate

1.1 Houses

1.1.1 Introduction

Contracts for sales of houses constitute the largest percentage of sales in the Old Babylonian period. Private houses have been excavated at sites such as Ur, Nippur, Larsa, and Sippar, and these have drawn the interest of scholars. As a result, a number of articles have been published dealing with houses: their location, construction, and appearance; the terminology used to describe them in legal documents; and various aspects of a real estate sale.[1] The 40th Rencontre Assyriologique International, held in 1993, was devoted to houses and households.[2]

While several authors have undertaken localized studies of house prices,[3] scholars attempting to make sense of the data have been frustrated by the extreme variability or inconsistency of house prices.[4] Mark Van De Mieroop summed it up best when he wrote:

> We may conjecture that the political and economic climate, the relationship of the contracting parties, the condition of the building, and its location had something to do with pricing, but our documentation will not reveal it to us.[5]

Anne Goddeeris echoed his sentiment:

> Real estate prices are an extremely hard matter to study. Any overview shows that they are extremely inconsistent, probably because we do not know anything about the details

[1] See, e.g., Matouš 1950, Charpin 1980 and 2009; Janssen 1996; Kalla 1996; Koshurnikov 1996; Stone 1977, 1987, and 1996; Van De Mieroop 1992 and 1999; Woolley 1976; Al-Rawi and Dalley 2000; Richardson 2002; Jahn 2005; and Rede 2010. Van De Mieroop 1999 gives an excellent overview of houses and real estate sales in ancient Mesopotamia (with notes and bibliography).
[2] Papers were edited by Veenhof in PIHANS 78, published in 1996. The following contributors are cited in this section: Charpin, Janssen, Kalla, Koshurnikov, and Stone.
[3] Van De Mieroop 1992 for Ur, Matouš 1950 for Larsa, Stone 1977 for Nippur, Charpin 1980 for Kutalla, and Koshurnikov 1996 for Dilbat.
[4] Kalla 1996: 250; Goddeeris 2002: 330; Van De Mieroop 1992: 200-201.
[5] Van De Mieroop 1999: 274.

> adding to or detracting from the value of the piece of real estate, such as the neighborhood, specific installations, esthetics, the relations between the different parties, the existing obligations between them or anything else that might play a role.[6]
>
> Van De Mieroop concluded that:
>
> Long-term price fluctuations cannot with certainty be observed or related to political or economic changes.[7]

All, however, is not lost. The data grudgingly yields its secrets, provided one takes a wider approach. This means collecting and analyzing house prices from multiple sites encompassing north, south, and central Babylonia, which this study does. It also means covering a broad chronological scope, which this study also does. All told, 374 house prices have been collected and analyzed, considerably more than the studies cited above, making it possible to reach some modest, albeit preliminary, conclusions regarding house prices and house price fluctuations. In Part II, where house prices are analyzed in conjunction with prices of land, commodities, slaves and livestock, a clearer picture of price fluctuations emerges.

1.1.2 Sources

Sales contracts are the best source of information for house prices, but court cases, division of property agreements, exchanges, and even two letters also provide prices. "House sales" in the following remarks will be used generically to refer to all sources of house prices.

One might conclude that 374 house prices would be sufficient to identify price fluctuations. Unfortunately, quantity is not quality. Three factors complicate their interpretation:

[6] Goddeeris 2002: 330.
[7] Van De Mieroop 1999: 275.

1) The description of the property being sold makes it difficult to correlate property and price.

2) The source documents show an uneven chronological and geographical distribution.

3) The source documents exhibit a high degree of price variation.

Each of these is discussed below.

1.1.2.1 Description of the property

Houses were described in the source documents in terms of their area, condition, borders, and sometimes location. The following comments regarding these are high level, included to prepare the reader for a discussion of pricing.[8]

The area of the property being sold was always given. Dimensions were sometimes included (TMH 10, 34a; ARN 5; PBS 8/1, 6). Measurements range from precise, down to the ŠE or inches (UET 5, 153; TCL 10, 5 and 129), to imprecise, qualified as "more or less" (TS 33; TMH 10, 32a). Size varied considerably: as little as a few square feet of house could be sold, indicating that we are dealing with portions of houses, a room, or even part of a room.[9]

Sumerian terminology was primarily used to describe a house's condition. This study has collected prices for houses described with the following terms:

É(.DÙ.A)[10] (edua)	"House in good state (of repair)"
(É.)KI.ŠUB.BA (kišuba)	"Ruined house"
(É.)KI.GÁL (kigal)	"Bare ground"

[8] For a more in-depth understanding, readers should refer to the studies cited in the opening paragraph.
[9] E.g., UET 5, 153 (3 5/6 GÍN 15 ŠE = 0.07 SAR); UET 5, 154 (7 GÍN IGI.4.GÁL É.DÙ.A= 0.12 SAR). See Van De Mieroop 1999: 260-264, especially 261.
[10] See Charpin 1980: 160-164. In his text translations, Charpin translates É.DÙ.A as "built land." On p. 162, he refers to É.DÙ.A as "des maisons en bon état."

(É.)KISLAḪ[11] (kislah) "Bare ground"[12]

É.DÙ.A was the only term consistently used across Babylonia during the entire Isin-Larsa/Old Babylonian period. The other terms saw more localized use.[13] The question remains, however, as to what the description "house in good repair" really means: It tells us nothing about how old the house was, the number of rooms in the house, the layout of the house, or the condition of its walls, roof or foundation. All of these were omitted from the sales contract. It is therefore no wonder that there was such a wide variation in price.

Generally speaking, a "house in good repair" (hereafter just "house" or "edua") was a mudbrick or baked brick,[14] roofed structure; square, rectangular, or linear in shape;[15] with significant wood elements (beams, doors, stairs);[16] and possibly two stories in height.[17] In cities, houses shared a common wall with neighboring houses (Sum: I.ZI DAL.BA.NA).[18] In the countryside, they were likely freestanding.

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[11] Written: KI.UD = KISLAH or KI.KAL=KISLAH$_3$. Note that KISLAH also means "threshing floor." (Akk. *maškanum*). See CAD M/1 p. 369. It is conceivable (but impossible to prove) that some of the parcels designated KISLAH categorized under houses and land were "threshing floors."

[12] Charpin 1980: 160 defined (É.)KI.ŠUB.BA as "emplacement d'une maison tombée en ruine," KISLAḪ as "terrain nu" (163-165), and KI.GÁL also as "terrain nu" (165), without venturing to speculate on the precise difference between KISLAḪ and KI.GÁL. He did go a step further in Charpin 2009: 132, where he distinguished KISLAḪ in an urban context as designating "un espace vide entre des bâtis" as opposed to "un terrain agricole à l'abandon" when used in a rural context. At Sippar, there are a total of 52 sales of KISLAḪ and KI.GÁL (24 of KISLAḪ, 28 of KI.GÁL). Given that their average sizes and prices are comparable, my assumption is that they both refer to an "empty (house) lot." Note too, that VAS 9, 42:1 and 43:1 (case) equates É.KISLAḪ with É.KI.GÁL. See, however, TS 100a, where a house is described as É.KI.ŠUB.BA KISLAḪ.

[13] Real estate sales from Sippar and Dilbat sometimes use the term É.BUR.BAL (Akk. *burubalûm*), to describe houses, which CAD B p. 343 defines as "unimproved land?" and which Charpin 1980: 163 considers akin to KISLAH. Because houses so described were limited in number as well as geographically and chronologically, they were judged less suitable for tracking price fluctuations and excluded from the study.

[14] Houses could also be made of reeds. See TIM 5, 17, sale of É.GI.DÙ.ᶠAᵀ (Akk. *kikkišum*) "reed fence, reed wall, reed hut" per CAD K p. 352 and Charpin 2009: 134.

[15] Stone 1996:232 characterizes houses as either "more or less square structures with rooms on three or four sides of a courtyard" or "consisting of long thin buildings with rooms and courts strung out in a linear pattern."

[16] See Charpin 2009: 133 regarding DI 1272 and 135.

[17] See Charpin 2009: 133 note 14 and 134 note 15 regarding YOS 13, 94. Sales documents do not indicate a second story, but its absence is not proof that houses didn't have a second story. Note BE 6/1, 105, where a house is specifically described as having "no upper story." However, see Stone 1996: 231 who believes that most houses were generally one story high.

[18] E.g., YOS 12, 42:2. CT 8, 39a:5 uses the Akkadian equivalent: *i-ga-ar bi-ri-tum.*

Edua described residences, houses that people lived in, as opposed to storage facilities (É.GÁ.NUN.NA)[19] or stalls (É KI.LAM).[20]

Besides size and condition, the location of the house was established by naming the owners of the bordering properties, usually all four sides. Houses were most often bordered by other houses but could be bordered by temples.[21] Houses commonly fronted a street (SILA.DAGAL.LA).[22] It was sometimes noted that a house had an egress or "right of way" to the street that crossed another owner's property.[23]

Location could also be established by giving the city, town, or neighborhood where the property was situated. For example: "(located) in Great Sippar" (MHET 2/3, 450; 2/6, 866), "in New East City" (VAS 22, 4, 6, 8, and 12 all from Babylon), "in the city of Dunnum in Iškun-Ištar" (CT 8, 15a), or "in the temple cloister" (the *gagûm*, in BE 6/1, 37).

1.1.2.2 Distribution of sources

Before looking at prices, let us examine the data's chronological and geographical distribution. Refer above to Table Intro-1 for this information in conjunction with Table 1.1-1. For southern and central Babylonia, the majority of house sales are dated after 1835. For the Kingdom of Larsa, there are 21 sales prior to Warad-Sin, and, for the 1st Dynasty of Isin, there are 19 sales (from Nippur and Isin) dated prior to Damiq-ilišu, the last king of the dynasty. That's a total of only 40 house sales covering roughly 90 years (1923-1834), which

[19] Charpin 2009: 133.
[20] Charpin 2009: 134.
[21] E.g., YOS 15, 81 and MHET 2/6, 855 and 866.
[22] E.g., Gautier Dilbat 4; PSBA 33, 30; YOS 12, 355 and passim.
[23] E.g., CT 6, 36b and CAD M/2 under *mūṣûm* A for more examples. See Baker 2009: 95-96 for her comments on "blind alleys" in neo-Babylonian cities.

works out to less than one sale for every two years. Compare this to the reigns of Warad-Sin and Rim-Sin, with 112 sales covering 70 years (1834-1763).

Provenience	Count
Ur	43
Larsa	70
Kutalla	41
Nippur	58
Isin	21
Sippar (inc. ed-Dēr)	101
Dilbat	11
Kish	18
Babylon	10
Marad	1
Total	374

Table 1.1-1 House sales by provenience

None of Kutalla's 41 house sales are dated before Rim-Sin, and all but three are dated from the second half of his reign till Samsu-iluna year 10 (1792-1739), a period of roughly fifty years.

Beginning with Hammu-rabi's conquest of the Kingdom of Larsa in his 30th year through Samsu-iluna's eleventh year, house sales at Ur, Larsa, Nippur, Kutalla, and Isin were dated with their year names, except for the eighth year of Samsu-iluna, when southern Babylonia briefly fell under the control of Rim-Sin II.[24] (Two sales of kišuba from Kutalla are dated under Rim-Sin II.) Samsu-iluna lost the south in his eleventh year (1739).[25] Thereafter, Old Babylonian tablets cease from Ur, Larsa, and Kutalla.

The latest house sale we have from Isin (BIN 7, 186) is dated to Samsu-iluna's twelfth year (1738). At Nippur, we continue to see house sales dated under Samsu-iluna until year 29

[24] Charpin 2004: 337-339.
[25] Charpin 2004: 342-346.

(1721), after which he lost control of the city to Ili-ma-ilum, the first king of the Sealand Dynasty.[26] One house sale from Nippur (PBS 8/1, 89) is dated under his reign.

The chronological distribution of house sales for northern Babylonia is also skewed. Sippar has by far the largest number of sales, and these cover the biggest time span. House sales occur at Sippar from the time of Sumu-la-El and his local dynastic contemporaries (albeit without prices, see below). Seventy-nine of Sippar's 101 house sales date to the reigns of Hammu-rabi and Samsu-iluna. Thereafter, sales of houses drop off sharply. There are only 5 house sales from Sippar dated under Abi-ešuh, 6 house sales under Ammi-ditana, and 2 sales from Sippar under Ammi-ṣaduqa. The latest sale at Sippar dates to Ammi-ṣaduqa year 18 (1629). There are no sales of houses from Sippar, Dilbat, Kish or Babylon dated to the reign of Samsu-ditana.

The chronological distribution of house sales at Kish differs markedly from Sippar. There are 15 house sales dated under Sumu-la-El of Babylon and contemporary local dynasts but none after Sumu-la-El until the reign of Ammi-ditana, under whom three house sales are dated.

To summarize: From a chronological standpoint, the data is unevenly distributed. There are significant gaps in the data as well as periods that are represented with only a few sales.

1.1.2.3 Observations regarding the sale

A few observations regarding the sale itself are also helpful before discussing prices. Again, the reader is referred to the publications listed in the opening paragraph for a more in-depth treatment.

[26] Charpin 2004: 360-361.

As a general rule, houses and fields were sold separately. In other words, contracts were drawn up for each sale. There are exceptions where both types of real estate were sold in the same contract.[27]

To purchase a house, buyers paid silver, and the contract stated the quantity of silver that was paid.[28] In two sales, the buyer paid silver and other commodities.[29] Starting in the reign of Ammi-ditana, a person wanting to buy real estate could pay in installments.[30]

Some contracts indicate that, along with the house, doors,[31] bolts,[32] thresholds,[33] and even stairs[34] were sold. These must have added to the price of the property. Unless doors were specified in the sale, the assumption is that they were removed by the seller prior to the new owner taking possession.

Marcelo Rede studied 143 real estate sales (houses and land) from Larsa to learn about buyers and sellers.[35] His analysis revealed that many more sellers were typically listed in a single contract than buyers, and that the same buyer occurred in multiple contracts. In almost a third of the sales, groups of sellers (up to 5 individuals) were listed, and in two-thirds of those, the sellers were related by blood or marriage.[36] He contrasted that with buyers, where only 7% of the sales had multiple buyers.[37] Groups of sellers included: fathers and sons; husband, wife

[27] BE 6/2, 43 (house and field); TMH 10, 26 (house and field [priced separately]); UCP 10/3, 5 (house and orchard).
[28] In sales of houses from Sippar dated prior to Sin-muballiṭ, it was customary to omit the quantity of silver paid. The contract instead stated only that "silver was paid." E.g., CT 6, 43 (AS), BE 6/1, 8 (Sl) and 13 (Sa). The same held true for land sales.
[29] In YOS 5, 112, Balmunamhe pays barley in addition to silver. In YOS 8, 69, he pays barley, wool, and sesame oil in addition to silver.
[30] See De Graef 2016. When the final payment was made, a sales contract was drawn up, and the buyer received the property.
[31] E.g., UET 5, 137; TIM 4, 11; TMH 10, 32a; MHET 2/6, 874 and 888.
[32] E.g., SAOC 44, 17; OECT 8, 1.
[33] E.g., RA 88/2 p. 129-133.
[34] E.g., PBS 8/2, 142.
[35] Rede 2010: 156-179. When I cross-checked his sales against my database, I found that he was able to utilize texts that were not suitable for incorporation into this study due to broken description, prices, or area.
[36] Rede 2010: 163 figure 2.
[37] Rede 2010: 160.

(and sons); mother and sons; two brothers, and couples. While women were listed as sellers, there are only two sales where they are listed as buyers (and both are in conjunction with their husband). He concluded that selling a house is "*une manifestation d'un accord collectif pour la disposition du bien et témoigne de la solidarité dans la prise de décision sur la destinée matérielle de la famille*."[38]

In many real estate contracts, buyers and sellers were brothers.[39] Partition of property agreements show that, when an owner died, the house was divided amongst the male heirs.[40] One sibling might subsequently purchase another sibling's (inheritance) share,[41] presumably with the goal of making the house "whole" again .[42]

There are several contracts where the "city" sold real estate.[43] How it came to own the property is given in only one contract, which states that the property had been abandoned and had no owner.[44] There must also have been cases where the owner died without heirs, or all of the heirs died, resulting in the city taking possession.

Nadītum-priestesses frequently occur as buyers and sellers of houses in northern Babylonian cities.[45]

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[38] Rede 2010: 168-169.
[39] E.g., UET 5, 131; YOS 12, 102; BE 6/1, 88; MHET 2/6, 846. In MHET 2/3, 356, a brother sold to his sister.
[40] Although I'm not aware of a partition of property agreement where a female receives a share, CT 8, 18b shows that must have been the case. In the text, Lamassi purchases her sister's inheritance share. See also YOS 12, 227, where 3 brothers sold their sister's inheritance share, and Contratti Ojeil 43 (land sale, where Naramtum sells her inheritance share to her brother).
[41] E.g., Gautier Dilbat 10; MHET 2/6, 846; TMH 10, 26; SAOC 44, 47; and UET 5, 131. It's also common in land sales. E.g., RA 53/2, 19:91; Contratti Ojeil 16 and 43. Cf., Van De Mieroop 1992: 215 who points out "…we have no evidence that one brother bought up all the other shares and thus kept the house intact."
[42] The other siblings most likely continued to live in the house. See Charpin 1996: 224.
[43] See Charpin 2005a: 134-142. In VAS 13, 20, the sellers are the "city and elders." In VAS 18, 17, the mayor, ten PN's, and the "elders of Kār-Šamaš" are listed as the sellers. In MHET 2/6, 871, the sellers are "the mayor and elders of the city." All three plots were kislah and sold at exceptionally low prices (1.33-2.55 shekels/sar).
[44] YOS 12, 194:1-2 1 ½ SAR KI.ŠUB.BA *ni-di-tum ša be-lam la i-šu-ú*. See Charpin 2005a: 144.
[45] E.g., YOS 15, 81; VAS 22, 12; VAS 22, 16; Arnaud Louvre (=BBVOT) 1, 110; MHET 2/2, 158.

Several real estate sales even involve royalty. In BIN 7, 69, Damiq-ilišu, king of Isin, purchased a house and gave it to his royal musician. In Contratti Ojeil 32, Enlil-bani, king of Isin, sold 7.42 sar of empty ground for 74 1/6 shekels silver. In VAS 13, 9, the king (Sin-muballiṭ of Babylon) sold Erṣetija a field of 9 iku for 30 shekels silver.[46] And MHET 2/6, 887 and 888 (from Sippar) were two purchases made on behalf of Iltani, "the king's daughter" (possibly the daughter of Abi-ešuh).[47]

Buyers unrelated to sellers purchased adjoining properties to expand the footprint of their houses. Charpin proposed this in 2003, based on real estate purchases made by Ištar-ili and his son Iddin-Amurrum at Larsa and Ṣilli-Ištar at Kutalla.[48] He bolstered his argument with archaeological evidence from the 1987 and 1989 excavations at Larsa, which uncovered two houses, each with about 20 rooms, that averaged 500 sq. meters in area.[49] Moreover, a 1985 surface survey revealed several houses with an area of over 1000 sq. meters.[50] In support of his proposition, in addition to the aforementioned buyers, the database contains multiple real estate purchases by Adad-gugal at Ur, Balmunamhe of Larsa,[51] Ṣissu-nawrat or Šumšunu-watar at Kish, and Iddin-Lagamal and his son Nahilum at Dilbat.[52]

Upon completion of the sale, the seller rolled his seal on the tablet, and the buyer kept the sealed tablet. This was done so that, if the sale was contested, the buyer could produce the tablet proving that he legally purchased the property. The tablet was not destroyed but was

[46] See Charpin 2018b for more examples and analysis.
[47] See Richardson: 2017: 67-108. There were probably three persons with this name and title. Richardson questions whether this title (DUMU.MUNUS LUGAL) actually meant that they were princesses.
[48] Charpin 2003: 315-320.
[49] Ištar-ili and Iddin-Amurrum resided in house B 27.
[50] Charpin 2003: 313.
[51] Van De Mieroop 1987 focuses on the archive of Balmunamhe.
[52] For another noteworthy example, see MHET 2/6, 874, 878 and 880 where Ubar-lulu, son of Nur-ilišu purchased three parcels totaling almost 4 sar adjoining his house. In all cases, the seller was Belšunu, son of Šumi-erṣetim. The purchases probably took place over a period of a few years, judging from similarities between the witness lists.

passed down through the heirs. Fact is, real estate sales were contested, and there are a number of court cases which prove so.[53] In one court case,[54] an heir of the original buyer was sued over fifty years later. The original buyer and seller had died, likely also had the witnesses. Fortunately, the heir had the sales contract to prove ownership.

Some contracts give a history of prior sales of the property.[55] To acquire this information, the scribe may have had access to the *ṭuppi ummatim* "original (sales) document."[56] Several land sales required the seller to produce the *ṭuppi ummatim*.[57]

1.1.3 House prices

To better understand pricing, Table 1.1-2 breaks down house sales according to condition description. The table shows that the average size of kigal (bare ground), kislah (bare ground), and kišuba (ruined house) was greater than edua (good condition).[58] Given that the dimensions for edua were calculated by measuring roofed floor space from the inside of the walls and did not

	Description	Avg. price shekels/sar	Avg. size in sar	Price range shekels/sar	Count
All sites	edua (good condition)	24.07	1.02	0.75-120	196
	kislah (bare ground)	9.89	1.54	0.12-37.71	71
	kigal (bare ground)	12.90	1.70	1.00-90.00	37
	kišuba (ruined)	5.25	1.59	1.00-40.00	38
	pî pāšim	14.09	1.45	10.00-22.86	4
	zú {giš}al	15.00	0.67	15.00-15.00	1
Subtotal					347
	ganun(a) (storage)	2.87	0.83		4
	combos (two kinds of property, one price)	10.91	4.03		23
Total					374

Table 1.1-2 House prices by condition description

[53] E.g., TS 001; SAOC 44, 22; CT 48, 5.
[54] RA 9/1 p. 22.
[55] MHET 2/6, 895; YOS 14, 335; BE 6/1, 105; BE 6/2, 64, YOS 14, 335.
[56] See above I.8 and Jansen 1996: 240. Several tablets so labeled were found in the house of Ur-Utu in Sippar.
[57] For examples and commentary, see Voet & Van Lerberghe 2014: 261-279 and Charpin 2010c: 53-69. Note OLA 21, 63 (a list of *ṭuppi ummatim u ṭuppāt šurdê*). Text edition by Charpin: www.archibab.fr/T19319.
[58] "Edua" includes edua, all variations and restorations, and e(dua) AL.BA.LÁ(?) and É.GI.DÙ.ᵀAᵀ (possibly a reed walled house). Combos (sales of edua with other types of real estate) are excluded.

take into account wall thickness or any land around the house,[59] this is not surprising. On the contrary, when bare ground or ruined properties were sold, walls were not a constraint.

The table also shows that, on average, edua was more expensive than kigal, kišuba, or kislah. Kišuba was the least expensive, which is not surprising given there are implied costs in demolition to bring it to bare ground before a house can be built. Price ranges for each condition description show a wide variation. Buyers paid as little as 1/6 shekel for kišuba" (TS 8) up to 144 shekels for edua plus storage (YOS 8, 128), and as little as 3/4 shekel/sar (YOS 8, 81) to 120 shekels/sar (BE 6/1, 37).[60]

The average price for the four house sales described *pî pāšim* "mouth of the ax" and the one sale qualified ZÚ{giš}AL "tooth of the hoe" falls between that of kislah and kišuba. Charpin pointed to earlier research that showed that these terms designated "*un bâtiment en mauvais état, promis à la destruction*."[61] This may be correct, but one might have expected their prices to have been lower, thus more in line with prices for kišuba. A house "in a bad state" implies that the house was, in part, still standing, as opposed to bare ground (kislah or kigal). More price attestations are needed to help clarify the distinction.

Table 1.1-3[62] breaks down sales of edua (houses in good condition) by the area of the parcel sold. As the area of the parcel increased, its price per sar tended to decrease.[63] Sixty-eight sales were for parcels of edua less than or equal to one-half sar (18 square meters). Clearly

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[59] Stone 1996: 231. Van De Mieroop 1999: 265-266.
[60] Van De Mieroop 1992: 200; 1999: 269; Kalla 1996: 250; and Goddeeris 2002: 330 noted the extreme variability and/or inconsistency of house prices.
[61] See Charpin 2009: 134 (and notes 17 and 20), and NABU 2005/70. Harris 1975: 17 note 20 defined it as "crooked street." That is, the house is situated at the entrance to a crooked street.
[62] To validate the table using the database, select subcategory description = "edua" and all of its variations per above (Table 1.1-2), but do not select combos. For each range in the table: select all areas of parcels sold that fall within that range and highlight the unit price column for the rows selected. Excel gives a count of highlighted cells and computes the average of highlighted cells automatically. I'm still not certain that these belong in your manuscript, rather than in an accompanying leaflet to the database, or in addendum.
[63] Also observed by Rede 2010: 176-177.

these parcels were too small to be houses. Instead, as noted above, we are looking at sales of individual rooms or even portions of rooms.

Area in sar	Avg. price shekels/ sar	Count
0.00-0.49	31.73	46
0.50-0.50	26.25	22
0.51-0.99	26.59	39
1.00-1.00	14.90	26
1.01-1.49	25.49	19
1.50-1.50	20.33	12
1.51-1.99	22.02	7
2.00-2.00	19.53	8
>2.00	12.84	17
Total		196

Table 1.1-3 Price of edua by area of parcel sold (all sites)

Table 1.1-4 breaks down house prices by provenience. It shows that mean house prices varied between cities.[64] Focusing on edua, houses tended to be the most expensive at Ur and the least expensive at Kutalla. This makes sense: Ur was a major metropolitan center, and Kutalla was an outlying settlement of Larsa (I hesitate to use a modern term "suburb;" "satellite settlement" is more appropriate.) Given that space was at a premium at Ur, especially in the residential areas within the city walls where Woolley excavated the tablets,[65] it is no wonder that edua at Ur was more expensive than edua at Kutalla. Note too that the average prices of kigal and kišuba are also noticeably higher at Ur compared to Kutalla, additional evidence for a price differential between the two sites. Average prices for edua at major urban centers like Larsa, Nippur, Isin, Sippar, Kish, and Dilbat were lower than those at Ur but considerably higher than

[64] Combo sales and sales of storehouses are excluded from this table and all following tables.
[65] This is apparent from plans of late Isin-Larsa period houses. See Woolley 1976: plates 122 (EM site) and 124 (AH site).

those for Kutalla, also possibly because of space considerations. Babylon has too few sales to draw any conclusions.

The best way to identify long term trends in house prices is to focus on sales of edua, as these occur at all sites. Table 1.1-5 breaks down prices of edua chronologically by site for Ur, Nippur, Larsa, Sippar, and Isin.[66] The chosen date ranges correspond to the reigns of individual rulers and/or major events that occurred in a given ruler's reign. For example, the reign of Rim-Sin is divided between years 1-30 (accession year until his capture of Isin), and 31-60 (ending with his defeat by Hammu-rabi). Hammu-rabi's reign is divided between years 1-30 and 31-43 (with his capture of Larsa marking the dividing point). The reign of Samsu-iluna is divided into years 1-11 (accession until his loss of southern Babylonia) and 12-38 (end of his reign). Where data is sparse, the range of years spans multiple rulers. For each range, all the edua sale prices have been averaged to compute the average or mean price per sar, and all the edua areas have been averaged to compute the average or mean area per house. Both are shown on the table along with the count of sales for each range.[67]

[66] Kish, Babylon, and Dilbat have been excluded because they do not have enough house sales, and Kutalla has been excluded because its sales only cover an eighty year period (no sales prior to Rim-Sin).

[67] The table was created from the database as follows: In Excel, filter by category="house," then filter by provenience (Ur, Larsa, Nippur, etc.), then by ruler and year (select all years or years within the range), then by subcategory description="edua" (and choose all edua variants). Next, highlight the range of cells in the "unit price" column to get the average price in shekels per sar, and then highlight the range of cells in the "area of unit measure." column to get the average size. Excel computes the averages automatically and gives the count for the highlighted cells. Same for the previous table (without ruler).

City	Description	Avg. price shekels/sar	Avg. size (in sar)	Count
Ur	edua (good condition)	38.72	0.59	26
	kislah (bare ground)	1.50	2.00	1
	kigal (bare ground)	23.26	0.54	7
	kišubba (ruined)	14.42	0.85	7
Subtotal				41
Larsa	edua	23.70	1.36	41
	kislah	17.20	1.24	17
	kigal			0
	kišubba	9.91	1.33	4
Subtotal				62
Kutalla	edua	8.87	0.86	6
	kislah	3.63	1.46	4
	kigal	4.50	2.33	1
	kišubba	2.23	1.78	24
Subtotal				35
Nippur	edua	21.17	0.81	42
	kislah	6.85	1.92	9
	kigal			0
	kišubba	1.83	2.33	3
Subtotal				54
Isin	edua	24.81	0.86	13
	kislah	4.09	2.00	8
	kigal			0
	kišubba			0
Subtotal				21
Sippar	edua	22.59	1.32	41
	kislah	9.35	1.97	24
	kigal	10.55	1.98	28
	kišubba			0
	É *pî pāšim*	14.09	1.45	4
Subtotal				97

Table 1.1-4 Mean house prices by provenience

Kish	edua	19.50	0.97	14
	kislah	4.05	1.00	3
	kigal			0
	kišubba			0
Subtotal				17
Dilbat	edua	16.95	0.98	9
	kislah	19.98	0.63	2
	kigal			0
	kišubba			0
Subtotal				11
Babylon	edua	27.34	0.88	4
	kislah	10.86	1.12	3
	kigal			0
	kišubba			0
	é zú {giš}al	15.00	0.67	1
Subtotal				8
Marad	edua			0
	kislah			0
	kigal	10.00	1	1
	kišubba			0
Subtotal				1
Total				347

Table 1.1-4 Mean house prices by provenience (cont.)

From Table 1.1-5, it appears that price per sar of edua decreased over time at Ur, Nippur, Sippar, Isin and possibly Larsa. At Ur, average per sar prices prior to Warad-Sin were more than double what they were under Rim-Sin. At Nippur, average per sar prices for rulers prior to Damiq-ilišu and Rim-Sin were almost double the average under these rulers. The picture at Larsa is not as clear but hints at a price decline during the second half of Rim-Sin's reign with possibly lower prices under Samsu-iluna. At Isin, where there are fewer sales, prices of edua were higher prior to the reign of Damiq-ilišu than during his reign, and considerably higher than

the three sales we find dated under Hammu-rabi and Samsu-iluna. Sippar also showed declining prices over time. Average price per sar under Sin-muballiṭ was triple that under Samsu-iluna, with house prices declining during the reign of Hammu-rabi. Prices during the reigns of Abi-ešuh, Ammi-ditana, and Ammi-ṣaduqa were lower still. Both Matouš and Stone also noted

City	Ruler(s)	Range	Avg. price shekels/sar	Avg. size (in sar)	Count
Ur	AS - NA	1903-1850	71.46	0.56	6
	WS	1834-1823	24.66	0.66	3
	RS 1-30	1822-1793	30.79	0.65	15
	RS 31-60	1792-1763			0
	Ha 31-43	1762-1750			0
	Si	1749-1712	21.96	0.17	1
	broken		20.03		1
Total					26
Larsa	Se	1894-1866	33.33	3.00	1
	WS	1834-1823	23.43	1.32	15
	RS 1-30	1822-1793	30.43	1.57	16
	RS 31-60	1792-1763	12.90	0.83	7
	Ha 31-43	1762-1750			0
	Si 1-11	1749-1739	8.25	0.75	2
Total					41
Nippur	BS - Itp; Se -Siq	1895-1831	37.78	0.72	8
	RS and DI	1822-1763	19.41	1.04	15
	Ha 30-43	1763-1750	23.29	0.71	2
	Si 1-11	1749-1739	23.29	0.48	6
	Si 12-38	1738-1712	5.99	0.67	9
	Ilim	1720-	2.33	1.50	1
Total					41
Isin	Unin-Itp	1923-1831	41.26	0.38	6
	DI	1816-1794	11.80	1.34	4
	RS				0
	Ha 30-43	1762-1750	16.60	1.67	1
	Si 1-38	1749-1712	5.58	0.90	2
Total					13

Table 1.1-5 Mean prices of edua (good repair) by provenience and date range

Sippar	Sm	1805-1793	43.04	0.62	5
	Ha 1-30	1792-1763	37.78	1.13	9
	Ha 31-43	1762-1750	16.11	1.23	5
	Si 1-11	1749-1739	14.92	0.70	5
	Si 12-38	1738-1712	12.95	1.39	11
	Ae	1711-1684	11.72	2.42	2
	Ad & Aṣ	1683-1626	10.03	2.73	4
Total					41

Table 1.1-5 Mean prices of edua (good repair) by provenience by date range (cont.)

periods of declining house prices for Larsa and Nippur respectively,[68] while Van De Mieroop shied away from drawing conclusions regarding price fluctuations.[69] Admittedly, more data would strengthen the observations above.

1.1.4 Forced sales

Assuming house prices were declining, is it possible to determine why? Three texts from the archive of Iddin-Amurrum (TCL 10, 50; 67; and 128) and two texts from the archive of Ubar-Šamaš (YOS 8, 124 and VAS 13, 82), imply that one reason may have been forced sales. A number of scholars have taken an interest in these texts and commented on them, and the general consensus is that they indicate a forced sale.[70] The five texts, which are from Larsa, are discussed in the following paragraphs. At the end of this section, I suggest a possible mechanism as to how the forced sale was accomplished.

Iddin-Amurrum was actively purchasing real estate during the reign of Rim-Sin. There are 6 sales in the database documenting his house purchases, and another 10 documenting his purchases of orchards. By so doing, Iddin-Amurrum carried on in the tradition of his father,

[68] Matouš 1950: 31; Stone 1977: 272, which she associated with an economic crisis that hit Nippur in Samsu-iluna's 11th year.
[69] Van De Mieroop 1999: 271-275.
[70] See, e.g., Kraus 1984: 31-50; Bouzon 1995: 11-30; Veenhof 1999: 607-609; Goddeeris 2002: 329-330; and Charpin 2003: 316-319. Rede 2010: 174-176 cited texts which he believed showed a seller's reluctance to sell. However, "reluctance to sell" does not necessarily equate to "forced to sell."

Ištar-ili, who was the purchaser in 9 house sales dating to Sin-iqišam, Warad-Sin, and the early years of Rim-Sin.

In TCL 10, 50, (dated RS 20), Iddin-Amurrum purchased 2/3 sar of edua (house in good condition) for 66 shekels silver from Abi-iddinam, Ili-liṭṭul, and Ilijatum. TCL 10, 67 (dated five years later in Rīm-Sin 25), refers to the same purchase. The translation of the key passage (lines 1-11) reads: "In accordance with the royal decree (*ana ṣimdat šarrim*), Iddin-Amurrum gave Ili-liṭṭul and Ilijatum, sons of Abi-iddinam, 16 shekels silver as compensation (*pūhtum*)[71] for 2/3 sar of edua that Iddin-Amurrum purchased from Abi-iddinam."[72]

In TCL 10, 128 (dated RS 16), Iddin-Amurrum purchased 2/3 sar of edua (house in good condition) for 17 shekels silver from Nur-Šamaš and Nur-Sin. TCL 10, 132 (date uncertain), refers to the same purchase: Lines 1-9 reads: "In accordance with the royal decree, Iddin-Amurrum gave Nur-Šamaš 6 shekels silver as compensation (*pūhtum*) for the house he purchased from Nur-Šamaš and Nur-Sin."[73]

Two texts from the archive of Ubar-Šamaš show similar intent to those discussed above. In YOS 8, 124 (dated RS 38), Ubar-Šamaš purchased 1 sar of "ruined house" from Ṣilli-Irra and his sons Ahum and Apil-ilišu for 27 1/3 shekels silver. VAS 13, 82 (dated RS 44, six years later), may refer to the same parcel.[74] It states that Ubar-Šamaš "established 1 sar of edua for Ṣilli-Irra and his wife and gave him additional compensation" (*tappīlātum*) of 5 1/2 shekels silver in accordance with the royal decree" (lines 1, 5-11).

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[71] CAD P p. 493 defines *pūhtum* as a "substitute" or "exchange object," which implies that the silver corresponds to the value of the property. See also the following note.
[72] Translation based on CAD Ṣ p. 194-195 (under *ṣimdatum)* and see these pages for additional citations.
[73] TCL 10, 70 (dated RS 27) has a format similar to TCL 10, 67 and 132. It indicates that Iddin-Amurrum paid 10 shekels silver to Lamassatum and Ili-iddinam "as compensation (*pūhtum*) for the 2/3 sar (house) he purchased from Iribam-Sin." The phrase "in accordance with the royal decree" is missing as is the original sale between Iribam-Sin and Iddin-Amurrum.
[74] Both parcels are the same size, but YOS 8, 124 describes the property as kišuba where VAS 13, 82 has edua. Note however, the bordering properties are different between the two documents.

Taken at face value, TCL 10, 67 and 132, and VAS 13, 82 indicate that Iddin-Amurrum and Ubar-Šamaš were required to compensate sellers with additional silver for prior house purchases as a consequence of a "royal decree" (*ṣimdat šarrim*). Had the original prices they paid for these properties been abnormally low, one could have argued that TCL 10, 50 and 128, and YOS 8, 124 were forced sales, which implies the sales were made at below market prices. But, quite to the contrary, their sale prices are at the upper end or higher than the averages for Larsa shown in Table 1.1-4. This contradiction has puzzled Assyriologists, and to date there has been no explanation to satisfactorily account for it.[75]

To address this conundrum, let us start with what we know:

1) The purpose of a *ṣimdatum* was the cancellation of private debts issued for consumption.[76]
2) Debts pertaining to real estate were included.
3) To obtain debt remission, the debtor had to sue the creditor.[77]
4) A *ṣimdatum* did not benefit a real estate purchaser.[78]

Given the above, it stands to reason that a *ṣimdatum* benefitted a real estate seller. But how?

The transactions of Iddin-Amurrum and Ubar-Šamaš, coupled with the analysis of house prices presented in section 1.1.3, and taking into account prior discussion of these transactions

[75] Kraus 1984:41-42; Goddeeris 2002: 329-330 and 384.
[76] Goddeeris 2002: 327 (summarizing Kraus 1984). See also Charpin 1990 (translated into English in Charpin 2010 chapter 6) and Veenhof 1999.
[77] For example, in TCL 10, 105, Iddin-Amurrum, son of Šamaš-tappe (plaintiff), sued Iddin-Amurrum, son of Ištar-ili (defendant), over an orchard the defendant had purchased from Šu-Nanaja. The court rendered a judgement "as a consequence of the royal decree" in favor of the plaintiff and awarded the plaintiff 1 iku of orchard and 1 ½ iku of uncultivated ground. In TS 58 (from Kutalla), Ilum-bani sued Mar-Amurrim "as a consequence of the royal decree" over his purchase of an orchard from Sin-magir (his adopted father) and was awarded "orchard and house." In YOS 8, 52, Elmešum sued an unnamed buyer over 30 sar of orchard "as a consequence of the royal decree" and received 6 shekels (additional compensation). See also SAOC 44, 22 (from Nippur) and Goddeeris 2002: 334.
[78] This is proven by YOS 8, 110 and 139, which include a phrase indicating that "(the sale was transacted) after the royal decree of the king," meaning that it is not subject to the royal decree. See also Goddeeris 2002: 332-333 for more examples.

by scholars cited above leads me to propose the following: TCL 10, 50; TCL 10, 128; and YOS 8, 124 are, in fact, forced sales, but that the purchase price in these sales is actually the debtor/seller's outstanding loan amount.[79] If true, that makes them akin to modern day foreclosures.

In a foreclosure, the bank assumes the role of the purchaser, and the homeowner (debtor) assumes the role of the seller. The bank decides to foreclose because the debtor is either insolvent or unwilling to repay the money owned.[80] As a result of a foreclosure, the debt is "wiped clean," but the bank takes the property, hoping to sell it and recoup at least a portion of the money lent. Once the property sells, the debtor receives the portion of the sale which exceeds the loan (principle plus interest). In most cases, the debtor gets nothing.

On the surface, the aforementioned three contracts look like "normal" house sales with the caveat that the prices Iddin-Amurrum and Ubar-Šamaš paid are at the upper end or higher than the averages for Larsa. Considering the prices they paid not as prices but rather as the seller's outstanding loan amount could explain why they are so high. That would mean that Iddin-Amurrum and Ubar-Šamaš did not actually pay silver to the sellers but instead forgave the loans (i.e., the amount listed as the sales price). In return, they took the properties.[81]

When Rim-Sin subsequently proclaimed a *ṣimdatum*, the sellers' debts were cancelled, which meant they could sue Iddin-Amurrum and Ubar-Šamaš to recover their houses. Iddin-Amurrum and Ubar-Šamaš had the option of either returning the properties they had "purchased" through "loan forgiveness" or repurchasing the properties. I'm suggesting that the

[79] Goddeeris 2002: 330 was thinking along these lines when she wrote: "In those cases where the lot is returned as a whole to the debtor/seller, or replaced by a comparable lot, the purchase price must have corresponded to the loan and its interest."
[80] Homeowners who are "under water," where the money they owe exceeds the value of the house, could be considered "unwilling" to pay.
[81] See Renger 2002: 151 citing Kraus 1984: 42 who was thinking along these lines.

additional silver Iddin-Amurrum paid – 16 shekels for 2/3 sar of edua in TCL 10, 67 and 6 shekels for 2/3 sar of edua in TCL 10, 132 – both termed *pūhtum* -- when added to the original loan amount, approximated the value of properties at the time of the lawsuit. In TCL 10, 50 and 128, the per sar prices of the properties are high, which is not surprising given that Iddin-Amurrum was a wealthy man purchasing prime properties in well-to-do neighborhoods. (E.g., in TCL 10, 128 the property purchased borders Iddin-Amurrum's own house.)

The situation for Ubar-Šamaš in VAS 13, 82 differs slightly from TCL 10, 67 and 132. In YOS 8, 124, Ubar-Šamaš purchased 1 sar of "ruined house" from Ṣilli-Irra and his sons Ahum and Apil-ilišu for 27 1/3 shekels silver. VAS 13, 82 required Ubar-Šamaš to compensate the debtors/sellers with 1 sar edua plus 5 1/2 shekels silver designated as *tappīlātum*, which CAD T p. 182 defines as "a compensatory or supplementary payment (made to offset a deficiency in exchanges, divisions of inheritance, etc.)." Again, I suspect the 27 1/3 shekels silver plus 1 sar edua + 5 1/2 shekels silver approximated the fair market value of the property.

Iddin-Amurrum and Ubar-Šamaš were well aware of the ramifications of a *ṣimdatum*. They must have known that they would eventually have to repurchase the properties. But the benefit of having immediate usufruct of the properties must have outweighed the write-off of an insolvent debtor's loan plus any additional compensation they'd eventually have to pay.

To summarize: The data shows a long-term trend of declining house prices in northern, central, and southern Babylonia during the reigns of Rim-Sin, Damiq-ilišu, Hammu-rabi, and Samsu-iluna, compared to their predecessors. I've proposed that the inclusion of a *ṣimdat šarrim* clause in contracts recording compensatory payments to debtors/sellers suggests that creditors such as Iddin-Amurrum and Ubar-Šamaš forced insolvent debtors to "sell" them real

estate at below market prices in return for writing off their debts but were later required to give the debtors additional compensation equal to the purchased properties fair market price. Until my supposition is confirmed, and because they are indistinguishable from "regular" sales, TCL 10, 50 and 128 and YOS 8, 124 have been included in mean price computations. But all of this must be considered conjecture until more house sales linked to documents recording "additional compensation" are published. Unfortunately, identifying a "foreclosure" sale is difficult, and their overall impact on mean house prices (if any) cannot at this time be measured.

1.2 Land

1.2.1 Introduction

A prodigious amount of literature exists concerning land in ancient Mesopotamia, and the OB period is no exception. Virtually every aspect of land has been investigated: land ownership, management, cultivation, and productivity, to name a few. Land prices though have received far less attention.[82]

In marked contrast to the Ur III period, the early OB period was characterized by an "explosion" of land sales.[83] 344 were deemed suitable for this study. Unfortunately, their value to a study of prices is impeded by the same factors that affect houses: an inadequate description of the plot sold, uneven chronological and geographical distribution of the source documents, and a high degree of price variation.

1.2.2 Sources

1.2.2.1 Description of the property

Sales contracts are the best source of information for land prices, but court cases, division of property agreements, loans, property exchanges, redemptions and letters also provide prices. "Land sales" in the following remarks will be used generically to refer to fields and orchards and all sources for their prices.

Land was described by type (field or orchard), area (acreage), condition or usage, and location. The area of the parcel sold was almost always given.[84] In those instances where

[82] The 41st Rencontre Assyriologique Internationale, held in 1994, was devoted to land. See Klengel and Renger 1999 for the papers presented at the conference. See Stol 2004: 824-859 for a general overview of land and Renger 1987: 49-67 for a discussion of land ownership, land prices, field rentals, and land productivity.
[83] For Ur III sales, see Steinkeller 1989. He records only 30 sales of houses, house lots, and orchards, and no sales of fields.
[84] UET 5, 170:4 (orchard sale) NÍG.NA.ME.A.BI "as much as there is" is an exception.

dimensions were given, the parcels sold were rectangular.[85] Size varied from 0.03 iku (TS 009) up to 84 iku (UCP 10/3, 1).

Sumerian terminology was employed to describe a parcel's condition or usage. Fields (A.ŠÀ) were described with the following terms:

GUG$_4$.ŠE	field in stubble[86]
ŠUKU	sustenance field
KISLAH	uncultivated[87]
Ú.SAL	meadowland
GÁN.DU$_6$	(located on a) slope or hill
GIŠ.GI	(with) reeds
KI.SU$_7$	threshing floor[88]
ŠE, ŠE.GIŠ.Ì	(planted with) barley or sesame

Orchards (KIRI$_6$) were described with the following terms:

GIŠ.GIŠIMMAR GUB.BA	planted with date palms[89]
GIŠ.GIŠIMMAR IB.SI	full of date palms
KISLAH	uncultivated
Ú.SAL	meadowland
AMBAR	reed marsh

A.ŠÀ and KIRI$_6$ were consistently used across Babylonia during the entire Isin-Larsa/Old Babylonian period for fields and orchards. The other terms listed above saw more localized use.[90] Besides area and condition or usage, the location of a field or orchard was

[85] Archibab 5 AO 11129; Contratti Ojeil 38; TMH 10, 35 and 50a.
[86] CAD E p. 250, 1b under *eqlum* and note other special designations on the same page. I agree with Mauer 1983: 69 that this term denotes fallowness.
[87] CAD N/2 p. 212 under *nidûtum*.
[88] BIN 7, 61 contains the only attestation of this term. The small size of the parcel (4 sar) makes it unlikely this is a field, even though lines 3 and 4 refer to it as A.ŠÀ. Line 7, however, qualifies the parcel as KI.SU$_7$. CAD M/1 p. 369 equates SU$_7$ (LAGAR x ŠE) with Akkadian *maškanum* "threshing floor." Interesting to note: CAD's lexical section shows *maškanum* also equates with KISLAH, "uncultivated plot" or "empty lot."
[89] VAS 13, 70 and UET 5, 427 also give the number of date palms planted.
[90] For example, GUG$_4$.ŠE was only used at Isin and Nippur.

established by naming the owners of the neighboring properties. All four sides were usually given. Fields and orchards were most often bordered by other fields and orchards. They were also commonly bordered by canals.[91] In one instance, a field bordered a road,[92] and there is one contract where an orchard was bordered by houses.[93]

The irrigation district (*ugārum*) in which the field was situated was sometimes given. For example: "(located in) *ugār Buša*,"[94] or "(located in) *ugār* APIN NU.ZU, literally "the irrigation district that has known no plow."[95]

1.2.2.2 Distribution of sources

Before looking at prices, it is worth reviewing the data's chronological distribution. (Refer to Table Intro-1 for this information in conjunction with Table 1.2-1).

Provenience	Count
Ur	24
Larsa	68
Kutalla	2
Nippur	57
Isin	22
Sippar (inc. ed-Dēr)	84
Dilbat	8
Kish	63
Babylon	4
Marad	6
Kisurra	2
Und. -no.	1
Und. -so.	3
Total	344

Table 1.2-1 Land sales by provenience

[91] E.g., YOS 5, 133, Gautier Dilbat 5, and note MHET 2/3, 386:3 *kirbānam ana nārim* "... (side) facing the canal eroded." See CAD K p. 402 (*kirbānum* mng. 1e).
[92] CT 6, 49c with MHET 2/3, 423.
[93] YOS 5, 122.
[94] MHET 2/3, 421; Voet & Van Lerberghe Mél. Sjöberg 2, 1; CT 47, 71.
[95] TMH 10, 46. Not surprisingly, the field is qualified as "uncultivated."

Like houses, the chronological distribution of land sales is uneven, with the majority of sales occurring under Rim-Sin, Hammu-rabi, and Samsu-iluna. For southern Babylonia (Ur, Larsa, Kutalla), there are a total of 94 land sales. 68 of these (72%) were dated under Rim-Sin. Seventeen sales were dated prior to Rim-Sin, and 7 sales after Rim-Sin (3 sales under Hammu-rabi,[96] 4 under Samsu-iluna, and one sale dated under Rim-Sin II). The date of one sale is broken. 72 sales were orchards[97] versus 22 sales of fields. There are no orchard sales dated under Hammu-rabi or Samsu-iluna. The latest dated land sale in the south is dated under Rim-Sin II (1742-1741).

For central Babylonia (Nippur and Isin), there are a total of 79 land sales. 70 are sales of fields, and 9 are sales of orchards. Twenty-four sales are dated under rulers that preceded Rim-Sin and Damiq-ilišu. Fifteen are dated under Rim-Sin, and 18 under Damiq-ilišu. One sale is dated under Hammu-rabi, and 18 are dated under Samsu-iluna. Two are dated with year names of Ili-ma-ilum of the Sealand Dynasty. There is also one (undated) letter. The latest dated land sale in central Babylonia is Ili-ma-ilum year 1 (1721).

For northern Babylonia, Sippar's 84 land sales cover the largest time span, with sales skewed towards Hammu-rabi and Samsu-iluna. The earliest land sales at Sippar date from the reigns of Sumu-la-El and contemporary local dynasts. Unfortunately, as we saw with sales of houses, it was customary to omit the price and simply state that "silver was paid." This practice gave way by the reign of Sin-muballiṭ. Consequently, there are only 8 sales from Sippar with prices prior to Hammu-rabi. There are 28 land sales dated under Hammu-rabi and 29 dated under Samsu-iluna through year 31 of his reign. After Samsu-iluna, land sales drop off sharply,

[96] One of these sales is the subject of a letter (TCL 7, 38) from Hammu-rabi to Šamaš-hāzir and his associates where he instructs them to investigate a sale of 18 iku field for 1 mina silver from Ahum to Ili-ippalsam.
[97] Six of these are denoted as KISLAH "uncultivated," but are likely land that is suitable for orchards based on the descriptions of the parcels and/or bordering properties.

which was also observed for houses. There are 8 land sales from Sippar under Abi-ešuh, 10 under Ammi-ditana and Ammi-ṣaduqa, and none under Samsu-ditana.

Kish's 63 land sales depart from the pattern above with 54 sales dated under local dynasts (contemporaries or predecessors of Sumu-la-El) and 4 dated under Sumu-abum.[98] There are no land sales from Kish dated under Hammu-rabi or Samsu-iluna, and one sale is dated under Ammi-ṣaduqa.

Section 1.1.2.3 covered various aspects of a house sale. For the most part, the comments in that section apply to land as well and need not be repeated.

1.2.3 Land prices

To better understand pricing, Table 1.2-2, breaks down land sales according to a parcel's condition or usage.

Fields comprise about 70% of sales, orchards about 24%, with combos and undetermined making up the rest. Uncultivated fields make up less than 10% of field sales. Nine sales simply qualify the parcel sold as kislah "bare ground" or "uncultivated." They do not specify whether a field, orchard, house plot, or threshing floor was sold (although this can sometimes be inferred from the bordering properties). No wonder these exhibit such a wide price variation![99]

[98] These four land sales may, in fact, be dated under Manana of Damrum; see de Boer 2018: 55-57.

[99] The nine sales can be identified in the database by selecting category="land,", subcategory="land," and subcategory description="kislah" or "kislah$_3$." In five of these sales, the parcel sold was between 0.50 to 3.00 iku, with prices ranging from 1.50 to 4.22 shekels/iku. Based on their area and price, along with the description of the bordering properties, these were probably intended for cultivation as fields or orchards. However, in four of the sales, the parcels sold were all less than 0.25 iku, ranging from 6.00 to 24.00 sar with per iku prices from 16.66 to 500 shekels/sar. Given their small size and high price, it's unlikely they were intended to be used for agriculture (even though they may border other fields or orchards). Take, for example, YOS 5, 122, where the Nanna temple sells 24 sar of kislah to Sin-nur-matim and his son Balmunamhe for 2 mina of silver (500 shekels/sar), a substantial sum! Line 2 describes the land as "part of the orchard of Kalala," which is why it was categorized in the database under "land" and not "house." The bordering properties, however, are all houses. How Balmunamhe intended to use the land is not stated in the contract. It's well known that he was very wealthy and owned considerable real estate and slaves (Van De Mieroop 1987). One might speculate he purchased the property in order to transform it into a "country estate," erecting a house (or houses) and planting gardens. See also Table 1.2-2 under "land."

Table 1.2-2 shows that orchards were about four times more expensive per iku than fields. Not surprising, cultivated fields were more expensive than uncultivated fields. Fields and orchards described as Ú.SAL "meadowland" or GÁN.DU$_6$ "(located on) a slope" were about half the price on average as fields or orchards not so described.

	Description	Avg. price shekels/sar	Avg. size in iku	Price range shekels/iku	Count
Field	aša	5.44	8.84	0.14-40.00	158
	aša gugše	2.82	3.85	0.70-20.00	39
	aša šuku	1.02	5.33	0.50-1.67	3
	aša še	2.27	1.10	2.27-2.27	1
	aša še[giši]	1.25	16.00	1.25-1.25	1
	aša kislah	4.53	5.47	0.33-22.00	19
	aša usal(lum)	2.64	4.30	1.64-7.00	9
	(aša) gandu	3.72	0.80	1.66-7.50	3
	aša gišgi	0.40	10.00	0.38-0.42	2
	aša kisu	2.08	0.04	0.04-0.04	1
	[aša?] or [aša]	18.89	3.67	3.33-50.00	3
Subtotal					239
Orchard	kiri	20.17	1.11	2.22-80.00	73
	kiri & kislah	9.26	3.80	0.79-29.06	15
	kiri usal	2.50	2.00	2.50-2.50	1
Subtotal					89
Land	kislah	66.01	0.87	1.50-500.00	9
	combos (two kinds of property, one price)	9.19	3.47	1.61-25.00	6
	⌜x⌝-ra-am-tum	3.33	5.00	3.33-3.33	1
Subtotal					16
Total					344

Table 1.2-2 Land prices by condition or usage of parcel sold

There are three sales of "sustenance fields" (A.ŠÀ ŠUKU).[100] It's possible that obligations or restrictions linked to those fields made them less desirable, resulting in a price that was considerably lower than sales of A.ŠÀ.

Averaging 1 iku in area, orchards tended to be smaller than fields, which averaged over 8 iku. Fifteen orchard sales break down the parcel sold into cultivated versus uncultivated.

Table 1.2-3 breaks down land prices by provenience. At Ur and Larsa, sales of orchards predominated. In the north (Sippar, Dilbat, Kish, Babylon), the majority of sales were fields, as was the case in central Babylonia (Nippur and Isin).

It also appears that there were regional price variations. Looking at field sales from cities with more than ten sales, mean per iku prices were highest at Sippar (5.88), followed by Kish (5.30), Nippur (2.81), and Isin (2.03).[101] Larsa, Ur, Kutalla, Dilbat, and Babylon have too few field sales to draw any conclusions. For orchards, mean per iku prices for Ur (15.48) and Larsa (12.85) were less than half of those for Kish (33.09) and Nippur (32.93). Sippar, Dilbat, Babylon, Isin, and Kutalla have too few orchard sales to draw any conclusions.

[100] UET 5, 401; YOS 8, 84; TMH 10, 38a.
[101] At Nippur and Isin, the average is computed based on sales of A.ŠÀ and A.ŠÀ GUG$_4$.ŠE.

City	Description	Avg. price per iku (in shekels)	Avg. size (in iku)	Count
Ur	aša šuku	1.67	6.00	1
	aša kislah	≤2.40	8.00	1
	aša usal	2.17	2.00	1
	kiri	15.48	1.26	15
	kiri and kislah	8.18	6.08	4
	kislah	251.25	0.62	2
Subtotal				24
Larsa	aša	5.11	13.12	6
	aša šuku	0.89	6.00	1
	aša še[giši]	1.25	16.00	1
	aša kislah	2.22	3.00	4
	aša usal	1.84	5.13	4
	aša gandu	7.50	0.40	1
	kiri	12.85	1.36	33
	kiri and kislah	9.56	3.17	11
	usal kiri	2.50	2.00	1
	kislah	2.77	1.58	4
	combos	6.93	5.90	2
Subtotal				68
Kutalla	aša gandu	1.83	1.00	2
Subtotal				2
Nippur	aša	2.44	8.14	14
	aša gugše	2.98	3.23	30
	aša šuku	0.50	4.00	1
	aša kislah	1.80	2.33	4
	kiri	32.93	0.15	6
	combos	1.61	1.62	2
Subtotal				57
Isin	aša	0.78	4.50	2
	aša gugše	2.31	5.83	9
	aša kislah	9.37	1.80	6
	aša gišgi	0.40	10.00	2
	aša kisu	2.08	0.04	1
	kiri	16.43	0.60	2
Subtotal				22

Table 1.2-3 Mean land prices by provenience

Sippar (inc. Sippar ed-Dēr)	aša	5.96	8.12	69
	aša kislah	3.71	23.00	2
	aša usal	3.36	4.25	4
	kiri	16.75	0.61	3
	kislah	26.83	0.10	3
	combo	20.00	0.80	1
	[aša?] or [aša]	3.33	5.00	2
Subtotal				84
Dilbat	aša	8.33	4.16	8
Subtotal				8
Kish	aša	5.30	9.66	50
	aša kislah	2.78	6.00	1
	kiri	33.09	0.73	10
	combo	5.50	10.90	1
	[aša]?	50.00	1.00	1
Subtotal				63
Babylon	aša	3.99	12.75	4
Subtotal				4
Marad	aša	7.78	15.00	3
	kiri	54.17	0.60	3
Subtotal				6
Kisurra	aša še	2.27	1.10	1
	˹x˺-ra-am-tum	3.33	5.00	1
Subtotal				2
Und. -no.	aša kislaḫ₃	1.17	5.00	1
Und. -so.	aša	3.37	11.00	2
Und. -so.	kiri	8.89	4.50	1
Subtotal				4
Total				344

Table 1.2-3 Mean land prices by provenience (cont.)

The best approach to identify changes in land prices over time is to focus on sales of orchards (for southern Babylonia) and fields (for northern and central Babylonia), as these comprise the majority of land sales. The data is shown in Table 1.2-4.[102] For Ur and Larsa, with a combined 47 orchard sales, the table shows a drop in mean orchard prices over time. Prices were highest before Warad-Sin but were lower during his and Rim-Sin's reigns. At Sippar, with 69 field sales, Table 1.2-4 also shows a drop in mean prices over time, beginning before Hammu-rabi through the reign of Ammi-ṣaduqa. Nippur's 43 field sales also seem to show a price decline, although the trend is less apparent due to fewer sales. Although Kish has 50 field sales, their chronological distribution (see above) does not lend itself to this type of analysis. And Babylon, Dilbat, and Isin have too few field sales to make any determination.

Table 1.2-5 helps the reader understand what the mean represents. To create the table, per iku field prices (A.ŠÀ and A.ŠÀ only) from Sippar, Kish, Dilbat, and Babylon were averaged.[103] The resulting value of 5.9 shekels can be considered the mean price paid per iku of field in northern Babylonia over the entire Old Babylonian period (excluding Samsu-ditana, under whom no field sales are dated.) Sales were then categorized according to whether they were dated before or after Hammu-rabi. Sales dated during his reign were assigned to the latter category. Next, price ranges in one shekel increments were defined above and below the mean, and each sale was assigned to its appropriate price range.

[102] Counts include damaged sales, but averages do not.
[103] Out of 131 sales selected, seven "tier 2" sales where price/iku could not be calculated because the price or area was damaged, or the date was broken were excluded. All remaining sales are "tier 1."

City	Ruler(s)	Date range	Avg. price shekels /iku	Avg. size (in iku)	Count
Ur, Larsa- kiri only	Se-Sir	1894-1841	26.07	0.71	8
	WS	1834-1823	19.05	1.48	4
	RS 1-30	1822-1793	9.56	1.81	18
	RS 31-60	1792-1763	12.86	1.05	17
	Ha 31-43	1762-1750			0
	Si 1-11	1749-1739			0
Price Range			2.22-50.00		
Total					47
Sippar (inc. Sippar ed-Dēr) - aša only	<Ha	1894-1793	10.68	7.28	8
	Ha 1-30	1792-1763	6.90	5.81	18
	Ha 31-43	1762-1750	4.55	10.83	3
	Ha (no year date)	1792-1763	2.75	7.25	2
	Si 1-11	1749-1739	5.03	7.12	11
	Si 12-38	1738-1712	5.05	4.96	10
	Ae	1711-1684	4.67	12.83	8
	Ad & Aṣ	1683-1626	4.57	15.11	8
	uncertain				1
Price Range			0.33-40.00		
Total					69
Kish - aša only	Suab, Sl, LD	1894-1845	5.47	10.00	45
	ApS-Sm	1830-1793	3.83	6.75	4
	Ha 1-30	1792-1763			0
	Ha 31-43	1762-1750			0
	Si 1-11	1749-1739			0
	Si 12-38	1738-1712			0
	Ae	1711-1684			0
	Ad & Aṣ	1683-1626	3.67	6.00	1
Price Range			0.14-30.00		
Total					50
Nippur - aša & aša gugše	BS - Itp; Se -WS	1895-1823	4.44	4.70	13
	RS and DI	1822-1763	2.10	4.53	14
	Ha	1792-1750	1.11	9.00	1
	Si 1-11	1749-1739	3.38	2.13	6
	Si 12-38	1738-1712	1.17	4.79	7
	Ilim	1720-	2.51	4.79	2
Price Range			0.70-20.00		
Total					43

Table 1.2-4 Mean land prices by provenience by date range

Table 1.2-5 shows us that prices for fields tended to be higher prior to the reign of Hammu-rabi compared to field prices dated during his and his successor's reigns. The table shows that prices in 64% of the sales dated prior to Hammu-rabi fell below the mean whereas 75% of the sales under Hammu-rabi and his successors fell below the mean. Conversely, prices in 36% of the sales dated prior to Hammu-rabi were above the mean compared to 25% of the sales dated under Hammu-rabi and his successors. Eight sales dated before Hammu-rabi were at or above 11.90 shekels/iku compared to 2 sales dated under Hammu-rabi or his successors.

The table also shows that, between 2.90 and 3.89 shekels/iku, there is a "bulge" of 46 field sales. Twenty-seven of these were priced at 3.33 shekels/iku (that is, 1 mina silver per bur of field), which makes it the mode. When all sites are included, that number jumps to thirty-three.[104] This rate is found on field sales throughout Babylonia spanning almost the entire period under study.[105]

[104] Two of these are letters: TCL 7, 38 (Larsa?) and PBS 7, 188 (Nippur?).
[105] In TIM 5, 23:6, the price is expressed in terms of this rate: 1 (BÙR) 1 MA.NA KÙ.BABBAR "(price is)...one mina silver per bur (of land)." MHET 2/2, 189 also uses this phraseology.

Price Range (shekels/iku)	< Ha	% of total sales	≥Ha	% of total sales
0.00-0.89	3		2	
0.90-1.89	2		2	
1.90-2.89	5		5	
2.90-3.89	22		24	
3.90-4.89	4		5	
4.90-5.89	5	64%	7	75%
5.90-5.90	0		0	
5.91-6.89	8		3	
6.90-7.89	1		3	
7.90-8.89	0		2	
8.90-9.89	3		1	
9.90-10.89	3		4	
10.90-11.89	0		0	
≥11.90	8	36%	2	25%
Total	64		60	

Table 1.2-5 Field sales by price range - Sippar, Kish, Dilbat, Babylon

To summarize: The data points to a gradual decline in land prices during the OB period. This agrees with the conclusion I reached in my former study regarding declining land prices at Sippar.[106] This decline in land prices parallels the decline in house prices identified in the previous section and leads to an obvious question: Why did land prices decline?

Two reasons for a drop in land prices come to mind. The first is that forced sales depressed prices. The second is that land prices dropped because of a drop in land productivity. In support of the first hypothesis, two examples whereby sellers were "forced" to sell their land are discussed below.

[106] Farber 1978: 28-29.

1.2.4 Forced sales

Many years ago, while researching a paper on dynastic succession at Kish, I came across three sale contracts belonging to the archive of Sin-iddinam, son of Sanija, under the dynasty of the kings of Damrum from the so-called "Manana dynasty."[107] These tablets record purchases by Sin-iddinam from Birbirum, son of Dinikmum. In the first (RA 53/2, 16 – dated Halijum year "e"), Birbirum sold Sin-iddinam a field of 3 iku for 14 shekels silver (=4.66 shekels/iku). In the second, (RA 54/1, 39 – dated Abdi-erah year 1, month vi), which presumably took place sometime thereafter, Birbirum sold himself to Sin-iddinam for 13 shekels. In the third sale, (RA 54/1, 40 – dated "year after Abdi-erah 1," month iv), less than a year after the second sale, Birbirum sold two sons to Sin-iddinam for 15 shekels.[108] While we are ignorant of the relationship between Birbirum and Sin-iddinam leading up to these sales,[109] one thing is clear: Birbirum owed Sin-iddinam money. Sin-iddinam must have forced him to sell his land to repay his debt. The selling price apparently did not cover all the money he owed, which resulted in him selling himself and two sons to Sin-iddinam.

Two sales by Abum-ṭabum, son of Zanzanum, to Šu-Ninhursag show the same pattern. In TIM 5, 36 (dated Manana "d," month iii), Abum-ṭabum sold a field of 6 iku to Šu-Ninhursag for 19 ¼ shekels silver (=3.20 shekels/iku). In the same month of the same year (but presumably after TIM 5, 36), Abum-ṭabum sold his son to Šu-Ninhursag (TIM 5, 11) for 20 shekels. The price he received for his land was much less than 5.47 shekels/iku, which Table 1.2-4 shows was the mean sale price for fields at Kish at that time.

[107] Charpin 2004: 89-91.
[108] Charpin 1978: 23 used these three texts to establish the ruling sequence: Halijum – Abdi-erah.
[109] In RA 52/4, 7:221, (dated under Halijum), Birbirum is the first witness in a land purchase by Sin-iddinam.

These tablets -- recording the sales of Birbirum to Sin-iddinam and Abum-ṭabum to Šu-Ninhursag -- tell the same story. It is a story of desperation, of debtors forced to sell their land at below market (mean) prices, their children, and even themselves to pay their creditors. These sales were truly "forced" sales.

The rulers of Kish/Damrum must have been aware of buyers taking advantage of sellers in debt to them to acquire land cheaply, but they were perhaps powerless (or unwilling) to stop it. There is evidence, however, of some sort of restriction on the sale of fields at Kish. Proof comes from five sale contracts, listed in Table 1.2-6. Four record purchases of fields by Ilum-ma, son of Mallum over a two-month period, and a fifth records the sale of these same parcels from Ilum-ma to Dadušme-El [110] the following year.[111]

Dadušme-El paid Ilum-ma 270 shekels silver, equal to the sum Ilum-ma paid the sellers in the four purchases. Based on these sales, it appears that Ilum-ma was acting as an agent on behalf of Dadušme-El, but their exact relationship is unclear. For reasons unknown, Dadušme-El was not allowed to purchase the fields directly. To circumvent this restriction, he had Ilum-ma purchase the fields and then purchased them from Ilum-ma in a single transaction (UCP 10/3, 1).[112] Why Ilum-ma was allowed to make the purchase and not Dadušme-El is unknown.

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[110] The name, which appears with several variant spellings, is transcribed by de Boer as Dadušme-El (de Boer 2014: 100).

[111] See Goddeeris 2002: 275-276 for a summary of these sales and Charpin 2005a: 168 for his comments. Additional information regarding these contracts is as follows: In UCP 10/3, 4 and 6; and YOS 14, 106 and 107, Dadušme-El is the first witness in all four sales. In UCP 10/3, 1, four parcels are sold: 3000 sar, 2700 sar, 1800 sar, and 900 sar. The area of the first parcel can be restored from UCP 10/3, 6; the second parcel from YOS 14, 106; the third parcel from YOS 14, 107; and the fourth parcel from UCP 10/3, 4. The price in UCP 10/3, 1:19 is damaged (read: ⌜2⌝+ [2] ½ MA.NA). My suggested restoration of 4 1/2 mina is based on adding the prices from the 4 individual sales. I collated tablet photos for UCP 10/3, 4 and 6 against UCP 10/3, 1 and Lutz's copies and transliterations.

[112] This same pattern was recognized by de Boer in the following texts: de Boer diss. p. 439-440 and RA 8 p. 78-79 no. 7. In the first, Bunu-balum, son of Ṣibarum, purchased a 4 iku field for 10 shekels from Warad-Sin, son of Sanaja. In the second, Bunu-balum sold the field to Šumšunu-watar, son of Gubbani-idug for the same price. Both are dated in the same year and same month. See de Boer 2014: 440.

Note too that the total acreage of land purchased (84 bur) was substantial and the price paid per iku was considerably lower than the mean. The presence of up to seven sellers (all brothers) on a single transaction indicates that the decision to sell land was not undertaken lightly. It required the collective approval of the family.[113]

Reference	Ruler	Year date	Year	Day. Month	Desc.	Size (iku)	Price (shekels)	Shekels/iku	Sellers	Buyers
UCP 10/3, 6 and case	LD-Abd	1	<1868	_.vi	field sale	30.00	90.00	3.00	Labisama, Warad-Sin, Ali-lama, Samsanum, Awīl-ilī, and Abi-<a>rah, sons of Ubasum	Ilumma
YOS 14, 106 and case (=JCS 15/2, 120:52)	LD-Abd	1	<1868	_.vi	field sale	27.00	90.00	3.33	Milkija, Sin-nija, Ilaja, Ibbi-Sin and Jabuhum, sons of Paratija	Ilumma
and case (=JCS 15/2, 119:51)	LD-Abd	1	<1868	_.vi	field sale	18.00	60.00	3.33	Kukunum and Ahuja, sons of Manibum	Ilumma
UCP 10/3, 4 and case	LD-Abd	1	<1868	_.viii	field sale	9.00	30.00	3.33	Labisama, Sin-rīš, Warad-Sin, Ali-lama, Samsanum, Awīl-ilī, and Abi-arah, sons of Ubasum	Ilumma
UCP 10/3, 1	LD-Man	2	<1868	broken	field sale	84.00	270.00	3.21	[Ilum]-ma, son of [Mal]lum	[Da-di]-˹èš˺-me-el

Table 1.2-6 Purchases and sales of Ilum-ma

To summarize: Purchasers were able to acquire fields at Kish from buyers in financial distress. The land sales by Birbirum to Sin-iddinam and by Ahum-ṭabum to Šu-Ninhursag are evidence of "forced" sales, and the same may be said for the purchases of Ilum-ma on behalf of Dadušme-El. All three purchasers paid prices that were lower than the mean price for fields at Kish (5.47 shekels). Ilum-ma's purchases suggest that the sale of land at Kish was restricted, but that the restriction could be circumvented. The proportion of land sales that were "forced"

[113] See also Rede 2010: 168-169, as well as the commentary above regarding house sales.

will likely never be known,[114] and neither the extent to which they depressed land sale prices overall.

1.2.5 Declining productivity

The second reason proposed for a drop in land prices was declining land productivity. Evidence comes from field rentals, which show a gradual decrease in the amount of barley per unit area which a tenant was required to pay for the lease of a field. For northern Babylonia, field rental rates under Hammu-rabi and Samsu-iluna ran about 18 gur barley per bur of land (or 1 gur per iku, typically one-third the field's yield), and there are indications that it was higher still prior to Hammu-rabi.[115] But by the time of Ammi-ditana and Ammi-ṣaduqa, the rental rate had dropped to between 6 and 8 barley per bur of land, a possible indication that a bur of land was producing less.[116] Coincident with this drop, the price of fields declined at Sippar from 10.68 to 3.95 shekels/iku. This also goes hand in hand with a long term rise in the price of barley, which is demonstrated in chapter 3.1.

1.2.6 Was land a good investment?

Can the preceding remarks on land prices help us determine whether land was a good investment?

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[114] Five sales from Kish contemporary with the sales discussed above have prices of 10 shekels/iku or greater. These do not appear to be "forced" sales.

[115] E.g., YOS 14, 113 (rent of 7 gur for 6 iku of field – Mananâ); Dalley Edinburgh 38 (rent of 6 gur for 2 iku field – Mananâ); BBVOT 1, 62 rent of 4 ½ gur for 1.3 iku field – Sl 31; CT 33, 42 (rent of 8 ½ gur for 7 iku field – Immerum); Waterman Bus. Doc. 37 (rent of 3 1/3 gur for 2 ½ iku field – Immerum).

[116] See Leemans 1975: 141-142 for a discussion of rental rates. Declining rental rates were first documented in Schwenzner 1915: 124-127. Another reason why the expected income from leased fields could have dropped could have been a shortage of people interested in taking these fields in rent, giving those willing to do so greater bargaining power and the ability to better negotiate their own share of the harvest.

Assuming an investor with surplus capital had decided to purchase land, it is reasonable to assume he based his decision in a large part on the payback period, the time it takes to recoup the initial investment. Payback period for land is calculated by dividing the initial investment by the sum of the profit from each harvest, where profit = gross income – expenses. Simply put: the longer the payback period, the less profitable the investment.

Let's establish the parameters for a calculation of the payback period. Sippar has the largest number of field sales of any site used for this study. There are 23 field sales from Sippar dated under Hammu-rabi, the most under any ruler. The mean price for those 23 sales is 6.20 shekels/iku. An investor purchasing land could recoup the investment by leasing out the field and collecting rent.[117] As stated above, under Hammu-rabi, a lessor (owner) received rent of about 1 gur barley per iku of field. This typically equaled 1/3d of the crop,[118] which implies a total yield of 3 gur/iku or 54 gur/bur Expenses were borne by the tenant.[119] Using 1 shekel silver as the average price of 1 gur of barley under Hammu-rabi (see section 3.1) results in a payback period of about 7 years (or 7 harvests).[120] But as Stol pointed out,[121] one must account for the fact that the field had to be left fallow every other year (to maintain its productivity), which doubles the payback period to 14 years, excluding taxes.[122] Fourteen years is, however,

[117] The archive of Šumšunu-watar of Kish shows him purchasing fields and orchards and leasing fields and orchards. In OECT 13, 280, for example, Šumšunu-watar leases out a field of 6? iku and orchard in month 5 of Sumu-abum year 13. In RA 8, 1, dated the same month and year, he purchased a field of 11 ½ iku. See also YOS 14, 109 and 113, where Šumšunu-watar is owed barley for the lease of his field (and orchard in 109). There are eleven sales in the database where Šumšunu-watar purchases fields and/or orchards.
[118] Leemans 1975: 141. CH §46 indicates rental rate could be 1/3 to 1/2 the yield. CH §58 and §255 indicate that 1 bur of field could yield 60 gur of barley, in line with a 1 gur per iku field rental rate (equal to a yield of 54 gur/bur) found in field rentals under Hammu-rabi. Stol 2004: 840-841 shows that a yield of 60 gur/bur is not implausible.
[119] Stol 2004: 850 and see CAD M p. 204 (*mānahtum* mng. 1b).
[120] Van De Mieroop 1992: 192, using slightly different price and yield parameters (and excluding expenses), calculated that it took three harvests to recover the price of a field, spread out over six years to account for leaving the land fallow. He assumed the purchaser did not lease out the field but farmed it himself, which would have shortened the payback period.
[121] Stol 2004: 840-841.
[122] Instead of payback period, Renger 1987: 59 looked at how much land was needed to support a family. He calculated a family of five (1 adult male and 4 dependents) consumed 7.2 gur barley/year, which required 14 iku of

overly optimistic, in that it assumes an "average" harvest each year. That was definitely not the case.[123]

This leads to an obvious question. Given a minimum payback period of 14 years, why would anyone buy land?[124] The answer probably is that the investor did not sell the barley he received, but rather loaned it out. Barley loans were extremely profitable. Van De Mieroop has shown that the standard 33% interest on barley loans was not for one year, but for the term of the loan, which could be as little as one month.[125] Moreover, when harvests were poor, the tenant almost certainly ended up borrowing barley from the landowner (lessor) to feed his family. It's no wonder the archives of individuals such as Sin-iddinam, Šumšunu-watar and Ṣissu-nawrat from Kish show them purchasing land and making loans.[126] In the case of Šumšunu-watar, his archive also includes field leases (examples cited above).

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field to produce (assuming half cultivated, half fallow). His calculation was based on a yield of 20 gur/bur (333 sila/iku), which he considered to be the average barley yield during the OB period. Using 20 gur/bur instead of 54 gur/bur to calculate payback period would almost triple the fourteen-year estimate.

[123] Even in modern-day America, not unlike their ancient counterparts, farmers are at the mercy of the weather. A longtime friend of mine, who farms 80 acres in central Illinois, stated that "for every good year (harvest), there are 2-3 bad years and 5 okay years." (Personal communication 7/30/2018.) The primitive farming techniques employed by the Babylonian farmer, the greater susceptibility of their crop to diseases and natural disasters, coupled with perennial warfare undoubtedly skewed that ratio towards the negative. For a study of the variability of rainfall and its effect on yields in the Middle Assyrian kingdom, see Reculeau 2011. This variability of yields (harvests) in Babylonia is reflected in OB barley prices. See chapter 3.1 and especially the discussion of TMH 10, 105 therein.

[124] For an Illinois farmer contemplating a land purchase, a fourteen-year payback is not bad. In the same personal communication, my friend calculated that it would take that farmer 31 years at 2018 land and corn prices to recoup an investment in land. His estimate is based on the following: an acre of "good" farmland in Illinois in 2018 sells for about $8,000. Using a corn price of $3.80/bushel and a yield of 200 bushels of corn per acre (both price and yield vary year to year) yields $760 in gross income per acre minus estimated expenses of $500.00 per acre, which leaves $260.00 an acre profit before taxes.

[125] Van De Mieroop 1995: 357-364.

[126] Goddeeris 2002: 265-270; 284-285.

To summarize: The price of land in Babylonia seems to have gradually declined during the Old Babylonian period. We can see this decline in field prices at Sippar and Nippur and orchard prices at Ur and Larsa. A decline in land productivity, which went hand in hand with the decline in land prices, was most likely a contributing factor. Forced land sales (and perhaps even the issuance of "royal decrees") may have also exerted downward pressure on land prices.

Chapter 2: Slaves and Livestock

2.1 Slaves

2.1.1 Introduction

While the consensus among Assyriologists is that slavery never played a dominant role in economic production in the ancient Near East,[1] the relative abundance of documents recording sales of slaves, their frequent appearance in contracts of hire, and the high proportion of legislation devoted to them in the Hammu-rabi and Ešnunna law codes underscore the importance of slavery in the Old Babylonian period. Slave sale contracts are the primary source for slave prices, but prices or price equivalences for slaves are also found in division of property agreements, exchanges, accounts, loans/guarantees and letters. All told, 197 attestations of slave prices have been utilized by this study. In the following remarks, "slave sales" refers generically to all sources.

In spite of their relative abundance, the sources for slave prices are not as useful as one might hope. As explained below, the main reason is that they do not provide enough information to correlate price to the person being sold. Moreover, as we've seen for houses and land, they exhibit a wide variation in prices, complicating the effort to identify price fluctuations. No wonder Andrea Seri called the study of slavery in the OB period an "underexplored subject."[2] The following remarks are intended to provide the reader with background information to preface a discussion of slave prices.

[1] This position was most recently (and forcefully) upheld by Seth Richardson. See Richardson 2019c: 1-58. For earlier studies of slavery, see Culbertson 2011: 7 and Neumann 2011: 21. Their articles are included in a compilation of proceedings from a two-day seminar on slaves and households in the Near East, held at the Oriental Institute, University of Chicago, March 5-6, 2010. For an in-depth discussion of Late Old Babylonian slave sale contracts (including prices) and the slave trade, see Van Koppen 2010.
[2] Seri 2011: 60.

2.1.2 Sources

Slave sale contracts provide only the most basic information about the person or persons being sold. They state the slave's name(s) and parentage. They indicate sex: adult male (SAG.ÌR) and adult female (SAG.GEME$_2$). They indicate maturity: child or infant (DUMU or DUMU.GABA).[3] And they state the number of individuals being sold. Beyond that, they provide little additional information. Some indicate the slave was "house-born"[4] or came from another city or territory.[5] A few contracts specify purchase of a "healthy" slave.[6] One sale notes that the slave being sold was sick.[7] Two qualify the slaves as young men.[8] None give a slave's age or, in the case of females, any indication of beauty and/or child-bearing potential,[9] all of which would have helped correlate price to product. Judging from the appearance of slaves in division of property agreements, where they are listed alongside moveable property, owners regarded their slaves simply as commodities.

Slave sale contracts almost never state the work the slave was expected to perform.[10] However, slaves frequently appeared in contracts of hire, where they were hired out by their

[3] GABA means "breast" in Sumerian. DUMU.GABA were probably still babies or, at the very least, they were not yet weaned.
[4] E.g., OLA 21, 2 "house-born"; YOS 12, 322:2-3 "…house-born, son of a slave." The designation of a slave as "house-born" meant that the slave could not be freed through the issuance of an *andurārum* because the slave had never been free. See Charpin 1987: 37, Charpin 1990: 19, and Charpin 2010: 89-90 (English translation).
[5] E.g., TLOB 23 "born in a house in Suhum"; YOS 13, 408 "1 female slave…from Ešnunna." . On the origins of foreign slaves, see Van Koppen 2004: 13-17. Note the unusual origin "born on a roof" in YOS 12, 74:2.
[6] E.g., JNES 21/2, p. 75, loan to purchase a "healthy, male Subarian slave" (1 SAG.ÌR SU.BIR$_4${ki} *nam-ra-am).* Also, CT 48, 47:8 (SAG.GEME$_2$ *na-wi-ir-tam* "healthy female") and Meissner BAP 4 (male). See CAD N/1 p. 244 mng. 3 sub *namrum.* This qualification, in sales, seems to refer to health, not beauty.
[7] Contratti Ojeil 86 (CCO, p. 125-126): 1 SAG.ÌR TU.RA. The contract stipulates that the sellers are to repay the sales price to the buyer should the slave die. See www.archibab.fr/T20479 for text edition.
[8] VAS 9, 146, 1 LÚ.TUR ŠI-NI-BU...*wa-ri-it-tum e-ˈliˀ-[tum*] "1 young man, PN(?)...to be sold downstream or upstream" (cited CAD E, p. 100). Also, Edzard Tell ed-Dēr 129:col. III lines 5-6: 1 SAG.ÌR TUR KÙ.BI 12 GÍN "1 young male slave worth 12 shekels silver."
[9] Although not a slave sale, ABIM 20:82 (undated letter), refers to a "…very healthy slave, who has given birth once or twice" (cited CAD N/1 p. 244).
[10] Two exceptions are CT 48, 28, where the slave is identified as *kāṣirtum* (a crafts person producing textiles by a special technique - CAD K p. 264), and YOS 5, 253, where the slave is given to do pottery work. Also, note CT 52, 115, a letter where the sender instructs the recipient to purchase a trustworthy male slave to do grinding (Akk. *ararrūtum*) for the brewers of the temple of Marduk in Babylon.

masters. When their duties were specified, they were used as unskilled or menial laborers (e.g., hired to do harvest work, milling, brewing).[11] Standard practice was for the owner to receive the wages; the slave received food and drink. I am aware of two exceptions where a portion or all of the wages were paid to the slave.[12]

Native Babylonians could become slaves through their own volition.[13] People who found themselves deep in debt sold their children to their creditors, and occasionally sold themselves.[14] There are also a number of examples whereby people were pledged (or seized) as collateral for a loan or debt. They lived in the creditor's house and presumably worked for the creditor. When the debtor repaid the loan, the pledge (or person distrained) was freed.[15]

Captured soldiers (POWs) who weren't killed likely became slaves.[16] One loan may indicate that the silver borrowed was to be used to ransom the captive.[17] Men, women and children taken as booty were also sold into slavery.[18]

A slave could sue for his freedom. CT 6, 29 is a judgement concerning Warad-Bunene, whose master had sold him to Ešnunna for 90 shekels silver five years earlier (in Ae 24). He escaped, fled to Babylon, and was considered a free man. The court allowed him to return to his father's house to perform *ilkum*-service with his brothers.[19]

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[11] Discussed below in chapter 4.2.
[12] CT 33, 32. Wages are split 50/50 between the slave and his master. The slave was hired to do milling. Also AUCT 5, 131.
[13] Cf., Van Koppen 2004: 11 for his remarks on how people became slaves and their legal status as slaves.
[14] E.g., YOS 5, 132 self-sale to pay off his debt (*ana ḫubullišu*). Recall in Chapter 1.2 that Birbirum sold himself to Sin-iddinam. Search the database for "self-sale" for other examples. CH §117 specified a three-year limit for debt slavery, after which time the person serving as a "debt slave" was free.
[15] E.g., RA 74/2, 63 and 63a:115; YOS 5, 117; YOS 8, 78. See also Westbrook 2001.
[16] See Gelb 1973 and more recently Seri 2013: 110-141 and Charpin 2014a. Also, CAD A/2 p. 331 sub *asīrum*.
[17] In CT 6, 40c, Kišušu receives a loan of 24 shekels from the temple of Šamaš which he gives to Ilum-abi for his "redemption" (*ana iptirīšu*). CH §32 deals with ransom of captured military personnel.
[18] E.g., CUSAS 8, 2, where a female slave is described as "booty from Kakala" (Akk. *kišittum* see CAD K p. 451 mng. 2), and CUSAS 8, 6, where a male slave is similarly described (line 2: ŠÀ *ki-ši-it-ti ka-kál-a*). See also Van Koppen: 2004: 16-17 and Seri 2013: 110-141.
[19] See also Culbertson 2011: 43-44 for Ur III examples.

In slave sales from the late OB period (LOB), it became standard practice to include a provision for a warranty period (usually one month) that nullified the sale if the slave proved to be epileptic.[20] A few days were also specified to investigate "the slave's antecedents for prior encumbrances."[21] Some contracts contained a provision naming the responsible party and the penalty in case the slave ran away or a claim was made against the slave.[22]

The distribution of sources by provenience (Table 2.1-1) shows that almost two-thirds of the sources come from Sippar and Larsa. The chronological distribution of the sources (Table Intro-1) is also uneven. 87% of sales for the Kingdom of Larsa are dated under Warad-Sin and Rim-Sin, with only six sales coming before Warad-Sin.[23] Two sales are dated under Rim-Sin II. For the 1st Dynasty of Babylon, six sales are dated under rulers prior to Hammu-rabi, fifteen sales are dated under Hammu-rabi, and thirty under Samsu-iluna, but only five of these come after his eleventh year. Fifty-one sales are dated under the last four rulers of the dynasty, (including four under Samsu-ditana), a much larger percentage than what we saw for houses and land. Eight sales are dated under local dynasts, contemporaries of Sumu-la-El of Babylon, and one sale is dated under Damiq-ilišu of Isin.

[20] Referred to as *bennu*-disease. E.g., YOS 13, 5 and 39; VAS 7, 50 and 53; VAS 29, 3; CT 8, 27a.
[21] Quoted from CAD T p. 305 sub *teb'ītum.* It occurs in conjunction with the *bennu*-disease provision.
[22] This is standard practice in slave guarantees where Balmunamhe is the owner (discussed below).
[23] A seventh sale, CBI/2 III-16 (sale of female and 3 children, date broken), part of the archive of Ipqu-Sin, may date to the reign of Sumu-El.

Provenience	Count
Ur	16
Larsa	55
Kutalla	1
Nippur	9
Isin	1
Sippar (inc. ed-Dēr)	69
Dilbat	9
Kish	13
Babylon	1
Dur-Abiešuh	11[24]
Marad	0
Kisurra	1
Kazallu	1
Lagaba	1
Und.	4
Und. -no.	3
Und. -so.	2
Total	197

Table 2.1-1 Slave sales by provenience

2.1.3 Slave prices

Table 2.1-2 gives slave price averages for males, females, and children across all sites. Based on the table, one could consider 24.53 and 17.59 shekels as the mean price for an adult male and adult female slave during the OB period.[25] The table shows that prices for children

[24] These are discussed in detail in Charpin 2015: 154.

[25] As was the case for commodities, there also seems to have been a notion of a "fair" price for a slave. This can be deduced from CT 45, 37, a court case concerning a female slave who was sold in Samsu-iluna year 12, during a period of "difficulty and crisis," the implication being that the sales price was too low. Fifteen years later, Sin-išmeanni, a relative of the seller, sued the buyer. The court reaffirmed the legality of the sale. However, the text notes that the parties came to an agreement whereby the buyer paid the plaintiff one shekel silver, presumably in recognition that the original sales price, which is not stated, was too low. See www.archibab.fr/T23087 for the text edition and NABU 1999/79 for analysis and commentary.

were generally lower than for adults, and prices for male children were generally higher than prices for female children, but all the ranges overlap.

Fifteen sales are for two to six people. In five of these, a mother and one or more children are sold together. There are no father and child sales. One sale (CT 48, 62), may record the sale of a family (father, mother, 2 children).

	Description	Avg. price (in shekels)	Range (in shekels)	Count
Single slave	male adult	24.53	6.00-107.00	93
	male child	12.42	2.00-20.00	11
	female adult	17.59	2.40-80.00	73
	female child	6.97	3.50-12.00	5
subtotal				182
≥2 of same	2 female adults	6.50	6.50-6.50	1
	2 female children	3.92	3.92-3.92	1
	2 male adults	12.61	10.00-17.50	3
	2 male children	7.50	7.50-7.50	1
subtotal				6
Mixed slaves	father & child			0
	mother & child	39.17	17.50-84.00	4
	mother & 3 children	10.00	10.00-10.00	1
	male, female, & child(ren)	65.00	40.00-90.00	2
	male, 2 females	60.00	60.00-60.00	1
	3 females, 3 male children	12.00-13.00	12.00-13.00	1
subtotal				9
total				197

Table 2.1-2 Slave price averages

In the following tables and graphs, slave sales are categorized according to whether they were dated under rulers of the 1st Dynasty of Babylon, the Larsa Dynasty, 1st Dynasty of Isin, or local dynasts (contemporaries of Sumu-la-El ruling in northern Babylonia).

Table 2.1-3 compares mean slave prices between the four.[26] It shows that mean prices for adult male slaves under the 1st Dynasty of Babylon and the Kingdom of Larsa were comparable and roughly align with the 20 shekels specified in the CH as the value of a male slave.[27] Twenty shekels is also the mode price for adult male slaves.

Dynasty	Description	Avg. price (in shekels)	Range (in shekels)	Count
Babylon	male adult	24.91	6.00-107.00	35
	male child	20.00	20.00-20.00	1
	female adult	19.28	3.00-80.00	55
	female child	4.11	3.50-5.00	3
Larsa	male adult	23.78	10.00-60.00	48
	male child	11.70	2.00-20.00	5
	female adult	12.48	6.50-20.00	7
	female child	10.50	10.50-10.50	1
Local Dynasts	male adult	13.00	13.00-13.00	1
	male child	11.22	5.66-20.00	3
	female adult	6.20	2.40-10.00	2
	female child	12.00	12.00-12.00	1
Isin	male adult	9.00	9.00-9.00	1
Total				163

Table 2.1-3 Comparison of slave price averages

[26] Table 2.1-3 includes single male adult, single female adult, and children for all text descriptions. It excludes "2 of the same" (6), "mixed" sales (9) and ruler="no date" (23), the majority of which are letters.

[27] CH §116, §214, and §252 compensate owners of male or female slaves who were wantonly killed by another person at 20 shekels silver. Compensation in the LE was lower, 15 shekels in §55 and §57.

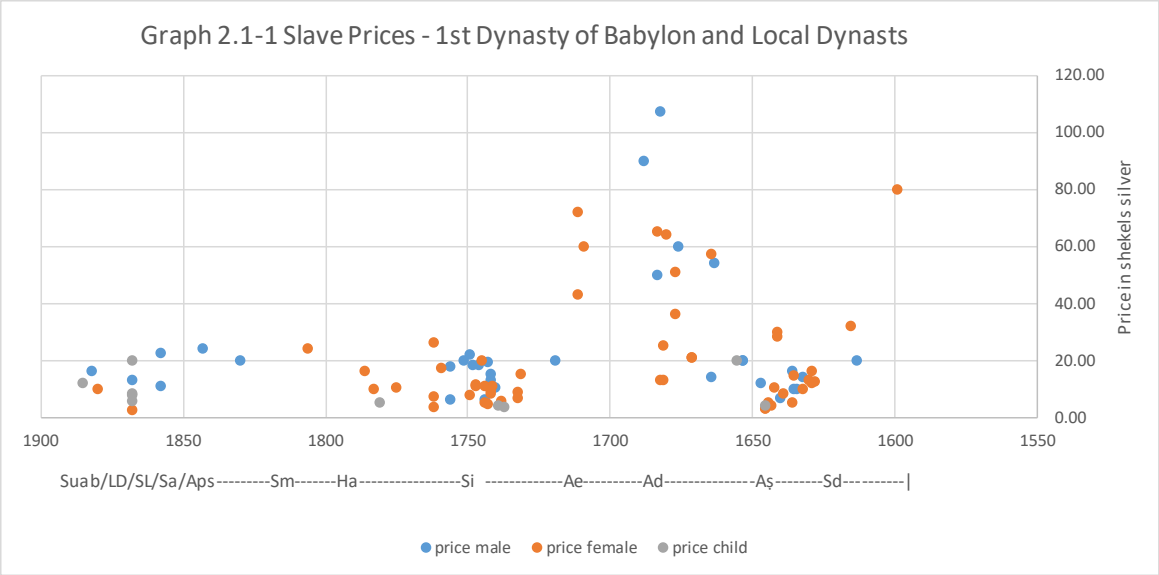
Table 2.1-4[28] and graphs 2.1-1 and 2.1-2 show mean prices for slaves over time.[29] For the 1st Dynasty of Babylon, the lowest mean prices occurred between 1762 and 1739 (Hammu-rabi year 31 through Samsu-iluna year 11). Prices may have been marginally higher prior to that time, but there are not enough sales to reach a definitive conclusion. Slave prices during the reign of Abi-ešuh, however, were considerably higher[30] and remained so through at least the first ten years of Ammi-ditana, dropping back down to late Hammu-rabi levels under Ammi-ṣaduqa. The 31-year reign of Samsu-ditana is only represented by four texts (2 sales, 1 loan, 1 ransom), and the price in one sale is damaged.[31] The two remaining sales of females hint at higher prices.

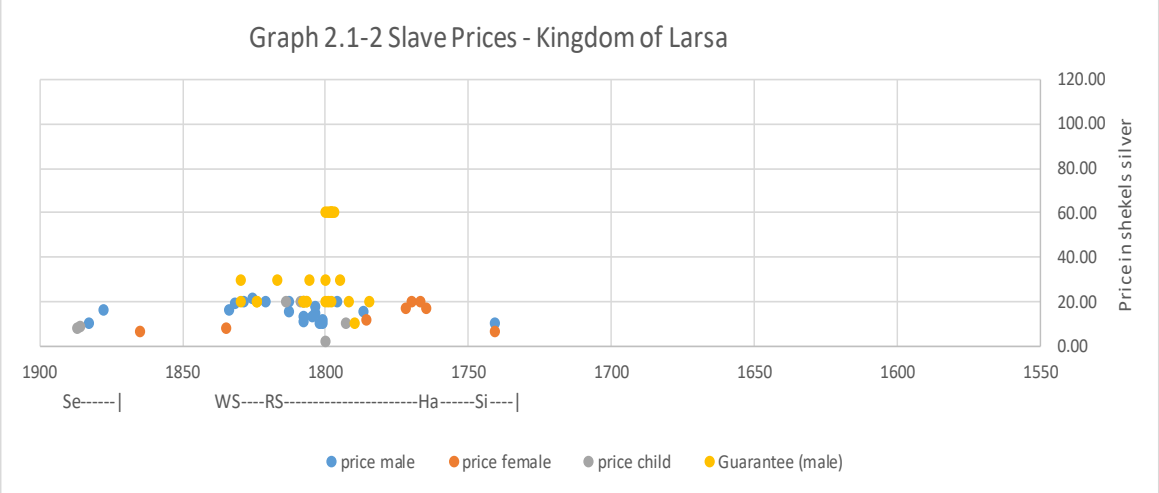
One intriguing piece of evidence that suggests higher slave prices under Samsu-ditana comes from OB texts dealing with the ransoming of captives. Charpin collected and analyzed these. His chart summarizing the texts[32] shows that ransoms paid were considerably higher under Samsu-ditana than prior to his reign, leading him to conclude that there was "*…une inflation des rançons à la fin de l'époque paléo-babylonienne…*" (p. 65).

[28] Table 2.1-4 includes single male adult and single female adult for all text descriptions. It excludes sales of children (13), "2 of the same" (6), "mixed" sales (9) and ruler="no date" (23).
[29] Cf., Van Koppen 2004: 17-19 for his discussion of slave sale prices in the LOB period.
[30] CT 8, 27a, a sale of a mother and son for 84 shekels, is not shown on the graph or table.
[31] The damaged sale (JNES 21/2, p. 75) is included in the count but not in the average for female adults in Table 2.1-4, and it is not in Graph 2.1-1.
[32] Charpin 2014a: 63-64.

Dynasty	Ruler(s)	Date range	Description	Avg. price in shekels	Count
Babylon and Local Dynasts	<Ha	1894-1793	male adult	17.75	6
			female adult	12.13	3
	Ha 1-30	1792-1763	male adult		0
			female adult	12.17	3
	Ha 31-43	1762-1750	male adult	13.00	2
			female adult	13.44	4
	Si 1-11	1749-1739	male adult	15.15	8
			female adult	9.82	10
	Si 12-38	1738-1712	male adult		0
			female adult	9.67	3
	Ae	1711-1684	male adult	90.00	1
			female adult	58.33	3
	Ad	1683-1647	male adult	42.13	8
			female adult	36.60	10
	Aṣ	1646-1626	male adult	11.38	5
			female adult	11.21	16
	Sd	1625-1595	male adult	20.00	1
			female adult	56.00	3
Larsa	Se-ṢA	1894-1850	male adult	13.00	2
			female adult	7.25	2
	WS	1834-1823	male adult	20.87	8
			female adult		0
	RS 1-30	1822-1793	male adult	28.13	30
			female adult		0
	RS 31-60	1792-1763	male adult	17.03	5
			female adult	16.50	4
	RS II	1742-1741	male adult	10.00	1
			female adult	6.83	1

Table 2.1-4 Mean slave sale prices for adult males and females by date range





Examination of Tables 2.1-3 and 2.1-4 and the two graphs reveals a significant difference between the Kingdom of Larsa and the 1st Dynasty of Babylon regarding sales of adult females: there are far fewer sales of adult females from the Kingdom of Larsa. For Rim-Sin years 1-30, one of the best documented periods, there are 30 sales of adult males but not one sale of an adult female. Moreover, all of the 26 slave guarantees (see below) are for male slaves. This is in sharp contrast with the 1st Dynasty of Babylon, where adult females comprise the majority of sales.

Another interesting observation concerns the sales of children by their parents and self-sales by adults. Five of the eight sales dated under local dynasts and thirteen of the thirty-seven sales dated under the Kingdom of Larsa (excluding slave sale guarantees) were sales of children by their parents or self-sales by adults.[33] In comparison, for the 1st Dynasty of Babylon, there are no sales of children by their parents or self-sales.

2.1.4 Slave guarantees

Graph 2.1-2 includes a group of 26 slave guarantees, 22 of them where Balmunamhe is the slave's owner. Van De Mieroop explains these transactions as follows:

> *"It seems thus that a slave was often sold by his parents or family or sold himself to Balmunamhe to redeem debts and was then returned by Balmunamhe for a pledge of a higher amount of silver or property."*[34]

Should the slave run away or stop working, the guarantor(s) pledged to pay Balmunamhe the silver specified in the contract -- 20, 30, up to 60 shekels silver -- which Van De Mieroop concluded was higher that the value of the slave. Van De Mieroop showed that these transactions usually took place when there was a lull in agricultural work. Balmunamhe was thus able to relieve himself of having to provide for the slave during these periods, while at the same time ensuring that the slave would return when needed.

To summarize: Slave prices exhibit a different pattern of price fluctuation than what was observed for houses and land. Prices for slaves were lowest during the last twelve years of Hammu-rabi and the early years of Samsu-iluna, rising sharply by the reign of Abi-ešuh and

[33] These sales are identified in the observations/commentary column of the database. Search the database for "self-sale."
[34] Van De Mieroop 1987: 11.

remaining high through the early years of Ammi-ditana. Slave prices declined during the remainder of Ammi-ditana's reign and stabilized under Ammi-ṣaduqa. They may have risen under Samsu-ditana, but more data is needed. This pattern of price fluctuation agrees well with what was shown in my earlier price study for northern Babylonia.[35]

The situation in the Kingdom of Larsa is less apparent due to the data's limited chronological spread (with sales concentrated under Warad-Sin and Rim-Sin). Here, the preponderance of sales of children and self-sales are a sign of economic hardship. The same held true under local dynasts. As we saw for land and houses, this was exacerbated by burdensome debt.

The relationship between prices, wages and the political situation is explored in Part II.

[35] Farber 1978: 13.

2.2 Livestock

2.2.1 Introduction

Sifting through Old Babylonian economic texts to collect data for this study, I came across what I would estimate were a thousand texts that dealt in some respect with livestock (oxen, cows, calves, sheep, goats, and pigs). By far the majority of these were administrative in nature. They showed that the palace and temples were very much involved in animal husbandry.[36] Unfortunately, only a small percentage of these recorded livestock prices. Together with sales, other legal texts, and letters, a total of 100 usable prices or price equivalences were identified, too few to track fluctuations in livestock prices over a four-hundred-year period.

Before discussing prices, let us take a closer look at the sources, their terminology,[37] and their geographical and chronological distribution.

2.2.2 Sources

It is not surprising that most of the sources concerned oxen, cows, and sheep, while only a handful dealt with pigs[38] and goats. Oxen were vital to the Babylonian economy. They were

[36] Kraus 1966 remains the principal study of state livestock management. He based his study on two small groups of texts from Larsa from the reign of Rim-Sin. Robertson 1981 chapter 4 discusses Nippur livestock texts. His summary begins on p. 254. See also see Van De Mieroop 1992: 85-87 for the involvement of the Nanna and Ningal temples at Ur in animal husbandry. For a general overview of livestock, see Stol 2004: 949-955 and Goddeeris 2002: 363-364.

[37] See Stol 1995 for the terminology used to describe cattle (oxen, cows, and calves). In the same article, Stol also discusses the work they did, the costs to support them, and technical details around yoking and managing a team of oxen.

[38] According to Van Koppen 2016: 181, pigs were common in lower Mesopotamia during the OB period and an easy source of plentiful meat.

used in all phases of agriculture.[39] Cows and goats produced cheese and milk. Sheep were valued for their wool. Sheep and swine were used for meat.

There are 29 sales of oxen, cows, and calves, but no sales of sheep, pigs, or goats. These sales, along with one partition of property agreement and five of six loans involving livestock, record transactions between private parties.[40] Fourteen letters also contain 16 livestock price equivalences.[41] Many more letters deal with livestock but do not have pricing information. Administrative texts are the remaining source for livestock prices. Some of these are accounts or lists of expenditures, where livestock and commodities are valued in silver. Others record activities such as disbursements of fodder for oxen and cows and rations to workers maintaining them, allocations of sheep to shepherds, offerings of livestock or livestock products made to temples, and/or deliveries of sheep, wool, and dairy products.

While administrative texts dealing with herds of cattle or flocks of sheep are clearly associated with the palace or temples, UET 5, 607 and 636 are two lists of household expenditures that have livestock price equivalences. Both texts originate from Ur and were excavated by Woolley from the private residence he designated as "No. 7 Quiet Street." UET 5, 636, for example, records an expenditure of two shekels silver for a "slaughtered sheep," implying it was consumed.[42]

[39] Examples are cited on the next page. See also Stol 1995: 184-188 and CAD A/1 p. 367-368 (oxen used in connection with agricultural work), CAD I/J p. 148-149 sub *inītum* A, and CH §268 and §271 which mention the use of oxen for threshing and transport.
[40] An exception is YOS 13, 354, a loan of 10 mina silver from the palace to purchase 100 3-year-old oxen.
[41] CT 52, 57 and AbB 13, 52 are two that specifically refer to purchases.
[42] UET 6, 636:37 1 UDU KÙ.BI 2 GÍN *ṭa-bi-ih*.

In most of the texts, oxen (GUD), cows (ÁB), and calves (AMAR or AMAR.GA) were qualified by age,[43] or, in the case of oxen, intended use.[44] Oxen could even be identified by name.[45] Several Sumerian logograms were used to denote sheep (UDU, UDU.NITA$_2$, U$_8$, or U$_8$.UDU.HI.A).[46] Sheep were sometimes qualified as "wool bearing,"[47] "plucked,"[48] or "dead" (literally, "a carcass").[49] Pigs (ŠAH or ŠÁH) were unqualified.

Table 2.2-1 shows the provenience of the sources. Most derive from Sippar, Dilbat, Larsa, and Ur.

Taking a closer look at the geographical and chronological distribution of the sources, one is struck by the total absence of livestock sales from southern Babylonia. Almost all of the price equivalences from the south derive from administrative texts and are mostly for sheep and pigs. Eighteen of these (containing twenty-nine price equivalences) are dated under Rim-Sin; only three texts (containing five price equivalences) are dated under his predecessors.[50] This stands in sharp contrast with northern Babylonia, where sales of oxen, cows, and calves are our

[43] See Stol 1995: 174-179 and Kraus 1966: 156-157.
Oxen: BIN 7, 207:1 (MU 2); CT 8, 1b:1 and YOS 13, 354:2 (MU 3).
Cows: YOS 13, 263:1 (MU 1); YOS 13, 371:1 (MU 2); YOS 13, 262:1 (MU 3); BIN 7, 208:1 "full grown(?) cow." See CAD B p. 334 under *burtum* for a discussion of ÁB.AL and ÁB.MAH with the meaning "full grown" and CAD L p. 219 under *littum* for the reading ÁB.MAH$_x$(AL).
Calves: YOS 13, 279:1 (MU 1); CT 8, 2b:6 (MU 2).
[44] "Plow ox" (GUD APIN.ÙR.RA) in YOS 13, 259:1 and TLOB 36:1. "Draft ox" (GUD *šaddidum*) in Richardson diss. II p. 365:1.
[45] CAD A/1 p. 366 2' and note Meissner BAP 2:1, sale of an "ox without a name" (GUD MU NU.<TUK>).
[46] Reviewing their Akkadian equivalents in the CAD, (*immertum*, *immerum*, *lahrum*, and *ṣênum*), it does not appear that the scribes utilized these logograms in a consistent manner. I have therefore opted to forego any numerical (single versus collective) and/or sexual distinction (rams versus ewes) and translate all of them simply as "sheep."
[47] UDU.SÍG. E.g., UET 5, 413:1.
[48] BAR.SUG$_4$. E.g., TCL 10, 72:22-23 and 26-27. See ePSD BAR.SUG$_4$.A "a designation of sheep: without fleece."
[49] UDU *pa-ag-rum*. E.g., UET 5, 607:38 and 50. Cited CAD P *pagrum* A p. 15.
[50] UET 5, 629 (Sid 2) and YOS 5, 13 (WS 3) each contain two price equivalences, and YOS 5, 15 (WS 1) contains one. There is also one undated expenditure list (CBI/2 III-11), an expenditure of 2 mina silver for 120 pigs, which can be assigned to the reign of Sumu-El on prosopographical grounds (part of the archive of Ipqu-Sin).

primary source for prices, and where there are no sales of sheep and pigs. All but four of these are dated under the last four rulers of the Hammu-rabi dynasty.

Provenience	Count
Ur	14
Larsa	20
Kutalla	0
Nippur	8
Isin	0
Sippar (inc. ed-Dēr)	22
Dilbat	16
Kish	9
Babylon	3
Dur-Abiešuh	2
Und.	1
Und. -no.	4
Und. -so.	1
Total	100

Table 2.2-1 Sales of livestock by provenience

The absence of sales of sheep and pigs is understandable. Given that both were used as food, why would the buyer wish to incur the extra expense of writing up a contract of sale? There was no benefit in doing so.

The scarcity of sales of bovines is a different story. The purchase of an ox or cow was a significant investment (see Table 2.2-2 below), and that's apart from the cost to maintain them.[51] Up through the reigns of Rim-Sin and Hammu-rabi, the independent Babylonian farmer, most of whom owned a small parcel of land,[52] would not have been able to cost justify the purchase of an ox. However, by the start of the late Old Babylonian period (1711-1595), many small

[51] According to Robertson 1981: 191, a 3 year old bull consumed 4 sila of fodder per day. Stol 1995: 195 indicates 10 liters (sila) barley per day was one norm.
[52] Table 1.2-2 shows that the average size of a field (A.ŠÀ) sold over the entire OB period was less than 9 iku with "sustenance" fields closer to 5 iku.

farmers had lost their land and become tenant farmers,[53] and private land ownership had been consolidated into fewer hands, meaning larger parcels were being farmed.[54] For landowners of large farms, as well as for the palace and temples, which still owned large tracts of land, it made economic sense to own and employ oxen.

2.2.3 Livestock prices

Table 2.2-2[55] gives mean prices for oxen, cows, calves, sheep, pigs, goats, and donkeys across all sites over the entire Isin-Larsa/OB period. From the table, one can see that prices for oxen were generally higher than prices for cows, and calves were generally worth less than adult animals. Sheep and pigs were generally worth less than oxen and cows. Lambs were worth less than sheep. But ranges do overlap. Prices for a single ox, cow, or sheep were slightly higher on average than when multiple animals were sold together.

The earliest document that gives a price equivalency for livestock is a delivery of sheep dated to the reign of Iddin-Dagan of Isin (1974-1954).[56] The latest is a loan of silver to purchase sheep dated to Samsu-ditana year 19 (1607).[57]

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[53] This is apparent from the dramatic rise in the number of field rental and harvest worker contracts, coincident with a decrease in the number of land sale contracts.

[54] Table 1.2-4 shows that the average size of a field (A.ŠÀ) sold in Sippar about doubled between the reigns of Samsu-iluna, on the one hand, and Abi-ešuh, Ammi-ditana, and Ammi-ṣaduqa on the other.

[55] Notes to Table 2.2-2: **Single animal, pig:** includes JCS 36, 184-185, where the price of one pig is 45 sila of barley (converted to 0.15 shekels using 1 gur barley = 1 shekel silver). **Single animal, calf:** CT 8, 2b included in count, but excluded from average and range. Per Charpin 1980: 43-44, 2 mina silver (line 6) likely does not refer to the price of a single calf but for multiple animals. Harris 1975: 252 drew attention to this text for its supposedly high price but misinterpreted it. Based on mean prices for bovines in Table 2.2-2, I believe that Charpin is correct. **≥2 of same, ox:** include Szlechter TJA UMM H 26, and use 9.33 shekels as the price per animal. **Mixed animal, cow and calf:** include unpub. BM 80389 and use price of 24 shekels for sale of cow and calf (price damaged).

[56] YOS 14, 313.

[57] Arnaud Louvre (=BBVOT) 1, 119.

	Description	Avg. price (in shekels)	Range (in shekels)	Count
Single animal	ox	12.61	4.50-48.00	21
	cow	6.92	1.50-18.00	12
	calf	1.50	0.66-2.33	3
	sheep	1.29	0.39-2.50	15
	pig	1.10	0.15-2.17	5
	lamb	0.17	0.17-0.17	1
	goat	0.75	0.75-0.75	1
	donkey	12.75	5.50-20.00	2
subtotal				60
≥2 of same	ox	10.52	6.00-11.75	4
	cow	5.69	4.00-7.37	2
	calf	3.00?	3.00-3.00?	1
	sheep	1.08	0.25-8.00	25
	pig	0.64	0.33-1.00	3
	lamb	0.33	0.33-0.33	1
	goat			0
subtotal				36
Mixed animals	cow and calf	34.66	14.00-66.00	3
	cow, ox	20.00	20.00-20.00	1
subtotal				4
total				100

Table 2.2-2 Livestock price averages

Table 2.2-3[58] shows prices for oxen, cows, calves, and sheep over time. Mean prices for oxen under Ammi-ditana and Ammi-ṣaduqa were 10.23 and 7.97 shekels respectively. Compare this to CH §241, which provided for a payment of 20 shekels silver by an *awīlum* who has illegally distrained an ox, an indication of the animal's value. Unfortunately, we have no oxen

[58] Table 2.2-3 includes adult oxen, cows, and sheep and uses a "per head" price for transactions involving two or more of the same animals. Same changes apply as described in note to Table 2.2-2.

sales dated under Hammu-rabi and only one division of property agreement (OECT 15, 38), where a bequeathed ox is valued at five shekels.

Dynasty	Ruler(s)	Date range	Description	Avg. price in shekels	Count
Babylon	Ad	1683-1647	ox adult	10.23	9
			cow adult	5.50	4
	Aṣ	1646-1626	ox adult	7.97	6
			cow adult	6.23	6
Larsa	Sid	1849-1843	adult sheep (healthy, wool bearing)	1.08	2
	RS	1822-1763	adult sheep (healthy, wool bearing)	0.86	20

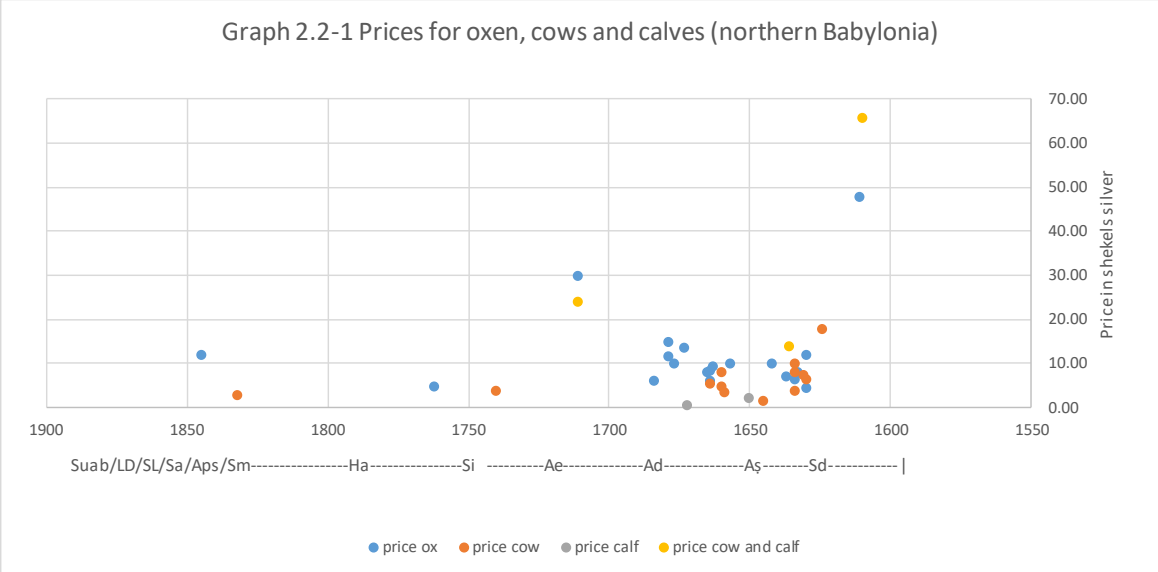
Table 2.2-3 Livestock price averages by date range

Graph 2.2-1 shows prices for oxen, cows, and calves over time for northern Babylonia. The pattern of price fluctuation appears similar to what we saw for slaves. For the rulers before Ammi-ditana, it is difficult to draw conclusions based on a total of seven texts (4 dated prior to Abi-ešuh and 3 sales dated under his reign). Note that one livestock sale dated under Abi-ešuh, the sale of an ox for 30 shekels,[59] is considerably higher than any sales of oxen before his reign and under Ammi-ditana and Ammi-ṣaduqa. Prices under Ammi-ditana and Ammi-ṣaduqa seem stable, with adult oxen averaging between 8-10 shekels and adult cows averaging around 6 shekels. However, it appears that prices rose under Samsu-ditana. Listed below are three sales of oxen, cows, and calves and one loan for purchasing sheep (Graph 2.2-2) dated under his reign. All three bovine sales are priced considerably higher than their mean prices under Ammi-

[59] CT 8, 1b (Ae year "n"). Another indication of high livestock prices during his reign comes from AbB 13, 52, a letter from Abi-ešuh to his subordinates in Sippar, in which he instructs them to purchase 60 donkeys for 20 shekels of silver each, and warns that, if they delay, the price could rise to 1 mina per donkey. In contrast, see CT 33, 32, an undated letter, where a donkey sold for 5 1/2 shekels.

ditana and Ammi-ṣaduqa shown in Table 2.2-3. The price per sheep in Arnaud Louvre 1, 119 was more than four times higher than the mean price for sheep under Rim-Sin.

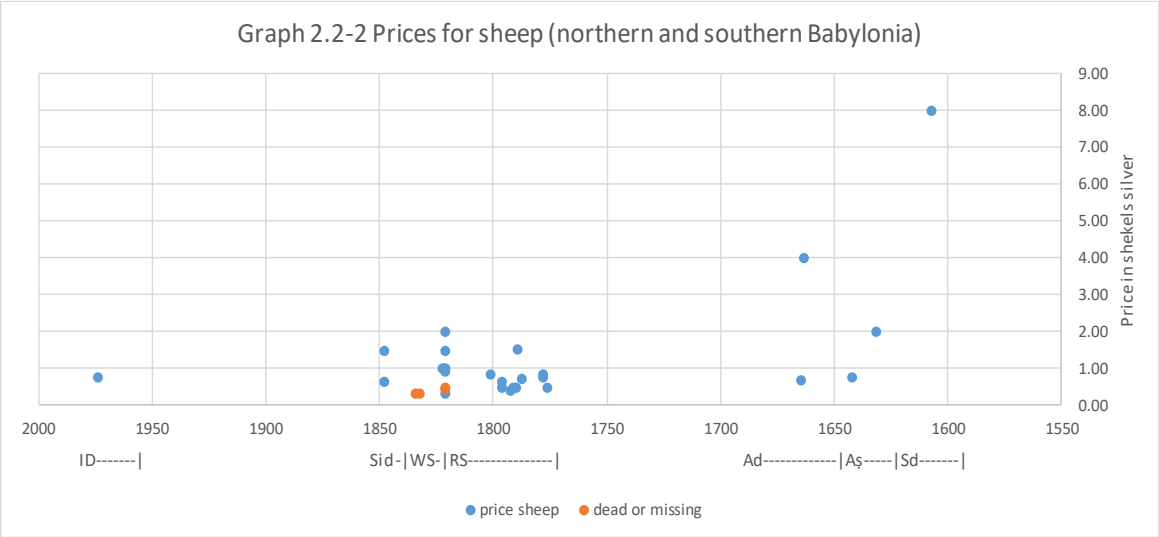
YOS 13, 262	3 year old cow for 18 shekels	(Sd 2)
PSBA 39, 24	cow and calf for 66 shekels	(Sd 16)
TLOB 36	ox for 48 shekels	(Sd 15)
Arnaud Louvre 1, 119	11 sheep @ 8 shekels per sheep	(Sd 19)



Graph 2.2-2 shows prices for sheep over time for northern and southern Babylonia. Although there are no sales of sheep for the Kingdom of Larsa, price equivalences found in administrative accounts and lists of expenditures (Graph 2.2-2) point to stable sheep prices during the reign of Rim-Sin, (or at least through his 47th year), with most falling between 0.50-1.00 shekel per head for unplucked, healthy sheep.[60] Plucked, dead, or missing sheep were assessed at about half that value. The four price equivalences dated before Rim-Sin (two each

[60] It is possible that administrative accounts and expenditure lists were using standardized values for sheep thereby masking price fluctuation.

under Warad-Sin and Sin-iddinam) suggest an even longer period of stable sheep prices, but more data is needed.



To summarize: One hundred prices and price equivalences are not sufficient to allow us to trace fluctuations in livestock prices over the entire OB period. That being said, they do provide evidence for stable prices under Rim-Sin, Ammi-ditana, and Ammi-ṣaduqa and higher prices under Samsu-ditana and possibly also under Abi-ešuh. They therefore reinforce the pattern of price fluctuation for oxen and cows described in my 1978 article for northern Babylonia.

Chapter 3: Commodities

3.1 Barley

3.1.1 Introduction

Barley was the basic ingredient in the Babylonian diet. As such, one would expect that it was frequently traded, (and likely it was), but sales of barley are virtually non-existent. A probable explanation for the dearth of evidence is deducible from the nature of the sources for barley price equivalences. A number of these are receipts or expenditures that deal with large quantities of barley. Moreover, the individuals involved in these transactions are, for the most part, agents of the crown or temple bureaucrats.[1] As a function of their role, they were forced to keep accurate records of expenditures and income. The ordinary individual may have regularly traded barley directly for other goods such as oil or wool, or had occasion to make small purchases of barley, but there would have been no compelling reason to record those in written form. Indeed, since most of the population was illiterate, a trained scribe was necessary to draw up contracts, and, since such professionals received fees for their services,[2] we may suppose that the ordinary individual avoided formal contracts wherever possible.[3]

[1] E.g. OLA 220, 446-450; YOS 2, 105; Szlechter TJA IES 336; VAS 18, 100; BE 6/2, 120.
[2] We know next to nothing about what these fees were as there are no texts recording payments made to scribes for their work; see Tanret 2004: 52-54.
[3] There are 22 barley price equivalences where the quantity of barley transacted is less than 1 gur. The lowest is 10 sila. Four are small barley loans. The remaining price equivalences come from expenditure lists, receipts, letters, an offering and rental. Besides these, there is only one barley sale (JCS 34, 163, 206, no. 17 for 8 gur) and one document that references previous barley purchases (TMH 10, 105).

3.1.2 Sources

Seventy-eight price equivalencies that equate barley (or barley products) with silver were used for this study, plus one equivalency from paragraph 1 of the Ešnunna law code,[4] plus another 20 equivalences which can be used to approximate its value in silver. These are referred to as "derived" prices in pages that follow.[5] Clearly, 99 references are a big improvement over the 28 references used by my earlier article.

Table 3.1-1 gives the provenience of the sources for barley prices, and Table 3.1-2 gives the number of equivalences by document source type.

Provenience	Count
Ur	10
Larsa	23
Nippur	8
Sippar (inc. ed-Dēr)	31
Dilbat	9
Kish	2
Babylon	1
Lagaba	2
Und.	6
Und. -no.	6
Ešnunna	1
Total	99

Table 3.1-1 Barley price equivalences by provenience

[4] The equivalency from the Ešnunna law code is excluded from the tables and graphs unless noted otherwise.
[5] These texts are: YOS 12, 4 (1); Szlechter TJDB pl. 65 MAH 16596 (1); Boyer Contribution 196 (2); VAS 7, 20 (3); YOS 12, 254 (4); Szlechter TJA pl. 32 UMM H32 (5); OLA 220, 446-450 (6); ARN 67 (7); OECT 15, 87 (8); JCS 34, 163, 206, no. 17 (9); YOS 12, 526 (10); BIN 2, 88 (11); OLA 21, 20 (12); OECT 15, 92 (13); TMH 10, 193 (14); YOS 13, 497 (15); Waterman Bus. Doc. 47 (16); RA 72/2, 128 no. 15 (17); Richardson diss. II p. 351 (18); YOS 12, 553 (19). The numbers in parentheses refer to their reference number in Appendix A, where each is discussed. In most of them, a quantity of barley is equated with another commodity such as oil, dates, wool, or sesame.

Description	Count
Loans	33
Expenditure lists	29
Receipts	9
Letters	11
Sales	5
Balanced accounts	2
Law code	1
Other	9
Total	99

Table 3.1-2 Sources of price equivalences for barley or barley products

Sources for barley prices are loans, receipts, expenditure lists, miscellaneous contracts, and letters. Loans are by far the largest source. Not only do they constitute the largest proportion of published economic texts, but the majority of loans are barley loans. Loans of less than 3 gur, typically made in the months leading up to the harvest, occur at all sites. Repayment was usually either at a fixed rate of interest (33% is most common) or "at the going rate" (i.e., market price) at harvest time. These loans were made to families who had exhausted their barley reserves and needed barley to tide them over until the next harvest, but who could not afford to purchase barley. Unfortunately, they are not useful to this study. However, in a few loans, the quantity of barley loaned was valued in silver[6] or another commodity,[7] or silver was loaned and equated with a quantity of barley to be repaid. These loans do not specify a rate of interest, but sometimes it is possible to determine or at least approximate how much interest was

[6] E.g., YOS 12, 335; YOS 13, 291; BE 6/1, 115; TLOB 87; Richardson diss. 2, p. 279.
[7] E.g., OECT 15, 87; Boyer Contribution 196; YOS 12, 526; Szlechter TJA pl. 32. See Skaist 1994: 72-73. Price equivalences from these loans can be used to calculate "derived" prices, as stated above.

factored into their price equivalences. Consequently, one can only use them to get a rough approximation of the barley's silver value.[8]

Expenditure lists are a different story. These record expenditures/distributions of barley, and/or other commodities, and/or silver to individuals. In their simplest form, they list a quantity and recipient, are undated, and give no reason for the distribution. These are of no value to this study. However, there are expenditure lists where some or all the commodities listed are valued in silver.[9] These lists are useful to this study, especially when they are dated. Balanced Accounts are a variation of expenditure lists. They list incoming and outgoing silver and commodities. When they give the commodity's silver equivalent, they are also useful to this study.[10]

Letters occasionally refer to the purchase of barley or other commodities and give prices. All are undated, but one letter (AbB 9, 105) is datable to the end of Hammu-rabi's reign or the early years of Samsu-iluna.[11]

A few rentals and contracts of hire where the price/wage is stated in silver but (partial) payment is made in barley can be used to derive an approximate value for the barley paid.[12]

[8] See below, section 3.1.3.
[9] E.g., UET 5, 607 and 636; CT 4, 18b.
[10] E.g., TCL 10, 17 and 100. TCL 10, 17:9 lists a total of silver, characterized on line 11 as SAG.NÍG.GUR$_{11}$.RA "available assets," followed by a list of items and/or commodities equated in silver, received by various people. A total of the silver equivalents is given in rev. line 25 with a remainder in line 27 (= line 9 - line 25).
[11] See above, I.4.4 for a discussion of this letter.
[12] E.g., YOS 12, 553 and VAS 7, 20 (house rental); YOS 13, 497 and Waterman Bus. Doc. 47 (contract of hire).

3.1.3 Barley prices

Despite a fairly robust dataset, it is not possible to trace long term fluctuations in the price of barley, for four reasons. The first reason is that the chronological distribution of the data is uneven, resulting in significant gaps in time when there are no barley price equivalencies. Second is that the price of barley fluctuated year to year, (and even month to month), reducing the usefulness of a mean price calculation. The third reason is that price equivalences found in loans, which are a significant source of barley price equivalences, tend to under or over-inflate the price of barley.[13] Finally, the fourth reason is that derived barley price equivalences depend on assumptions that may not always be correct.

Giving due consideration to the above constraints, it is still possible to reach some general conclusions regarding barley prices.

Table 3.1-3 shows the unit price averages and ranges for barley and barley products (beer, flour, and bread). The table shows that the price of 1 gur of barley averaged well above the "idealized" or "fair" price of 1 shekel of silver as stated in §1 of the Ešnunna law code. This is not surprising. One reason is that 24 of the 64 barley price equivalences come from loans. Loans of barley with repayment in silver, which are common, tend to inflate the price of barley. The second reason is that barley prices exhibit considerable fluctuation, especially on the upside.

[13] This conclusion is based on YOS 12, 526; BIN 2, 88; and RA 54/1, 35:29. When barley is loaned and valued in another commodity, with repayment in the other commodity, (e.g., YOS 12, 526; BIN 2, 88), the value of the barley is inflated vis a vis the other commodity, resulting in the debtor repaying more of the other commodity compared to its "fair market value." I suspect that the converse is true. When another commodity (or silver) is loaned and valued in barley (RA 54/1, 35:29 – silver loaned; barley repaid is valued at 0.40 shekels/gur), the price of the barley is deflated, resulting in the debtor repaying more barley compared to its "fair market value." Thus, barley in these kinds of loans tends to be over or undervalued as a consequence of the interest "baked into" the price equivalency. YOS 12, 526 and BIN 2, 88 are discussed in Appendix A (numbers 10 and 11). The same seems to hold true when silver is loaned and valued in wool. E.g., YOS 12, 23, where "top quality wool" being repaid is valued at 5.00 shekels/talent, which is below the mean price for wool (see 3.3), and Arnaud Louvre 1, 38, where the wool repaid is valued at 7.50 shekels/talent.

Twenty-five of 64 barley price equivalences value barley at 2 shekels silver per gur or more—as high as 5 shekels silver per gur in one text.[14] The table also shows that barley products typically cost more than barley.

Description	Product	Avg. price/gur (in shekels)	Range (in shekels)	Count
Actual	barley	2.23	0.33-15.00	64
	beer	7.53	1.00-30.30	8
	bread	4.23	4.23-4.23	1
	flour	17.63	0.83-50.00	3
	groats	3.16	3.16-3.16	1
	loaves?	0.08	0.08-0.08	1
Subtotal				78
Derived	barley	1.06	0.375-2.00	20
Law Code	barley	1.00	1.00	1
Total				99

Table 3.1-3 Barley and barley products price averages

3.1.3.1 Monthly barley price fluctuation

Drilling down into the data, let's first examine barley prices over the course of the year and then look at prices over time.

The barley harvest in Babylonia took place in months 1-3 of the Babylonian calendar (March – May)[15] and lasted approximately a month.[16] In my article on prices and wages, I stated that "barley was cheapest after the harvest and gradually increased in price, reaching its peak value before the next harvest."[17] Unfortunately, there is no single year where there are

[14] See below, section 3.1.3.2 (comments regarding magnitude of price fluctuation in TMH 10, 105).
[15] Salonen 1968: 201 and Stol 2004: 830.
[16] Weitemeyer 1962: 61-62.
[17] Farber 1978: 19.

sufficient barley price equivalences to trace its price over the course of a year. The best we can do is to pick a narrow range of years and examine barley prices in that range.

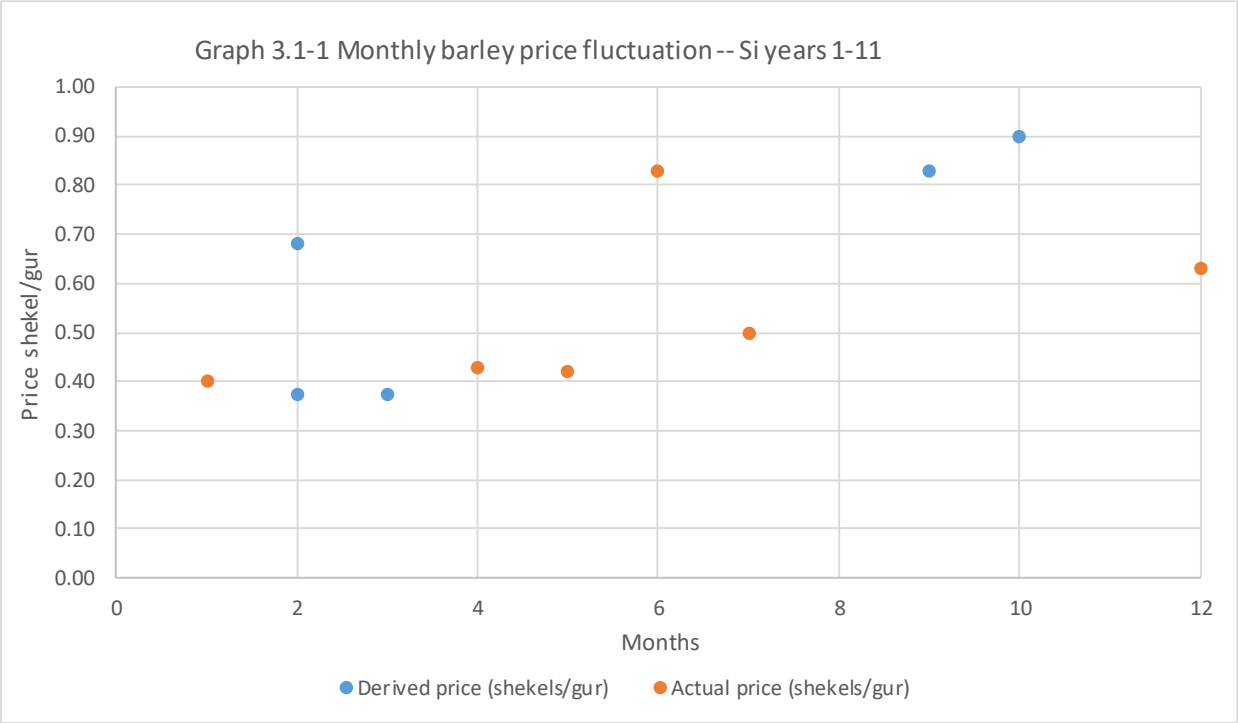
Table 3.1-4 and Graph 3.1-1 summarize the evidence for determining the monthly fluctuation in the price of barley over the course of the year. They show monthly barley prices for the years Samsu-iluna 1-11 (derived and actual prices). The first eight years of his reign seem to have been a period when prices were stable.[18] For loans, the price equivalency is considered to be the barley's value in the month the loan becomes due, not the date of the tablet. For everything else, the price equivalency is considered to be the barley's value as of the date of the tablet.

The six actual barley price equivalencies for Samsu-iluna years 1-11 show that barley sold for approximately 0.40 shekels per gur for months 1-5, rising to roughly 0.66 shekels in months 6-12, an increase of over 50%. The five derived barley price equivalencies show a similar trend.

Text	Month	Derived price (shekels/gur)	Actual price (shekels/gur)
VAS 18, 100	1		0.40
YOS 12, 4	2	0.375	
Boyer Contribution 196	2	0.68	
Szlechter TJDB pl. 65, MAH 16596	3	0.375	
TLB 1, 123 (=SLB 1/3, 123)	4		0.43
YOS 12, 13	5		0.42
YOS 12, 335	6		0.83
TCL 11, 216	7		0.50
VAS 7, 20	9	0.83	
YOS 12, 254	10	0.90	
Szlechter TJDB pl. 20	12		0.63

Table 3.1-4 Monthly barley price fluctuation (Si years 1-11)

[18] Farber 1978: 19, 37-38 and see below, section 5.1.1.

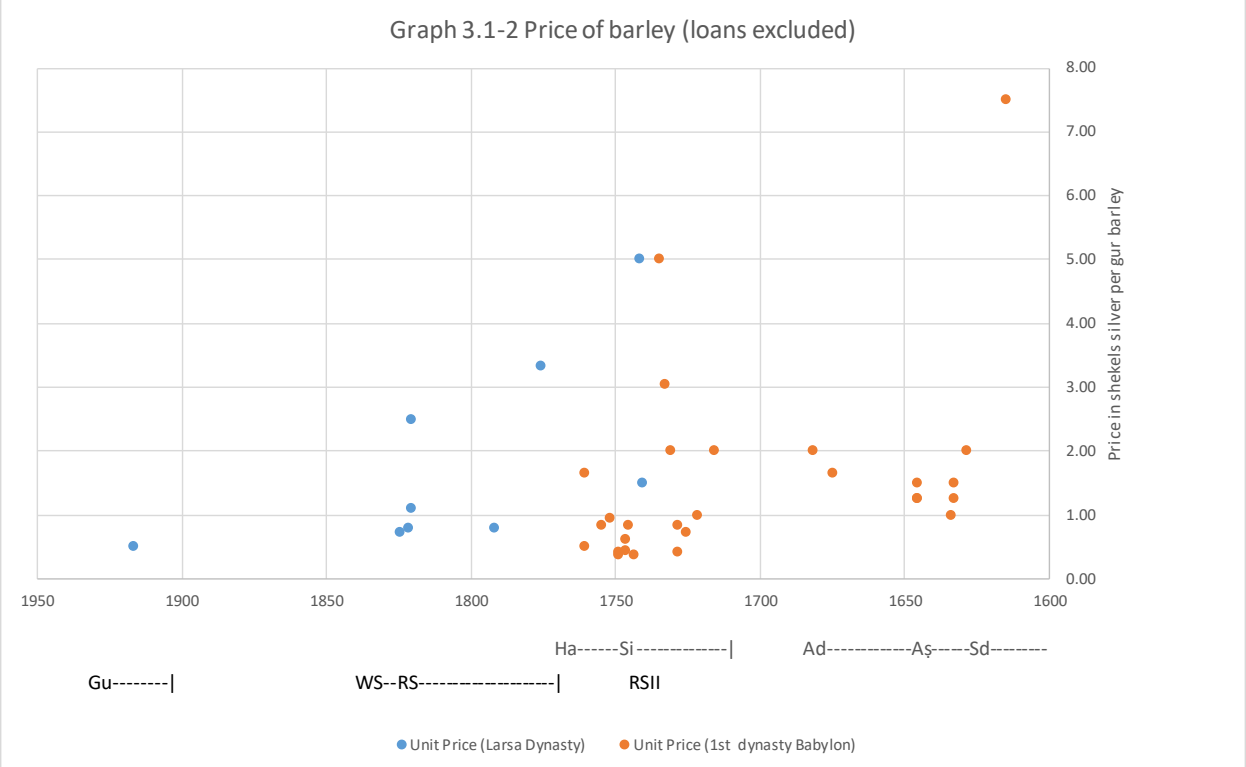


Based on the above, a creditor who loaned out 1 gur of barley worth approximately 0.63 shekels in month 12 (Szlechter TJDB pl. 20) was repaid 1.60 gur barley post-harvest, using a post-harvest price of 0.40 shekels/gur (VAS 18, 100; TLB 1, 123).[19] This price differential gave the creditor a 60% return on the loan in only 1-3 months! That is because 0.63 shekels of silver purchased more barley post-harvest than it did pre-harvest. If this price differential was typical and not an aberration, it is easy to see why loaning barley in the months leading up to the harvest and having it repaid *kīma mahīr illaku* "at the going rate" was so profitable for the creditor.[20]

[19] 0.63 / 0.40 = 1.58.
[20] Farber 1987: 20.

3.1.3.2 Barley prices over time

Graph 3.1-2 plots the unit price of barley over time. The graph includes both actual and derived prices for barley. Prices for barley products are excluded as are price equivalencies from loans. As mentioned above, there are significant gaps in the pricing record. For the 1st Dynasty of Babylon, there are no barley price equivalencies before Hammu-rabi and none for the reign of Abi-ešuh. For the Kingdom of Larsa, there is only one price equivalency before Warad-Sin (excluding two loans).



The following conclusions can be drawn from the graph:

1) The lowest barley prices occurred from the last twelve years of the reign of Hammu-rabi through roughly the first ten years of Samsuiluna (1761-1740). During that time, prices averaged less than one shekel per gur of barley.

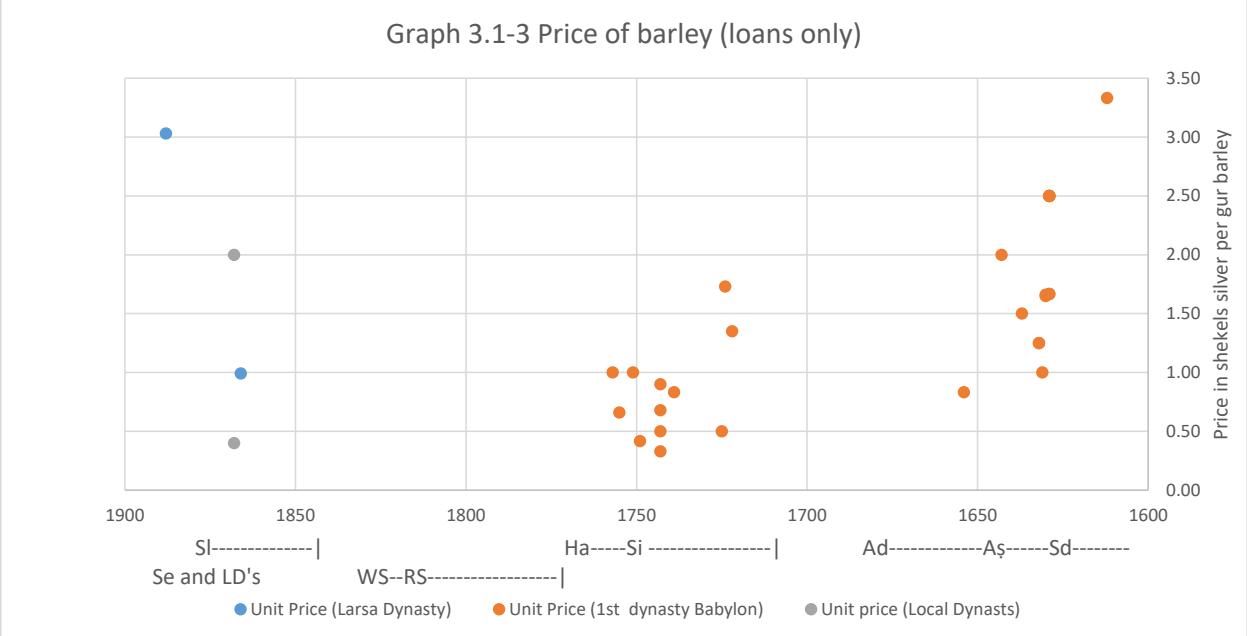
2) By the reign of Ammi-ṣaduqa, the price of barley had risen to over one shekel per gur, and it may have risen again at the end of his reign. The lowest price equivalency of 1.00 shekel/gur is found on a field rental dated Aṣ 13 month 6.

3) The lone barley price from the reign of Samsu-ditana is more than three times higher than any barley price from the reign of Ammi-ṣaduqa.

4) The limited data from the reign of Warad-Sin and Rim-Sin suggests that barley prices averaged around one shekel per gur, but there were spikes.

5) The two price equivalences dated under Rim-Sin II point to higher prices during his short reign.

The barley price equivalencies from loans, which are plotted in Graph 3.1-3, show the same pattern as Graph 3.1-2 -- lower prices under Samsu-iluna, higher prices under Ammi-ṣaduqa -- which supports points 1 and 2 above. Note too that the one loan dated under Samsu-ditana supports point 3. It has a price equivalency of almost 3.33 shekels/gur, 33% higher than any barley price equivalency found in loans made under his predecessor.[21]



[21] Add to this Richardson diss. II p. 229, dated Sd 19, which has an equivalency of over 30 shekels silver per gur for malt (KAŠ.Ú.SA), double the next highest price equivalency for beer.

Several texts show that the price of barley fluctuated year to year, and that price changes of 50% or more were not unusual. The best example is TMH 10, 105, which records expenses for barley, oil, and wool over a nine-year period spanning Samsu-iluna years 15-24.[22] These expenses were made by an unnamed individual to support a *nadītum*-priestess.[23] Barley prices in the text are summarized below:

Samsu-iluna years 15-16: 5 shekels/gur
Samsu-iluna years 17-18: 3 shekels/gur
Samsu-iluna years 19-20: 2 shekels/gur
Samsu-iluna years 21-23: 0.42 shekels/gur[24]

The price of barley in years 15-16 (1735-1734) was over ten times higher than its price in years 21-23 (1729-1727)![25]

A number of loans made over a four-year period (Ammi-ṣaduqa years 15-18) by Sin-nadin-šumi, the "diviner," also show yearly fluctuations in the price of barley:

In year 15, he priced the barley loaned at 1.25 shekels/gur (2 loans).[26]

In year 17, he priced the barley loaned at 1.66 shekels/gur (2 loans).[27]

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[22] See Goddeeris 2016: 194-196 for transliteration, translation and commentary.
[23] The *nadītum*-priestess receiving the support was probably named Lamassum. As pointed out by Goddeeris 2016: 367-368, TMH 10, 8 (dated Samsu-iluna 15) is related to this text. It records the adoption of Šat-Šamaš, the wife of Ili-eribam, by Lamassum. Under the terms of the adoption, in return for receiving two houses and two fields, Šat-Šamaš was required to furnish Lamassum with barley, oil, and wool. Šat-Šamaš must have died, and Lamassum's support expenses were taken over and paid for by her husband Ili-eribam.
[24] For this last period, the text notes (line 20) that "Enlil had established an 'abundant' market rate in the land," what we would describe as "good times."
[25] Eleven letters give prices for barley or barley products, which are assumed to be retail prices. Several of these show that the magnitude of fluctuation in barley prices in TMH 10, 105 was not an aberration. For example, CT 43, 16 indicates that barley could sell for as high as 15 shekels silver per gur (rev. line 5: *ma-hi-ra-tim* 2 (BÁN) ŠE.TA *a-na* 1 GÍN). In TLB 4, 38 (lines 26-28), the sender chides the recipient: "You lost 75 gur of barley worth 1 mina 15 shekels of silver." This works out to a price of 7.50 shekels per gur of barley. And in CUSAS 36, 192, the sender refers to a debt from the time of Rim-Sin regarding 5 gur barley that was carried off which was worth 13 shekels of silver per gur (lines 8-9). At the other end of the pricing spectrum, several letters show that barley could be inexpensive: 1.60 gur of barley sold for 1 shekel in AbB 9, 271 (lines 5-8), and 80 gur sold for 40 shekels in AbB 9, 105 (lines 10-11).
[26] Richardson diss. II 268 and 269.
[27] Richardson diss. II 273 and TLOB 87.

In year 18, he priced the barley loaned at 2.50 shekels/gur (4 loans)[28]

This magnitude of price fluctuation was not unique to northern Babylonia. TCL 10, 94 (Rim-Sin 39) gives a price equivalency of 15 shekels/gur for beer compared to beer prices ranging between 1.00 and 5.20 shekels/gur for five other price equivalences dated under his reign.[29] Price equivalencies for oil and dates also recorded in the same text are also significantly higher than their respective averages.

In trying to make sense of the data, it is likely that the quantity of barley harvested was the biggest factor affecting the price of barley. A bountiful harvest meant abundance and low prices; a bad harvest meant scarcity and high prices. And high prices meant economic hardship. Political conditions must have played a role, and this is covered in Part II.

3.1.3.3 The "fair" price of barley

Throughout this study, I use a ratio of 1:1, that is, 1 gur barley = 1 shekel silver to calculate the silver equivalent of commodities valued in barley and wages paid in barley. Given the considerable short- and long-term fluctuation in the price of barley, one must recognize that this ratio yields at best an approximate price or wage in silver. But even an approximate price is useful. That's because, apart from barley prices and price equivalences, there is good evidence that the mean price of barley was close to one shekel per gur, at least for the Ur III and OB periods. According to Marvin A. Powell:

> "This is indicated by this ratio being: 1) the standard calculation value and most frequently encountered rate in Ur III texts, 2) a standard of value in the Laws of Eshnunna, 3) the standard calculation value in OB mathematical texts."[30]

[28] Richardson diss. II 276, 279, 280, and 282.
[29] TCL 10, 39; 86; 88; 100; and YOS 8, 109.
[30] Powell 1990: 92.

Several tablets used in this study also show that the Babylonians reckoned the value of 1 gur barley at 1 shekel silver. Two loans of sesame oil with repayment in barley indicate that the amount of barley to be repaid was calculated based on that equivalency.[31] The same holds true for one expenditure list that values wool in terms of barley.[32] One unpublished administrative text from Nippur (UM 29-13-751),[33] dated Si 29, records deliveries of barley to the storehouse over a period of five months. The barley delivered is valued in silver based on 1 gur barley equals 1 shekel silver.[34]

Surprisingly, this 1:1 ratio is absent from the Hammu-rabi Code. Powell suggested that its absence "…may be a tacit recognition that the ideal equivalence, 1 shekel silver = 1 gur of barley, no longer corresponded to reality."[35] However, Powell's statement seems to be contradicted by twenty-five texts used by this study that record wages for hired workers, where the wages were paid in barley or silver at the rate of 1 gur barley equals 1 shekel silver (per month of work). These come from northern and southern Babylonia, from the Kingdom of Larsa and from the 1st Dynasty of Babylon and show that this rate was used from before Hammu-rabi through Ammi-ṣaduqa.[36]

To summarize: The price of barley varied from year to year, and even within a single year. Keeping in mind the significant gaps in the pricing record, the sources indicate that barley

[31] RA 72/2, 128 no. 15 (Ha 42); Richardson diss. II p. 351 (Aṣ 16). See Appendix A nos. 17 and 18.
[32] TMH 10, 193. See Appendix A no. 14.
[33] See CDLI: P255664 for photo.
[34] Rev. 4-5: 8 (GUR) 2 (BÁN) GUR 5 SILA$_3$ KÙ.BI 8 GÍN 15 ŠE KÙ$^?$.BABBAR$^?$
[35] Powell 1990: 92.
[36] These texts are: TCL 10, 110; YOS 8, 70; TLB 1, 43; RA 86, 105 no. 3; RA 86, 105 no. 4; VAS 8, 37; BA 5/4, 19; TLOB 22; PBS 8/2, 196; CT 4, 25c; VAS 8, 99; Unpub. BM 78753; VAS 9, 22; 57; 109, and 180; PBS 8/2, 188; Unpub. BM 80823; CT 48, 116; JCS 5/3, p. 95; YOS 13, 38; TCL 1, 176; CT 8, 11a; YOS 13, 385; Richardson diss. II p. 404.

prices for the 1st Dynasty of Babylon were lowest in the last twelve years of the reign of Hammu-rabi through the first eight to ten years of Samsu-iluna. The price of barley was higher under Ammi-ṣaduqa, and possibly much higher under Samsu-ditana. Based on a limited number of equivalencies from the Kingdom of Larsa, barley prices may have fluctuated around 1 shekel silver per gur barley, but there were spikes. Taken outside the context of a comprehensive price study, the barley price data would remain largely without significance. Its proper evaluation presupposes a familiarity with the patterns of price movement for the other principal commodities and services. An interpretation of its overall significance is provided in Part II.

3.2 Oil

3.2.1 Introduction

The importance of oil in the daily lives of the Babylonians is underscored by its inclusion (along with barley and wool) in support agreements. Frequent references to oil in cuneiform documents show that oil was used in many aspects of daily life. These span thousands of years and are found throughout Mesopotamia.[37] In his study of the Babylonian economy, Schwenzner had recognized this as early as 1915 when he wrote:

> "*Neben Kost und Kleidung war dem Babylonier, wie auch heut noch dem Orientalen, das Öl das dritte Hauptbedürfnis des täglichen Lebens. Als Speise- und Salböl, als Opferspende, als Heil- u. Wahrsagemittel, fand es im Haushalte, in der Medizin, im Kultus und in der Mantik die mannigfachste Verwendug*."[38]

3.2.2 Sources

In light of the above, it is surprising that only 51 price equivalencies that equate oil and silver or oil and barley are preserved.[39] These are comprised of 42 price equivalences that equate oil and silver (actual equivalences), plus 2 equivalences from paragraph 1 of the Ešnunna law code, plus another 7 equivalences which can be used to approximate its value in silver (derived equivalences).[40] The dearth of evidence can be explained if one assumes that, like barley, oil was most often exchanged in a manner that did not require a formal contract.

[37] This is apparent from the citations in CAD Š/1 p. 321-330 under *šamnum*. See also Sturm 2014: 766-768.
[38] Schwenzner 1915: 22-23.
[39] See Farber 1978: 22-23 which used only twelve price equivalences.
[40] These texts are: YOS 12, 4 (1); Szlechter TJDB pl. 65 MAH 16596 (1); YOS 12, 254 (4); Szlechter TJA pl. 32 UMM H32 (5); RA 72/2, 128 no. 15 (17); Richardson diss. II p. 351 (18); CT 33, 22 (23). The numbers in parentheses refer to their reference number in Appendix A, where each case is discussed.

Price equivalences for the following types of oil[41] occur:

Ì.GIŠ	"Sesame oil"[42]
Ì.SAG	"Top-quality oil"[43]
Ì.NUN	"Ghee"[44]
Ì.DÙG.NUN.NA	"Fine quality ghee"
Ì.GU.LA	"Perfumed oil"[45]
Ì.ŠAH	"Lard"[46]

Table 3.2-1[47] gives the provenience of the sources for oil prices and Table 3.2-2 gives the number of equivalences by document source type.

Provenience	Count
Ur	8
Larsa	14
Nippur	4
Sippar (inc. ed-Dēr)	10
Dilbat	2
Kish	2
Dur-Abiešuh	1
Und.	4
Und. -no.	2
Und. -so.	2
Ešnunna	2
Total	51

Table 3.2-1 Oil price equivalences by provenience

[41] Technically, ghee and lard and not oil but fats. Cf., Sturm 2014 for terminology.
[42] Akk. *šamnum* (CAD Š/1 p. 321) or *ellum* B (CAD E p. 106). Oil was extracted (Akk. *ṣahātum*) from sesame (Sum. ŠE.GIŠ.Ì, Akk. *šamaššammū*). See CAD Ṣ p. 60 for references to its extraction and Reculeau 2009 for the identification of ŠE.GIŠ.Ì/*šamaššammū* as sesame.
[43] Akk. *rūštum* (CAD R p. 430) or possibly to be read *šamnum rēštûm* (p. 431).
[44] Akk. *himētum* (CAD H p. 189).
[45] Akk. *igulûm* (CAD I/J p. 45).
[46] Akk. *nāhum* (CAD N/1 p. 142).
[47] The two oil price equivalencies for sesame oil and high quality oil found in LE §1 are counted under Ešnunna.

Description	Count
Loans	10
Expenditure lists	21
Receipts	6
Letters	4
Sales	4
Balanced accounts	4
Law code	2
Total	51

Table 3.2-2 Sources of price equivalences for oil

3.2.3 Oil prices

For the same reasons stated above under barley (see above, 3.1.3), it is not possible to identify long term fluctuations in the price of oil. Because there are fewer price equivalences for oil compared to barley, the conclusions presented below are, at best, preliminary.

Table 3.2-3 shows the unit price averages and ranges for different types of oil.[48] Perfumed oil[49] and high quality ghee were the most expensive, probably because they were highly processed, compared to their less processed counterparts, sesame oil and ghee, which were the least expensive. Almost all of the oil price equivalences are for sesame oil and top-quality oil. As was the case for barley, and for the same reasons, the table shows that the price of 1 *sūtum* of sesame oil averaged well above the "idealized" or "fair" price of 0.83 shekels of silver as stated in §1 of the Ešnunna law code.

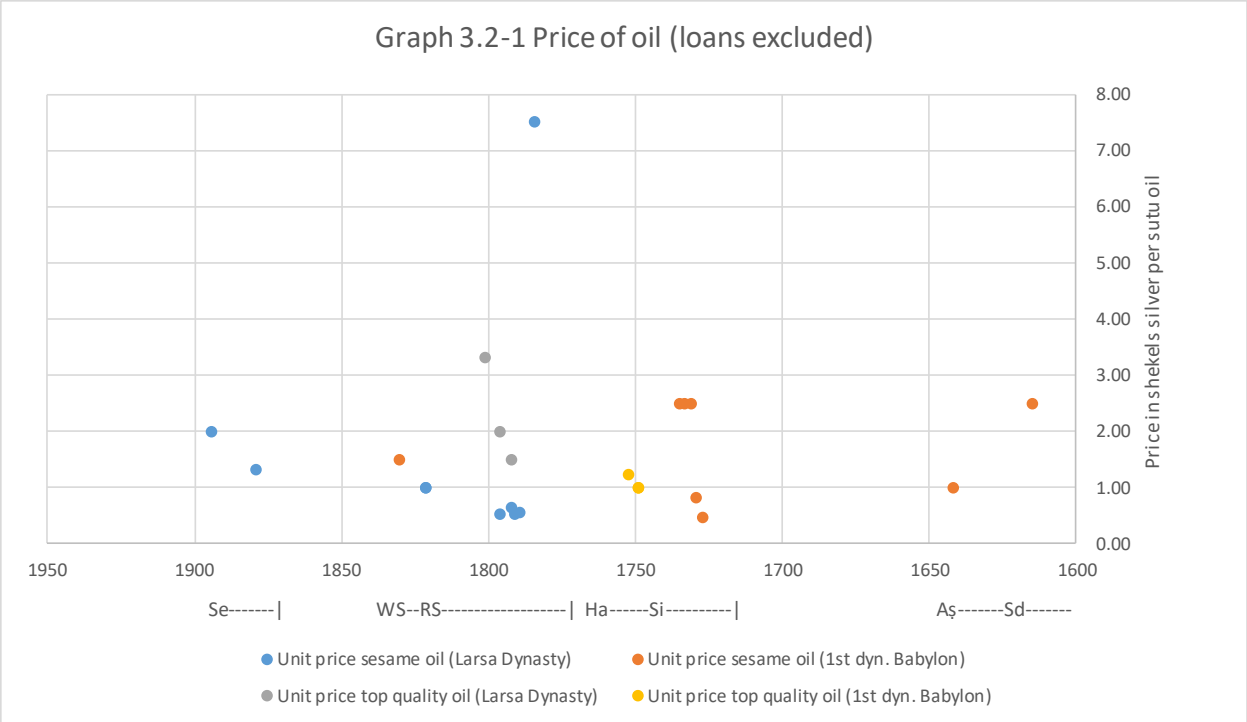
[48] UET 5, 607 (discussed below) contains 23 price equivalences for the 4 types of oil listed in it. Price equivalences for each type have been averaged, and each average counts as a single price equivalency in Table 3.2-3.
[49] On this topic, see Joannès 1993: 251-270.

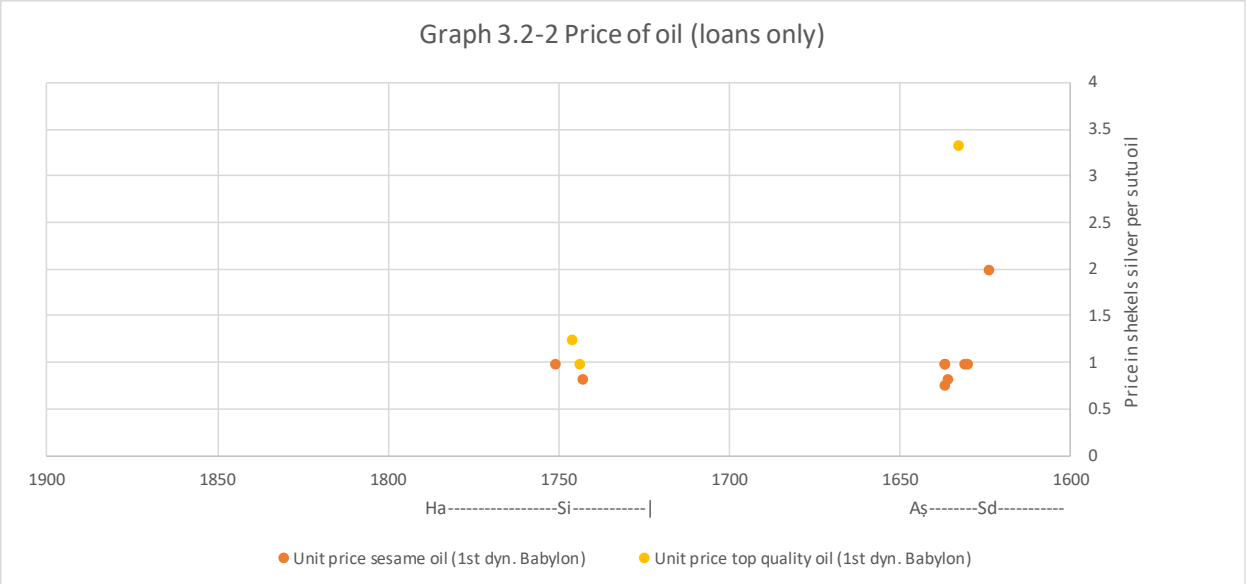
	Description	Avg. price/*sūtum* (in shekels)	Range (in shekels)	Count
Actual	sesame oil	1.60	0.48-7.53	28
	top-quality oil	1.72	1.00-3.33	6
	ghee	0.83	0.67-1.00	2
	fine quality ghee	3.33	3.33-3.33	1
	perfumed oil	10.00	10.00-10.00	3
	lard	2.49	2.49-2.49	1
Mixed	sesame oil & ghee	0.99	0.99-0.99	1
Subtotal				42
Derived	sesame oil	0.95	0.83-1.00	5
	top-quality oil	1.00	1.00-1.00	2
Law Code	sesame oil	0.83	0.83-0.83	1
	top-quality oil	3.33	3.33-3.33	1
Total				51

Table 3.2-3 Oil price averages

Graphs 3.2-1 and 3.2-2 plot unit prices of sesame oil and top-quality oil over time. Graph 3.2-1 excludes loans, and Graph 3.2-2 includes only loans (both include actual and derived prices). As with barley, there are significant gaps in the pricing record. For the 1st Dynasty of Babylon, one price equivalency for sesame oil may date prior to Hammu-rabi[50] and there are no oil price equivalencies for the reigns of Abi-ešuh and Ammi-ditana. For the Kingdom of Larsa, all but two price equivalencies for sesame and top-quality oil date to the reign of Rim-Sin.

[50] Edzard, Tell ed-Dēr 120. Part of the Anum-pîša-archive. Edzard 1970: 16-17 dates this archive to the reigns of Apil-Sin and Sin-muballiṭ.


Graph 3.2-1 Price of oil (loans excluded)
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
Price in shekels silver per sutu oil
1950
1900
1850
1800
1750
1700
1650
1600
Se-------|
WS--RS----------| Ha------Si----------|
Aş-------Sd-------
Unit price sesame oil (Larsa Dynasty)
Unit price sesame oil (1st dyn. Babylon)
Unit price top quality oil (Larsa Dynasty)
Unit price top quality oil (1st dyn. Babylon)


Graph 3.2-2 Price of oil (loans only)
4
3.5
3
2.5
2
1.5
1
0.5
0
Price in shekels silver per sutu oil
1900
1850
1800
1750
1700
1650
1600
Ha----------Si----------|
Aş--------Sd----------
Unit price sesame oil (1st dyn. Babylon)
Unit price top quality oil (1st dyn. Babylon)

The following conclusions can be drawn from the graphs:

1) Prices for oil, like those for barley, appear lowest late in the reign of Hammu-rabi and the early years of Samsu-iluna when sesame oil may have sold for as low as 0.50 shekels per *sūtum* with top-quality oil selling at about twice that price.[51] Compare this to §1 of the Ešnunna law code, where sesame oil is priced at 0.83 shekels/*sūtum* and top-quality oil at 3.33 shekels/*sūtum*, thus valuing top quality oil 4 times more than sesame oil.

2) By the reign of Ammi-ṣaduqa, the price of sesame oil may have risen to about 1 shekel per *sūtum*.[52]

3) The two price equivalencies for sesame oil from the reign of Samsu-ditana: 2.50 and 2.00 shekels per *sūtum*,[53] are considerably higher than price equivalencies for sesame oil under his predecessor.

4) Price equivalences for oil from the reign of Rim-Sin suggest that 1 *sūtum* of sesame oil sold at times for less than a shekel of silver with the same quantity of top-quality oil selling for at least twice as much. Sesame oil at that price is comparable to or slightly higher than its price under Hammu-rabi/early Samsu-iluna. Note the price spike in Graph 3.2-1 for Rim-Sin year 39 (1784), the same as observed for barley.

Several of the texts plotted on Graph 3.2-1 give us additional insight into pricing.

UET 5, 607 and 636 are two lists of expenditures written sometime during the first half of the reign of Rim-Sin.[54] Both were cited in the introduction (I.4.2 and I.8). Price equivalences listed in them for sheep and barley were included in Graphs 2.2-2 and 3.1-2. UET 5, 607 records twenty-three expenditures of silver, ranging from 0.50-4.00 shekels, for small quantities of sesame oil, ghee, fine quality ghee, and perfumed oil. These are summarized as follows:

[51] Three texts, which value oil in barley, imply that top-quality oil was twice as expensive as sesame oil. RA 72/2, 128 (Ha 42) gives a sesame oil:barley ratio of 1:40. YOS 12, 4 (Si 1) and Szlechter TJDB pl. 65 (Si 6) give a top-quality oil:barley ratio of 1:80, implying top quality oil was twice as valuable as sesame oil. All three come from Larsa and are part of a larger group of texts in which Pirhum and Šep-Sin were both involved in collecting and selling commodities on behalf of the palace under Hammu-rabi and Samsu-iluna (Stol 1982). Note the sesame oil:barley ratio of 1:40 in Richardson diss. II p. 351 (Aṣ 16).

[52] Average price per *sūtum* of sesame oil under Ammi-ṣaduqa: 0.95 shekels; range: 0.77-1.02; count: 7.

[53] YOS 13, 410 (Sd 11): 2.50 shekels per *sūtum*. CUSAS 8, 20 (Sd 2): 2.00 shekels per *sūtum*.

[54] Although both are undated, according to Charpin 1986: 69, UET 5, 607 and 636 most likely date to Rīm-Sin years 2-34. Ku-Nin[gal] (owner of the archive) is mentioned in 607:46. Per Charpin, Ku-Ningal died in Rim-Sin 34.

Type of oil	Avg. unit price (shekels/*sūtum*)	number of entries
Sesame oil	1.00	2
Ghee/butter	1.00	6
Fine quality ghee	3.50	5
Perfumed oil	10.00	10

Examining the individual expenditures, one finds that there is virtually no variation in the unit prices paid for each type of oil, indicating that the price of oil was stable over the time period the expenses were made, which is unfortunately not given.[55] Sesame oil and ghee sold for 1.00 shekel per *sūtum*, slightly higher than the unit prices for sesame oil in four tablets dated Rim-Sin 27-34, and about the same as prices for top-quality oil found on four tablets from Larsa dated Ha 41 to Si 6. UET 5, 636 has the same unit prices as UET 5, 607 for sesame oil (2 entries)[56] and perfumed oil (5 entries).[57]

TMH 10, 105, which was discussed above under barley, also records expenses for sesame oil over a nine-year period from Samsu-iluna years 15-24. Prices for sesame oil in the text are summarized below:

Si 15-16: 2.50 shekels/*sūtum*
Si 17-18: 2.50 shekels/*sūtum*
Si 19-20: 2.50 shekels/*sūtum*
Si 21-23: 0.83 shekels/*sūtum*

Unlike barley, which TMH 10, 105 shows was priced high at the start of the period but saw its price drop over the first six years, the price of sesame oil remained unchanged over that same period. Sesame oil, however, was considerably more expensive in those years compared

[55] To the contrary, unit prices for barley and barley products listed in UET 5, 607 varied over the same period: 1.65-2.50 shekels/gur for flour (8 price equivalences) and 1.10-2.50 shekels/gur for barley (2 price equivalences).
[56] Lines 43 and 47.
[57] Line 8, 21, 43, 47, and 52. Read 1! SILA$_3$ Ì.GU.LA KÙ.BI 1 GÍN at end of line 52.

to the early years of Samsu-iluna's reign. For the last three years, the price of sesame oil dropped sharply, bringing it more in line with its price during the early years of Samsu-iluna's reign. TMH 10, 105 showed that barley prices similarly dropped.

To summarize: the limited number of price equivalences for oil frustrates attempts to track short- and long-term price fluctuations, although it is possible to get a general idea of its price under Rim-Sin, Samsu-iluna, and Ammi-ṣaduqa. Judging from UET 5 607, TMH 10 105, and graphs 3.2-1 and 3.2-2, oil prices tended to be more stable than barley prices, although there were price spikes. Like barley, the data for oil prices takes on greater significance when examined in the context of overall price movements in Part II.

3.3 Wool

3.3.1 Introduction

Given that its use in the manufacture of garments made it essential to the Babylonian way of life, it's not surprising that wool, along with barley and oil, was the third commodity listed in support agreements.[58] In my article on wages and prices, 17 wool price equivalences were used to trace wool price fluctuations. Clearly, that number was insufficient to do so. This study incorporates 59 additional wool price equivalences, bringing the total to 76 equivalences. This additional data, along with the publication of several important articles dealing with wool and wool prices that appeared subsequent to the publication of my article, has resulted in a better understanding of wool price fluctuations.[59]

3.3.2 Credit sales of wool

Numerous tablets show that the palace and temples were keenly interested in the wool trade. Both owned large flocks of sheep. This held true for both the Kingdom of Larsa[60] and the 1st Dynasty of Babylon.

Focusing on the late OB period, specifically the reigns of Ammi-ditana and Ammi-ṣaduqa, Charpin's article "*Marchands du palais et marchands du temple à la fin de la I^re^*

[58] In this regard, see CH §178, which specifies that barley, oil, and wool are to be given to a priestess for her maintenance and CH §237, where wool is listed alongside of barley, oil, and dates as examples of cargo for transport.

[59] See Charpin 1982, Stol 1982 and 2004, and De Graef 2014. These supersede earlier work on the subject by Yoffee 1977: 12-21 and comments regarding Sippar wool loans by Harris 1975: 48-50. Stol's 1982 article discussed wool (pages 141-144) in the context of how the palace in Larsa converted various commodities to silver under Hammu-rabi and Samsu-iluna.

[60] Noteworthy of mention are hundreds of tablets from Ur, which are associated with several different archives, and which document livestock management by the Nanna and Ningal temples. See Van De Mieroop 1992: 85-89 and 177-181.

dynastie de Babylone," published in 1982, described a 5-step process that the palace used to convert surplus wool into silver. The steps are summarized as follows:

1) Delivery of wool to the palace
2) Delivery of wool by the palace to intermediaries
3) Sale of wool on credit
4) Reimbursement of the debt
5) Intermediaries repay silver to the palace.[61]

In 2014, Katrien De Graef re-examined step 3 in light of additional texts that had become available in the interim. Analyzing the so-called "credit sales," De Graef identified the parties involved: the creditors, debtors, and responsible officials.[62] She also correlated and charted the wool:silver price equivalences found in these texts and concluded the following:

> "Considering the wool/silver rate of both the long- and short-term loan documents over a period of 29 years (Ad 22 to Aṣ 13), we see the wool price was fairly stable for the greater part of this period (Ad 22 – Aṣ 2) but was subject to some fluctuation from Aṣ 9 to Aṣ 13."[63]

Let's look closer at these credit sales. Although formulated like a loan, their intent was different: At the end of winter, shepherds employed by the palace brought the sheep to the "shearing centers."[64] Consequently, the palace received large quantities of wool. To convert the wool into silver, the palace gave control of the wool to intermediaries,[65] who then sold the wool on credit to private individuals, likely merchants.[66] In most of these credit sales, wool was valued in silver at what appears to be a "fixed rate," typically 10 or 12 shekels silver per talent of wool. Presumably, this rate was below its true market value. The individuals (debtors) who received the wool in these contracts then either resold the wool at higher prices or themselves

[61] For a detailed description of each step, see Charpin 1982: 29-38; also, Van De Mieroop 2002: 164-167.
[62] De Graef 2014: 207-208 and 211-213.
[63] De Graef 2014: 214-215.
[64] *bīt akītim* (Charpin 1982: 29-30, De Graef 2014: 203).
[65] "Overseer of the merchants" or "judges of the *kārum*." See Charpin 1982: 45-46.
[66] Charpin 1982: 46.

lent out the wool for interest. Unfortunately, we have no wool resales—hence, no way to determine their profit margin. The repayment terms in these credit sales specified either a fixed or open-ended repayment date.[67] The intermediaries eventually turned over the silver to the palace, although several years or more could elapse before the palace received the silver.[68] As Charpin pointed out, the palace may have used an analogous process to convert cattle and sesame into silver.[69]

Several texts show that the Šamaš temple in Sippar also lent wool on credit during the reigns of Ammi-ditana and Ammi-ṣaduqa.[70] Based on four transactions, Charpin proposed that the temple used the same or a similar process to convert wool into silver.[71]

Two centuries earlier, under the Kingdom of Larsa, the Nanna temple at Ur owned large herds of cattle and sheep, and it's clear that the temple also lent wool on credit. Although the details of the process for converting surplus wool into silver still have to be worked out,[72] several texts from Ur show that the temple used silver from the sale of wool to purchase sheep (UET 5, 407) and make payments (UET 5, 430 and 476).[73] In another text (UET 5, 325), the Nanna temple loaned silver. The silver is described as "silver from the wool of the Nanna temple."[74]

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[67] De Graef 2014: 204. Use of a fixed repayment date was uncommon (e.g., CT 6, 35c – repay silver in two months). An open-ended repayment date, using a variation of the phrase "(the debtor is to repay the silver) when the palace requests it," is much more typical. E.g., De Graef 2014: 225 (13-14).
[68] Charpin 1982: 44-45; De Graef 2014: 204.
[69] Charpin 1982: 39-41.
[70] E.g., BE 6/1, 91 and Richardson diss. II p. 206 (BM 097436). See also Charpin 2005b: 32-33.
[71] Charpin 1982: 49-52.
[72] The organization and management of the herds is described in Van De Mieroop 1992: 177-181 and Béranger 2020.
[73] The phrase used in 430 and 476 is: ŠÀ KÙ ŠÁM SÍG GIN. See also Charpin 2005b: 32-33.
[74] Line 2: KÙ SÍG É {d}ŠEŠ.KI. The same phrase is used in UET 5, 407.

3.3.3 Sources

Table 3.3-1[75] gives the provenience of the sources for wool prices, Table 3.3-2 gives the number of equivalences by document source type, and Table 3.3.4 categorizes the sources by date range. From the tables, one can see that the data is skewed by provenience, type of transaction, and ruler. Over 40% of the wool price equivalences come from Sippar, and over half come from loans (credit sales). Twenty-seven of the texts are dated under Ammi-ditana and Ammi-ṣaduqa, compared to just 17 dated under six rulers of the Kingdom of Larsa.

Provenience	Count
Ur	7
Larsa	19
Nippur	5
Sippar (inc. ed-Dēr)	32
Babylon	2
Lagaba	2
Und.	3
Und. -no.	4
Und. -so.	1
Ešnunna	1
Total	76

Table 3.3-1 Wool price equivalences by provenience

Description	Count
Loans	36
Expenditure	1
Expenditure lists	7
Deliveries	5
Receipts	15
Letters	6
Sales	4
Balanced accounts	1
Law code	1
Total	76

Table 3.3-2 Sources of price equivalences for wool

[75] The wool price equivalency found in LE §1 is counted under Ešnunna.

3.3.4 Wool prices

Table 3.3-3 shows the mean unit price and price ranges for three grades of wool, and Table 3.3-4 shows mean wool prices over time.

	Description	Avg. price/talent (in shekels)	Range (in shekels)	Count
Actual	top quality wool	8.20	5.00-10.50	5
	(regular) wool	13.89	4.80-92.59	67
	(low quality) wool	4.00	4.00-4.00	1
Subtotal				73
Derived	(regular) wool	10.19	8.38-12.00	2
Law Code	(regular) wool	10.00	10.00-10.00	1
Total				76

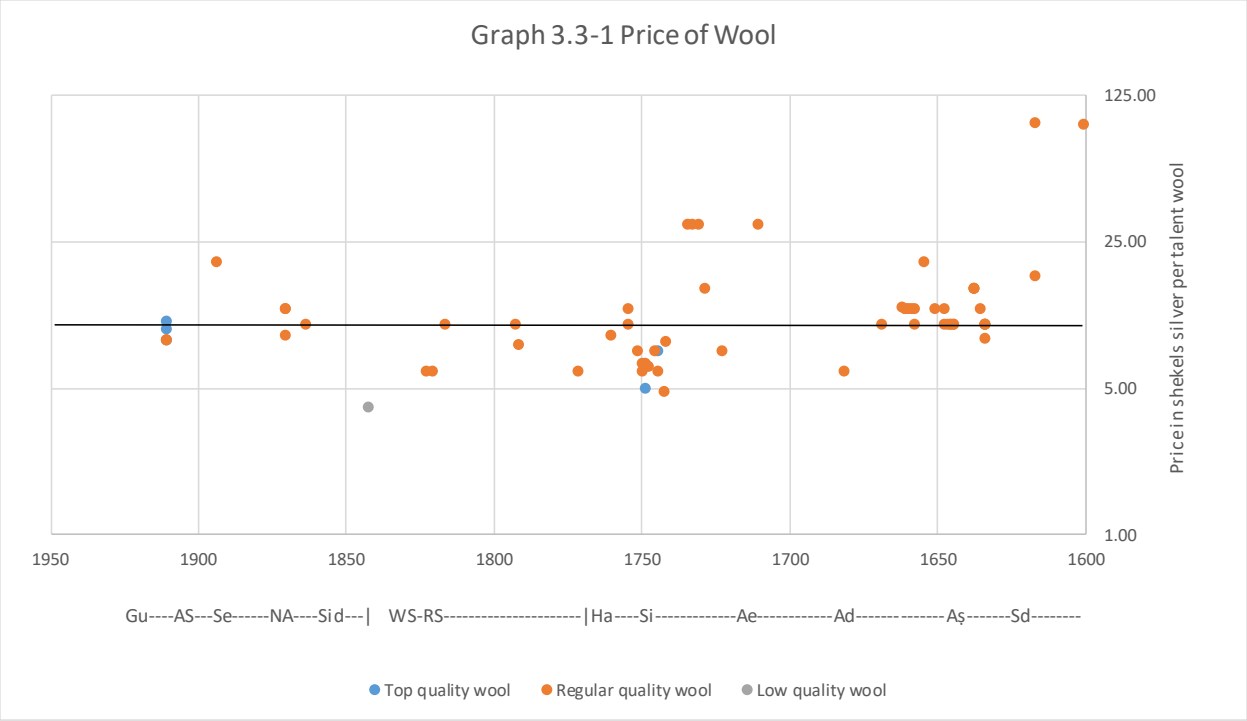
Table 3.3-3 Wool price averages

Dynasty	Ruler(s)	Date range	Description	Average price/talent (in shekels)	Count
Babylon	Ha 31-43	1762-1750	(regular) wool	8.50	6
	Si 1-11	1749-1739	top quality wool	6.25	2
	Si 1-11	1749-1739	(regular) wool	6.59	6
	Si 12-38	1738-1712	(regular) wool	22.50	5
	Ae	1711-1684	(regular) wool	30.00	1
	Ad	1683-1647	(regular) wool	11.71	13
	Aṣ	1646-1626	(regular) wool	11.11	14
	Sd	1625-1595	(regular) wool	66.59	3
Larsa	Gu	1932-1906	top quality wool	9.50	3
	Gu	1932-1906	(regular) wool	8.50	2
	Se	1894-1866	(regular) wool	13.28	4
	NA	1865-1850	(regular) wool	10.00	1
	Sid	1849-1843	(lower quality) wool	4.02	1
	WS	1834-1823	(regular) wool	6.00	1
	RS	1822-1763	(regular) wool	8.00	5

Table 3.3-4 Mean price of wool by date range

Most of the texts give no indication of the wool's quality. Three texts qualify the wool as "top-quality wool" (IGI.SAG.GÁ).[76] Several qualify the wool as "regular" or "average quality" wool (SÍG GIN).[77] YOS 14, 293 implies a third category, "(wool which) the shepherd collected (from dead sheep)."[78] It is priced at 4.00 shekels/talent, lower than the other categories; hence, its designation "low-quality wool."

Table 3.3-3 indicates that regular wool cost more than top-quality wool, but this is unlikely. A total of five equivalences for top-quality wool -- three from one tablet and all dated before Samsu-iluna year 6 -- are too few to be considered a meaningful sample.



[76] Stol 2004: 961-962. Texts using this qualification are OLA 220, 446-450:1-3 and 4-6; Boyer Contribution 111:1-3; and YOS 12, 23:1-2. OLA 220, 446-450 subdivides the wool listed in it into five categories and values regular quality wool at 8.50 shekels/talent and top-quality wool at 10.50/shekels talent.

[77] See Stol 2004: 961 for the reading SÍG GIN and earlier Goetze 1950: 86 -- YBC 10482 line 9: 14 MA.NA SÍG GIN.NA (Sum: GIN = Akk: *kīnum*), "normal," "regular," (CAD mng. 3). For SÍG UŠ "second quality wool," used in texts from Mari, see CAD Š/3 p. 62. If the wool is unqualified, my assumption is that it is "normal wool," unless noted otherwise.

[78] Line 8: ˹ŠÀ˺ RI.RI.GA SIPA

Table 3.3-4 is intended to be used in conjunction with Graph 3.3-1, which plots the unit price of wool over time. To facilitate viewing and accommodate "outliers," the data on Graph 3.3-1 is plotted using a base-5 logarithmic scale. Also, a solid black line has been added to identify the mode price of 10 shekels silver per talent of wool, which also happens to be the price specified in §1 of the Ešnunna law code. I have chosen to plot wool price equivalences for the Kingdom of Larsa and 1st Dynasty of Babylon on the same graph, because there is a clear-cut divide between the two. All of the price equivalences earlier than Ha 32 (1761) are dated under rulers of the Kingdom of Larsa. Everything later is dated under rulers of the 1st Dynasty of Babylon. Loans (credit sales) are also plotted on the same graph with other text types. Data points are color-coded to distinguish top-quality from regular and low-quality wool. Lastly, a single data point can represent multiple price equivalences if two or more texts have the same unit prices and are dated in the same year.[79]

For the 1st Dynasty of Babylon, the graph indicates that the price of wool fluctuated. Over a twenty-year period, from Hammu-rabi year 32 through Samsu-iluna year 8 (1762-1742), its price seemed relatively stable, with regular wool selling at approximately 7.50 shekels/talent.[80] At some point after Samsu-iluna year 8, wool prices must have risen. According to TMH 10, 105, discussed above under barley and oil, wool sold for 30 shekels/talent over a 6-year period from Samsu-iluna years 15-20, but dropped in price to 15 shekels/talent from Si 21-23. The remaining years of Samsu-iluna and the reign of Abi-ešuh are represented by a single wool price equivalency of 30 shekels/talent (YOS 13, 340 – Ae year "A"), which is considerably higher than its price range of 10-12 shekels/talent under his

[79] E.g., De Graef, Wool Economy ANE, pp. 228-230 (BM 080990, BM 081196, BM 081236) all 15 shekels/talent, all dated Aṣ 9.
[80] Based on 12 price equivalencies - range of 4.80 to 12.00 shekels/talent.

successors Ammi-ditana[81] and Ammi-ṣaduqa. Keep in mind that credit sales are the source for wool price equivalences for Ammi-ditana and Ammi-ṣaduqa. The retail price of wool must have been higher to allow the creditors to make a profit. During the reign of Samsu-ditana, the price of wool may have risen sharply. All three price equivalences dated to his reign are significantly higher than those dated to his predecessor.

There are 17 wool price equivalences dated under rulers of the Kingdom of Larsa, ranging from a price of 4.02 shekels (for low-quality wool) to 20.00 shekels/talent. The earliest text (OLA 220, 446-450, no. 1), which itself accounts for five wool price equivalences, may date as far back as the reign of Gungunum (1932-1906), although this is by no means certain.[82] The average price of regular quality wool based on all seventeen equivalences is 9.33 shekels/talent, higher than its average price under Hammu-rabi. This is due, in part, to four equivalences dated to the reign of Sumu-El, when wool prices may have been higher.[83] The six price equivalences under Warad-Sin and Rim-Sin seem more in line with wool prices under Hammu-rabi. Seventeen price equivalences spread over a period of about 150 years are too few to reach a definitive conclusion regarding wool price fluctuations for the Kingdom of Larsa.

[81] As noted by Richardson 2010: 21, there is almost a twenty-year gap with no wool price equivalences dated between Ad 3–Ad 21, which cannot be explained.
[82] The year date reads: MU É {d}Inanna BA.DÙ "Year the Inanna temple was constructed." The ruler is not named. This is the year date for Gungunum's 16th year (1917). However, this year date formula could also be an abbreviated form of Rim-Sin year 4 (1819), or possibly even Warad-Sin year 5 (1830), both of which also commemorate construction of a temple to Inanna. Charpin (Archibab) assigns the text to Rim-Sin year 4 (instead of Gungunum year 16) but offers no explanation other than "…*cette deuxième date me semble plus probable*."
[83] UET 5, 637 (dated Se 24), contains three price equivalences: one at 9.00 and two at 12.00 shekels/talent. CBI/2 III-11 (part of the Ipqu-Sin archive, which is datable to the reign of Sumu-El), contains one equivalency at 20.00 shekels/talent.

Six letters provide information on wool prices, and these show prices ranging from 6.00 to 20.00 shekels per talent of wool. Unfortunately, only one of these (AbB 9, 105) can be dated.[84]

As a consequence of the additional data utilized by this study, several of the conclusions that I put forth in my article require modification. In his 1982 article on wool, Charpin had questioned two of my conclusions and provided alternatives. In so doing, his work advanced our understanding of wool prices.

In my article, I suggested that the palace at Sippar maintained the fixed exchange rate of six minas of wool for one shekel of silver (10 shekels/talent), and that this exchange rate could have remained essentially unchanged from the pre-Hammurabi period through the reign of Ammi-ṣaduqa.[85] This statement was based on a single text. However, Charpin identified several other texts that showed wool was priced below 10 shekels/talent under Hammu-rabi and the early years of Samsu-iluna.[86] Graph 3.3-1 shows that he was correct.

Also in my article, I suggested that "the palace exercised a virtual monopoly on wool production" and that this "was in effect for at least the latter half of the reign of Ammi-ditana and all of Ammi-ṣaduqa's reign."[87] I based this statement mainly on credit sales and the lack of evidence for sales of wool by private parties. Charpin disagreed and pointed out that fixed prices do not automatically mean "monopoly,"[88] and that cash sales of wool likely occurred but would not have been documented.[89] He went on to cite several letters that alluded to private

[84] See above, I.4.4 for a discussion of this letter. The date range for this letter is Hammu-rabi year 32 to Samsu-iluna year 7. In it, forty minas of white wool are priced at six shekels of silver.
[85] Farber 1978: 5 note 10.
[86] Charpin 1982: 52-53.
[87] Farber 1978: 26.
[88] Charpin 1982: 54-55.
[89] Charpin 1982: 56.

commerce in wool.[90] His analysis and conclusions were sound. Subsequent to Charpin, Seth Richardson included two texts in his dissertation that also showed private parties lent wool, which they valued in silver.[91] Neither of these loans seem to be connected in any way with the palace or temple.[92]

Lastly, I suggested that the palace valued wool at 12 shekels/talent in credit sales involving smaller quantities as opposed to 10 shekels/talent for credit sales of 1 talent of wool. Charpin agreed, and this led him to propose that the term *kargullum*, which is used to qualify wool in OLA 220, 446-450 (=Mél. Van Lerberghe 1:2) and CT 6, 37c:10, may refer to wool's "wholesale" price as opposed to retail price.[93] While the additional wool price equivalences that have come to light since the publication of my article do not show a correlation between quantity and price,[94] his proposal that *kargullum* designates a "wholesale" price seems reasonable. However, further study of this term is warranted.

To summarize: the additional data incorporated into this study yields a more complete picture of wool price fluctuation than what was presented in my article, but sizeable chronological gaps in the data still remain. Although prices for both fluctuated, wool prices tended to be more stable than barley prices. For the 1st Dynasty of Babylon, we know nothing about wool prices until the reign of Hammu-rabi. Based on the price equivalences we have, the lowest wool prices occurred in his last ten years roughly through Samsu-iluna year 10. The

[90] Charpin 1982: 56-57.
[91] Richardson diss. II p. 360 (BM 079801) and p. 362 (BM 081398). In the first text, the creditor is identified as a shepherd. My assumption is that the wool came from sheep he owned. See also Richardson 2010: 21-22 and note 30 for his view regarding a palace/temple monopoly of the wool trade.
[92] See also Van de Mieroop 1992: 177 who cites evidence for private ownership of sheep.
[93] Farber 1978: 26 and Charpin 1982: 55 note 68.
[94] For 12 price equivalences of wool at 10 shekels/talent: average quantity=0.56 talent, range=0.05-1.00 talent. For 8 price equivalences of wool at 12 shekels/talent: average quantity=0.57 talent, range=0.167-1.00 talent. In one credit sale (De Graef, Wool Economy ANE, p. 230) a small quantity of 7 mana of wool is valued at 8.58 shekels.

highest prices occurred during the reigns of Samsu-ditana and possibly Abi-ešuh. Wool prices seem to have been stable from the latter part of Ammi-ditana's reign through Ammi-ṣaduqa year 13, but at a higher price than under Hammu-rabi and Samsu-iluna's early years. For the Kingdom of Larsa, the situation is even less clear because there are fewer wool price equivalences. Wool prices seem to have been high under Sumu-El and lower under Nur-Adad and Sin-iddinam. The price of wool during the reign of Rim-Sin may have been comparable to its price during the last ten years of Hammu-rabi's reign.

3.4 Dates

We know little about the price of dates during the Old Babylonian period. Only 12 texts, each containing a single date price equivalency, were identified for this study. Nine are dated under rulers of the 1st Dynasty of Babylon. One text is dated under the Kingdom of Larsa and one under the First Dynasty of Isin. The date of one text is broken.

The texts span almost the entire Isin-Larsa/Old Babylonian period. The earliest (BBVO 11, 268, 5N-T656) is a loan of dates valued in barley dated to year 6 of Išbi-Irra of Isin (2012). The latest (VAS 22, 68) is a receipt of 400 sila dates valued in silver dated to Samsu-ditana's sixteenth year (1610).

There are no sales of dates. Four of the price equivalences come from lists of expenditures. One comes from a loan, and 7 come from receipts.

Prices for dates in the thirteen texts range from 0.30 shekels to 45.00 shekels per gur. With such a wide price spread and so few price equivalences, a mean price has little meaning here. However, 5 of the 13 price equivalences priced dates at the rate of two gur of dates per shekel of silver (=0.50 shekels/gur), making it the mode price.[95] All of these come from Larsa and cover a fifteen-year period from Ha 36 – Si 7. Four of the five involve Šep-Sin, the well-known "overseer of the merchants of Larsa."[96]

Judging from these 5 texts, and 2 texts with even lower prices,[97] – all from the same period – the price of dates during the latter years of Hammu-rabi and the early years of Samsu-iluna seems to have been relatively stable at around 0.50 shekels silver per gur. Dates also appear to have sold cheaply during this period, since all remaining price equivalences are higher.

[95] JCS 34, 160, 200, no. 11; JCS 34, 178, no. 41 (=AUCT 4, 74); Boyer Contribution 111 (pl. 5), 126 (pl. 10), and 137 (pl. 14).
[96] See Stol 1982.
[97] JCS 34, 164, 208, no. 19 (Ha 43): 0.40-0.44 shekels/gur and YOS 12, 122 (Si 4): 0.30 shekels/gur.

The price of dates could vary substantially. Like barley, its price must have depended upon the quantity of dates harvested. The best evidence for such wide price swings comes from TCL 10, 94, an expenditure list dated RS 39, which has a price equivalency of 21.00 shekels silver per gur of dates.[98] That price is 40 times higher than its mode price. Prices for sesame oil, beer, and flour on this tablet are also extremely high compared with their averages.[99] (This text is discussed in section 6.1 under Rim-Sin.) YOS 13, 166, dated Aṣ 5, has a price equivalency of 5.00 shekels/gur of dates, ten times higher than its mode price. VAS 22, 68, a receipt of 400 sila of dates for one mina of silver dated in the sixteen year of Samsu-ditana, works out to 45.00 shekels silver per gur of dates, 90 times higher than its mode price! This is one more piece of evidence for high commodity prices under Samsu-ditana, adding to what we have seen are high prices for sesame oil, wool, barley, and beer under his reign.

[98] Lines 6-7: 6 SILA$_3$ ZÚ.LUM KÙ.BI 1/3 GÍN 15 ŠE "6 sila of dates…its silver is 1/3 shekel 15 še."
[99] Sesame oil: 7.50 shekels/*sūtum* (avg. price = 1.50 shekels/*sūtum*); beer: 15.00 shekels/gur (avg. price = 7.50 shekels/gur); flour: 50.00 shekels/gur (UET 5, 607 has 8 price equivalences ranging from 1.65-2.50 shekels/gur).

3.5 Sesame[100]

Like dates, sesame suffers from a dearth of evidence with which to determine its price. Only 18 price equivalences for sesame were identified for this study. These span a period of 224 years, with the earliest dated Sumu-El year 16 (1879) and the latest dated Ammi-ditana year 28 (1656). Six are dated under rulers of the Kingdom of Larsa, and three are undated but datable to the Larsa Dynasty (1 letter, 2 lists of expenditures). Two are dated under the Hammu-rabi dynasty, and one is datable to it as well. Six texts are undated and undatable (4 letters, 2 lists of expenditures).

Averaging the 18 price equivalences results in a mean price of 4.50 shekels silver per gur of sesame, with prices ranging from 1.14 to 10.27 shekels silver/gur, almost a tenfold price difference between its low and high price. Like barley and dates, the price of sesame depended upon the quantity of sesame harvested. However, given such a large spread, political conditions could have played a role.

Three texts dated or datable to the reign of Sumu-El of Larsa price sesame in the range of 8-10 shekels silver per gur of sesame.[101] Contrast this with much lower sesame prices in YOS 5, 207, dated 29/i/Rim-Sin year 4, which lists expenditures of silver to purchase sesame covering the prior four years. The following sesame prices are given:

Date	Shekels/gur	Lines
WS 12	4.00[102]	1-3 and 6
RS 1	no information	

[100] Over the years, there has been considerable controversy as to whether the Sumerian term ŠE.GIŠ.Ì (Akk. *šamaššammū*) refers to sesame or linseed. Hervé Reculeau re-examined the archaeological and philological evidence and concluded that the so called "plante à huile" is, in fact, sesame, which I have adopted. See Reculeau 2009 where he summarizes earlier arguments for and against and justifies his conclusion. For remarks on the cultivation of sesame and the extraction of its oil, see Stol 1985: 119-126.

[101] BIN 7, 158; CBI/2 III-2 and III-11.

[102] 120 GUR ŠE.GIŠ.Ì KAR.BI 1(PI) 1(BÁN) 5 ⌜SILA$_3$⌝.TA KÙ.BI 8 MA.NA

RS 2	2.50[103]	10-12
RS 3	2.73[104]	13-15

YOS 5, 207 shows that sesame prices fluctuated yearly. Between WS 12 and RS 2, its price dropped by more than one-third but rose the following year.[105] Interesting to note: TCL 10, 17, dated 16/i/Rim-Sin year 2, gives a unit price of 4.00 shekels per gur of sesame, 60% higher than its price in YOS 5, 207 -- for the same year. Such a price differential is not an anomaly. Even within a single text, prices for the same commodity can vary significantly. YOS 14, 164, for example, lists two expenditures for sesame: 140 gur of sesame were priced at 6 shekels/gur, and 35 gur were priced at 9.43 shekels/gur. UET 5, 607 lists multiple expenditures at different unit prices for flour and barley.[106] The only explanation I can offer to account for this is that we are dealing with a market economy with prices negotiated between buyer and seller based on supply and demand, volume discounts, and even haggling.

To summarize: taken together, the 257 commodity price equivalences discussed in this chapter allow us to trace fluctuations in commodity prices over at least portions of the Isin-Larsa/Old Babylonian period. The data suggests that, to some degree, commodity prices moved in tandem. During the last ten years of the reign of Hammu-rabi and the first eight years of Samsu-iluna, commodity prices were low. Under Sumu-El and Samsu-ditana, they were high. Commodity prices for at least the first half of the reign of Rim-Sin seem to have been stable, at a level comparable to, or slightly higher than, prices for northern Babylonia. Prices for barley,

[103] 120 GUR ŠE.GIŠ.Ì KAR.BI 2(PI).TA KÙ.BI 5 MA.NA
[104] 120 GUR ŠE.GIŠ.Ì KAR.BI 1(PI) 5 (BÁN).TA KÙ.BI 5 1/3 MA.NA 7 GÍN IGI.4.GÁL 5 ŠE
[105] Recall TMH 10, 105, discussed above, which showed fluctuations in the price of barley over a 9 year period.
[106] Range of price equivalences: 1.65-2.50 shekels/gur for flour (8 price equivalences) and 1.10-2.50 shekels/gur for barley (2 price equivalences). The time period covered by the text is unknown.

dates, and sesame were impacted most by the quantities harvested. Poor harvests resulting in higher prices show up as spikes in the data for specific years (e.g., TCL 10, 94 dated Rim-Sin 39 or possibly TIM 5, 50 dated Rim-Sin 47). On the other hand, bountiful harvests meant "good times" and lower prices. TMH 10, 105 characterizes Samsu-iluna years 21-23 as the "abundance of Enlil" (loosely translated).

Part II evaluates commodity prices in the context of the overall fluctuation of prices and wages during the OB period.

Chapter 4: Rentals and Labor

4.1 House rentals

4.1.1 Introduction

Contracts for the rental of houses are common, and the 110 house rental contracts[1] collected for this study more than doubles the 51 rentals utilized by my article on prices and wages.[2] Nevertheless, my original assessment of their value still holds true: namely, that "the wide variation in their rental rates, reflecting the diversity in size, condition, and location of the house, makes the proper assessment of the data a statistician's nightmare."[3]

4.1.2 Sources

The focus of this section are 103 "whole" house rentals.[4] I would estimate these constitute 90% of all building rentals. Rentals also included second stories of houses,[5] wings of houses,[6] and possibly even rooms.[7] One contract records the rental of a stall,[8] and another records the rental of possibly a smith's or potter's workshop.[9]

In describing the house, there are significant differences between house sales and house rentals. House sales always gave the area of the house. House rentals almost never did.

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[1] AbB 6, 62 is not a contract but a letter, which concerns a rental of 6 SAR of house for 9 shekels silver.
[2] Farber 1978: 16-17 and 44.
[3] Farber 1978: 16.
[4] My assumption is that house rental included doors and threshold. However, VAS 18, 30:10-11 indicated that the house's door and threshold belonged to the owner. Why the owner found it necessary to insert this stipulation into the contract is unclear.
[5] Sum. É.ÙR.RA or Akk. *rugbum.*
[6] Sum. É.DA or Akk. *edakkum*.
[7] Sum. É.TAR.RA "room of a house." See Charpin 1986: 185 for his discussion of É.TAR.RA and CAD B p. 291 under *bītum* mng. 3.
[8] Sum. É KI.LAM in PBS 8/2, 222. See CAD M/1 p. 98.
[9] É *kiškattī* in VAS 18, 29. See CAD K p. 453.

Instead, they routinely used the phrase "as much as there is,"[10] or simply described the house as "PN's house." House sales always specified the condition of the house. É.DÙ.A, for example, designated a house in "good" condition. House rentals almost never specified a house's condition.[11] House sales identified the bordering properties; house rentals did not.[12] Like sales, rentals occasionally specified the location of the house, as for example "located in Iškun-Ištar,"[13] "the harbor district,"[14] "on the main street,"[15] or "outside the city."[16]

House rentals typically used Sumerian ÍB.TA.(AN).È,[17] literally, "(the tenant) went forth," to indicate the contract is a rental with KA.KEŠDA[18] "(the) rent (is)…" followed by the rental rate. A few house rentals from Nippur used different terminology.[19]

The duration of the rental was usually for one year, although shorter term rentals did occur.[20] The rental rate was typically quoted in silver but could be paid in barley.[21] It was customary that, at the conclusion of the contract, when the tenant took possession, the lessor

[10] É *mala maṣû* in e.g., YOS 13, 418; TLOB 84: and MHET 2/4, 468. Note exceptions: MHET 2/4, 501 (rental of a house of 2 sar) and MHET 2/6, 849 (rental of 1 SAR É.DU.A).
[11]Exceptions: Meissner BAP 71 rental of a "new house" (É GIBIL); MHET 2/6, 849 (rental of É.DÙ.A); Szlechter TJDB, pl. 12 (rental of É.KISLAH$_2$).
[12] Because the owner kept the rental contract as a claim on the rent to be paid, it wasn't necessary to specify bordering properties or surface area.
[13] MHET 2/4, 476; Meissner BAP 68.
[14] UET 5, 197; BIN 2, 83 (É KAR.RA).
[15] UET 5, 200 (*ša ribītim*). CAD R p. 317. Also VAS 16,62 (É SILA DAGAL).
[16] MHET 2/2, 154 (*ša kīdim*); MHET 2/2, 281 (É *kīdim)*.
[17] Also used in field rentals.
[18] Akk. *kiṣru* CAD K p. 438 mng. 3.
[19] E.g., OECT 8, 14:6ff. NAM.GA.AN.TUŠ.A Á MU.U$_8$.A.ŠÈ 1/2 GÍN KÙ.BABBAR ÍB.TA.AN.È and also see SAOC 44,14:4ff; PBS 8/1, 90: 4-7; and TMH 10, 84:5. This phrase is cited in CAD A/2 p. 462 under *aššābūtum* "tenancy (of a house)." Sumerian Á (Akk. *idū*) is typically used in contracts of hire to denote wages, not rent.
[20] BE 6/1, 78 (6 months); MHET 2/2, 246 (4 months); MHET 2/6, 858 (5 months); MHET 2/4, 476 (2 months x days).
[21] YOS 12, 553 quotes the rent in silver (lines 7-9) but indicates the lessor was paid in barley. Line 10: 2 (PI) 3 (BÁN) *še-ʳa-am¹ ma-hi-[ir] ʳli¹-ib-ba-šu ṭa-ab*. MHET 2/4, 476; VAS 13, 22; and JCS 11/1, 12:25 specify rent to be paid in barley.

received an upfront payment of approximately half the rent from the tenant.[22] In a few contracts, the lessor received the entire rent in advance.[23]

Starting with Abi-ešuh, and common during the reigns of Ammi-ditana and Ammi-ṣaduqa, house rental contracts included a clause requiring the tenant to plaster the roof and reinforce the damp course (bottom-most bricks),[24] which could imply that these houses needed repair. Some contracts permitted the tenant to improve the property, with or without the lessor reimbursing the tenant for expenses incurred.[25]

Nadītum-priestesses are lessors, individually or together with family members, in more than half of the 66 house rental contracts from Sippar. Although they lived in the cloister (*gagûm*), a number of sales contracts show them purchasing houses.[26] Renting out these houses provided the *nadītum* with extra income in both silver and foodstuffs. Ribatum, daughter of Ipqatum, the lessor in nine house rentals (whole houses and portions of houses), must have owned at least two houses, given that she leased both on the same day.[27]

Besides *nadītum*-priestesses, lessors included a judge,[28] a "general" (UGULA MAR.TU),[29] a "captain" (UGULA GIDRI),[30] and the Šamaš temple.[31]

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[22] E.g., BE 6/1, 36; PBS 8/2, 220; Scheil, Sippar 13 plate 3; CT 8, 23b; Meissner BAP 70; Richardson diss. II p. 397. Note that MHET 2/3, 199 and 203 do not specify an upfront payment.
[23] E.g., YOS 12, 364; YOS 13, 419; MHET 2/4, 498.
[24] E.g., MHET 2/4, 468 and 501; MHET 2/6, 914; and TLOB 84. See CAD A/2 p. 350 for definition. The standard phrase is: *ūram isēr asurrâm udannan.* For the possible meaning of a*surrâm* as a drain or sewer, see George 2015: 90-94.
[25] See CAD M/1 p. 205 *mānahtum* mng. 2 2'.
[26] E.g., CT 4, 49b and CT 8, 13b (both buyer and seller are *nadītum's*); CT 8, 35a; MHET 2/6, 859 and passim. They also occur passim at Sippar as purchasers of land.
[27] BE 6/1, 34 and 36.
[28] CT 8, 23b.
[29] VAS 7, 55.
[30] YOS 13, 419. The translation as "captain" follows Harris 1971: 96. For the respective ranks of the UGULA MAR.TU ("overseer of the Amorites") and UGULA GIDRI in the Babylonian army, see Charpin 2004 [OBO 160/4]: 282-284.
[31] TCL 11, 219.

Tenants ran the gamut of social classes. A few contracts identify the tenants by title: "overseer of the merchants,"[32] governor,[33] *gudapsûm*-priest,[34] scribe,[35] and singer.[36] In the case of the first two, these tenants were probably wealthy.[37] Rental contracts do not provide a tenant's motive for renting nor can it be discerned, but it's safe to assume that there must have been many people who lost their houses because of debt and were forced to rent.[38] Judging from the number of houses that rented for less than one shekel per year and the requirement that the tenant perform maintenance, some of the houses rented must have been in disrepair.

Table 4.1-1 breaks down house rentals by provenience. Sippar is by far the largest contributor. Ur, Larsa, and Nippur are the only other sites that yielded house rentals.

Provenience	Count
Ur	8
Larsa	9
Kutalla	0
Nippur	8
Isin	0
Sippar (inc. ed-Dēr)	66
Dilbat	5
Kish	0
Babylon	0
Marad	0
Kisurra	0
Kazallu	0
Lagaba	0
Und.	4
Und. -no.	10
Total	110

Table 4.1-1 House rentals by provenience

[32] MHET 2/4, 498.
[33] Richardson diss. II p. 378.
[34] UET 5, 243.
[35] CT 8, 23b.
[36] MHET 2/4, 544.
[37] See also Harris 1975: 28 who also shows that some tenants were not poor.
[38] Not all were as fortunate as the lessors in BE 6/1, 78:1-6, where the house being rented is identified as "…the house of Warad-Sin, son of Sin-iddinam, purchased by Gimillum, which the king returned to Eṭirum, Sinatum, and Melulatum, the *nadītum*-priestess, the children of Warad-Sin." Possibly the result of a *ṣimdatum* issued by Abi-ešuh or, less likely, his direct intervention.

Table Intro-1 shows the chronological distribution of house rentals. All but one of the rentals from the Kingdom of Larsa are dated under Rim-Sin. The single exception is a rental dated under Rim-Sin II. For the Hammu-rabi dynasty, all of the rentals are dated under Hammu-rabi and his successors, with one exception possibly from the reign of Apil-Sin and one undated letter. Two reasons for this distribution come to mind. First, house rental contracts were typically for one year. Once the rental was over, the lessor likely destroyed the tablet as there was no legal reason to retain it. That would mean that only the more recent occupation levels would contain rental contracts. Second, judging from the considerable number of house sales dated prior to Hammu-rabi and Rim-Sin, most people may have owned their houses, meaning there were simply fewer rentals. The increase in house rentals under Hammu-rabi and his successors occurs at the same time as a decrease in the number of house sales (chapter 1.1).

4.1.3 House rental rates

Table 4.1-2 shows house rental rate averages, and Table 4.1-3 breaks down the averages for whole house rentals by date range. One can consider 1.69 shekels as the average yearly rental rate for a whole house[39] in the OB period. Rentals of rooms cost less.[40] Thirty whole house rentals (all from Sippar) were rentals where the lessors were identified as (or can be proven to be) *nadītum*-priestesses.[41] The yearly rental rate for these houses averaged about 2.80

[39] For Tables 4.1-2 and 4.1-3 and Graph 4.1-1, whole-house rentals include the following subcategory descriptions: É, É GIBIL, É DAGAL.LA, É KAR.RA É.A.NI, É.KISLAH$_2$, É.DÙ.A, É DA *kur-ri-im* (translation uncertain), and É *sāhiru* (translation uncertain). Rental rates of 4.00 shekels in VAS 7, 45 and 0.56 shekels in MHET 2/6, 861 are based on what's visible of the damaged rate. Three rentals paid in barley were converted to silver based on 1 gur barley = 1 shekel silver.

[40] Harris 1975: 30-32 collected rentals of second stories and wings of a house from Sippar. It is no surprise that the prices for these tended to be lower than whole house rentals, all but one under one shekel.

[41] The total includes AbB 6, 62, a letter which concerns the rental of a house owned by a *nadītum* for 9 shekels. The duration of the rental, which is unstated in the letter, is assumed to be for one year.

shekels, (with a range of 0.50-9.00 shekels), and that is apart from an additional stipulation in many of the contracts which required the tenant to furnish the *nadītum* with food and beverage on the three festivals of Šamaš.[42] The higher average rental rate for houses owned by *nadītum*-priestesses suggests these houses were generally in better condition.

	Description	Avg. yearly rental in shekels	Rental range in shekels	Count
whole houses	é	1.69	0.10-9.00	103
not whole houses	é-da (*edakku)* (wing of house)	0.48	0.25-0.83	5
	é-ùr-ra (*rugbum*) (upstairs)	0.66	0.66-0.66	1
	é-tar-ra (room?)	0.42	0.42-0.42	1
Total				110

Table 4.1-2 House rental averages

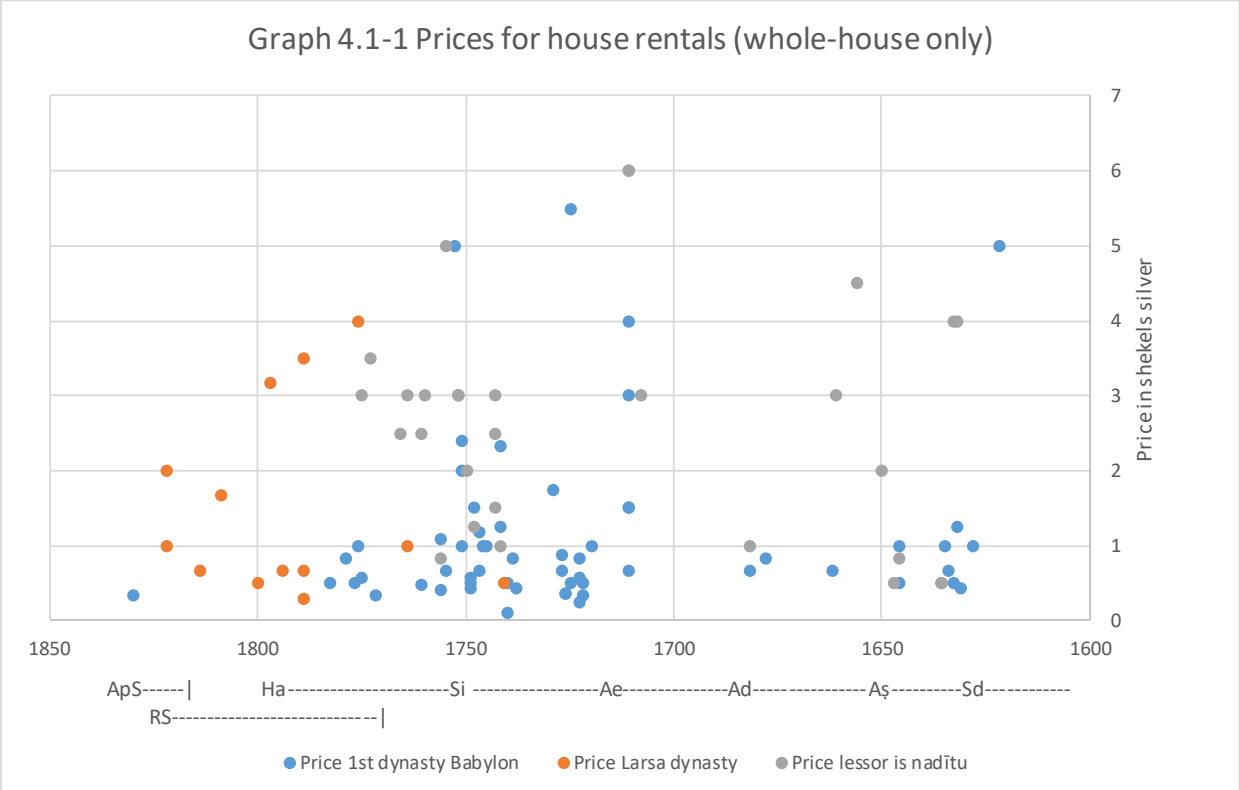
Dynasty	Ruler(s)	Date range	Avg. yearly rental in shekels	Range in shekels	Count
Babylon	ApS	1830-1813	0.33	0.33-0.33	1
	Ha	1792-1750	1.96	0.33-5.00	26
	Si 1-11	1749-1739	1.17	0.10-3.00	18
	Si 12-38	1738-1712	0.99	0.25-5.50	14
	Ae	1711-1684	3.21	0.66-6.00	8
	Ad	1683-1647	1.64	0.50-4.50	8
	Aṣ	1646-1626	1.24	0.42-4.00	13
	Sd	1625-1595	5.00	5.00-5.00	1
Larsa	RS	1822-1763	1.59	0.28-4.00	12
	RS II	1742-1741	0.50	0.50-0.50	1
Total					102[43]

Table 4.1-3 Whole house rental averages by date range

[42] E.g., BE 6/1, 34 and 36; TLOB 84; and TIM 4, 53.
[43] Excludes undated letter.

Graph 4.1-1 plots prices for whole house rentals over time, sub-categorizing the contracts to show rental prices under the Larsa dynasty, Hammu-rabi dynasty, and rentals where *nadītum* are lessors (all of which are dated under rulers of the Hammu-rabi dynasty). Each point on the graph corresponds to a rental contract. Table 4.1-3 can be used in conjunction with Graph 4.1-1 to better understand the data. The following observations can be made:

1) Average house rental rates in contracts dated under Rim-Sin and Hammu-rabi were about the same (1.50-2.00 shekels/year) and suggest that house rental rates were stable under these rulers.
2) House rental rates were lowest under Samsu-iluna, about 1 shekel per year.
3) Under Abi-ešuh, house rental rates were sharply higher compared to Samsu-iluna, averaging over 3.00 shekels/year.
4) Under Ammi-ditana and Ammi-ṣaduqa, house rental rates declined to about 1.50 shekels/year.
5) The single house rental contract dated under Samsu-ditana (5.00 shekels for a one year rental) is one of the highest rental rates attested for the OB period.



To summarize: The pattern of price fluctuation for house rentals -- stable prices under Rim-Sin and Hammu-rabi, lower prices under Samsu-iluna, higher prices under Abi-ešuh that decrease and stabilize under Ammi-ditana and Ammi-ṣaduqa, followed possibly by higher prices under Samsu-ditana – conforms to the pattern identified in my article[44] and to the pricing trends for slaves, livestock, and commodities.

[44] Farber 1978: 17 (Graph 4).

4.2 Hired labor

4.2.1 Introduction

One hundred and eighteen contracts of hire, along with a handful of wage receipts, expenditure lists, loans, letters, and miscellaneous texts, were used to determine wages paid by the private sector for the hiring of persons. These are part of a much larger body of wage, ration, and attendance lists as well as several hundred harvest worker (loan) contracts available to scholars who wish to undertake a study of labor in the OB period.

In 1936, a comprehensive study of the hiring and management of workers was made by Julius Georg Lautner.[45] In his book, Lautner meticulously analyzed pertinent materials from Babylonia as well as from bordering areas. He was successful in providing answers to a number of puzzling questions concerning contracts of hire and was the first person to discuss the functioning of the labor bureaucracy. But he had little to say about wages paid, deferring instead to Schwenzner's earlier work on the subject.[46] Lautner's study, albeit it somewhat out of date, is still the best overall source for understanding hiring in the OB period.

A number of other scholars subsequently investigated various aspects of hiring in the OB period (Weitemeyer 1962, Stol 1976, Klengel 1987, Rositani 2011, and Möllenbeck 2018), but here again, wages received scant attention.

Although this study incorporates additional texts from the Kingdom of Larsa and the 1st dynasty of Babylon that were not in my 1978 article, these texts have not significantly advanced our understanding of wage fluctuations over time. One reason for this is that our sources for wages leave us with significant chronological gaps. Only eight texts are dated earlier than the

[45] Lautner 1936. Also, in 1936, A. L. Oppenheim self-published his study of rentals and the hiring of persons (Oppenheim 1936), which focused primarily on the terminology used by these texts. Lautner's study, which is limited to the OB period, is considerably more detailed than Oppenheim's.
[46] Lautner 1936: 110.

reigns of Hammu-rabi or Rim-Sin. Six texts are dated to the reign of Abi-ešuh, and the entire reign of Samsu-ditana is represented by a single contract of hire. Another reason is the difficulty in identifying all of the factors that went into determining the wage a person received and understanding how each factor affected the wage. To do so requires significant data decomposition and segmentation, which requires a lot of data, which we do not have. To elaborate further on this point: Not unlike today, wages were determined based on a person's productivity and skill level. Contracts of hire do provide some information to assess a hireling's productivity and skills, such as the sex of the hireling, the hireling's status (free, slave, or child), and, in some contracts, the work to be done. All of these would have figured into the wage. However, wages were also determined by factors that are never stated in the contract, such as the hireling's age or physical condition, the employer's need for a specialized skill (and his willingness to pay for it), and the overall supply of labor versus the demand for labor.[47] Given all these factors -- stated and unstated in the contract -- it's no surprise that wages varied as much as they did. Hence, a word of caution to the reader. The conclusions proposed in this study are preliminary, subject to revision as more data becomes available.

In the remarks that follow, this study utilizes texts that identify the payments made to workers as "wages." In addition, wages specified in the Ešnunna and Hammu-rabi law codes will be compared to actual wages paid. At the end of the chapter, the reader will find a brief discussion of harvest labor (loan) contracts, which are payments made to recruiters of harvest labor that do not identify the payments as "wages."

[47] Demand for labor was, for example, highest at the time of the barley harvest, which could explain why, as shown below, wages paid to harvest workers tended to be higher than the mean wage.

4.2.2 Sources

4.2.2.1 Contracts

Contracts of hire, our best source for wages, generally use a variation of the following format (with parentheses denoting optional information):

1) Name of the hireling
2) From [name of supplier]
3) By [name of employer]
4) (Work to be performed)
5) Duration of hire
6) Statement of hire[48]
7) Wage[49]
8) (Receipt of partial payment of wage)
9) (Month/day hireling started work and will end work)
10) (Other clauses)
    a. Clothing allowance
    b. Food and drink ration
    c. Days off
11) (Breach of contract)
12) Witnesses
13) (Month, day) and year

The hireling was either free or slave. The phrase *ana ramānišu* "for himself" (or its Sumerian equivalent NÍ.TA.NI.TA), used in place of the supplier's name, identified the hireling as a self-hire, that is, a free man.[50] When a slave was hired, the slave was generally identified as a male or female slave (Sumerian ÌR and GEME$_2$), or the supplier was identified as "his/her owner" (KI PN *bēlišu/bēliša,* Sumerian: LUGAL.A.NI).[51] If the hireling was a child (or minor), the supplier was identified as the child's father, mother, or brother. In some contracts, the

[48] The statement of hire typically uses the Akkadian terms *īgur* "he hired" or *ana kiṣrim* "for hire" or their Sumerian counterparts IN.HUN and KA.KEŠDA.
[49]Sumerian: Á, Akk.: *idū*, or, more rarely, *kiṣrum.*
[50] Possibly VAS 9, 57 records the hiring of a free woman.
[51] In some contracts, (e.g., VAS 9, 70, BE 6/2, 73, CT 6, 41b and CT 47, 57), neither the hireling nor the supplier is so identified, and I have assumed that the supplier is the hireling's owner.

supplier seems to be a "middleman" or "labor provider" who supplies (independent) workers to employers and receives their wages, presumably on behalf of the worker.[52] The hirelings in these contracts are referred to as "dependent (client)" in the tables that follow and in the database.[53]

The contract sometimes stated the work the hireling will perform: hired "as a harvest worker,"[54] "for agricultural work,"[55] "to do milling,"[56] "as a shepherd,"[57] "as an ox driver,"[58] "as a reed worker,"[59] "to do brewing,"[60] or "for royal service."[61]

The duration of hire was typically for one month (one month + 3 days, or one month + 10 days), per month, or for one year, but contracts of hire were drawn up for as little as ten days of work.[62] There were also contracts of hire for multiple months and years.[63] There are no contracts of hire for workers hired for one day.

Wages were paid in silver, barley, barley and silver, barley/silver and another commodity, or infrequently in another commodity.[64] The supplier or hireling (in self-hire

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[52] Noted by Harris 1971: 246-247.
[53] The distinction between the supplier as a middleman (supplying free labor) or the supplier as an owner (supplying slave labor), is not always apparent. On the one hand, in VAS 13, 92, the supplier is identified as the hireling's foreman, which indicates that the hireling is a free man. In UET 5, 189, the workers are identified as ERÍN, a term which, to my knowledge, is not used for slaves. And in VAS 7, 47, Awil-Nabium hires Damiq-Marduk, presumably a free man, from a supplier for 2 months *a-na il-⌜ki!⌝ a-na* KASKAL LUGAL "as a substitute for a royal expedition" (line 5). (For this translation, see CAD R p. 328, and also see CAD H p. 113 and I/J p. 74.) On the other hand, in Waterman Bus. Doc. 47, it's unclear whether Ina-libbi-eršet, who is supplying three harvest workers, is their owner or supplier. Given that the wages specified in the contract seem abnormally high for slave labor, I consider the 3 workers to be free men. The same may hold true for YOS 12, 442, where Amat-Asalluhi supplies a mother and daughter, neither of whom are identified as slaves.
[54] E.g., CT 33, pl. 46a; Waterman Bus. Doc. 47; Meissner BAP 57.
[55] E.g., YOS 13, 381; VAS 29, 22; Richardson diss. II pages 413 and 414.
[56] E.g., CT 33, 32; VAS 7, 83.
[57] E.g., AUCT 5, 154.
[58] E.g., VAS 29, 22; JCS 11/1, 14:25; PBS 8/2, 196.
[59] E.g., VAS 7, 61.
[60] E.g., JCS 5/3, p. 97. See CAD S p. 310 under *sirāšûtum*.
[61] E.g., BA 5/4, 19.
[62] E.g., Meissner BAP 57.
[63] E.g., TCL 10, 137 (3 months); AUCT 5, 134 (6 months); YOS 14, 87 (8 months); BA 5/4, 11 (two years).
[64] CT 6, 41b (sesame oil); Boyer Contribution 221 (dates).

contracts) received the wages. However, in one contract where a slave is hired, wages were split 50/50 between the owner (supplier) and his slave.[65]

Typically, at the start of the hire, the supplier received an upfront payment of a portion of the agreed upon wage.[66] In two contracts, the entire wage was paid in advance.[67]

The month and day the hireling started work is sometimes given. One contract, which is also dated with a month and day, matches the hireling's start date.[68] This suggests that standard practice was for the hireling to start work on the day the contract was concluded.

The most common (optional) clauses added to the contract are expenses typically borne by the employer such as: number of days the hireling does not work per month,[69] the hireling's clothing allowance,[70] and/or hireling's daily food and beverage allowance.[71]

Two contracts included a stipulation that wages are forfeit should the hireling stop work.[72] One contract required the hireling to repay his wages "per the royal decree" if he didn't fulfill his "royal service."[73]

Contracts of hire were witnessed and dated. A year name was always given. Day and month may be omitted, in which case the contract indicated when the hireling started work.

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[65] CT 33, 32.
[66] E.g., VAS 18, 27 and YOS 12, 315 (upfront payment of half the wage); OLA 21, 53 (upfront payment of about one-third the wage); Meissner BAP 53 (upfront payment of one-sixth the wage); and AUCT 5, 130 and CT 48, 115 (upfront payments of more than one-half the total wage).
[67] E.g., JCS 5/3, p. 95; Meissner BAP 61.
[68] CT 47, 55 and 55a.
[69] JCS 11/1 13:26 line 8: UD.3.KAM *še-zu-ub-tum* "3 days will be (his) time off." Similar phrase in BE 6/2, 73: 5-6: *ana* ITI.1.KAM UD.3.KAM *šēzubtešu īguršu* "…hired for 1 month, (with) 3 days off." See CAD Š/2 p. 364 under *šēzubtum* "leave" or "time off." This is apparently the equivalent of *qātam iṣṣabat*, which occurs passim in northern OB contracts of hire. (This phrase was originally translated "to do additional work" in CAD Ṣ, p. 30.)
[70] E.g., Riftin SVJAD 36, where the hireling receives 1 shekel silver as a clothing allowance. Also OLA 21, 76, CT 8, 15c, CT 6, 41a, and CT 48, 73. In CT 6, 40a, the contract specifies that the hireling will clothe himself.
[71] E.g., PBS 8/2, 196 (hireling receives daily 2 sila food and 3 sila beverage allowance); YOS 13, 487 (same allowance; YOS 13, 381 (hireling receives 1 sila daily food and 2 sila daily beverage allowance).
[72] Meissner BAP 60; YOS 13, 20 and 219. See CAD B p. 163 *batāqum* mng. 5 "to stop work."
[73] BA 5/4, 19, and cf. CT 33, pl. 46a.

4.2.2.2 Loans

Four loans required the debtor to either work for the creditor or supply the creditor with a worker. In two of the loans, wages were specified for the worker supplied.[74] In the other two, the debtor was required to work a specified number of days for the creditor.[75]

4.2.2.3 Lists of expenditures

Sixteen expenditure lists recorded wages paid to hired workers.[76] Most of these record daily wages. In all but one, wages were paid in barley.

4.2.2.4 Judgement

One text summarized a judgment requiring Pirhum to compensate Sin-imguranni with one shekel of silver for 10 days of unspecified service related to the harvest.[77]

4.2.2.5 Letters

Five letters provide information on wage rates. For example, in VAS 16,179, ten children are to be hired for ten days to "pick up clods." Wages were specified as 2 sila barley and 1 sila dates per day per worker (=2.40 gur barley + 1.20 gur dates per year), an exceptionally low wage. On the other hand, the unpublished letter A 3529 specifies a daily wage for a fuller (or some sort of textile worker) of 15 ŠE of silver, which it equivocates to 20 sila barley, 5 sila of beer, and 4 sila of bread per day, an abnormally high wage.[78] Also noteworthy, this letter refers to "wages written on the stela," possibly the only reference to the CH.[79]

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[74] CT 8, 42b and Edzard, Tell ed-Dēr 21.
[75] RA 86, 105 nos. 3 (20 days) and 4 (10 days).
[76] The workers are denoted as LÚ.HUN.GÁ, ERÍN.HUN.GÁ, or LÚ.ŠE.GUR$_{10}$.KUD.
[77] JEOL 25, 45-46.
[78] Fifteen ŠE of silver per day works out to 2.50 shekels/month or 30 shekels silver per year, which is more than double the wages in silver specified for workers in the CH or LE. Twenty sila of barley per day equals 2 gur barley per month, double the mode barley wage (see below, 4.2.3.5), not counting the daily beer and bread allotment.
[79] See Sweet 1958: 103-111 for a discussion of this letter, including a transliteration and translation. He concludes that the letter was most likely written between Samsu-iluna years 10-20. See also Roth 1995: 5-6.

The next four tables give an overview of the data to aid in the discussion of wages.

Provenience	Count
Ur	11
Larsa	20
Nippur	4
Sippar (inc. ed-Dēr)	93
Dilbat	6
Kish	5
Babylon	1
Und.	7
Und. -no.	7
Ešnunna	4
Total	158

Table 4.2-1 Hiring of persons by provenience (all sources)

Table 4.2-1 categorizes the sources of wages by provenience. The bulk of the tablets come from Sippar and northern Babylonian sites. Thirty tablets come from Larsa and Ur. The 4 laws dealing with wages in the LE are counted under Ešnunna,[80] and the 5 laws dealing with wages in the CH are counted under Sippar.

Table Intro-1 shows that the sources for wages are concentrated under a few rulers. All but three of the sources from the Kingdom of Larsa are dated to Rim-Sin (one is dated to Abisare and two are dated to Rim-Sin II). For the 1st Dynasty of Babylon, the majority of the sources are dated to Hammu-rabi, Samsu-iluna, Ammi-ditana and Ammi-ṣaduqa. Five sources are dated to Sin-muballiṭ and one to Apil-Sin. The reigns of Abi-ešuh and Samsu-ditana are represented by a total of 8 sources. This dearth of evidence can be explained. Like house rentals, once the hireling completed the contract, the employer likely destroyed the tablet as there was no legal reason to retain it.

[80] The Ešnunna law code was found at Tell Harmal, ancient Šaduppûm, once a part of the kingdom of Ešnunna. Tell Harmal lies in the middle of a huge suburb of Baghdad called "Baghdad Al-Jedida" i.e., New Baghdad.

Table 4.2-2 breaks down the sources of wages by text type. By far the majority of wages come from contracts of hire with lists of expenditures a distant second.

	Description	Count
Group 1	Contract of hire	118
	Contract of hire (receipt of wages)	2
	Receipt of wages	2
	Expenditure lists	16
	Loans	4
	Accounts	1
	Judgement	1
	Letters	5
subtotal		148
Law code	CH	5
	LE	4
subtotal		9
total		158

Table 4.2-2 Sources of wages

Table 4.2-3 shows how wages were paid. Almost all wages were paid either in silver or barley, in roughly equal numbers. The table shows that wages could also be paid with a combination of silver and barley or silver and another commodity (mixed).

Description	Count
silver	72
barley	69
mixed	6
other (dates, sesame oil)	2
Subtotal	148
Law code	9
Total	158

Table 4.2-3 Wages paid in

Table 4.2-4 breaks down contracts of hire by worker status. It shows that the majority of hirelings were slaves and children, followed by independent workers (self-hires).

Description	Count
Independent (self-hire)	22
Dependent	
slave	52
client	8
child	35
Unknown	1
Total	118

Table 4.2-4 Worker status (contracts of hire)

4.2.3 Wages

4.2.3.1 Methodology for standardizing wages

Tables 4.2-5, 4.2-6, and 4.2-7 focus on wage rates. The sources have been categorized according to the following scheme: worker status (independent [self-hire] or dependent [slave, client,[81] or child]), duration of hire, and wages paid (in silver, barley, or other). Mean wage rates have been calculated for each. Table 4.2-7 does a further breakdown of the sources by ruler. Before taking a closer look, a few introductory remarks will be helpful.

To compare wages, it was first necessary to standardize them. This meant that wages paid in barley had to be converted to silver. The conversion was based on the relationship of one gur of barley equals one shekel of silver. The same was done for wages paid in sesame oil, wool, and dates, which were converted to silver based on their mean, mode, or "fair" prices identified in chapter 3.[82] Next, duration of hire had to be standardized. This meant that daily

[81] A client is a worker supplied by a labor provider.
[82] Fair prices for commodities are also listed below in Table 5.0-1.

and monthly wage rates had to be extrapolated out to a year. For example, a monthly wage of 1 shekel silver or 1 gur barley is shown on the tables as "12.00." A daily wage of 10 sila barley (0.033 gur) or 6 ŠE silver (0.033 shekels) is likewise shown as "12.00."

To categorize wages by duration of hire (day, month, and year), the following rules were adopted: Wages paid per day or multiple days totaling less than thirty days were categorized under "day." Wages paid for one to eleven months of work were categorized under "month." Wages paid for one year or greater were categorized under "year."

Maxima and minima are given for each subcategory as well as a count of the number of sources used to compute its mean wage rate.

4.2.3.2 Wages by worker status

Table 4.2-5 shows mean wages paid to independent and dependent workers in contracts of hire.

Table 4.2-6[83] includes all source types except law codes and does a further breakdown by duration of hire.

[83] BIN 7, 30 is excluded from Table 4.2-6 (independent labor) because duration of employment is unknown.

	Description	Avg. wage (year)	Range (in shekels)	Count
Independent	silver	8.58	4.00-16.00	15
[22]	barley	12.93	8.00-18.80	3
	mixed	5.91	3.40-9.00	4
Dependent (slave)	silver	6.29	0.11-26.00	24
[52]	barley	8.85	2.00-24.00	27
	other	3.00	3.00-3.00	1
Dependent (client)	silver	28.83	6.00-60.00	4
[8]	barley	13.35	9.00-18.00	4
Dependent (children)	silver	4.20	0.83-8.00	20
[35]	barley	10.85	0.88-36.00	13
	mixed	6.00	6.00-6.00	1
	other	5.40	5.40-5.40	1
Unknown status	barley	8.70	8.70-8.70	1
[1]				
Total				118

Table 4.2-5 Wages by worker status (contracts of hire)

		Silver			Barley			Mixed and other		
Worker Status	Duration	Wage in shekels	Range in shekels	Count	Wage converted to shekels	Range in shekels	Count	Wage converted to shekels	Range in shekels	Count
Independent	day	33.00	30.00-36.00	2	15.67	12.00-24.00	9	---	---	---
[44]	month	8.55	4.00-16.00	18	14.97	6.00-36.00	9	3.40	3.40-3.40	1
	year	8.00	8.00-8.00	1	8.00	8.00-8.00	1	6.74	4.83-9.00	3
Dependent										
slave	day	---	---	---	19.20	14.40-24.00	2	---	---	---
[55]	month	11.90	4.00-26.00	7	9.94	2.25-14.40	19	---	---	---
	year	3.98	0.11-12.00	19	2.91	2.00-4.40	7	3.00	3.00-3.00	1
child	day	---	---	---	18.90	1.80-36.00	2	3.00	3.00-3.00	1
[37]	month	4.33	3.00-7.00	6	10.19	0.88-24.00	9	5.40	5.40-5.40	1
	year	4.15	0.83-8.00	14	4.53	2.00-9.00	3	6.00	6.00-6.00	1
client	day	---	---	---	18.80	14.40-24.00	3	---	---	---
[11]	month	48.00	36.00-60.00	2	13.35	9.00-18.00	4	---	---	---
	year	9.67	6.00-13.33	2	---	---	---	---	---	---

Table 4.2-6 Wages by worker status (all)

The following conclusions can be drawn from Tables 4.2-5 and 4.2-6.

1) Independent workers were generally paid more than slaves, who were generally paid more than children.

2) Wage rates were dependent upon one's term of employment. Workers hired for one year received proportionally less than those hired for a month. Workers paid on a daily basis received the equivalent of the highest yearly wage.[84]

3) Within a given subcategory, there is a wide variation in wage rates.

4) Assuming one gur of barley equals one shekel of silver, wages paid in silver tended to be lower than wages paid in barley. This can be seen in Table 4.2-5 for independent

[84] Confirming the conclusion reached by Farber 1978: 34. It is highly likely that workers paid on a daily basis were hired for time critical agricultural work. Meissner BAP 57, TLB 1, 43, and RSO 82 Supp. 1, 010 are possible examples. Unfortunately, not many texts specify daily wages.

workers, slaves, and children; and in 4.2-6 for independent workers and children where duration equals "month."

A corollary to point 4 is that silver was always valued above barley in the payment of wages. Workers preferred to be paid in silver, and, to accept barley, they had to be compensated with more barley than its silver equivalent value.[85]

4.2.3.3 Wages over time

To track wages over time, Table 4.2-7 is a breakdown of the sources by ruler for independent workers and dependent slaves and children. Dependent clients are excluded because there are too few sources.

The following conclusions are preliminary due to the insufficient data.

1) Mean wages for independent labor paid in barley under Rim-Sin, Hammu-rabi and Samsu-iluna are roughly comparable. This may also have been the case for silver.
2) Mean wages for independent labor paid in silver under Ammi-ditana and Ammi-ṣaduqa were higher than under Rim-Sin and Samsu-iluna.
3) Mean wages for slaves paid in silver under Rim-Sin, Hammu-rabi and Samsu-iluna are roughly comparable.
4) Mean wages for slaves paid in barley under Hammu-rabi and Samsu-iluna are roughly comparable. (No data for Rim-Sin.)
5) Mean wages for children paid in barley per month under Ammi-ditana and Ammi-ṣaduqa were comparable and higher than those paid under Samsu-iluna.
6) The highest wages paid are found under Abi-ešuh and the early years of Ammi-ditana.

[85] See below, section 4.2.3.5.

		Silver			Barley			Mixed and other			
Ruler	Date range	Wage in shekels	Range	Count	Wage converted to shekels	Range in shekels	Count	Wage converted to shekels	Range in shekels	Count	Worker status
RS	1822-1763	5.03	4.00-6.06	2	12.28	6.00-30.00	4	---	---	---	Independent, month
		5.32	5.32-5.32	1	---	---	---	---	---	---	slave, month
		3.82	0.11-12.00	5	---	---	---	---	---	---	slave, year
		6.00	6.00-6.00	1	---	---	---	---	---	---	child, month
		---	---	---	---	---	---	6.00	6.00-6.00	1	child, year
Ha	1792-1750	---	---	---	12.00	12.00-12.00	1	---	---	---	independent, month
		---	---	---	10.40	3.00-14.40	6	---	---	---	slave, month
		3.37	2.00-5.00	5	2.50	2.00-3.00	2	3.00	3.00-3.00	1	slave, year
		---	---	---	12.00	12.00-12.00	1	---	---	---	child, month
		---	---	---	---	---	---	---	---	---	child, year
Si	1749-1712	5.18	4.00-6.00	4	9.40	8.00-10.50	2	3.40	3.40-3.40	1	independent, month
		---	---	---	11.00	4.80-14.40	6	---	---	---	slave, month
		3.33	1.33-5.00	6	2.85	2.00-4.40	4	---	---	---	slave, year
		3.00	3.00-3.00	1	6.53	3.20-10.40	3	5.40	5.40-5.40	1	child, month
		2.84	0.83-6.00	6	5.50	2.00-9.00	2	---	---	---	child, year
Ae	1711-1684	16.00	16.00-16.00	1	---	---	---	---	---	---	independent, month
		16.00	12.00-20.00	2	---	---	---	---	---	---	slave, month
		---	---	---	---	---	---	---	---	---	slave, year
		---	---	---	---	---	---	---	---	---	child, month
		---	---	---	2.60	2.60-2.60	1	---	---	---	child, year

Table 4.2-7 Wages by ruler

Ad	1683-1647	10.67	8.00-12.00	3	18.80	18.80-18.80	1	---	---	---	independent, month
		19.00	12.00-26.00	2	6.00	6.00-6.00	1	---	---	---	slave, month
		9.00	9.00-9.00	1	4.00	4.00-4.00	1	---	---	---	slave, year
		3.00	3.00-3.00	1	12.29	0.88-24.00	3	---	---	---	child, month
		8.00	8.00-8.00	1	---	---	---	---	---	---	child, year
Aṣ	1646-1626	9.20	6.00-12.00	5	---	---	---	---	---	---	independent, month
		---	---	---	12.40	12.00-13.20	3	---	---	---	slave, month
		---	---	---	---	---	---	---	---	---	slave, year
		4.67	3.00-7.00	3	11.60	9.60-13.60	2	---	---	---	child, month
		5.00	3.00-6.00	3	---	---	---	---	---	---	child, year

Table 4.2-7 Wages by ruler (cont.)

In support of point 6, Table 4.2-8 lists all the tablets that record wages from the reign of Abi-ešuh and the first eight years of the reign of Ammi-ditana. Four of the 13 tablets specify wages that are double or more than double the "fair" wage of 1 shekel silver or 1 gur barley per month specified in the law codes. Two have female slaves being paid at a yearly rate of 12 shekels silver,[86] which is an abnormally high wage when compared to wage rates for independent labor and slaves in Tables 4.2-6 and 4.2-7. And one contract has a child being paid at the rate of 24 gur barley/year for 1 month's work.[87]

[86] JCS 5/3 p. 95 and TLOB 22.
[87] YOS 13, 497.

Text Reference	Provenience	Ruler	Year date	Year (middle chronology)	day.month	Text Description	Subcategory	duration of hire	wage in shekels of silver or another commodity	wage in (or converted into) shekels of silver per year	% deviation from "fair" wage
JCS 5/3, p. 97	Sippar	Ae	unknown	1711-1684	[ ].vi	contract of hire	dependent (slave) male	month (1)	1.66	20.00	67%
YOS 13, 487	und. - no.	Ae	"r"	1707-1689	1.x	contract of hire	independent (self-hire)	month (3)	4.00	16.00	33%
VAS 7, 47	Dilbat	Ae	"n"?	1707-1689	[ ].ii	contract of hire	dependent (client) worker	month (2)	10.00	60.00	400%
YOS 13, 486	Sippar?	Ae	25	1687	1.i	contract of hire	dependent (child)	year (1)	2.60 gur barley	2.60	-78%
JCS 5/3, p. 95	Sippar	Ae	28	1684	11.i	contract of hire	dependent (slave) female	month (4)	4.00	12.00	0%
CT 48, 95	Sippar	Ad	1	1683	11.vii	contract of hire	dependent (slave) male	month (per)	2.17	26.00	117%
Waterman Bus. Doc. 47	Sippar	Ad	2	1682	14.xii	contract of hire	dependent (client) harvest worker	month (1) day (3)	3.00	36.00	200%
Waterman Bus. Doc. 47	Sippar	Ad	2	1682	14.xii	contract of hire	dependent (client) harvest worker	month (1) day (3)	1.50 gur barley MŠ	18.00	50%
TLOB 22	Sippar?	Ad	2	1682	8.ii	contract of hire	dependent (slave) 2 females	month (1)	1.00	12.00	0%
unpub. BM 80823	Sippar	Ad	2	1682	?	contract of hire	dependent (client) male	month (1)	0 gur barley	12.00	0%
YOS 13, 293	Sippar?	Ad	4	1680	_.ii?	contract of hire	dependent (child)	month (1)	0.073 gur barley	0.88	-93%
TLOB 25	Sippar	Ad	7	1677	20.i	contract of hire	dependent (slave) female	year (1)	4.00 gur barley MŠ	4.00	-67%
YOS 13, 497	und. - no.	Ad	9	1675	16.ii	contract of hire	dependent (child)	month (1)	2.00 gur barley	24.00	100%

Table 4.2-8 Wages paid under Abi-ešuh through Ammi-ditana year 9

4.2.3.4 Wages by occupation

Looking at wages by occupation also helps make sense of the data. Wage rates for selected occupations are given below, ordered from the lowest to highest wage, along with its corresponding wage in the LE or CH law codes.

1) Shepherd: 3 texts,[88] all hired for one year. Average yearly wage = 2.53 gur barley, wage range 2.00-3.00 gur barley. Two of the contracts identify the hireling as a child, possibly also a child in the third text, which accounts for the low wage. In text from Larsa YOS 8, 148, dated Rim-Sin 59, Sin-magir hired himself out as a shepherd at a yearly wage of 4 shekels silver and 720 sila barley. Total wage is 6.40 shekels assuming 1 gur barley equal 1 shekel silver. CH §261 specifies a shepherd's wage as 8 gur/year, higher than all the exemplars.

2) Ox driver: 3 texts,[89] average wage extrapolated to 1 year=8.00 shekels, range 4.00-12.00. Two independent workers (self-hires) are paid 0.66 shekel/month (=8 gur barley/year) and 1.00 shekel/month (=12 gur barley/year). A child is paid 0.33 shekel/month (=4 gur barley/year). CH §258 specifies a wage of 6 gur/year, lower than the wage the independent workers received.

3) Builder: 1 text,[90] wage extrapolated to 1 year=6.00 shekels. CH §274 specifies daily wages for craftsmen, including a builder, but is broken.

4) Builder of mud-brick wall: 1 text,[91] monthly wage extrapolated to 1 year=6.72 shekels. CH §274 specifies daily wages for craftsmen, including a builder, but is broken.

5) Miller: 6 texts,[92] average wage extrapolated to 1 year=7.80 shekels, wage range 4.00-13.60. Three of the contracts are for children, two for slaves, and one letter (AbB 11, 26) is for an independent worker. Lowest wage paid was for a female slave. No wage specification for this occupation in LE or CH.

6) Agricultural worker (unspecified duties): 4 texts,[93] average wage extrapolated to 1 year=10.00 (excluding food and beverage allowance), range is 8.00-12.00. Three of the four texts specify wages paid in silver. CH §273 specifies daily wages for (agricultural) workers at 5 ŠE per day (=10.00 shekels/year) for months 6-12 and 6 ŠE per day (=12.00 shekels/year) for months 1-5. LE §8 and §11 specify wages of 12.00 for a winnower and hired worker.[94]

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[88] AUCT 5, 154 (Si); YOS 13, 486 (Ae 25); Richardson diss. II p 410 (Aṣ 16).
[89] JCS 11/1, 14:25 (Aṣ 13); VAS 29, 22 (Aṣ 8); PBS 8/2, 196 (Aṣ 15).
[90] JCS 36, 186-187, CBS 7110 (RS 31). Line 1: 1 ŠE.GUR Á 2 ŠITIM.ME "1 gur barley, wages for 2 builders" Time period is not stated but may be inferred to be one month from JCS 36, 183, (CBS 7580), dated to the same year. Lines 1-2 record wages of 85 sila paid to builders and hired workers. The only way to divide 85 evenly computes to 5 sila per day per worker, or 17 workers for one day. 5 sila/day equals 150 sila per month, the implied monthly wage of line 1 in CBS 7110.
[91] TLB 1, 58 (RS 37). Lines 5-6: 2 (PI) 4 (BÁN) 8 SILA₃ Á.BI LÚ.HUN.GÁ ⌜*ša*⌝ *pi-ti-iq-ta-am ip-ti-qú-ú* "…wage of a hired worker who is constructing a mud-brick wall."
[92] CT 33, 32 (Ad 31); VAS 7, 83 (Aṣ 8); TLOB 25 (Ad 7) and 30 (Aṣ 11); Richardson diss. II p 405 (Ad 31); PBS 7, 26 (undated). Typically: *ana samādim* "for grinding."
[93] YOS 13, 381 (Ad 37); Richardson diss. II p. 404 (Ad 14?), 413 (Aṣ 18) and 414 (Aṣ 18). Typically: *adi paṭār erēšim* "until the demand ceases."
[94] De Graef 2018 studied a group of related texts from Sippar that recorded wages paid to different categories of agricultural workers (e.g., clod breakers and collectors, ploughmen, ox-drivers, weeders, and harvesters), at the time of Hammu-rabi. She found that agricultural workers earned on average 12 sila barley/day or 1.20 gur/month, which she believed included 2 sila/day as a food allotment (ŠUKU) (p. 226). One gur barley per month equals the wages

7) Harvest worker (see Table 4.2-9 below).

8) Brick-maker: 1 text,[95] wage extrapolated to 1 year=30.00. CH §274 specifies daily wages for craftsmen, including a builder, but is broken.

Table 4.2-9 lists all of the tablets recording wages paid to harvest workers.[96] These can be compared to the mean wages in Tables 4.2-5 and 4.2-6, and the following observations can be made:

1) Wages paid to harvest workers were, with two exceptions, paid in barley.

2) Harvest workers were well paid. In all the texts but one,[97] their wages equaled or exceeded one gur barley per month. In several, their wages were two or three times that amount. LE §7 specifies wages for harvest workers at 2 gur barley or 2 shekels silver per month, and CH §273 specifies wages for hired workers (presumably harvesting and doing post-harvest work) at 1 shekel silver per month (=1 gur barley) for months 1-5.

3) Wages for slaves (paid to their master) and children (paid to the father, mother, or older brother) employed as harvest workers seem to be on par with wages paid to independent harvest workers.

4) There does not seem to be a significant difference in wages paid in barley over time. Under Rim-Sin, five harvest workers were paid at the rate of 24.00 (20 sila barley/day or 2.00 gur/month).[98] We find this same wage was paid in texts dated under Hammu-rabi and Ammi-ditana. A rate of 12.00 (12 sila barley/day or 1.00 gur/month) was paid under Rim-Sin, Hammu-rabi, Samsu-iluna, and Ammi-ṣaduqa. A rate of 18.00 (15 sila barley/day or 1.50 gur/month) was paid under Hammu-rabi and Ammi-ditana. This assertion is also supported by the mode wage of 12.00 discussed below.

specified in LE §8, §11, and CH §273. She also found that some categories of workers were paid less, with clod collectors, for example, earning as little as 7-8 sila barley/day (p. 229). Cf., AbB 6, 179 (undated letter), where ten children are to be hired for ten days to pick up clods in a field. Wages will be 2 sila barley and 1 sila dates per day (=2.40 gur barley + 1.20 gur dates per year).

[95] TLB 1, 58:3: 2 (GUR) 2 (PI) 3 (BÁN) GUR Á.BI LÚ.HUN.GÁ *ša* SIG$_4$ *il-bi-nu-ú* "…wage of a hired worker who is making bricks." I can offer no explanation as to why this wage is so high.

[96] RSO 82 Supp. 1, 010:8 identifies the workers as harvest workers. However, based on its date (month vi), it probably refers to the date harvest, which took place in months vii and viii (per Stol 1982: 142).

[97] RSO 82 Supp. 1, 020 is a contract of hire for two children to work twenty days as harvest workers. The low wage of 30 sila per child leads me to believe they were young.

[98] TLB 1, 43:15.

Text Reference	Provenience	Ruler	Year date	Year (middle chronology)	day.month	Text Description	Subcategory	duration of hire	Wages in shekels silver or gur barley	Wages in shekels silver (or converted into shekels of silver) per year	Deviation from "fair" wage
RA 86, 105 no. 3	Larsa	RS	34	1789	_.x	loan	independent (worker) - harvest worker?	days (20)	0.66 gur barley	12.00	0%
RA 86, 105 no. 4	Larsa	RS	34	1789	_.x	loan	independent (worker) - harvest worker?	days (10)	0.33 gur barley	12.00	0%
TLB 1, 43	Larsa	RS	38	1785	29.i	list of expenditures	independent (per worker)	day (per)	0.066 gur barley	24.00	100%
CT 8, 11a	Sippar	Aṣ	14	1633	10.i	list of expenditures	independent (per worker)	month (1)	1.00	12.00	0%
TLB 1, 43	Larsa	RS	38	1785	29.i	list of expenditures	independent (per worker)	day (per)	0.033 gur barley	12.00	0%
Waterman Bus. Doc. 47	Sippar	Ad	2	1682	14.xii	contract of hire	dependent (client) harvest worker	month (1) day (3)	3.00	36.00	200%
Waterman Bus. Doc. 47	Sippar	Ad	2	1682	14.xii	contract of hire	dependent (client) harvest worker	month (1) day (3)	1.50 gur barley MŠ	18.00	50%
Meissner BAP 57 (and case)	Sippar	Ha	3	1790	not given	contract of hire	dependent (child) 2 harvest workers	day (10)	1.00 gur barley	36.00	200%
TCL 1, 176	Sippar	Si	5	1745	_.xii	contract of hire	dependent (slave) female	month (1)	1.00 gur barley MŠ	12.00	0%
VAS 9, 109 and 110 (case)	Sippar	Ha	42	1751	30.xii	contract of hire	dependent (slave) 3 females	month (1) day (3) harvest	1.00 gur barley MŠ	12.00	0%
YOS 13, 497	und. - no.	Ad	9	1675	16.ii	contract of hire	dependent (child)	month (1)	2.00 gur barley	24.00	100%
RSO 82 Supp. 1, 020 & 021 (case)	Sippar	Ha	42	1751	1.xi	contract of hire	dependent (child) 2 males	20 days	0.10 gur barley MŠ	1.80	-85%
RSO 82 Supp. 1, 010	Sippar	Ha	39	1754	13.vi	list of expenditures	dependent (client) harvest worker	days (3)	0.04 gur barley	14.40	20%
RSO 82 Supp. 1, 010	Sippar	Ha	39	1754	13.vi	list of expenditures	dependent (client) harvest worker	days (1)?	0.066 gur barley	24.00	100%
RSO 82 Supp. 1, 010	Sippar	Ha	39	1754	13.vi	list of expenditures	dependent (client) harvest worker	days (1)?	0.05 gur barley	18.00	50%

Table 4.2-9 Wages paid to harvest workers

It is not surprising to find that harvest workers were paid more. The demand for labor was high at harvest time. The work was grueling and had to be completed in a short timeframe. The term of hire was short, roughly ten days to a month of work.[99]

To summarize: Wages specified for (agricultural) workers in the Hammu-rabi and Ešnunna law codes approximated the wages that we find in contracts paid in barley to independent workers. Wages paid in silver, however, tended to be less than the one shekel/month specified in the law codes. The fact that wages in contracts varied (sometimes considerably) from wages specified by the law codes leads me to conclude that: 1) wages were based on the supply and demand for labor rather than on legal specifications, and 2) wages in the law codes were meant to be guidelines and not legally enforceable.[100]

4.2.3.5 Mode wage

Another way to make sense of the data is to look at the mode wage, which is 12.00 (i.e., 12 shekels silver or 12 gur barley per year; equal to 1 shekel silver or 1 gur per month; equal to 6 ŠE silver or 10 sila barley per day). Twenty-five of 144 sources, comprising 18% of the sources (excluding law codes and letters), pay at a rate equal to the mode wage. Its use was wide-ranging both geographically and chronologically. One finds it in texts dated to the reigns of

[99] There are indications that the harvest of a farmer's field(s) was not expected to last longer than fifteen days and probably averaged around ten days (Weitemeyer 1962: 61-62). From Meissner BAP 57, we learn that two children were hired for ten days to harvest a farmer's field. Pinches Berens Coll. 19b (no. 96, p. 119) states that 11 harvesters took 13 2/3 days to harvest a field. In VAS 13, 19 (27.i.29 Ha), which appears to be a receipt for fulfillment of a harvest obligation, two workers report each day for five days (=10 work-days) to harvest the field of Migir-Sin.

[100] See Lafont 2000 for her explanation of discrepancies between the CH and everyday business documents. See also Roth 1997: 5-6.

Rim-Sin and Rim-Sin II of Larsa as well as in texts from the 1st Dynasty of Babylon from Sin-muballiṭ through Ammi-ṣaduqa.[101]

In Table 4.2-3, we saw that our sources for wages are split roughly 50/50 between paying barley or silver. But in texts that pay the mode wage, the ratio differs significantly. Wages in 9 of these are paid in silver (36%), and 16 (64%) are paid in barley. This discrepancy puzzles me, and I have no explanation to account for it. Apart from the texts that pay the mode wage, twenty-five texts record 28 instances of wages rates greater than 12.00. And in these too, wages are skewed towards barley. Seven are paid in silver (25%) and 21 (75%) are paid in barley, which leads to the question: Why did employers generally pay higher wages in barley than silver?

In my 1978 article, I proposed that silver was valued above barley in the payment of wages and showed that the purchasing power of barley would have been less that its silver equivalent. I went on to say:

> "Consequently, for the worker to accept his wages in barley rather than silver, his employer was forced to pay him more barley than he would otherwise have received had he been paid according to "the going rate." In this way, the worker would be compensated for the barley's reduced purchasing power as compared with silver."[102]

This would explain, in part, why wages paid in barley to harvest workers (Table 4.2-9) tended to be higher than 1 gur/month. In chapter 3, Table 3.1-4 and Graph 3.1-1 showed that the price of barley was cheapest after the harvest and rose during the course of the year. The higher wage was paid to compensate the worker for barley's reduced post-harvest purchasing power.

[101] This was cited above in Chapter 3.1 to support the assertion that the Babylonians reckoned the value of one shekel of silver equal to one gur of barley. LE §7, §8, §10, and §11 also support this assertion.
[102] Farber 1978: 34 note 62.

4.2.4 Harvest labor contracts

As stated in chapter 3.1, the barley harvest took place largely within the first two months of the year and lasted about 30 days. Several months in advance of the harvest, contractors representing large landowners were sent out to recruit workers for the harvest. The harvest was a time when labor was in high demand. Harvest labor contracts were key component of the system to meet that demand.

Harvest labor contracts are differentiated from contracts of hire by their use of the Sumerian verb ŠU BA.AN.TI[103] and their standard formulary, which is described below. It is precisely this uniformity that has made their interpretation so difficult. Because these contracts are relatively common, my hope had been that they might reveal patterns of wage fluctuation. This has not proven to be the case.

Harvest labor contracts were discussed by Lautner 1936, Weitemeyer 1962, Harris 1971, and Stol 1976. But the most comprehensive study of these documents was performed by A. Rositani, who published her results in 2011. Rositani published 122 (previously unpublished) texts from the British Museum, which consisted of harvest worker contracts, lists of harvest workers, and dockets.[104] The following remarks are based on her work and the work of her predecessors.

[103] Although this term characterizes loans, Skaist 1994: 22 noted that other types of transactions, such as credit sales and harvest worker contracts, which are not loans, use this term. He therefore excluded harvest worker contracts from his study of loans.
[104] See Rositani 2011: 45-48 (Chart 1) for the list of texts.

The formulary employed in harvest labor contracts occurs in contracts from northern Babylonia from the reign of Hammu-rabi through Samsu-ditana, although most of them date to the reigns of Ammi-ditana and Ammi-ṣaduqa.[105]

The first line of the contract always contains a quantity of silver or barley (the payment). The second line indicates that the payment is for harvest workers, followed by the supplier and recipient(s) of the payment, followed by the Sumerian verb ŠU BA.AN.TI, normally translated "he borrowed." But in harvest worker contracts, a more accurate translation would be "he received." The next four lines require the recipient(s) to "perform the services,"[106] which, as discussed below, obligated them to supply a (usually) unspecified number of harvest workers at harvest time. This is followed by a clause that indicates "the recipient(s) will be liable according to the decree of the king" should they "not perform the services." Following this come the witnesses, date, and seals.[107]

Payments in these contracts varied considerably, from one-sixth to 5 shekels silver, or from as little as 60 sila to over 6 gur barley. Payments under Hammu-rabi, Samsu-iluna and Abi-ešuh were always in silver. Thereafter, payments were made in silver or barley, although silver generally seems to have predominated, at least under Ammi-ditana and Ammi-ṣaduqa. One-half shekel silver seems to be the most common payment.

It is clear from these texts that 1) the aforementioned payments were not wages paid to harvesters, and 2) harvest labor contracts were not true loans because there is no mention of interest. Rositani proposed the following:

[105] To my knowledge, this text genre does not occur in the Kingdom of Larsa. RA 86, 105 nos. 3 and 4, two loans of barley requiring the debtors to perform (harvest?) work, may have the same intent.
[106] This is an idiomatic definition of *alākum*, first proposed by Stol 1976: 100.
[107] See Rositani 2011: 13-14 and Stol 1976: 97-108.

> "On the basis of Stol's analysis and what some scholars and I myself could gather, it appears presumable that the beneficiaries were expected to hire the harvesters and take them on the field at harvest time."[108]

She went on to call the beneficiaries "labourer providers" or "labour contractors."[109] They received a fee or retainer for their services of recruiting, supplying, and deploying harvest workers and also possibly for ensuring that the workers performed the work. The use of ŠU BA.AN.TI thereby defined an obligation between the supplier and recipient but not a loan.

Rositani showed that harvesters were often hired in groups of six men and/or multiples of six.[110] It appears that harvest workers were often furnished according to the "going rate,"[111] which, at times, seems to have been nine to ten workers per one-half shekel of silver.[112]

As the harvest approached, the landowner was able to reliably estimate his yield. Experience had also taught him the amount of barley that the average worker could harvest in a single day. This he reckoned as a work-day.[113] It was then a relatively simple matter for him (and/or for the labor provider) to compute the number of work-days needed to harvest his crop. Having some idea as to the "going rate" for harvest workers, the landowner could also approximate the cost of harvesting his crop. If his landholdings were large, the most cost-effective way to procure harvest workers was to acquire them from labor providers, rather than draw up contracts of hire with individual workers (which I presume added expense, as these required the services of a scribe). The silver or barley which these labor providers received could be thought of as their fee to supply workers for a pre-determined number of work-days,

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[108] Rositani 2011: 23.
[109] Rositani 2011: 23.
[110] Rositani 2011: 16-17.
[111] E.g., Szlechter TJDB MAH 16.651:8-11 UD.BURU$_{14}$.ŠÈ KI.LAM AL.DU.A.GIN$_7$ LÚ.ŠE.GUR$_{10}$.KUD *i-la-ak.*
[112] Weitemeyer 1962: 63. Also Rositani 2011: 16.
[113] The concept of workdays goes beyond the "experience" of landowners and is the standard form of estimating labor in 3rd and early 2nd mill. institutional contexts as well, with an anchor in the scribal curriculum

which varied according to the size of the field, its yield, and the productivity of the workers provided. Thus the variation in the fee was attributable to these variables and not indicative of wage fluctuation. Because the contract was based on work-days needed to harvest the field, the exact number of workers which the labor provider chose to furnish need not be included in the contract.

As noted above, the harvest workers themselves were well paid, receiving higher wages compared to other kinds of workers, apart from their daily rations. It is safe to assume that the landowner paid the wages to the labor provider, who then paid the workers.

To summarize: While it is possible to determine mean wages paid to different classes of labor, more data is needed to identify fluctuations in wages over time. A "best fit" scenario for wages under the 1st Dynasty of Babylon is that wages remained relatively stable under Hammu-rabi and Samsu-iluna, rose under Abi-ešuh and the early years of Ammi-ditana, dropped during the rest of his reign, and stabilized under Ammi-ṣaduqa at levels slightly higher than under Hammu-rabi and Samsu-iluna.[114] No conclusions can be drawn regarding wages from a handful of texts that pre-date Hammu-rabi or based on the lone contract of hire from the reign of Samsu-ditana. For the kingdom of Larsa, wages paid under Rim-Sin seem to have been comparable to those paid under Hammu-rabi and Samsu-iluna.

Wages paid in barley to independent labor (for a month of work or per month) seem to be roughly in line with wages specified by the Ešnunna and Hammu-rabi law codes. When paid in silver, wages were lower than what the codes specify.

[114] This is the same pattern I proposed in Farber 1978: 33 Graph 11.

This concludes the analysis of prices by category and wages paid to hired labor. Part II of this study identifies long term fluctuations in prices and wages and correlates these fluctuations with periods of prosperity and economic decline.

Part II: Synthesis and Interpretation

Chapter 5: Identifying long term fluctuations of prices and wages

5.0 Introduction

In Part I of the present work, I focused on tracking prices and wages by category. For each of the categories listed in the introduction (section I.3), prices were plotted over time, mean or mode prices were determined, price ranges were identified, and terminology was reviewed. The same was done for wages. To aid in understanding the data, sources were broken down by provenience, type, frequency, and chronological distribution.

It is clear from the results of that study that no single category contains either a sufficient number of sources or a suitable chronological distribution to identify long term fluctuations in prices and wages over the entire OB period. In the following pages, I would like to try doing so by adopting a holistic approach. Instead of plotting prices over time, which works well for a single category, Part II plots percentage deviations from baseline prices over time.[1] Prices for multiple categories can thereby be plotted on the same graph. This results in a graph with a wider chronological span and a denser chronological coverage that also allows for price comparisons.

Table 5.0-1 lists the baseline prices and wages for the categories and subcategories that will be used in Part II of the present work. For houses, land, slaves, livestock, sesame, and house rentals, the baseline was defined as the average price per unit of measure, given in the respective chapters in Part I.[2] For barley, oil, and wool, the baseline was defined as its "fair

[1] The formula for computing percentage deviation is: (price – baseline price)/baseline price.
[2] Averages for computing percentage deviation in Table 5.0-1 are rounded, which means that, in some cases, they differ slightly from the averages given in the tables in Part I. The difference is not significant. Also, when two or more slaves (mother and son or male and female) are sold, their respective averages are totaled to calculate the baseline combination price. The same holds true for livestock and for one sale of a field and orchard.

price," stated in §1 of the Ešnunna law code. For dates, the baseline was defined as the mode price, that is, the price which most often occurs. For wages, the baseline was defined as one gur barley or one shekel silver per month of work (=12.00/year), based on the Ešnunna and Hammu-rabi law codes.[3]

Table 5.0-1 Baseline prices and wages			
Category	Subcategory	Baseline price or wage	Baseline desc.
Houses	edua (good condition)	24.00 shekels/sar	avg. price
	ekigal (bare ground)	12.90 shekels/sar	avg. price
	kislah (bare ground)	10.00 shekels/sar	avg. price
	kišubba (ruined)	5.25 shekels/sar	avg. price
Land	aša (field)	5.50 shekels/iku	avg. price
	kiri (orchard)	20.20 shekels/iku	avg. price
	aša kislah (uncultivated)	4.50 shekels/iku	avg. price
	aša gugše (field in stubble)	2.80 shekels/iku	avg. price
Slaves	adult male	25.00 shekels	avg. price
	adult female	18.00 shekels	avg. price
	child male	12.00 shekels	avg. price
	child female	7.00 shekels	avg. price
Livestock	ox	12.60 shekels	avg. price
	cow	6.90 shekels	avg. price
	calf	1.50 shekels	avg. price
	sheep	1.30 shekels	avg. price
Rental	whole house	1.70 shekels/year	avg. price
Commodities	barley	1.00 shekel/gur	"fair" price
	sesame oil	0.83 shekels/*sūtum*	"fair" price
	top quality oil	3.33 shekels/*sūtum*	"fair" price
	wool	10.00 shekels/talent	"fair" price
	dates	0.50 shekels/gur	mode price
	sesame	4.50 shekels/gur	avg. price
Wages	Barley	1.00 gur/month	"fair" wage
	Silver	1.00 shekel/month	"fair" wage

[3] Not all subcategories possessed sufficient data to compute a baseline price. For example, pigs, donkeys, lambs; land described as "meadowland" (USAL); or rentals of wings of houses did not.

The following describes the methodology employed to select the price equivalencies and wages for inclusion in Part II tables and graphs.

The Price and Wage database contains 1,558 price and wage attestations (see Table Intro-1.). From these, the following were subtracted (or "de-selected" in the database column headings):

1. 92 undated or undatable attestations (year = blanks)
2. 13 attestations from law codes (text description = "law code")
3. 169 attestations where percentage deviation could not be calculated (% deviation = blanks).[4]

This resulted in 1,284 "usable"[5] price and wage attestations (=1,142 price + 142 wage).[6]

Excel was again utilized to generate the graphs. This entailed reorganizing the data by category/subcategory and creating five additional columns in a working copy for house and land prices, slaves and livestock prices, commodity prices, (whole house) rentals, and wages. If a source had a damaged date, price, or wage, the rules in Appendix B were used to determine a "best fit" date, price, or wage. The scatter charts that follow were generated by highlighting the appropriate column(s) in the working copy and choosing "insert (scatter) chart" from the top menu. Trendlines were added (again courtesy of Excel) where helpful.[7]

Prices and wages for the 1st Dynasty of Babylon, the Kingdom of Larsa, the 1st Dynasty of Isin, and for local dynasts of Kish/Damrum and Sippar will be analyzed.

[4] Percentage deviation could not be calculated due to: 1) key information needed to compute the unit price was damaged or missing, 2) subcategory didn't have sufficient attestations to determine a baseline price, or 3) combo sales (e.g., two types of land being sold), except as noted above in note 2.
[5] "Usable" means that the source is dated or datable, a baseline price can be established, its percentage price deviation computed, and it can be graphed.
[6] Because only relative dates can be determined for tablets dated under local dynasts, these have been excluded from the graphs.
[7] Trendlines are a tool for fitting points to a curve. They are typically used for prediction, which is not the case here.

5.1 Prices

5.1.1 1st Dynasty of Babylon

On Graph 5.1-1, percentage deviations for 648 price equivalences have been plotted. 642 are datable to a ruler of the Hammu-rabi dynasty, to which can be added 6 sales dated to Sumu-abum.[8] The categories have been placed into one of four groups: 1) houses and land, 2) slaves and livestock, 3) house rentals, and 4) commodities. Each group's data points, which track percentage deviation against baseline, have been color-coded. Graphs 5.1-1a to 5.1-1d present each group separately, and Graph 5.1-1e focuses on prices under Hammu-rabi and Samsu-iluna. Table 5.1-1 breaks down the data and gives average percentage price deviation per date range by category.[9] To aid in the interpretation of the table and graphs: "% price deviation" measures how expensive or inexpensive each category within a group was compared to its baseline price. "Count," that is, the number of price equivalences per category, measures accuracy. The higher the count for a category, the more accurate its corresponding percentage price deviation.

The following observations can be made:

1) Graph 5.1-1 shows that the groups have different chronological distributions. For example, houses and land sales (primarily fields) dominate from before Hammu-rabi through Samsu-iluna but drop off thereafter. Sources for prices of slaves and livestock, house rentals, and commodities become more numerous under Hammu-rabi, Samsu-iluna and their successors (except Samsu-ditana) but are scarce before then.

[8] As was noted in the introduction (I.5.2), for simplicity sake, texts dated to Sumu-abum, unless noted otherwise, have been included under the 1st Dynasty of Babylon. It was also noted that Sumu-abum was not the founder of the dynasty (see above, I.3).

[9] Table 5.1-1 and the other tables in chapter 5 list which categories were used to compute average percentage price deviation for a date range and give a count for each category. Because every date range does not include the same categories, the average is more likely to be directionally correct than its magnitude of price fluctuation.

2) The lowest prices occurred roughly in the years 1762-1739, from Hammu-rabi year 31 through Samsu-iluna year 11. During that period, Table 5.1-1 shows that average percentage deviation for all categories was below the baseline.

3) The highest prices occurred under Abi-ešuh and Samsu-ditana. Under those rulers, Table 5.1-1 shows that average percentage price deviation was significantly above the baseline for slaves, livestock, commodities, and house rentals.

4) The last 15 years of Samsu-iluna and the last 5 years of Ammi-ṣaduqa seem to be periods of rising prices.

5) The first thirty years of Hammu-rabi and the first ten years of Ammi-ditana seems to have been periods of falling prices.

6) Comments on individual categories:

    a. Houses tended to be more expensive before Samsu-iluna and less expensive during and after his reign. The number of house sales declined sharply after his reign.

    b. Land also tended to be more expensive before Samsu-iluna. The price of land appears to have dropped during his reign and remained relatively stable thereafter. Relative to their baselines, land was more expensive than houses (see Table 5.1-1 all). The number of land sales also declined sharply after Samsu-iluna's reign.

    c. Prices for slaves declined under Hammu-rabi, and the trend continued under Samsu-iluna. Slave prices were much higher under Abi-ešuh, dropped and stabilized during the first part of Ammi-ditana's reign, and remained stable through the reign of Ammi-ṣaduqa. They may have risen under Samsu-ditana.

    d. Prices for livestock follow a pattern similar to slaves for overlapping periods. Prices were stable under Ammi-ditana and Ammi-ṣaduqa and much higher under Samsu-ditana.

    e. Prices for commodities exhibited considerable fluctuation punctuated by periods of stable prices. Overall, commodity prices were lowest in the first ten years of Samsu-iluna but rose during the remaining years of his reign. Commodity prices were higher under Ammi-ditana and Ammi-ṣaduqa, and much higher under Samsu-ditana.

    f. Prices for house rentals were relatively stable from Hammu-rabi through Ammi-ṣaduqa apart from a jump under Abi-ešuh.

Another approach that can indicate periods of stable or rising prices entails examining contracts that concern the same property with different dates. Several examples follow.

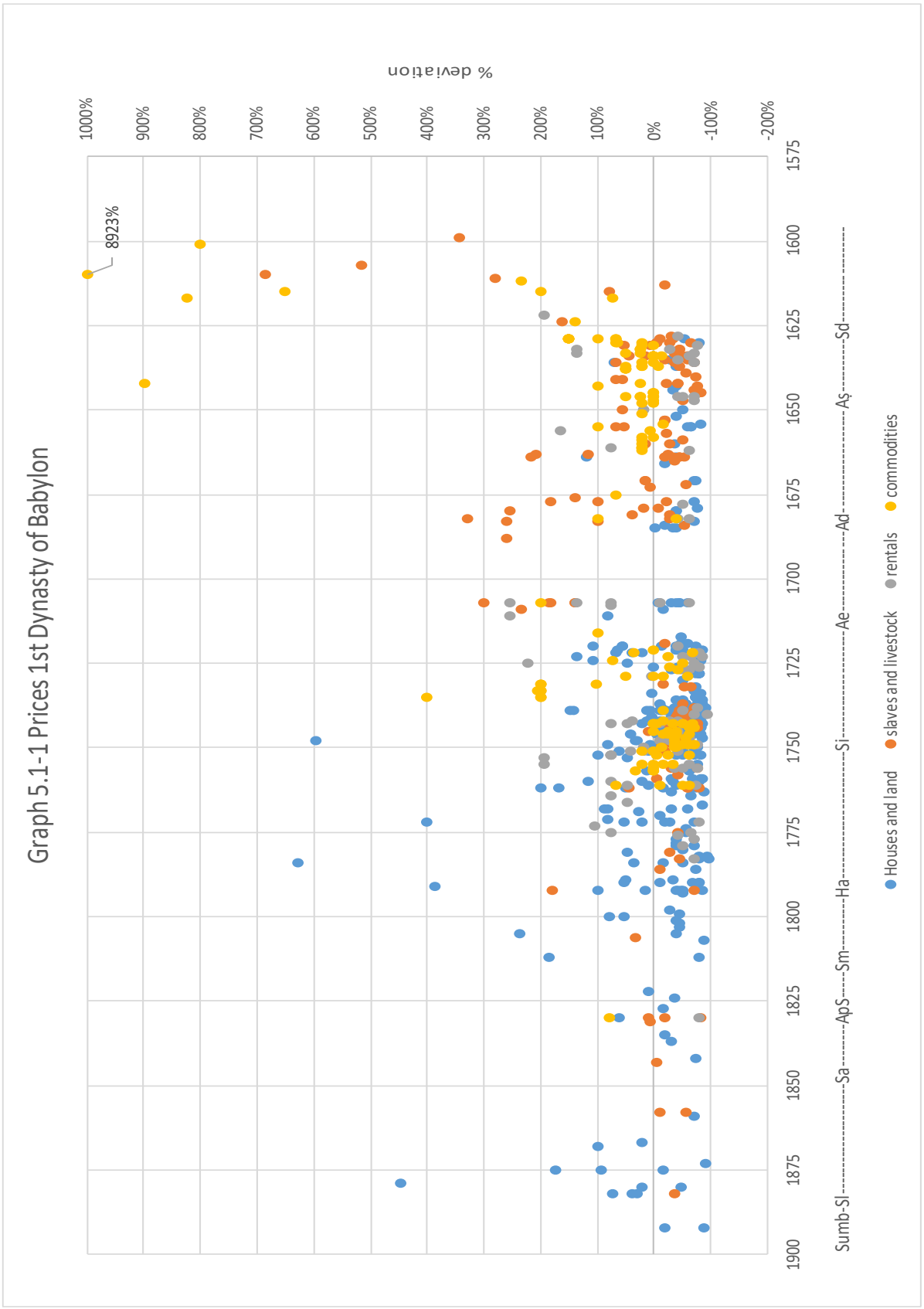
Two land sales dated under Samsu-iluna imply that the price of land in Sippar may have remained relatively stable for about eighteen years, from 1739 to 1722. In MHET 2/3, 421 (dated Si 11), Niši-inišu, a *nadītum*-priestess, daughter of Mar-Šamaš, purchased 12 sar of "empty" or "uncultivated" land (kislah) for 3.83 shekels of silver. In MHET 2/3, 448 (case dated Si 28), the same 12 sar plot of kislah[10] sold for the same price eighteen years later.

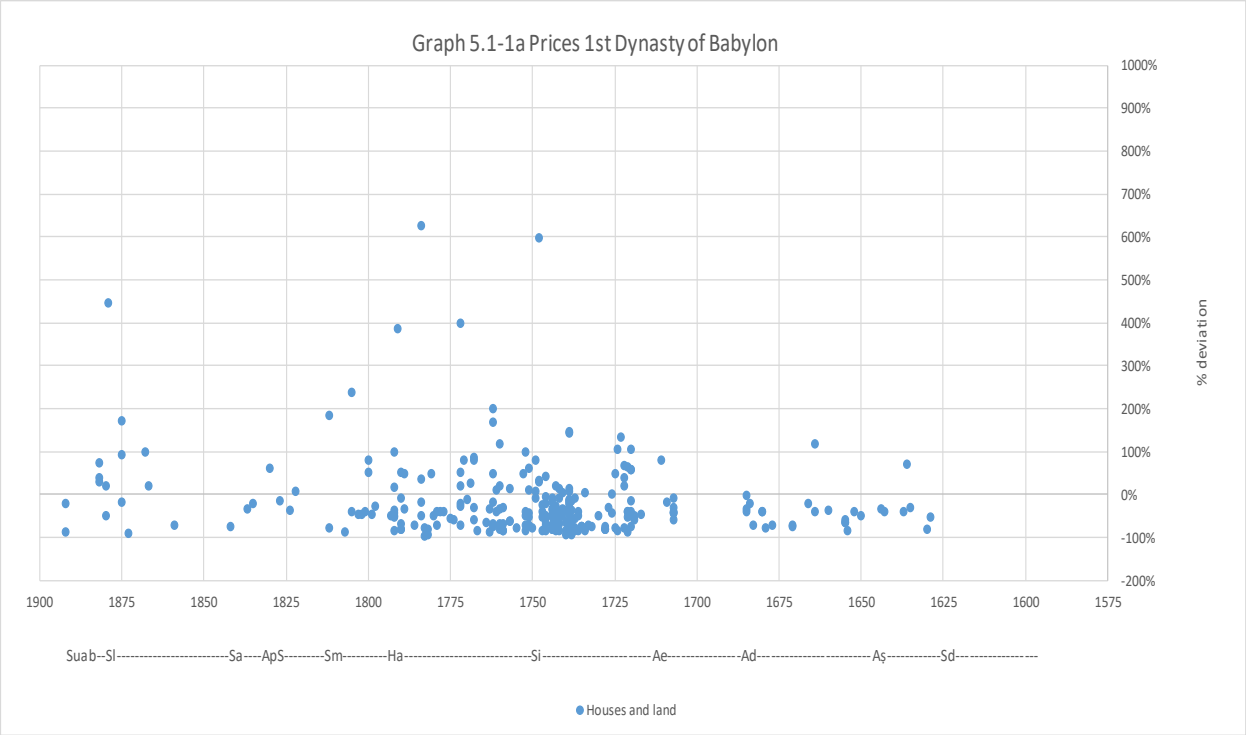
Two house rental contracts provide evidence for a period of stable rental rates under Hammu-rabi. In CT 47, 36 (dated Ha 18), Ruttum, a *nadītum*-priestess, daughter of Iṣi-gatar, rented out her house for one year for 3 shekels of silver. In MHET 2/2, 252 (dated Ha 32), she rented out the same house (my assumption) for one year for 3 shekels. The two rentals imply that house rental rates under Hammu-rabi could have remained relatively stable for about fifteen years, from 1775 to 1761.

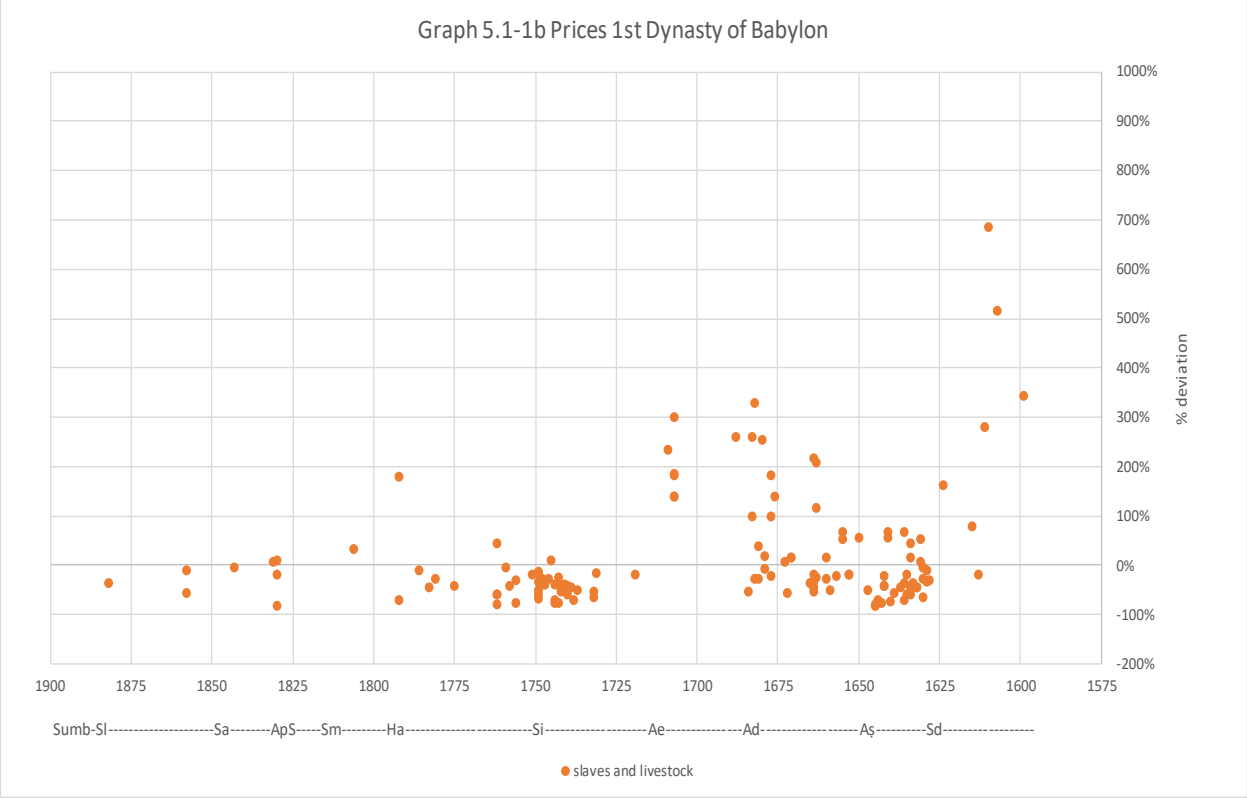
Evidence that house rental rates may have declined in the early years of Samsu-iluna come from another two house rental contracts. In BE 6/1, 47 (Si 1), Ribatum, the *nadītum*-priestess, daughter of Ipqatum, rented out a wing of a house (*edakkum*) to Ilima-abi, son of Warad-Kubi, for one year for 0.83 shekels silver. Exactly one year later, in BE 6/1 49, Ilima-abi re-rents the same property from Ribatum, also for one year, but the rental rate dropped to 0.66 shekels silver, about 20% less than the preceding year.[11]

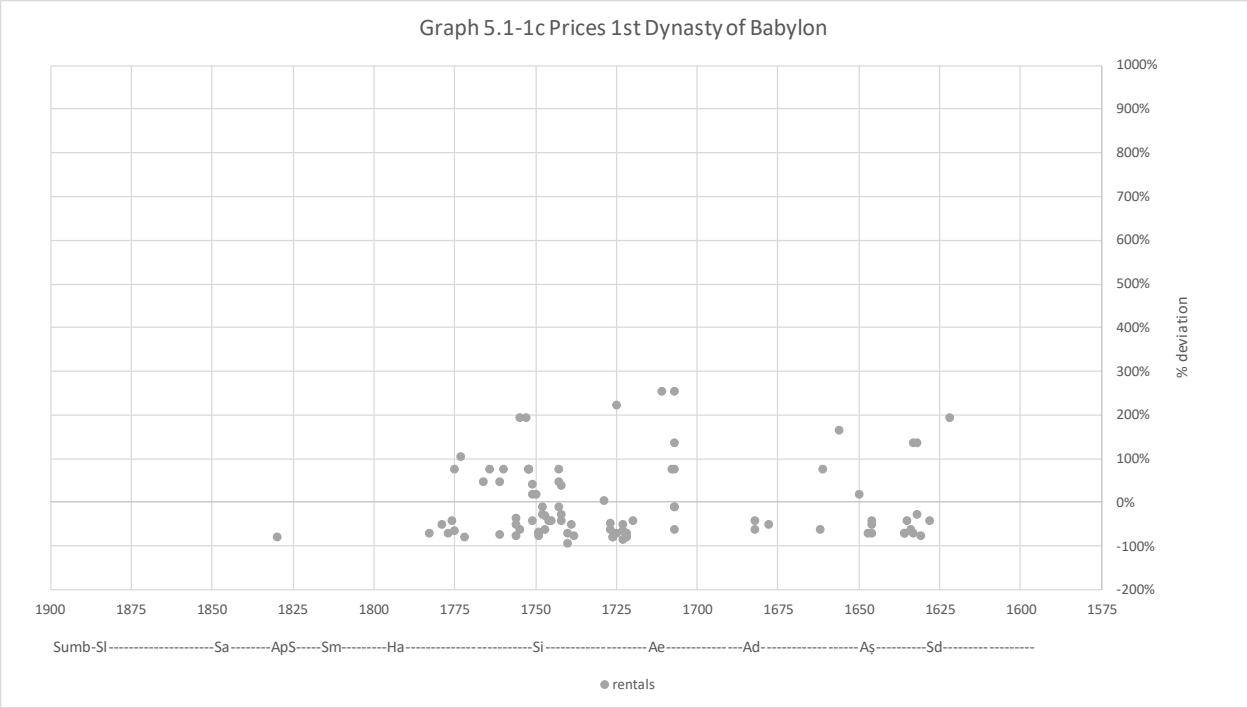
[10] The descriptions of the two parcels match. However, the seller in 448 is Niši-inišu, a *nadītum*-priestess, daughter of Nanna-mansum.

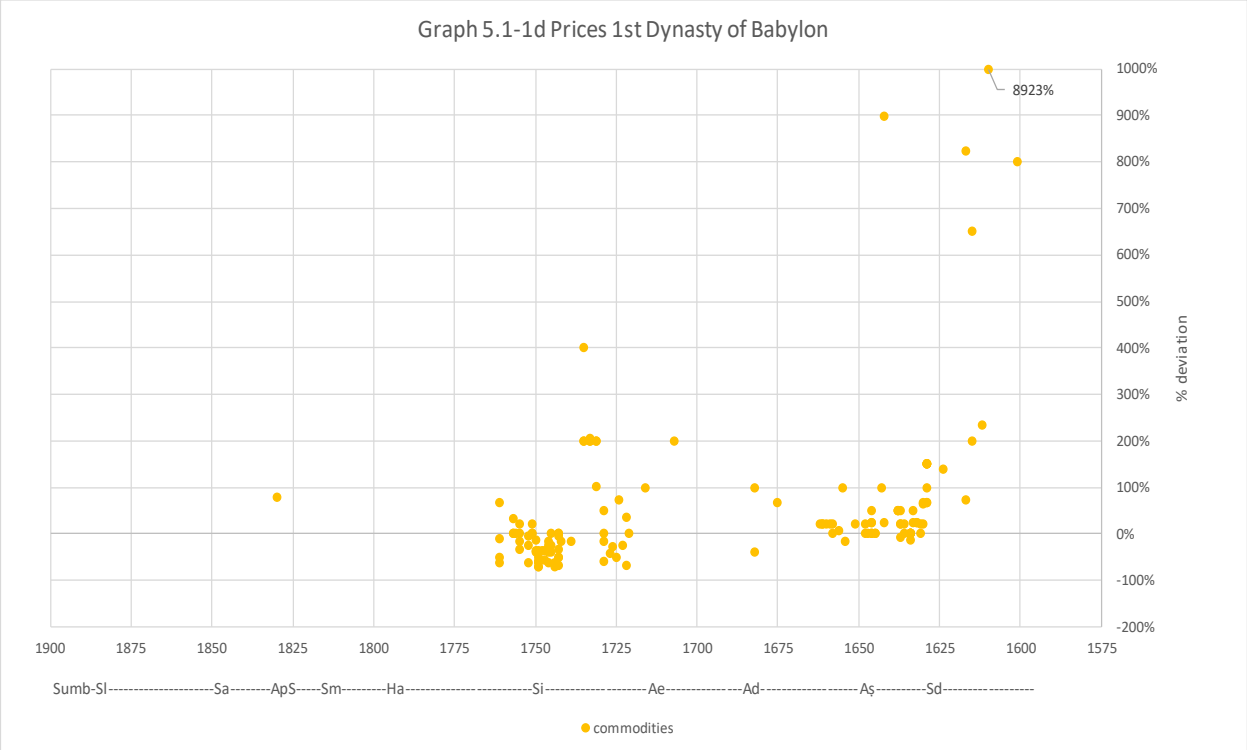
[11] This is the same Ribatum who rents out her house(s) for one year for 3 shekels in TCL 1, 178 (Ha 29?); for 5 shekels in BE 6/1, 30 (Ha 38); and for 3 shekels in BE 6/1, 34 (Ha 41), 35 (Ha 41), 36 (Ha 41) and PBS 8/2, 234 (Si 7.


Graph 5.1-1 Prices 1st Dynasty of Babylon
% deviation
1000%
900%
800%
700%
600%
500%
400%
300%
200%
100%
0%
-100%
-200%
8923%
1575
1600
1625
1650
1675
1700
1725
1750
1775
1800
1825
1850
1875
1900
Sumb-Sl
Sa
ApS
Sm
Ha
Si
Ae
Ad
Aş
Sd
Houses and land
slaves and livestock
rentals
commodities


Graph 5.1-1a Prices 1st Dynasty of Babylon
1000%
900%
800%
700%
600%
500%
400%
300%
200%
100%
0%
-100%
-200%
% deviation
1900 1875 1850 1825 1800 1775 1750 1725 1700 1675 1650 1625 1600 1575
Suab--Sl----------Sa----ApS--------Sm---------Ha----------Si----------Ae----------Ad----------Aş----------Sd----------
Houses and land


Graph 5.1-1b Prices 1st Dynasty of Babylon
1000%
900%
800%
700%
600%
500%
400%
300%
200%
100%
0%
-100%
-200%
% deviation
1900 1875 1850 1825 1800 1775 1750 1725 1700 1675 1650 1625 1600 1575
Sumb-Sl----------Sa--------ApS-----Sm---------Ha----------Si----------Ae----------Ad----------Aş----------Sd----------
slaves and livestock


Graph 5.1-1c Prices 1st Dynasty of Babylon
1000%
900%
800%
700%
600%
500%
400%
300%
200%
100%
0%
-100%
-200%
% deviation
1900
1875
1850
1825
1800
1775
1750
1725
1700
1675
1650
1625
1600
1575
Sumb-Sl----------Sa-------ApS-----Sm--------Ha----------Si----------Ae----------Ad----------Aş---------Sd----------
rentals


Graph 5.1-1d Prices 1st Dynasty of Babylon
8923%
1000%
900%
800%
700%
600%
500%
400%
300%
200%
100%
0%
-100%
-200%
% deviation
1900
1875
1850
1825
1800
1775
1750
1725
1700
1675
1650
1625
1600
1575
Sumb-Sl----------Sa-------ApS-----Sm--------Ha----------Si----------Ae----------Ad----------Aş---------Sd----------
commodities

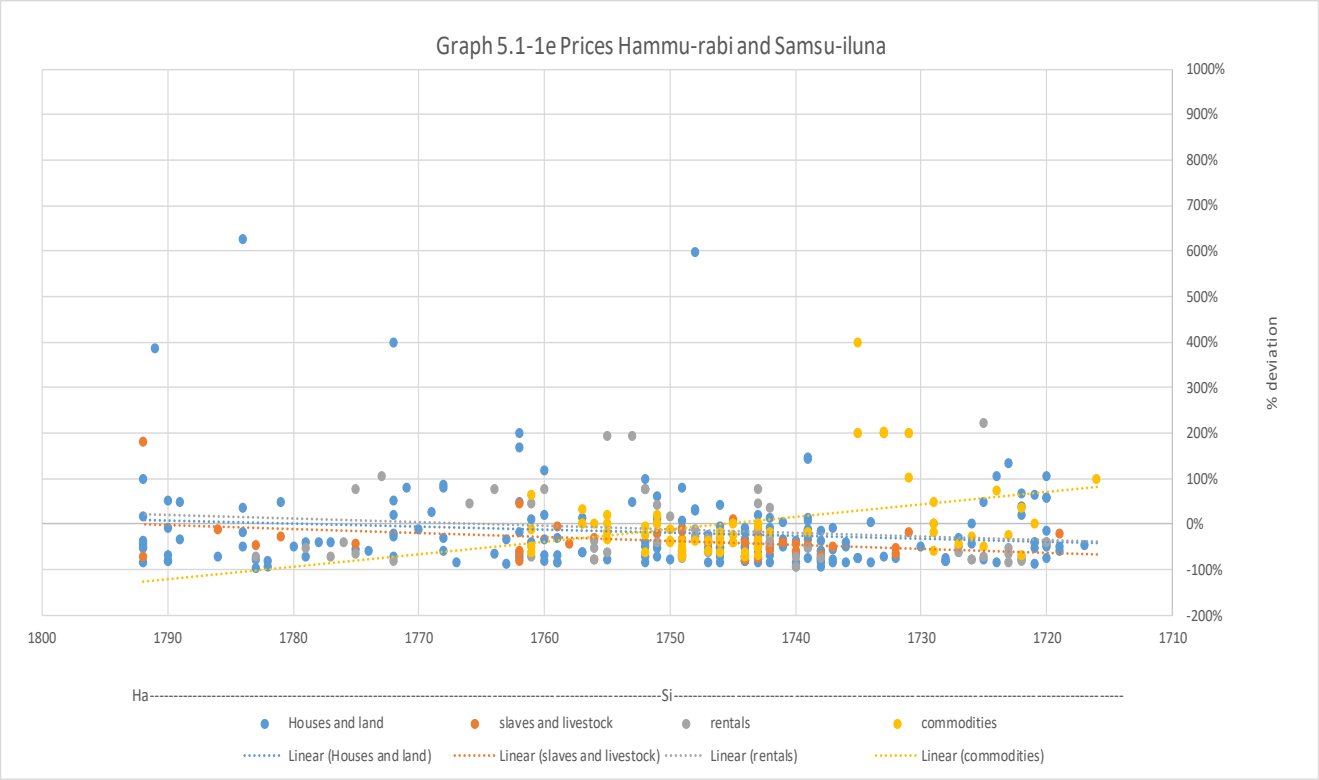

Graph 5.1-1e Prices Hammu-rabi and Samsu-iluna
1000%
900%
800%
700%
600%
500%
400%
300%
200%
100%
0%
-100%
-200%
% deviation
1800
1790
1780
1770
1760
1750
1740
1730
1720
1710
Ha----------Si----------
Houses and land
slaves and livestock
rentals
commodities
Linear (Houses and land)
Linear (slaves and livestock)
Linear (rentals)
Linear (commodities)

Table 5.1-1 Average % price deviation by ruler -- 1st Dynasty of Babylon (& Sumu-abum)						
Ruler(s)	Date range	Avg. % price deviation	Count	Categories	Avg. % price deviation	Count
(Suab), Sl	1894-1845	31%	18			
				houses	-19%	4
				land	67%	11
				slaves	-34%	3
Sa-ApS	1844-1813	-14%	14			
				houses	-42%	3
				land	5%	4
				slaves	-18%	5
				commodities	80%	1
				rentals	-81%	1
Sm	1812-1793	9%	14			
				houses	53%	6
				land	-32%	7
				slaves	33%	1
Ha 1-30	1792-1763	2%	65			
				houses	-3%	29
				land	14%	20
				slaves	-3%	6
				rentals	-7%	10
Ha 31-43	1762-1750	-8%	79			
	North and south			houses	-15%	27
				land	-20%	6
				slaves	-34%	8
				livestock	-60%	1
				commodities	-13%	19
				rentals	30%	16
Si 1-11	1749-1739	-30%	136			
	North and south			houses	-32%	46
				land	7%	20
				slaves	-43%	23
				livestock	-42%	1
				commodities	-40%	28
				rentals	-31%	18

Table 5.1-1 Average % price deviation by ruler -- 1st Dynasty of Babylon cont.						
Si 12-38	1738-1712	-12%	101			
				houses	-40%	37
				land	-32%	22
				slaves	-45%	6
				commodities	85%	22
				rentals	-42%	14
Ae	1711-1684	70%	29			
				houses	-37%	3
				land	-16%	9
				slaves	222%	5
				livestock	90%	3
				commodities	200%	1
				rentals	89%	8
Ad 1-10	1683-1674	42%	24			
				houses	-74%	2
				land	-19%	3
				slaves	135%	10
				livestock	-3%	3
				commodities	42%	3
				rentals	-51%	3
Ad 11-37	1673-1647	0%	54			
				houses	-36%	9
				land	-54%	3
				slaves	33%	9
				livestock	-6%	14
				commodities	18%	14
				rentals	25%	5
Aṣ	1646-1626	10%	99			
				houses	-67%	2
				land	-14%	5
				slaves	-42%	21
				livestock	-13%	15
				commodities	61%	43
				rentals	-27%	13

Table 5.1-1 Average % price deviation by ruler -- 1st Dynasty of Babylon cont.						
Sd	1625-1595	880%	16			
				slaves	134%	3
				livestock	411%	4
				commodities	1480%	8
				rentals	194%	1
All	1894-1595	-16%	278	houses & land		
				houses	-24%	167
				orchards	42%	8
				fields	-4%	103
		15%	142	slaves & livestock		
				slaves	6%	100
				livestock	38%	42
		107%	141	commodities		
				barley	49%	56
				oil	34%	22
				wool	51%	50
				dates	1085%	9
				sesame	-40%	3
		-3%	89	rentals		
				rentals	-3%	89
Total			648			

5.1.2 Kingdom of Larsa

On Graph 5.1-2, percentage deviation for 345 "usable" price equivalences have been plotted. Every one of these is datable to a ruler of the Kingdom of Larsa. The categories have been placed into one of the aforementioned four groups. The same color coding scheme is used. Graphs 5.1-2a to 5.1-2d present each group category separately, and Graph 5.1-2e focuses on prices under Rim-Sin. Table 5.1-2 breaks down the data and gives average percentage price deviation per date range by category. (The same comments apply regarding percentage price deviation and count as stated in the previous section.)

The following observations can be made:

1) Graph 5.1-2 shows that categories/subcategories have different chronological distributions. Houses and land sales (primarily orchards) comprise the bulk of the data, with most dated under Sumu-El, Warad-Sin, and Rim-Sin. Slave and livestock sales are rare before Warad-Sin but are common under Rim-Sin. House rentals only occur under Rim-Sin and Rim-Sin II.
2) The lowest prices occurred during the first thirty years of the reign of Rim-Sin, with most categories under or close to their baseline. Low prices seem to have continued in the second half of his reign.
3) The highest prices occurred under Abi-sare and Sumu-El.
4) The reign of Warad-Sin seems to be a period of declining prices.
5) There is not enough data to draw any conclusions regarding prices during the short reign of Rim-Sin II.[12]
6) Comments on individual categories:
    a. Houses tended to be more expensive before Warad-Sin and less expensive during and after his reign. There were more sales of houses under Rim-Sin than his predecessors combined.

[12] In his review of OECT 15, Charpin analyzed the 25 texts in this volume dated to the reign of Rim-Sin II (Charpin 2007: 157-161). From these, he concluded that the south experienced famine under Rim-Sin II, which would have translated into high commodity prices. One piece of evidence is the high price of barley in OECT 15, 61 (30 sila barley for one-half shekel silver), which works out to 5 shekels per gur or 400% the "fair" price of barley. See Table 5.1.2 under Rim-Sin II.

b. Land tended to be more expensive before the reign of Rim-Sin and much less expensive during his reign. When compared against their baselines, land was much less expensive than houses. There were more land sales under Rim-Sin than his predecessors combined.

c. Slaves and livestock prices seem to have been stable for the entire period.

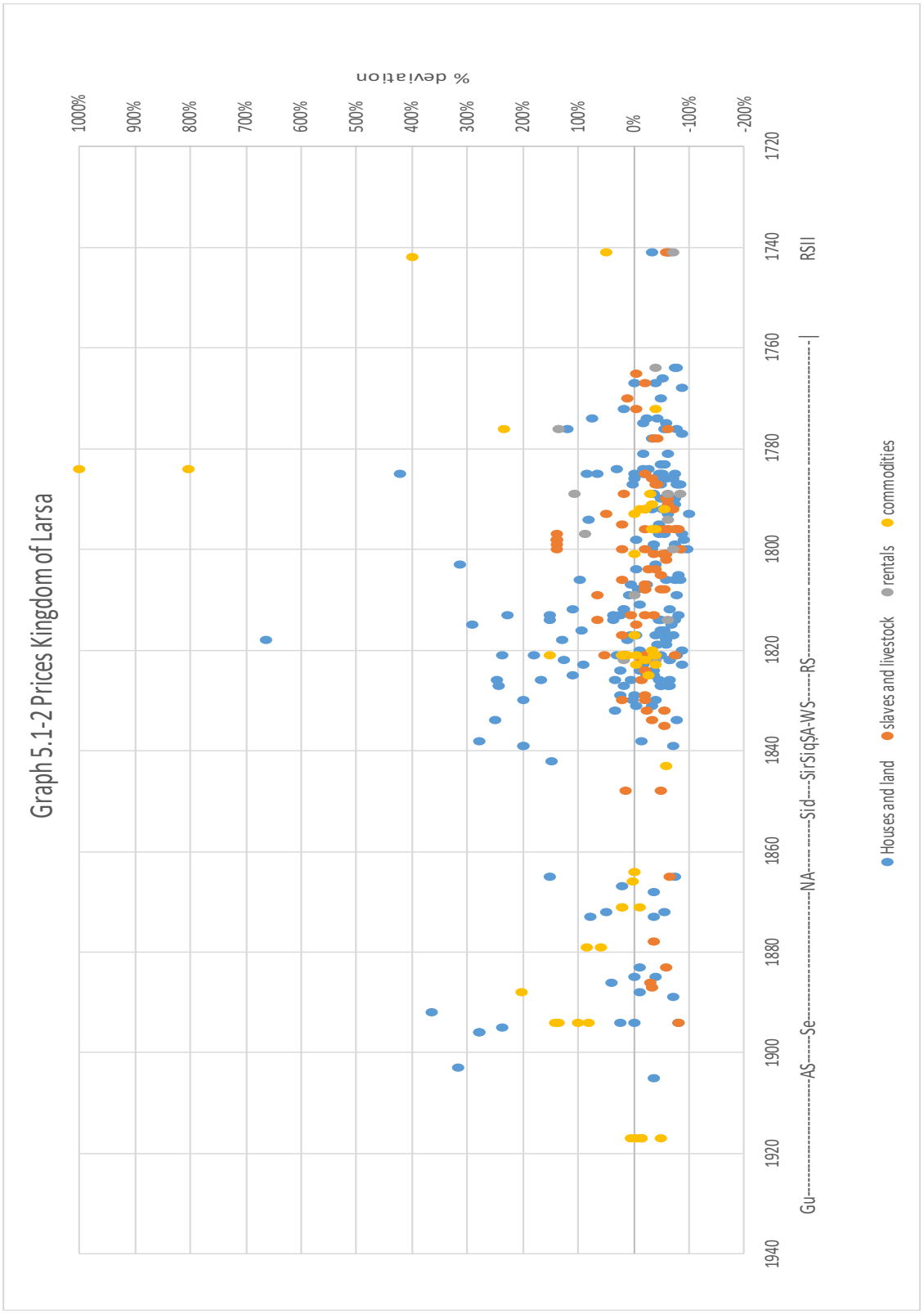
d. Commodity prices exhibited considerable fluctuation. Commodities cost more under Sumu-El than under Rim-Sin. Commodities may have cost more in the second half of Rim-Sin's reign compared to the first half of his reign.[13]

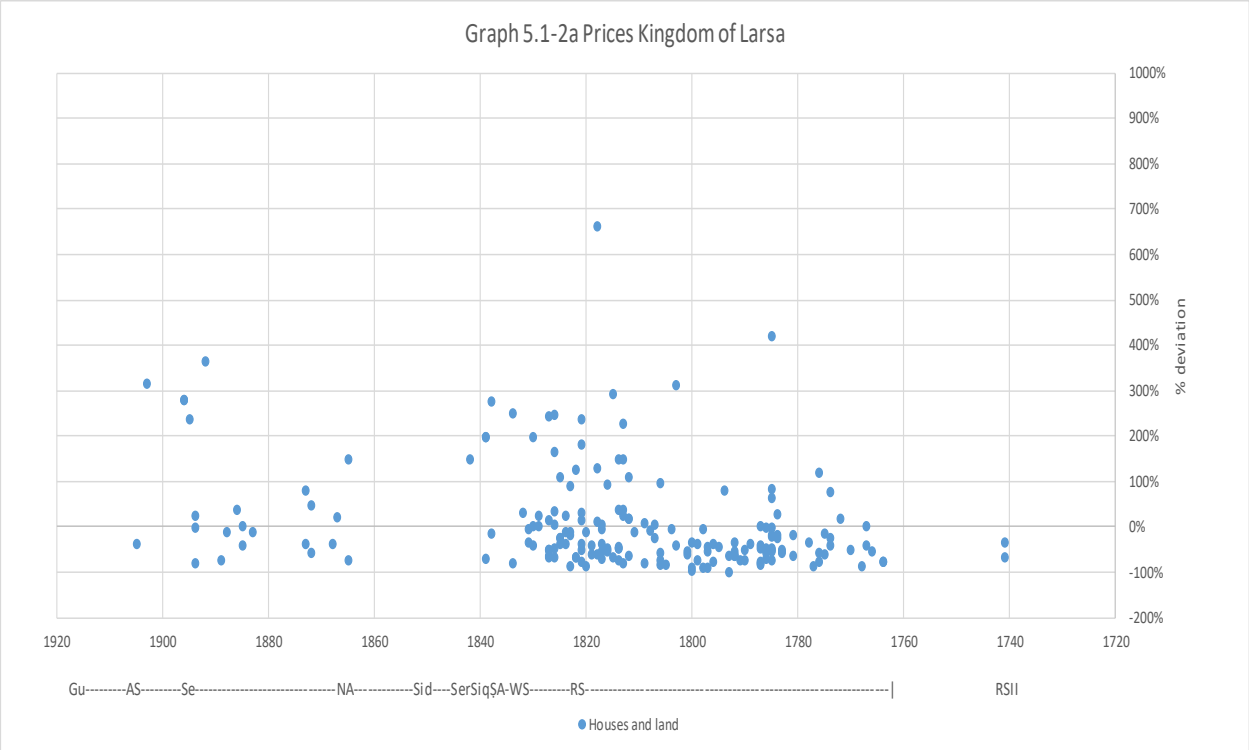
e. There are too few house rental contracts to draw conclusions.

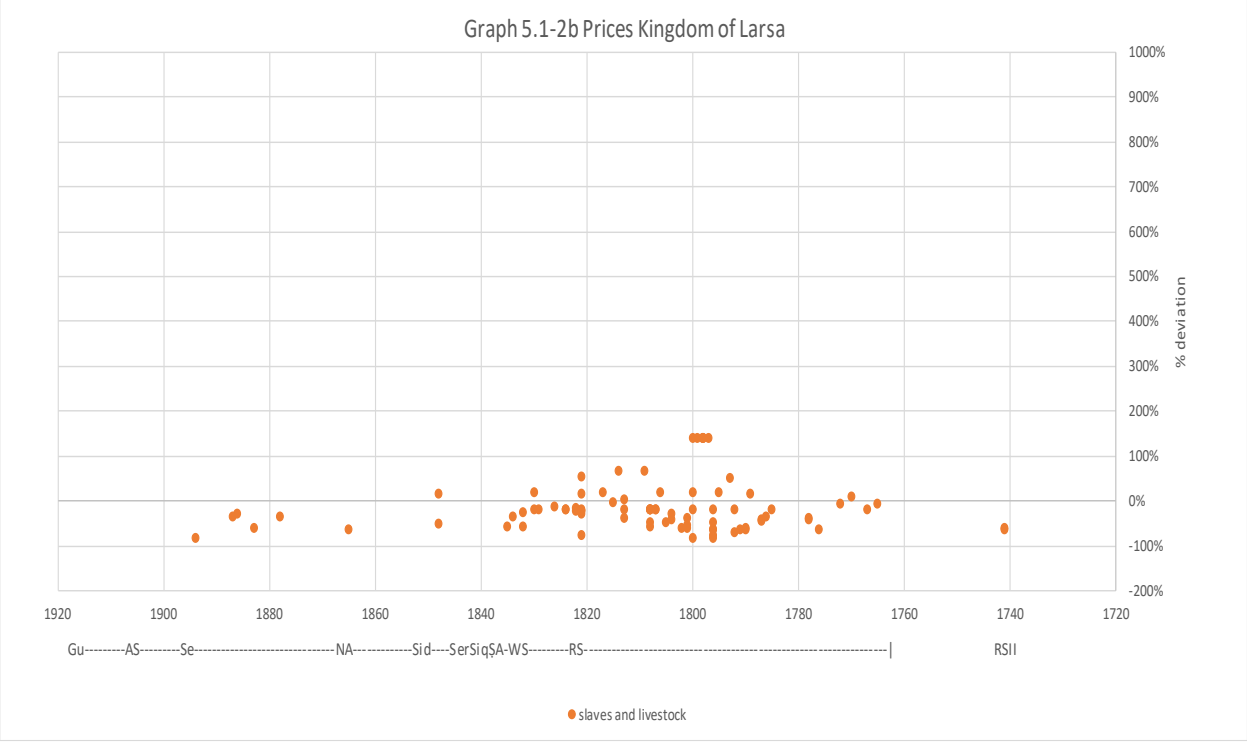
Evidence from the Kingdom of Larsa that field prices could have remained relatively stable from Rim-Sin year 28 (1795) to Samsu-iluna's sixth year (1744) comes from two related sales of the same 7 iku of meadowland (Ú.SAL), the first for 11.50 shekels and the second for 12.10 shekels, over fifty years later.[14]

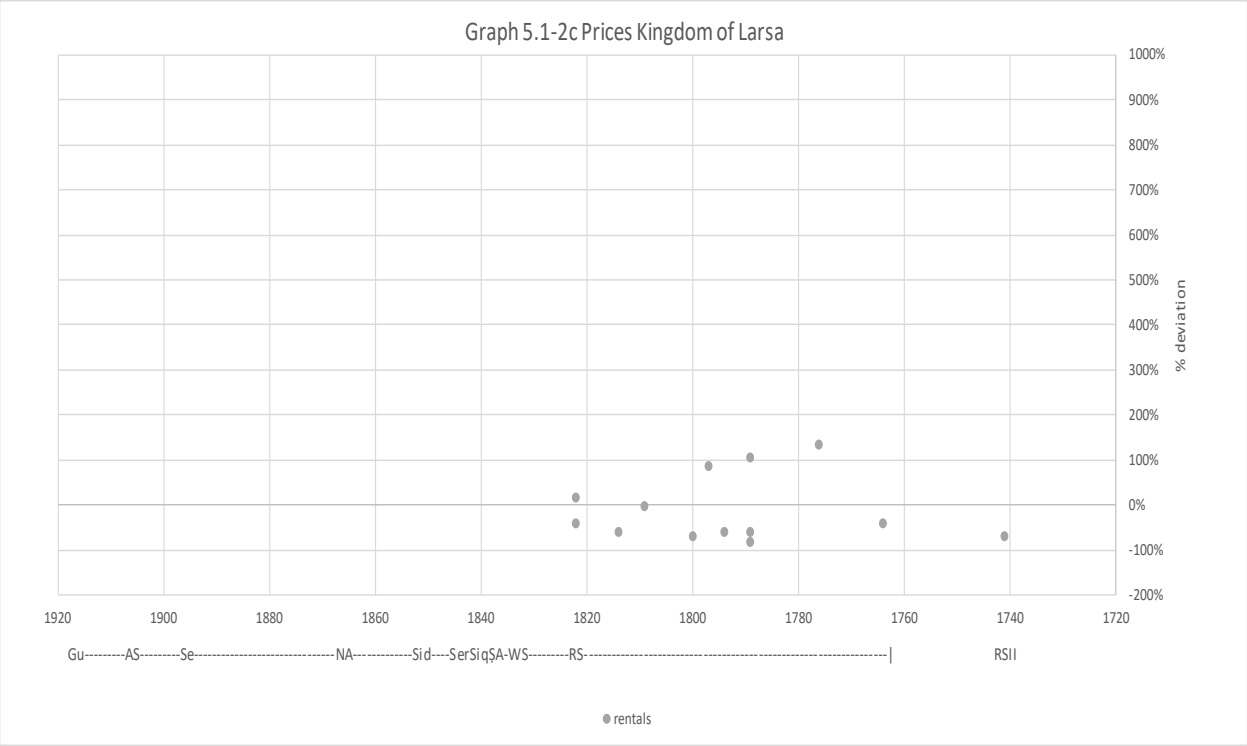
[13] Percentage deviation for commodities for Rim-Sin years 31-60 (446%) is inflated by two extremely high price equivalences for dates and sesame oil found in TCL 10, 94, dated RS 39 (1784). If these are excluded, percentage deviation for commodities for RS 31-60 is 0%.

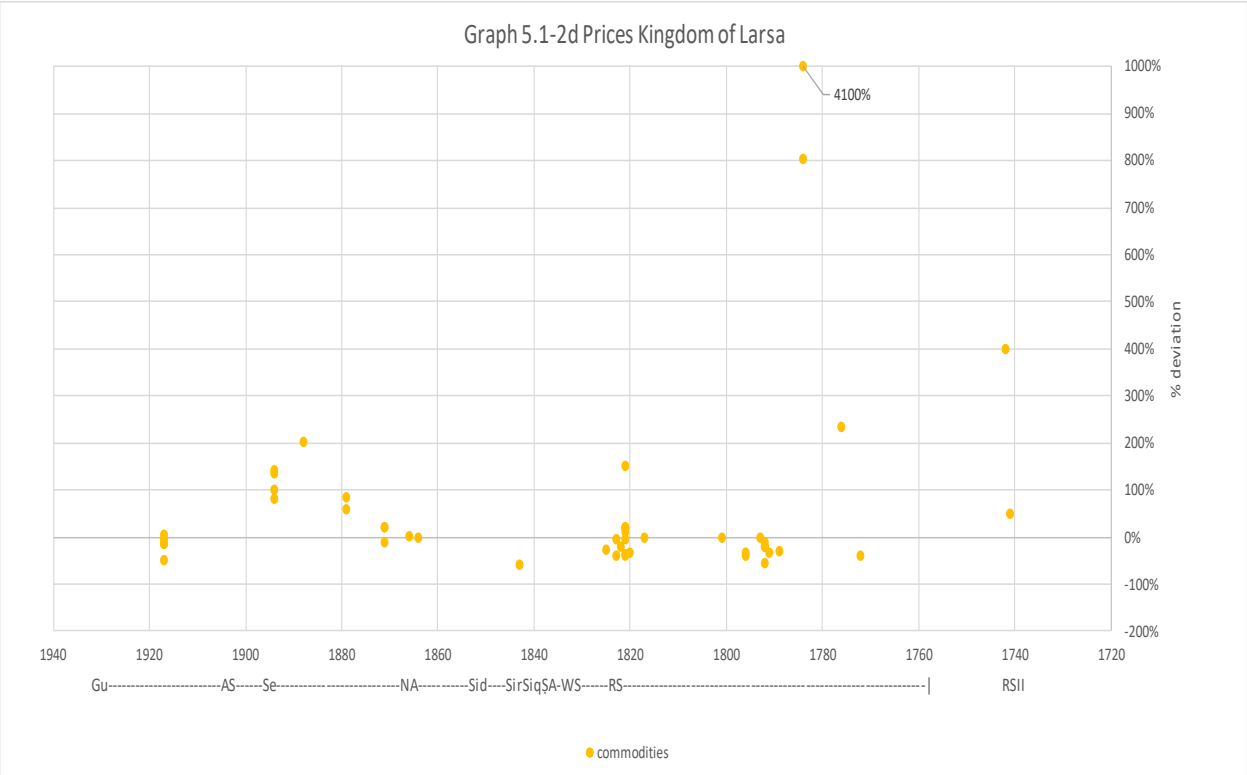
[14] First sale: Owen Mesopotamia 10/11, no. 26 excursus (p. 26-29). Second sale: Owen Mesopotamia 10/11, no. 26 (p. 10-14). The first sale for 11.50 shekels silver was dated in month vii; the second sale for 12.10 shekels silver was dated in month xii. The price differential is most likely due to barley's monthly price fluctuation discussed in section 3.1.3.1. Barley became more expensive in the months leading up to the next harvest because there was simply less of it.


Graph 5.1-2 Prices Kingdom of Larsa
% deviation
1000%
900%
800%
700%
600%
500%
400%
300%
200%
100%
0%
-100%
-200%
1720
1740
1760
1780
1800
1820
1840
1860
1880
1900
1920
1940
RSII
Gu----------AS-----Se----------NA----------Sid---SirSiqŠA-WS-----RS----------|
Houses and land
slaves and livestock
rentals
commodities


Graph 5.1-2a Prices Kingdom of Larsa
1000%
900%
800%
700%
600%
500%
400%
300%
200%
100%
0%
-100%
-200%
% deviation
1920
1900
1880
1860
1840
1820
1800
1780
1760
1740
1720
Gu---------AS---------Se----------NA----------Sid----SerSiqŞA-WS---------RS----------|
RSII
Houses and land


Graph 5.1-2b Prices Kingdom of Larsa
1000%
900%
800%
700%
600%
500%
400%
300%
200%
100%
0%
-100%
-200%
% deviation
1920
1900
1880
1860
1840
1820
1800
1780
1760
1740
1720
Gu---------AS---------Se----------NA----------Sid----SerSiqŞA-WS---------RS----------|
RSII
slaves and livestock


Graph 5.1-2c Prices Kingdom of Larsa
1000%
900%
800%
700%
600%
500%
400%
300%
200%
100%
0%
-100%
-200%
% deviation
1920
1900
1880
1860
1840
1820
1800
1780
1760
1740
1720
Gu--------AS--------Se----------NA----------Sid----SerSiqŞA-WS--------RS----------|
RSII
rentals


Graph 5.1-2d Prices Kingdom of Larsa
4100%
1000%
900%
800%
700%
600%
500%
400%
300%
200%
100%
0%
-100%
-200%
% deviation
1940
1920
1900
1880
1860
1840
1820
1800
1780
1760
1740
1720
Gu----------AS------Se----------NA----------Sid----SirSiqŞA-WS------RS----------|
RSII
commodities

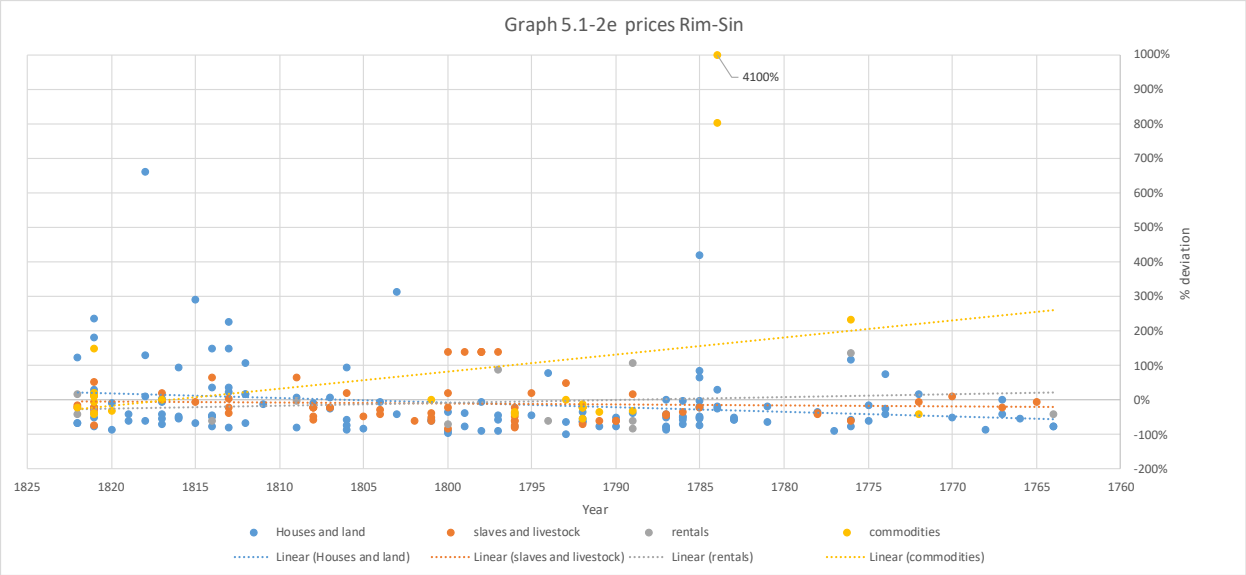

Graph 5.1-2e prices Rim-Sin
4100%
1000%
900%
800%
700%
600%
500%
400%
300%
200%
100%
0%
-100%
-200%
% deviation
1825
1820
1815
1810
1805
1800
1795
1790
1785
1780
1775
1770
1765
1760
Year
Houses and land
slaves and livestock
rentals
commodities
Linear (Houses and land)
Linear (slaves and livestock)
Linear (rentals)
Linear (commodities)

Table 5.1-2 Average % price deviation by ruler -- Kingdom of Larsa						
Ruler(s)	Date range	Avg. % price deviation	Count	Categories	Avg. % price deviation	Count
Gu/AS	1932-1895	89%	11			
				houses	278%	4
				land	-38%	1
				commodities	-16%	6
Se-Sid	1894-1843	19%	39			
				houses	30%	10
				land	0%	8
				slaves	-51%	6
				livestock	-17%	2
				commodities	60%	13
Sir-WS	1842-1823	21%	52			
				houses	47%	30
				land	1%	9
				slaves	-21%	9
				livestock	-57%	1
				commodities	-23%	3
RS 1-30	1822-1793	0%	147			
				houses	27%	52
				land	-50%	24
				slaves	11%	35
				livestock	-34%	14
				commodities	1%	15
				rentals	-19%	7
RS 31-60	1792-1763	32%	89			
				houses	-22%	25
				land	-33%	31
				slaves	-21%	9
				livestock	-45%	8
				commodities	446%	11
				rentals	11%	5

Table 5.1-2 Average % price deviation by ruler -- Kingdom of Larsa cont.						
RS II	1742-1741	22%	7			
				houses	-50%	2
				land		0
				slaves	-61%	2
				livestock		0
				commodities	225%	2
				rentals	-71%	1
Total			345			
All	1932-1741	7%	196	houses & land		
				houses	29%	123
				orchards	-31%	45
				fields	-31%	28
		-16%	86	slaves & livestock		
				slaves	-7%	61
				livestock	-37%	25
		120%	50	commodities		
				barley	84%	11
				oil	69%	12
				wool	-7%	17
				dates	4100%	1
				sesame	26%	9
		-11%	13	rentals		
				rentals	-11%	13
Total			345			

5.1.3 1st Dynasty of Isin

On Graph 5.1-3, percentage deviation for 57 price equivalences have been plotted. Every one of these is dated to a ruler of the 1st Dynasty of Isin. The categories have been placed into one of the aforementioned four groups. (There are no house rentals.) The same color coding scheme is used. Table 5.1-3 summarizes the data, incorporates texts from Isin dated under the Kingdom of Larsa (post Rim-Sin conquest) and the 1st Dynasty of Babylon, and gives average percentage price deviation per date range by category.

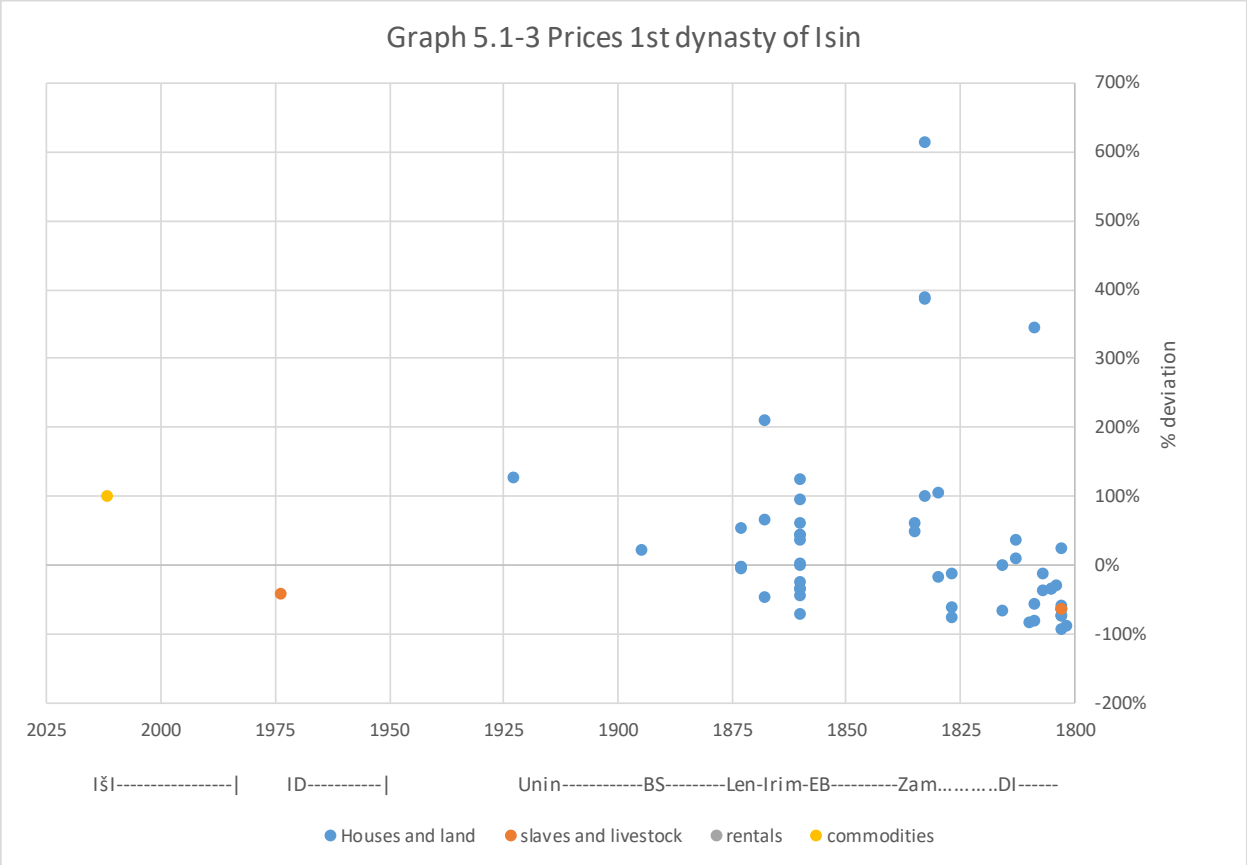


Table 5.1-3 Average % price deviation by ruler -- 1st Dynasty of Isin & post						
Ruler(s)	Date range	Avg. % price deviation	Count	Categories	Avg. % price deviation	Count
Išl-EB	2017-1837	28%	24			
				houses	17%	11
				land	40%	11
				livestock	-41%	1
				commodities	100%	1
Zam-Smag	1836-1817	140%	11			
				houses	105%	6
				land	182%	5
DI	1816-1794	-27%	22			
				houses	-30%	7
				land	-22%	14
				slaves	-64%	1
RS 30-60	1793-1763	-64%	5			
				houses	-72%	4
				land	-33%	1
Ha 31-43	1762-1750	-57%	2			
				houses	-57%	2
Si 1-16	1749-1734	-66%	4			
				houses	-60%	3
				land	-84%	1

The graph and table show that there was a sharp decline in the price of houses and land under Damiq-ilišu compared to his predecessors. If this is true, it parallels what we've seen for the Kingdom of Larsa and the 1st Dynasty of Babylon. This decline continued and possibly even accelerated after Isin was conquered by Rim-Sin and after the Kingdom of Larsa was conquered by Hammu-rabi.

5.1.4 Local dynasts

5.1.4.1 Kish/Damrum

Over 200 early Old Babylonian tablets from Kish or the vicinity of Kish from the so-called "Manana Dynasty" have been published.[15] Because they were unearthed through illicit excavations, their exact findspots are unknown. Seventy-one of these, bearing year names of local dynasts, were used for this study.

In his doctoral dissertation, *Amorites in the Old Babylonian Period*, Rients de Boer focused on Northern Babylonia during the early Old Babylonian period, ca. 2000-1800, the time when the Amorites established themselves in Babylonia. De Boer devoted considerable effort to determine the sequence of rulers of the city-states and kingdoms during this period and the inter-relationship between these rulers. In so doing, he built and expanded on the work of previous scholars.[16] The following remarks rely heavily on his work.

The aforementioned tablets date from approximately 1900 to 1845, the terminus being the end of the reign of Sumu-la-El. Most bear year names of "Manana Dynasty" rulers, whose seat of power was most likely Damrum[17] and who controlled Kish for much of the period. A handful bear year names of a local ruler of Kish named Jawium, one is dated under Sumu-ditana of Marad, six are dated under Sumu-abum[18] and two under Sumu-la-El. A few tablets bear unplaced year names.

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[15] This number excludes the tablets excavated by Genouillac from Tel Uhaimir in 1912. De Boer diss.: 96-97 defines the Manana dynasty texts as "a collection of private archives with some internal coherence" (p.97). He gives an overview of all the texts published to date. See also Goddeeris 2002: 251-252.
[16] Edzard 1957; Simmons 1959-1961; Charpin 1978-1980 (in RA 72, 73, and 74); Charpin 2004; and Goddeeris 2002. De Boer diss. chapters 5.3 and 7.3 discuss chronology. See also his Appendix to chapter 5 for a list of year names for the rulers of Kish/Damrum.
[17] First proposed by Charpin 2004: 89-90.
[18] These may, in fact, be dated under Manana. See de Boer 2018: 55-57.

The bulk of the tablets are sales, loans, and field rentals. Of the sales, most are sales of land (fields or orchards), houses, and slaves. These tablets were once part of private archives, and several large archives can be reconstructed from their contents.[19] That makes them an invaluable source for helping us understand prices in the early OB period.

For the discussion of prices, the sources have been subdivided chronologically into four groups, based on the sequence of rulers proposed by de Boer. Unfortunately, it's neither possible to establish absolute dates for each ruler nor even the sequence of a ruler's year names. Hence, it's not possible to graph percentage deviation over time. A fifth group (texts bearing year names of Sumu-abum or Sumu-la-El) has been included for comparative purposes. The groups are as follows:

1) Texts dated to rulers preceding Manana (no shared oaths) – Sumu-ditana,[20] Naqimum, Abdi-Erah, Ahi-maraṣ
2) Texts dated to rulers preceding and overlapping Manana (shared oaths) – Jawium, Halijum
3) Texts dated to Manana
4) Texts dated to rulers after Manana -- Sumu-jamutbal
5) Texts dated to rulers of (or associated with) the 1st Dynasty of Babylon – (Sumu-abum), Sumu-la-El

Table 5.1-4 summarizes the data. A key takeaway from the table is the difference in land prices between the reigns of Manana and Sumu-jamutbal on the one hand, and the reigns of

[19] Goddeeris 2002: 260-295.

[20] Sumu-ditana of Marad apparently controlled Kish for a short time. RA 52/4, 4:217 is dated with his year date. It records the sale of an orchard by Adidum to Sin-iddinam (name restored), who is attested in a number of texts from Kish or its vicinity. The restoration of the purchaser's name is based on the following: Adidum also sells individual date palm trees to Sin-iddinam in RA 52/4, 8:222, 9:225, and 10:225. Some of the same witnesses that appear in these texts are also witnesses in RA 52/4, 4:217.

Manana's predecessors on the other. The 26 sales of land dated under Manana sold at an average price of 26% above their respective baselines. The 6 sales of land dated under Sumu-jamutbal, who ruled after Manana, sold at an average price of 75% above their baselines. Contrast this with the 10 land sales under Manana's predecessors – Sumu-ditana, Naqimum, Abdi-Erah, and Ahi-maraṣ – which averaged 7% below their respective baselines; and the 11 land sales under Jawium and Halijum, which averaged 30% below their respective baselines.

Looking closer at these land sales, all eight sales dated under Halijum have per iku prices that are below their baseline. Two of three sales under Jawium have per iku prices that are below their baseline. Seven of nine sales under Naqimum, Abdi-Erah, and Ahi-maraṣ have per iku prices that are below their baseline. These indicate that land was selling cheaply. At some point in the reign of Manana, prices must have risen. Eleven of twenty-six land sales under Manana have per iku prices that are above their baseline. And three of six land sales under Sumu-jamutbal have per iku prices above their baseline.

Table 5.1-4 Average % price deviation by ruler – Kish and vicinity						
Ruler(s)	Date range	Avg. % price deviation	Count	Categories	Avg. % price deviation	Count
Local Dynasts						
Sumd, Naq, Abd, Ahim	till 1876	-17%	13			
				houses	-71%	1
				land	-7%	10
				slaves	-42%	2
				commodities		0
Jaw, Hal	till 1870	-17%	19			
				houses	14%	4
				land	-30%	11
				slaves (children)	-43%	2
				commodities	20%	2
Man	till 1860	15%	32			
				houses	-54%	4
				land	26%	26
				slaves	-10%	2
				commodities		0
Sumj	till 1849	77%	7			
				houses	88%	1
				land	75%	6
				slaves		0
				commodities		0
Total			71			

Table 5.1-4 Average % price deviation by ruler – Kish and vicinity cont.						
1st Dynasty Babylon and Suab						
(Suab)	1894-1881	0%	6			
				houses	-88%	1
				land	30%	4
				slaves	-36%	1
				commodities		0
Sl	1880-1845	-63%	2			
				houses	-71%	1
				land		0
				slaves	-56%	1
				commodities		0

As part of my analysis, I examined land sales from the three biggest archives: Šumšunu-watar, Sin-iddinam, and Ṣissu-nawrat, hoping that they might reveal at what point land prices increased. One way to address the issue is to ask whether there was a correlation between a year date and the number of land sales above or below the mean land price (percentage price deviation greater than zero or less than zero). Unfortunately, examination of tables 5.1-5, 5.1-6, and 5.1-7, which list all the relevant land sales, does not reveal such a correlation. All three buyers purchased land at prices that were sometimes above and sometimes below the baseline price.

Another interesting observation comes from taking a closer look at the slave sales on Table 5.1-4, where one is struck by the number of children sold into slavery by their parents. Out of a total of six slave sales dated under local dynasts, four are sales of children, and one is an adult self-sale (who later sold his children). Parents selling their children is a "sure sign" of

economic distress. And, not surprisingly, the purchasers are Sin-iddinam in three sales and Ṣissu-nawrat in another.

Table 5.1-5 Land sales -- Šumšunu-watar					
Text	Ruler	Year	**% price deviation ≤0**	Seller	Buyer
RA 8 p. 78-79 no. 7	LD-Hal	c	-55%	Bunu-balum, son of Ṣibarum	Šumšunu-watar, son of Gubbani-idug
YOS 14, 110	LD-Man	2	-22%	Kudanum	Šumšunu-watar
RA 8 p. 76-78 no. 6	LD-Man	d	-70% to -9%	Hinaja, son of Uraš-rabi	Šumšunu-watar
de Boer diss. p. 444	LD-Man	e	-39%	Salala, son of Pallum	Šumšunu-watar
de Boer diss. p. 445	LD-Man	f	-85%	Etellum, (son of Halijum- seal)	Šumšunu-watar

Text	Ruler	Year	**% price deviation >0**	Seller	Buyer
OECT 13, 286	LD-Man	broken	148-809%	Kabisum/Kapiṣum, son of Damerum	Šumšunu-watar, son of Gubbani-idug
PSBA 33, 15 (=Dalley Edinburgh 57)	LD-Man	d	18%	Išme-Sin, (son of Ananum - seal)	Šumšunu-watar

Table 5.1-6 Land sales – Sin-iddinam					
Text	Ruler	Year	**% price deviation ≤0**	Seller	Buyer
RA 52/4, 2:215	LD-Naq	c	-20%	Jakum, son of Nagisanum	Sin-iddinam
RA 52/4, 7:221	LD-Hal	f	-9%	Bajarah, (son of Kunija - seal)	Sin-iddinam
RA 53/2 16:86	LD-Hal	i	-15%	Birbirum, son of Dinikmum	Sin-iddinam, son of Salija (wr.: sà-lí!-ia)
RA 72/2, 42:140 and case	LD-Man?		-9%	Ila-ahtan, (son of Amur-El - seal)	Sin-iddinam

Text	Ruler	Year	**% price deviation >0**	Seller	Buyer
RA 52/4, 4:217	LD-Sumd	h	98%	Adidum, (son of Ha-zi-za-[x] - seal in RA 52/4, 8:222)	[Sin-iddinam]
RA 72/2, 43:143 and case	LD-Abd	1	14%	Sin-riš, Šimat-Sin, Iși-gatar, sons of Gadibum	Sin-iddinam, son of Salija
RA 52/4, 5:219	LD-Ahim	1	82%	Jakum, son of Nagisanum, and Jatar-El, his son	Sin-iddinam
YOS 14, 83 and case	LD-Man	d	73%	Ibni-Sin, son of Šu-Ilabrat	Sin-iddinam

Table 5.1-7 Land sales – Ṣissu-nawrat					
Text	Ruler	Year	**% price deviation ≤0**	Seller	Buyer
de Boer diss. p. 446-447	LD-Jaw	c	-41%	Šeret-Sin, son of Nukkurum	Ṣissu-nawrat
RA 8 p. 72-73 no. 3	LD-Jaw	h	-9%	Mani-El	Ṣissu-nawrat
PSBA 33, 4 (=Dalley Edinburgh 39)	LD-Abd	1	-9%	Ahi-din and Dulluqum, sons of Helhellum	Ṣissu-nawrat
PSBA 33, 17 (=Dalley Edinburgh 59)	LD-Man	d	-39%	Ili-halum, son of Šu-Anum	Ṣissu-nawrat

Text	Ruler	Year	**% price deviation >0**	Seller	Buyer
YOS 14, 111	LD-Jaw	d	9%	Uqa-El, son of Bananum, and Sin-šemi, son of Uqa-El,	Ṣissu-nawrat
PSBA 33, 31 (=Dalley Edinburgh 43)	LD-Man	d	9%	Nur-Kabta, son of Zizanum	Ṣissu-nawrat

To summarize: The economic situation in Kish and the surrounding territory at the time of the Manana dynasty was not good. Wealthy landowners like Šumšunu-watar, Sin-iddinam, and Ṣissu-nawrat were accumulating land, compelling those in debt to sell their land at "below market" prices, and even to sell their children. Section 2.1 gave several examples of forced land sales, one involving Sin-iddinam. Section 2.1 also showed that, while there may have been some

attempt by some rulers to restrict land sales, unscrupulous buyers such as Dadušme-El managed to find a way to circumvent the system (see Table 1.2-6). At some point during the reign of Manana, economic conditions may have improved. Land prices increased, the evidence being that almost half the land sales dated to his reign were sold at prices above their baseline. And the trend seems to have continued under Sumu-jamutbal. While there is no indication that Manana ever declared a *ṣimdatum* or "debt remission," two sales refer to a *ṣimdatum* that Sumu-la-El and Sumu-jamutbal jointly declared.[21]

5.1.4.2 Sippar

As was the case with Kish, Sippar in the early OB period was ruled by local dynasts until sometime during the reign of Sumu-la-El.[22] A considerable number of real estate sales from Sippar bear either year names or oaths sworn in the names of these local dynasts[23] as well as year names of Sumu-la-El and his successors.[24] But whereas it was customary at Kish to record the sales price of real estate, that was not the case at Sippar, where the contracts stated only that "silver was paid," a practice which persisted until the reign of Sin-muballiṭ. Only two land sales[25] dated to Immerum, and one slave sale[26] with an oath sworn on Buntahtun-El state a price.

[21] RA 52/4, 3:217 and OECT 8, 3. According to de Boer diss., p. 246 and 264, this was declared in Sl 24 (1857). See Kraus 1984: 53 for other references to a *ṣimdatum* declared by Sumu-la-El.
[22] Sumu-la-El year 29 (1852) commemorates building the wall of Sippar. It's likely that he had taken full control of the city by that date.
[23] Ilum-ma-ila, Ammi-ṣura, Immerum, and Buntahtun-El. See de Boer, diss.: 116-132.
[24] See Goddeeris 2002: 44-99 for a summary of these sales.
[25] BE 6/1, 3 and MHET 2/1, 10.
[26] Édubba7, 118

In addition, one loan,[27] also dated to Immerum, gives us insight into the value of land in early OB Sippar.

Waterman Bus. Doc. 37 is an interesting text. Couched as a loan, it seems more like a sale in many respects. KA-Nanna loans Warad-Sin 33 shekels silver and receives a field of 2 ½ iku of equal value (as collateral). The contract specifically states that the field Warad-Sin gave KA-Nanna is the equivalent of the silver borrowed.[28] At harvest time, Warad-Sin will deliver 3 1/3 gur barley to KA-Nanna, which works out to a rent (my assumption) of 24 gur/bur. Per the contract terms, if he does not deliver the barley, KA-Nanna takes the field and cultivates it.

The "price," (loan amount) of 33 shekels is 140% above the baseline price of 5.50 shekels per iku in Table 5.0-1. It is comparable in price to the other two field sales with prices dated to Immerum.[29]

As a result of the contract, Warad-Sin essentially loses his land and becomes a tenant of KA-Nanna.[30] Judging by the rental rate 24 gur/bur, this was a productive parcel. Sippar field rentals from the early OB period specify rents of 12-20 gur per bur of land.[31]

To summarize: Like Kish, Sippar experienced a burst of real estate sales in the early OB period. The two sales with prices and one loan suggest that fields in Sippar during this period were expensive, which is in-line with what we saw for land prices prior to Hammu-rabi.

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[27] Waterman Bus. Doc. 37.
[28] Line 12: A.ŠÀ *ù* KÙ.BABBAR *i-ta-ṭà-lu* "the field and silver are of equal value." CAD N/2 p. 127 mng. 8.
[29] BE 6/1, 3 (sale of 12 iku field for 200 shekels – 203% above baseline). MHET 2/1, 10 (sale of 11 iku field for 182.33 shekels – 201% above baseline).
[30] Rev. lines 3-5 cited CAD E p. 288. Rev. lines 5-7 seems to indicate there is another tablet dealing with the payment of the loan, leading me to suspect that this was a "forced sale."
[31] See Goddeeris 2002: 100-104.

5.2 Wages

5.2.1 1st Dynasty of Babylon

Wages are a tricky matter to interpret, even more so trying to identify long term fluctuation in wages. Section 4.2 discussed the difficulties in dealing with wages: insufficient data, the data's uneven chronological distribution, and an inability to identify all of the factors that went into determining a person's wage. Looking at the data holistically, which one must do to identify long term fluctuations in wages, poses an additional challenge.

The methodology I chose was to compare wages paid against a baseline wage. The baseline or "fair" wage -- one shekel silver or 1 gur barley per month (based on the Hammu-rabi and Ešnunna law codes) -- was used to calculate the percentage wage deviation (from baseline) for each source (wages paid at the "fair" wage equaled 0% deviation.) To calculate an average percentage wage deviation for a range of years or for a ruler's reign, all the individual percentage wage deviations that fell within that time period were averaged.

It's safe to assume that a "fair" wage applied only to independent (free) labor. Because slaves and children tended to receive lower wages, their percentage wage deviation usually ended up being more negative than independent labor. The mix of sources for wages paid for independent labor, slaves, and children differed for each time period. Hence, the more contracts of hire there were for children and slaves versus contracts for independent labor, the more likely the average percentage deviation was skewed to the negative. For example, in Samsu-iluna years 1-11, there are 26 contracts of hire for slaves and children compared to only 7 contracts for independent and client labor (Table 5.2-1). The average percentage wage deviation is -48% for those years. While I consider the percentage wage deviation to be directionally correct, that particular mix probably resulted in the degree of deviation being overly negative.

The preferred (more accurate) approach would have been to compute three distinct averages for each ruler or range of years -- average wage for independent labor hired per day, month, or year -- and do the same for slaves, children, and client labor (that is, 12 averages in total). Averages for each category would then be compared between rulers or year ranges to reveal long term fluctuations in wages. As is apparent from Table 4.2-7, there is not nearly enough data to do so.

Table 5.2-1 and graphs 5.2-1 and 5.2-2 attempt to come to grips with the matter. Table 5.2-1 breaks down the data by ruler and by worker status.[32] Graph 5.2-1 plots 115 attestations of wage rates to show percentage deviation of wages paid for hired labor over time. Finally, Graph 5.2-2 shows average percentage deviation by ruler and by worker status.

The reader is cautioned that, in light of the above comments, the following conclusions are preliminary at best:

1) Wages for dependent workers were generally less than wages for independent workers. Wages for dependent workers also show more variation than wages for independent workers, likely because Graph 5.2-1 lumps together dependent male and female slaves, children, and dependent clients (who may or may not have been free workers).

2) Judging from Graph 5.2-1, independent workers tended to be paid wages at a rate closer to the baseline wage compared with dependent workers.

3) Wage spikes on Graph 5.2-1 are due in part because harvest workers were generally paid more, regardless of their status (independent, dependent, client).[33]

4) Wages on average were lowest during the first ten years of Samsu-iluna. This is supported by Table 5.2-1 and Graph 5.2-2, where all four categories of workers have a negative percentage deviation from the baseline wage, averaging -48% across all four.

5) Wages on average were the highest under Abi-ešuh and the early years of Ammi-ditana.

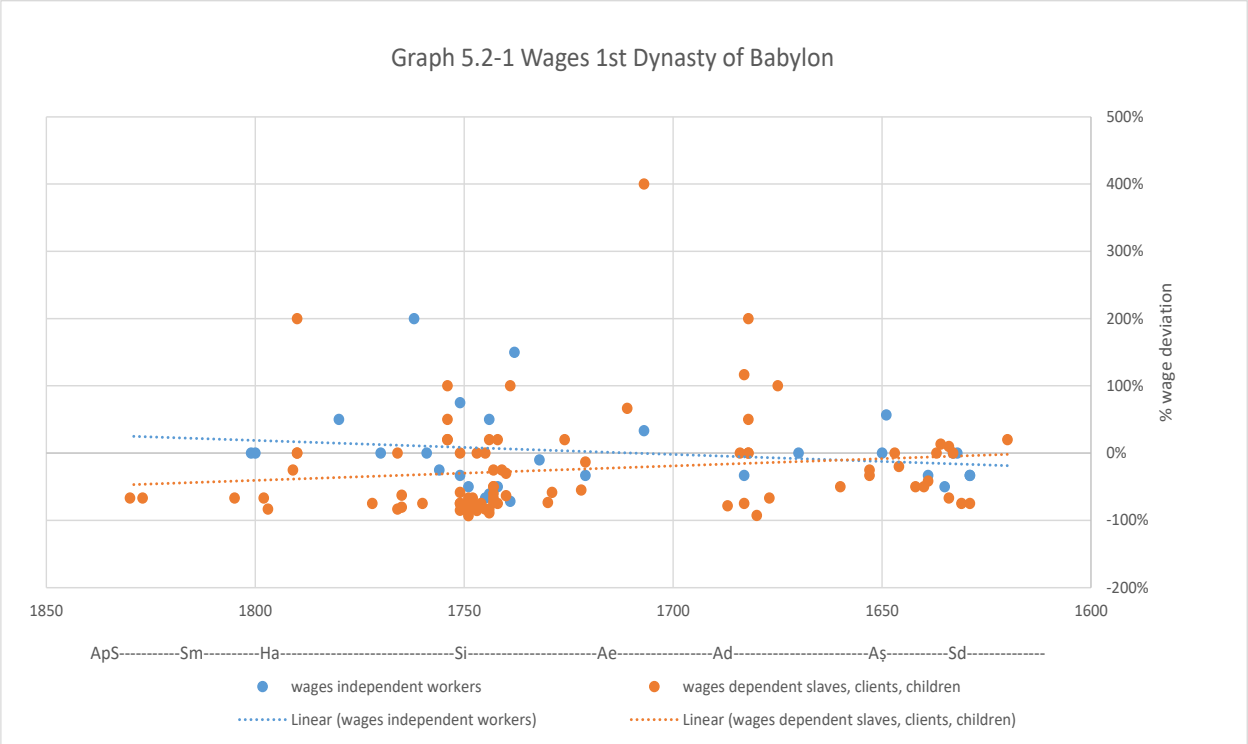
[32] Table 5.2-1 and graph 5.2-2 exclude JEOL 25, 45-46 (summary of a judgement to compensate Sin-imguranni for 10 days of unspecified service related to the harvest). Both graphs and the table exclude unpub. BM 81142 (contract of hire with unknown worker status). The unpublished letter A 3529 (dated Si 10-20) is grouped under Si 12-38.
[33] See also Table 4.2-9.

6) Wages appear to have been declining during Hammu-rabi's final thirteen years.

7) Wages in the second half of Ammi-ditana's reign were also possibly declining.

8) Wages on average under Ammi-ṣaduqa were higher than under the first ten years of Samsu-iluna.

9) There are only seven sources for wages prior to the reign of Hammu-rabi and one source for the reign of Samsu-ditana. No conclusions can be drawn from these.



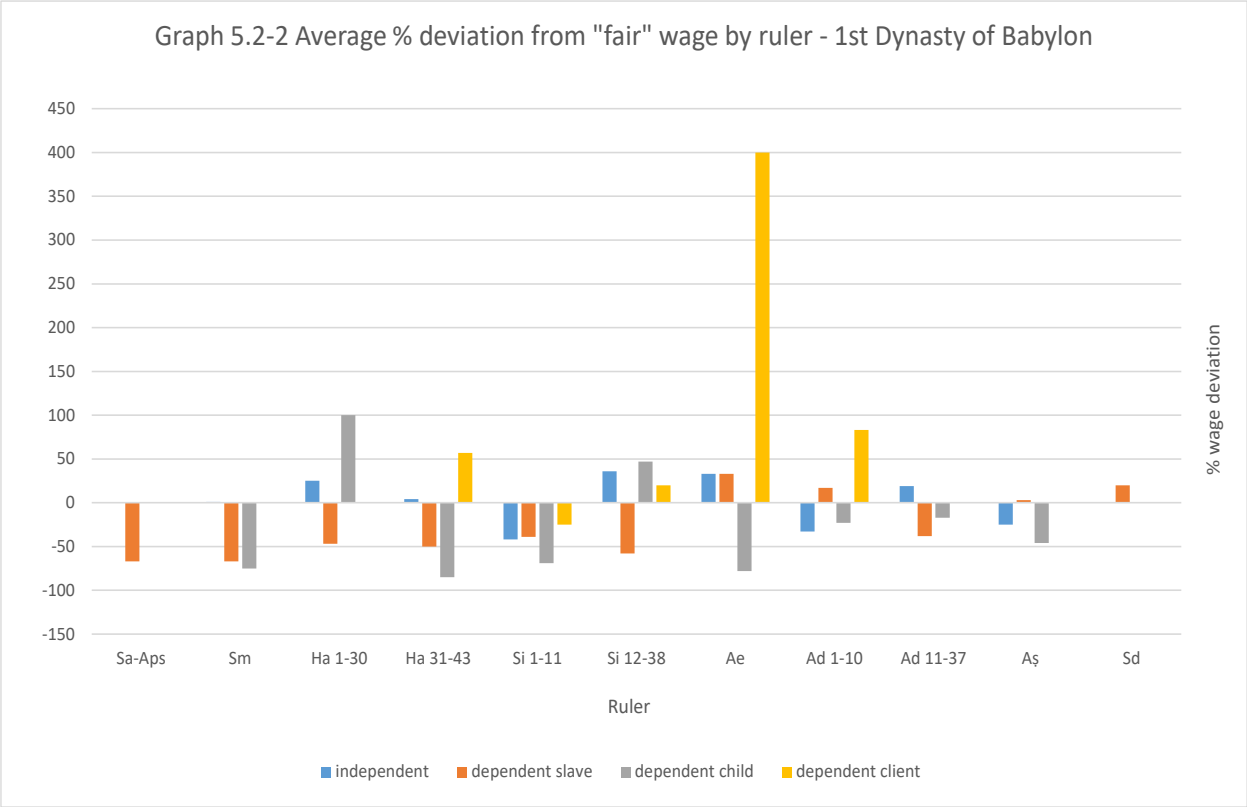

Graph 5.2-2 Average % deviation from "fair" wage by ruler - 1st Dynasty of Babylon
450
400
350
300
250
200
150
100
50
0
-50
-100
-150
% wage deviation
Sa-Aps
Sm
Ha 1-30
Ha 31-43
Si 1-11
Si 12-38
Ae
Ad 1-10
Ad 11-37
Aş
Sd
Ruler
independent
dependent slave
dependent child
dependent client

Table 5.2-1 Average % wage deviation from "fair" wage by ruler -- 1st Dynasty of Babylon						
Ruler(s)	Date range	Avg. % wage deviation	Count	Worker status	Avg. % wage deviation	Count
Sa-ApS	1844-1813	-67%	2			
				independent		0
				dependent slave	-67%	2
				dependent child		0
				dependent client		0
Sm	1812-1793	-43%	5			
				independent	0%	2
				dependent slave	-67%	1
				dependent child	-75%	2
				dependent client		0
Ha 1-30	1792-1763	-7%	11			
				independent	25%	2
				dependent slave	-47%	7
				dependent child	100%	2
				dependent client		0
Ha 31-43	1762-1750	-16%	15			
				independent	4%	4
				dependent slave	-50%	7
				dependent child	-85%	1
				dependent client	57%	3
Si 1-11	1749-1739	-48%	33			
				independent	-42%	6
				dependent slave	-39%	16
				dependent child	-69%	10
				dependent client	-25%	1
Si 12-38	1738-1712	-9%	8			
				independent	36%	3
				dependent slave	-58%	1
				dependent child	47%	3
				dependent client	20%	1
Ae (all)	1711-1684	84%	5			
				independent	33%	1
				dependent slave	33%	2
				dependent child	-78%	1
				dependent client	400%	1

Table 5.2-1 Average % wage deviation from "fair" wage by ruler -- 1st Dynasty of Babylon cont.						
Ad 1-10	1683-1674	20%	10			
				independent	-33%	1
				dependent slave	17%	3
				dependent child	-23%	3
				dependent client	83%	3
Ad 11-37	1673-1647	-7%	7			
				independent	19%	3
				dependent slave	-38%	2
				dependent child	-17%	2
				dependent client		0
Aṣ	1646-1626	-30%	17			
				independent	-25%	6
				dependent slave	3%	3
				dependent child	-46%	8
				dependent client		0
Sd	1625-1595	20%	1			
				independent		0
				dependent slave	20%	1
				dependent child		0
				dependent client		0

All	1894-1595	-21%	114			
				independent	-6%	28
				dependent slave	-33%	45
				dependent child	-44%	32
				dependent client	91%	9
Total			114			

5.2.2 Kingdom of Larsa

Graph 5.2-3 plots 25 attestations of wage rates to show percentage deviation of wages paid for hired labor over time. Table 5.2-2 breaks down the data by ruler and by worker status. Wages paid during the reign of Rim-Sin seem to have been slightly lower than wages paid during Hammu-rabi's last thirteen years. Nineteen of the 22 two sources of wages dated to Rim-Sin come from his last thirty years.

Apart from the reign of Rim-Sin, there are only three sources of wages dated under other rulers, not enough data to draw conclusions.

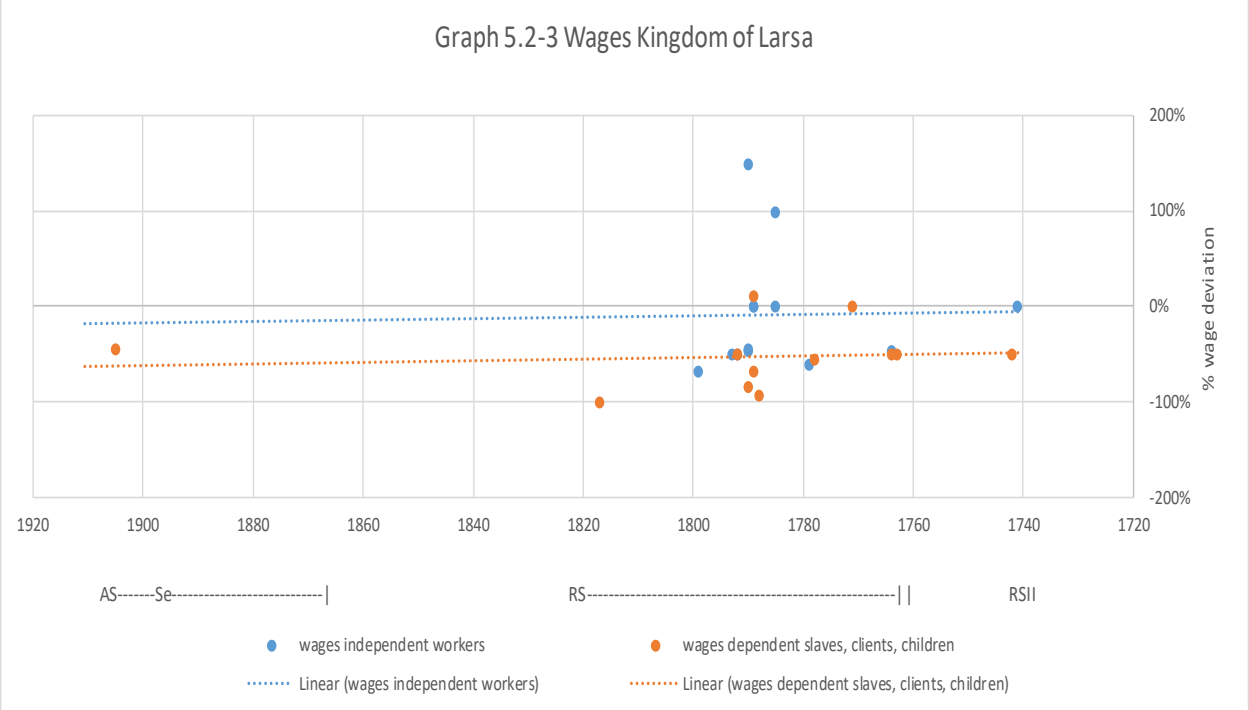


Table 5.2-2 Average % wage deviation from “fair” wage by ruler -- Kingdom of Larsa						
Ruler(s)	Date range	Avg. % wage deviation	Count	Worker status	Avg. % wage deviation	Count
AS/Se	1905-1866	-45%	1			
				independent		0
				dependent slave	-45%	1
				dependent child		0
				dependent client		0
RS 1-30	1822-1793	-72%	3			
				independent	-58%	2
				dependent slave	-99%	1
				dependent child		0
				dependent client		0
RS 31-60	1792-1763	-23%	19			
				independent	0%	10
				dependent slave	-59%	5
				dependent child	-50%	2
				dependent client	-19%	2
RS II	1742-1741	-25%	2			
				independent	0%	1
				dependent slave		0
				dependent child	-50%	1
				dependent client		0
Total			25			

5.3 Price and wage comparison – 1st Dynasty of Babylon and Kingdom of Larsa

Comparing prices and wages between northern (1st Dynasty of Babylon) and southern Babylonia (Kingdom of Larsa) is a difficult undertaking. First, the two kingdoms spanned different time periods. The 1st dynasty of Babylon endured till 1595. The Kingdom of Larsa came to an end in 1762, more than 150 years earlier. Second, prior to the reigns of Hammu-rabi of Babylon and Warad-Sin of Larsa, only houses and land have sufficient data for a meaningful price comparison. Third, even the reigns of Rim-Sin, Hammu-rabi and Samsu-iluna, which have the richest documentation, have minimal or no data for some categories.

Table 5.3-1 shows the results of the comparison. The time periods were chosen to correspond as closely as possible to rulers in the two kingdoms that were contemporaries. For each time period, the average percentage price deviation of all price categories is given for each kingdom as well as for matching (color-coded) categories. Prices and wages are also compared for the brief period of time north and south were unified -- from Hammurabi's capture of Larsa through Samsu-iluna's eleventh year (1762-1739), when Babylon lost control of the south.

The following observations can be made:

1) From Sumu-El though Warad-Sin, houses were more expensive in the south than in the north. However, over the course of the reign of Rim-Sin, house prices in the south dropped, and the reverse became true. The trend continued under Hammu-rabi and Samsu-iluna.
2) Overall, land tended to be cheaper in the south than in the north. This is most apparent during the reign of Rim-Sin. The number of land sales in both the north and south declined after Hammu-rabi's conquest of Larsa.
3) Prices for slaves were lower in the south until Hammu-rabi's conquest of Larsa. Thereafter, through Samsu-iluna year 11, slave prices between north and south were comparable.
4) There are no livestock price equivalences from northern Babylonia for the period covered by the table to do a price comparison.

5) Commodity prices reached their lowest levels in both north and south during Samsu-iluna years 1-11, the only period where we have sufficient data for a comparison.

6) During Rim-Sin years 31-60 (=Hammu-rabi years 1-30), house rentals were more expensive in the south than in the north. After Hammu-rabi's conquest of the south, house rental rates in the south must have declined sharply as evidenced by the six rentals dated Si 1-11, which averaged 52% below their baseline. At the same time, house rental rates in the north also declined, but less dramatically. Note that the decline in house rental rates in the south is coincident with the drop in house prices.

7) Wages for independent workers may have been slightly higher in the north than in the south.

    a. Wages for independent workers during the reign of Rim-Sin averaged 9% below the baseline (12 sources). Wages for independent workers for Hammu-rabi's last thirteen years averaged 4% above the baseline (4 sources).

    b. Wages for independent workers in the north during Samsu-iluna's first eleven years averaged 36% below the baseline (5 sources), lower than under Hammu-rabi or Rim-Sin. I hesitate to draw conclusions from the sole contract of hire from the south for independent labor (wage 72% below the baseline).

8) Seven price equivalences and one contract of hire for independent labor dated to the reign of Rim-Sin II are too few to draw any conclusions concerning prices and wages during his short reign.[34]

[34] Cf., Charpin 2007: 157-161 (cited above in 5.1.2) who concluded that there was famine in the south under Rim-Sin II, based on 25 texts in OECT 15 from his reign.

Table 5.3-1 Price and wage comparison - north versus south					
	North[35]			South[36]	
				Gu-AS 1932-1895	
Category	Avg. % price dev.	Count		Avg. % price dev.	Count
All				89%	11
prices houses				278%	4
land				-38%	1
slaves					0
livestock					0
commodities				-16%	6
rentals					0
wages (indep.)					0
	(Suab), Sl 1894-1845			Se-Sid 1894-1843	
Category	Avg. % price deviation	Count		Avg. % price deviation	Count
All	31%	18		19%	39
Matching	31%	18		0%	24
prices houses	-19%	4		30%	10
land	67%	11		0%	8
slaves	-34%	3		-51%	6
livestock		0		-17%	2
commodities		0		60%	13
rentals		0			0
wages (indep.)		0			0
	Sa-ApS 1844-1813			Sir-WS 1842-1823	
Category	Avg. % price deviation	Count		Avg. % price deviation	Count
All	-14%	14		21%	52
Matching	-16%	12		26%	48
prices houses	-42%	3		47%	30
land	5%	4		1%	9[37]
slaves	-12%	2		-21%	9
livestock		0		-57%	1
commodities		0		-23%	3
rentals	-81%	1			0
wages (indep.)		0			0

[35] The north includes Sippar/ed-Dēr, Dilbat, Kish, Babylon, and Lagaba.
[36] The south includes Ur, Larsa, Kutalla, Nippur and Isin.
[37] Exclude from south YOS 5, 122 (sale of kislah 500 shekels per iku).

Table 5.3-1 Price and wage comparison - north versus south cont.					
	Sm 1812-1793			RS 1-30 1822-1793	
Category	Avg. % price deviation	Count		Avg. % price deviation	Count
All	9%	14		0%	147
Matching	9%	14		6%	111
prices houses	53%	6		27%	52
land	-32%	7		-50%	24
slaves	33%	1		11%	35[38]
livestock		0		-34%	14
commodities		0		1%	15
rentals		0		-19%	7
wages (indep.)	0%	2		-58%	2
	Ha 1-30 1792-1763			RS 31-60 1792-1763	
Category	Avg. % price deviation	Count		Avg. % price deviation	Count
All	2%	65		32%	89[39]
Matching	2%	65		-25%	70
prices houses	-3%	29		-22%	25
land	14%	20		-33%	31
slaves	-3%	6		-21%	9
livestock		0		-45%	8
commodities		0		446%	11[40]
rentals	-7%	10		11%	5
wages (indep.)	25%	2		0%	10
	Ha 31-43 1762-1750			Ha 31-43 1762-1750	
Category	Avg. % price dev.	Count		Avg. % price dev.	Count
All[41]	15%	36		-27%	43
Matching	15%	36		-26%	42
prices houses	24%	10		-38%	17
land	-1%	4		-60%	2
slaves	-35%	5		-32%	3
livestock		0		-60%	1
commodities	-20%	2		-12%	17
rentals	34%	15		-36%	1
wages (indep.)	4%	4		200%	1[42]

[38] South includes guarantees.
[39] South includes TCL 10, 94 (RS 39); without: avg. % price deviation= -24%, count=87.
[40] South includes TCL 10, 94; without TCL 10, 94: avg. % price deviation=0%, count=9.
[41] Excludes undetermined provenience.
[42] South includes JEOL 25, 45-46 (judgement).

Table 5.3-1 Price and wage comparison - north versus south cont.					
	Si 1-11 1749-1739			Si 1-11 1749-1739	
Category	Avg. % price deviation	Count		Avg. % price deviation	Count
All[43]	-21%	50		-34%	72
Matching	-21%	50		-34%	71
prices houses	-4%	13		-43%	33
land	-12%	11		30%	9[44]
slaves	-40%	11		-47%	10
livestock		0		-42%	1
commodities	-35%	6		-38%	13
rentals	-22%	9		-52%	6
wages (indep.)	-36%	5		-72%	1
				RS II 1742-1741	
Category				Avg. % price deviation	Count
All				22%	7
prices houses				-50%	2
land					0
slaves				-61%	2
livestock					0
commodities				225%	2
rentals				-71%	1
wages (indep.)				0%	1

[43] Excludes undetermined provenience.
[44] South includes two redemptions: 148% and 142% above baseline.

5.4 Cost of living

In a study of Old Babylonian prices and wages, it seems appropriate to also discuss cost of living. Unfortunately, calculating a family's yearly income and expenses is a difficult endeavor. There are many unknowns, which result in too many assumptions, which increases uncertainty. However, by taking a data driven approach and avoiding far-fetched and/or unsubstantiated assumptions, one can come to some general conclusions.

First, it's important to establish parameters around consumption and family size. Using these, I will then estimate a family's income and expenses under two scenarios: a landless family, and a land-owning family. Lastly, for each scenario, income will be compared to expenses.

In his article "*Das Privateigentum an der Feldflur in der altbabylonischer Zeit*," Johannes Renger calculated that an average family of five persons—adult male (father), adult female (mother), and three children—consumed 2,160 sila (=7.2 gur) of barley per year.[45] He based his estimate on an earlier study of ancient Mesopotamian rations by I. J. Gelb.[46]

It is apparent from OB adoption/support agreements that a person required oil and wool in addition to barley.[47] In his study of elderly care during the OB period, Marten Stol compiled a list of these agreements.[48] Although quantities of barley, oil, and wool provided to beneficiaries varied, Stol determined that the minimum annual per person requirement was 720 sila barley and

[45] Renger 1987: 59. He used 720 sila as yearly consumption for an adult male plus 1440 sila barley for one adult female and three children (360 sila each). Kalla 1996: 253 also concluded that an average family had three children based on his analysis of inheritance texts.
[46] Renger 1987: 65 note 40, referring to Gelb's study in JNES 24 (Gelb 1965).
[47] See also Gelb 1965: 230.
[48] Stol 1998: 64-66.

5-6 mina wool.[49] Judging from the quantities of oil supplied in the adoption/support agreements he studied, 6 sila (sesame) oil seems a reasonable annual per person requirement. A few support agreements for *nadītum*-priestesses also provided an allotment of meat.[50] Portions of meat were often specified in house rental contracts where *nadītum*-priestesses were lessors.[51] It therefore seems fitting to include meat in calculating consumption costs. Prices for meat are extremely rare. I know of only one instance where a thigh-cut of meat was valued at 20 ŠE of silver.[52] One shekel silver seems a reasonable assumption for a minimum yearly expense for meat.

The following summarizes yearly subsistence for our family of five using the baseline prices in Table 5.0-1 (except for meat) to compute silver equivalent values:

Barley	7.20 gur	7.20 shekels silver
Oil	30 sila	2.50 shekels silver
Clothing	30 minas wool	5.00 shekels silver
Meat	9 thigh-cuts	1.00 shekel silver
Total		15.70 shekels silver

To estimate a family's income, the simplest scenario is one where the family has lost their land and derives income solely from the labor of its members.

Focusing on contracts and putting aside wage rates in the CH and LE, four contracts of hire for independent (adult male) labor and one receipt of wages specified a one year duration of hire. One contract of hire stipulated yearly wages of 8.00 shekels of silver.[53] One receipt

[49] Stol 1998: 64. One shekel silver for a clothing allotment was occasionally specified in lieu of wool.
[50] E.g., CT 4, 45c:7; CT 45, 11:27; CT 47, 63:30.
[51] These contracts called for the lessee to provide meat to the lessor on religious festivals (at least 3-6 times per year). E.g., BE 6/1, 30:12-13 and 34:10-12; TIM 4, 53:19; and TLOB, 84:19.
[52] CT 4, 18b:4: 1 UZU.ÚR 20 ŠE KÙ.BI (cited CAD P p. 322).
[53] Richardson diss. II p. 413.

recorded a partial payment of wages, out of the total yearly wage of 8.00 gur of barley.[54] In the other three contracts of hire, mixed wages were paid: silver and barley,[55] silver and wool,[56] and barley and wool.[57] Using commodity baseline prices from Table 5.0.1, these equated to yearly wages of 4.83-9.00 shekels of silver.

There are also eighteen contracts of hire for children with a one year duration of hire. In fourteen of these, wages were paid in silver at an average wage of 4.15 shekels.

If we use 8.00 shekels silver as the average yearly wage of an independent (adult male) worker and 4.15 shekels for a child, a family consisting of one working adult male, one non-working adult female,[58] and three working age children could earn 20.45 shekels of silver in a year (8.00 + 12.45). This assumes that they were all employed for a full year, which is probably overly optimistic.

Was 20.45 shekels of silver sufficient to feed the family of five for a year? Let's answer that question by focusing first on the price of barley.

Barley was the staple of the ancient Mesopotamian diet. Without a doubt, it constituted a family's largest single non-discretionary expense. At the baseline price of one gur barley equals one shekel silver, 7.20 gur of barley was worth 7.20 shekels of silver. However, section 3.1 showed that barley prices fluctuated year to year, and even within a year, depending upon whether it was purchased pre- or post-harvest.[59] Moreover, as demonstrated in section 3.1, TMH

[54] CT 4, 42b.
[55] YOS 8, 148.
[56] VAS 9, 59.
[57] Melanges Kupper 38-41 5.
[58] My assumption that the adult female is "non-working" is based on the following: while the database contains thirteen contracts of hire for female slaves, there is no contract of hire for an independent female. This in no way implies that the female was idle. She provided labor through household textile production, baking bread, making pottery, etc.
[59] See also Farber 1978: 17-21.

10, 105 shows how significant the magnitude of the fluctuation could be. We can use the barley prices given in this text as a case study.

According to TMH 10, 105, Samsu-iluna years 21-23 was a time of bountiful harvests. The text refers to these years as "the abundance of Enlil." In those years, barley sold for 0.42 shekels per gur. Therefore, the family would have spent 3 shekels of silver to procure the 7.20 gur of barley needed to feed them for one year. Adding expenditures for sesame oil and wool using the prices quoted in TMH 10, 105, plus 1.00 shekel for meat, plus 1.70 shekels as the yearly cost to rent a house results in a total yearly expenditure of 15.70 shekels silver.[60] Therefore, 20.45 shekels would have been sufficient to cover the family's annual expenses in Samsu-iluna years 21-23.

On the other hand, judging from the high price of barley, Samsu-iluna years 15-16 must have been years of poor harvests. In those years, the text indicates that barley sold for 5 shekels per gur, which means that 7.20 gur of barley would have cost 36 shekels. In those years, 20.45 shekels would have been insufficient to cover the family's yearly barley consumption, let alone expenditures for the aforementioned necessities and housing. The text tells us that the price of barley dropped to 3 shekels/gur in Si 17-18. Even at that price, 7.20 gur barley cost 21.60 shekels, which still exceeded the family's total yearly income. The breakeven point is 1.70 shekels/gur. So long as the price of barley was less than or equal to 1.70 shekels/gur, the family could afford to purchase oil, clothing (wool), and meat, using the baseline prices given above.

The above scenario may not be as dire as it looks. The family's earnings deficit was offset in part because, in contracts of hire, especially from the late OB period, the hireling

[60] Oil: 0.83 shekels/*sūtum* x 3 *sūtum* = 2.50 shekels. Wool (clothing): 0.25 shekels/mina x 30 mina = 7.50 shekels. House rental: 1.70 shekels is the baseline cost of a whole house rental (Table 5.0.1).

received an additional daily allotment of food (barley or bread) and beverage (beer) and a yearly allotment of silver or wool for clothing.[61] The extra barley, beer, and wool allotments provided by employers were given to both adult male and child workers and served to defray a significant part of their food and clothing costs. However, households likely encompassed non-working family members such as infants, the elderly (parents/relatives), and possibly even handicapped persons,[62] which meant additional support expenses.[63]

Now let's look at the same family of five under the scenario where they owned land on which they grew barley. How much land did the family need to support themselves?[64]

In the same article referred to above, using 20 gur/bur as the yield of an average field during the OB period, Renger calculated that 7 iku of field was required to grow the 7.20 gur of barley needed to feed a family of five for one year.[65] Assuming half the field was left fallow each year, that translated into total ownership of 14 iku of field. Renger did not consider expenditures for oil, clothing, and meat, which is why I believe that his ownership estimate can be improved upon. Using the above estimate of 15.70 shekels silver as the subsistence cost for a family of five for one year and assuming that one gur of barley equals one shekel of silver means that 8.50 gur of barley was needed to pay for 8.50 shekels worth of oil, wool, and meat, (no house rental costs), in addition to 7.20 gur barley to feed the family.

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[61] E.g., PBS 8/2, 196:9-10 (2 sila food and 3 sila beverage allowance); YOS 13, 487:9-10 (2 sila food and 3 sila beer); YOS 13, 481:9 (1 sila food, 2 ½ sila beer for working age child); Riftin SVJAD 36:8 and OLA 21, 76:8 (1 garment worth 1 shekel for clothing). Also see CAD K p. 573-579 for more examples.
[62] Stone 1987: 196; Stone 1996: 230; Charpin 1996.
[63] Stol 1998:70-82.
[64] In the following discussion, I am not taking into account the income that such a family derived from having a small garden and possibly owning some animals.
[65] Renger 1987: 59. 20 gur/bur = 333 sila per iku. 333 sila x 7 iku = 2331 sila barley / 300 = 7.77 gur. Thus, 7 iku would yield 7.77 gur before expenses and taxes.

Following are three yield estimates for a one-bur field, assuming half the field lay fallow on a yearly rotating basis, and before deductions for production costs and taxes:

1) 10 gur at barley @ 20 gur/bur (Renger's estimate)
2) 27 gur barley @ 54 gur/bur (based on field rentals at the time of Hammu-rabi)[66]
3) 30 gur barley @ 60 gur/bur (Hammu-rabi code)[67]

For the first estimate, a one-bur field yielded sufficient barley to feed a family of five, but the 2.80 gur of barley remaining (10.00-7.20) fell short of the 8.50 gur of barley they needed to pay for oil, clothing (wool), and meat.

For the second and third estimates, a one-bur field yielded sufficient barley to feed a family of five, and the 19.80 or 22.80 gur of barley remaining (27.00-7.20 or 30.00-7.20) covered the 8.50 gur of barley they needed to pay for oil, clothing (wool), and meat, leaving ample supplies for additional expenses and production costs for the following year.

Using the second estimate, a field of 11 iku (with half left fallow) would yield 16.50 gur barley, which was sufficient to provide yearly subsistence (barley, oil, clothing, and meat) for a family of five assuming one gur of barley was valued at one shekel of silver and before deductions for production costs and taxes.[68] This compares favorably with the average field size of 8.84 iku based on 158 field sales (A.ŠÀ) collected for this study.

Another interesting observation comes from using the lowest prices in TMH 10, 105 in place of baseline prices in the above computation. These occurred in Samsu-iluna years 21-23, when 1 gur of barley sold for 0.42 shekels, 6 sila of sesame oil sold for 0.50 shekels, and 60

[66] Leemans 1975: 141. See above, section 1.2.5.
[67] CH §58 and §255 and Stol 2004: 840-841.
[68] Production costs are difficult to quantify. Suffice it to say that they would have included costs for seed; wages and food/beverage allotment for supplementary labor; rental and feed costs for oxen to prepare the field for cultivation and to plant and harvest the barley; and costs to transport, winnow, and thresh the barley harvested.

minas of wool sold for 15.00 shekels. That meant a family of five needed 11.00 shekels to purchase oil, wool, and meat (2.50 for oil + 7.50 for wool + 1.00 for meat). With barley selling at 0.42 shekels/gur, they needed to sell 26.30 gur of barley to generate 11.00 shekels of silver to purchase the additional items. Adding 7.20 gur barley for consumption means they required a total of 33.50 gur barley for yearly subsistence. What is surprising is that, with the price of barley so low, even a half-fallow one bur field yielding 30 gur would not have provided sufficient income to purchase the additional necessities in those years.[69]

To summarize: A family that owned no land and relied solely on hiring themselves out for wages led a precarious existence. The situation for a landowning family was somewhat better, provided they owned at least 11 iku of land that yielded 16.50 gur of barley, and 1 gur barley was worth one shekel of silver. In years of bad harvests, both families suffered an income shortfall, which they made up by borrowing barley or borrowing silver to buy barley. It is therefore no wonder that loan contracts were so prevalent.

[69] To obtain more oil and wool for their barley, it's conceivable that the family employed strategies such as direct barter and/or deferring the purchase of oil and wool to the pre-harvest months when the price of barley had risen.

5.5 Summary – long term fluctuations in prices and wages

In Part I, which presented and analyzed the data for each category, there were indications that prices moved in synch. It was observed, for example, that land and house prices declined in the early OB period under rulers of both the 1st Dynasty of Babylon and the Kingdom of Larsa. Prices for slaves, commodities, and house rentals all reached their lowest point under Samsu-iluna and rose under his successor. Prices for wool, livestock and house rentals all appeared to be stable under Ammi-ṣaduqa. In part II, which looked at the data holistically, the pattern of long term price fluctuation became clearer. Prices were lower under some rulers (Rim-Sin, Hammu-rabi, Samsu-iluna, Ammi-ṣaduqa) and higher under others (Abi-ešuh, Samsu-ditana). There were periods when prices were declining (reign of Warad-Sin, first thirty years of Hammu-rabi, first ten years of Ammi-ditana), and periods when they were rising (final years of Samsu-iluna and Ammi-ṣaduqa).

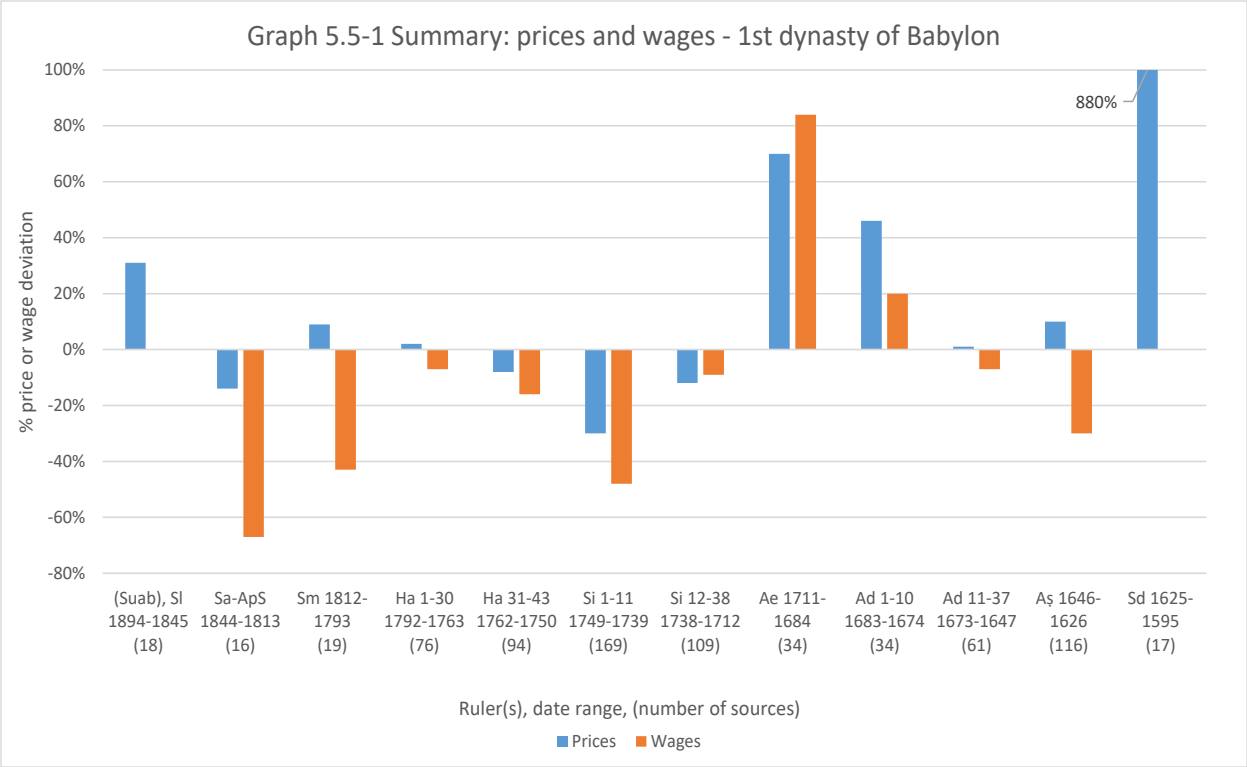
The results of my investigation of prices and wages are presented in Graphs 5.5-1 (1st Dynasty of Babylon),[70] 5.5-2 (Kingdom of Larsa),[71] and 5.5-3 (1st Dynasty of Isin).[72] Mindful of the limitation of using "fair" wage as the baseline wage (see above, section 5.2), the key takeaway from these graphs is the confirmation that prices and wages indeed moved in synch. Furthermore, the graphs show that, when prices were declining in the Kingdom of Babylon (Sumu-la-El through Hammu-rabi), they were also declining in the Kingdom of Larsa (Gungunum through Warad-Sin). It is worth noting, however, that the graphs hint at the fact that

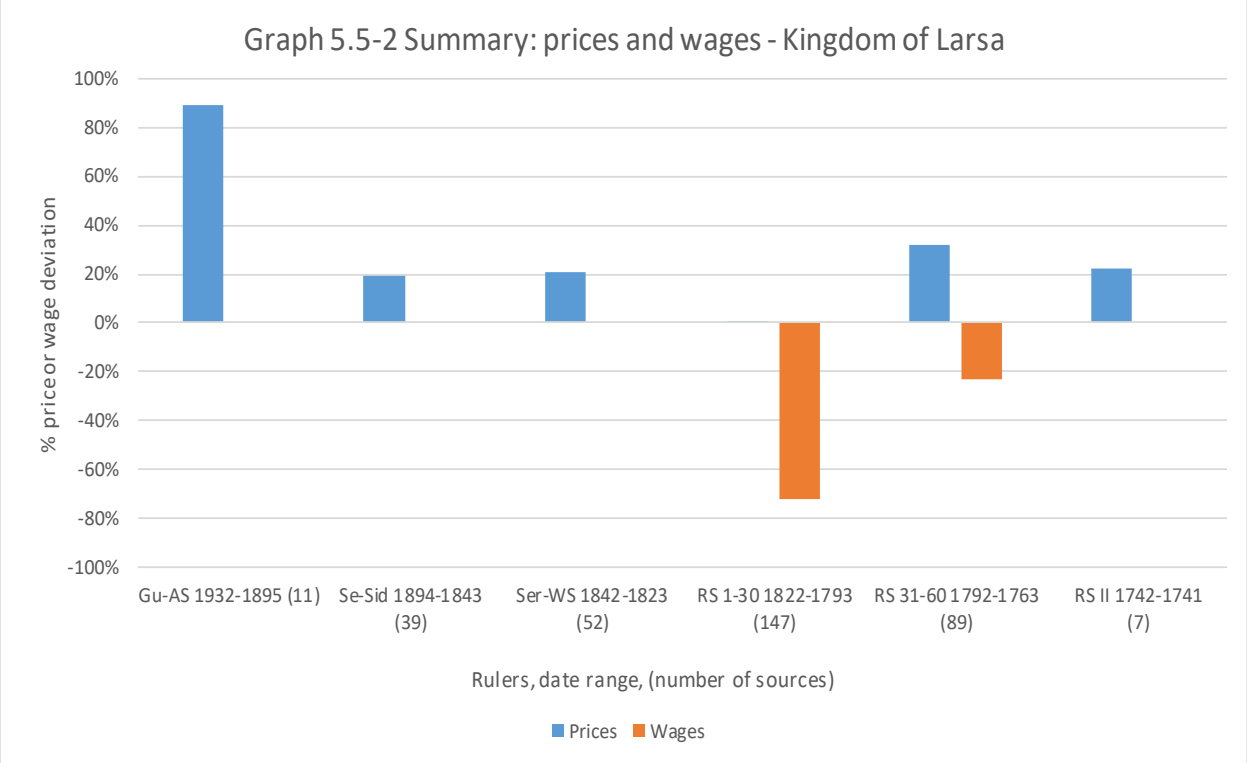
[70] Tables 5.1-1 (prices) and 5.2-1 (wages) were used to create Graph 5.5-1.
[71] Tables 5.2-2 (prices) and 5.2-1 (wages) were used to create Graph 5.5-2.
[72] Table 5.1-3 (prices) was used to create Graph 5.5-3.

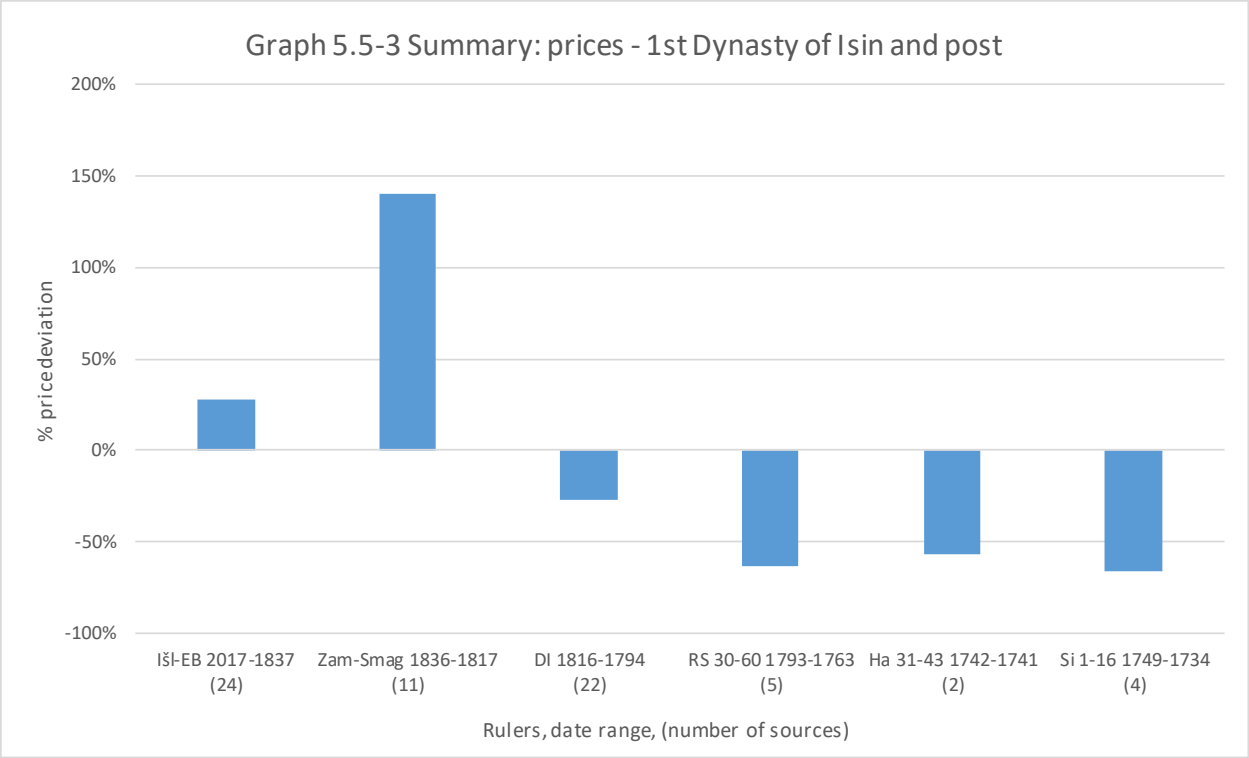
prices during these years tended to be higher in the Kingdom of Larsa than in the Kingdom of Babylon, and wages (at least under Rim-Sin), tended to be lower.

In the Kingdom of Babylon, the lowest prices occurred during the first eleven years of Samsu-iluna, which also coincided with the lowest wages. The highest prices occurred under Samsu-ditana, the last ruler of the dynasty. In the kingdom of Larsa, the lowest prices occurred during the reign of Rim-Sin, which also coincided with low wages.[73] The situation at Isin is more difficult to discern. Virtually all of what we know about prices at Isin comes from house and land sales. Prices for houses and land declined over time through the reign of Damiq-ilišu, the last king of the dynasty, apart from a possible price spike in the years just prior to his reign. House and land prices at Isin continued to be depressed under the Kingdom of Larsa and the 1st Dynasty of Babylon. Little can be said about prices under local dynasts at Kish and Sippar, contemporaries of Sumu-abum and Sumu-la-El, apart from the price of land, which seems to have been expensive, and which is in-line with what we've seen for the three aforementioned kingdoms.

[73] Recall from section 5.1.2 that percentage deviation for commodities for Rim-Sin years 31-60 (446%) is inflated by two extremely high price equivalences for dates and sesame oil found in TCL 10, 94, dated RS 39 (1784). If these are excluded, percentage deviation for commodities for RS 31-60 is 0%.


Graph 5.5-1 Summary: prices and wages - 1st dynasty of Babylon
100%
80%
60%
40%
20%
0%
-20%
-40%
-60%
-80%
% price or wage deviation
880%
(Suab), Sl 1894-1845 (18)
Sa-ApS 1844-1813 (16)
Sm 1812-1793 (19)
Ha 1-30 1792-1763 (76)
Ha 31-43 1762-1750 (94)
Si 1-11 1749-1739 (169)
Si 12-38 1738-1712 (109)
Ae 1711-1684 (34)
Ad 1-10 1683-1674 (34)
Ad 11-37 1673-1647 (61)
Aṣ 1646-1626 (116)
Sd 1625-1595 (17)
Ruler(s), date range, (number of sources)
Prices
Wages


Graph 5.5-2 Summary: prices and wages - Kingdom of Larsa
100%
80%
60%
40%
20%
0%
-20%
-40%
-60%
-80%
-100%
% price or wage deviation
Gu-AS 1932-1895 (11)
Se-Sid 1894-1843 (39)
Ser-WS 1842-1823 (52)
RS 1-30 1822-1793 (147)
RS 31-60 1792-1763 (89)
RS II 1742-1741 (7)
Rulers, date range, (number of sources)
Prices
Wages



The scope of my 1978 article was prices and wages for Northern Babylonia. This study has considerably expanded that scope by including southern and central Babylonia, adding more categories (houses, dates, sesame), and using over four times the number of texts. It is therefore noteworthy that this study reinforces the conclusions I had reached in that article. It has also provided additional insights into the movement of prices and wages that will be used in the next chapter to improve our understanding of the relationship between the economic and political history of the Old Babylonian period.

Chapter 6: Interpreting the data

6.0 Introduction

The preceding chapters demonstrated that it is possible to trace the movement of prices and wages in northern and southern Babylonia over at least portions of the Isin-Larsa/Old Babylonian period. This chapter applies the results of this study to answer some questions related to OB political history.

The task of writing a political history of the period is exceedingly difficult. Those who attempt do so are faced with a myriad of problems arising from insufficient sources, an uneven chronological distribution of sources, and sources that are not entirely trustworthy.[1] One of the most interesting aspects of this study is its potential to improve our understanding of the political history of the period. My outline differs from all others in that it endeavors to use economic evidence alongside historical sources to do so. It will demonstrate that there is a relationship between political and economic conditions—namely, that high prices correlate to periods of political instability and low prices correlate to periods of political stability.[2] It has led me to reach some conclusions that differ from previous researchers.

Sources for reconstructing the political history of the Isin-Larsa/Old Babylonian period are year names, royal inscriptions, and letters. In the discussion that follows, these will be augmented by price and wage data. For the 1st Dynasty of Babylon, sources for prices and

[1] Two wide-ranging and noteworthy studies of the Isin-Larsa/Old Babylonian period are Edzard 1957 and Charpin 2004.

[2] The underlying assumption here is that low prices and high wages indicate prosperity and good times, and high prices indicate poverty and deprivation. That Mesopotamian rulers thought in those terms can be deduced from their royal inscriptions where they boast about low commodity prices and/or high wages during their reigns. See the discussion below regarding Nur-Adad and Sin-iddinam of Larsa. Samsi-Addu, ruler of Upper Mesopotamia, and Sin-kašid of Uruk similarly boasted about low commodity prices during their reigns.

wages are primarily concentrated under Hammu-rabi and Samsu-iluna, and, to a lesser degree, under Ammi-ditana and Ammi-ṣaduqa (Table Intro-1). Since the publication of my article in 1978, more texts from the reigns of Abi-ešuh and Samsu-ditana have been published, giving us a clearer picture of the economy under their reigns. For the Kingdom of Larsa, sources for prices and wages are concentrated under Rim-Sin, and, to a lesser degree, under Warad-Sin and Sumu-El. For the 1st Dynasty of Isin, most of our sources are dated under Damiq-ilišu, the last king of the dynasty. For local dynasts, house and land sales comprise the majority of the sources.

The next two sections explore the interrelationship between political and economic history, first for the Kingdom of Larsa, and then for the 1st Dynasty of Babylon.

6.1 Kingdom of Larsa[3]

The first ruler of the Kingdom of Larsa for which we have any data on prices is Gungunum. Judging from his year names, Gungunum's 27 year rule (1932-1906) marked a period of political expansion for Larsa, primarily coming at the expense of Isin. Early in his reign, he expanded north and east towards Iran (Elam). In his seventh year, he captured Ur from Isin, possibly his most important achievement. Later in his reign, he may have also controlled Kisurra, Nippur, and Zabalam. Overall, his year names suggest a prosperous rule, as they commemorate military victories, canal building activities, construction of fortifications, and construction or embellishment of temples or shrines. In a royal inscription,[4] Gungunum claims

[3] For an in-depth history of the Kingdom of Larsa, see Fitzgerald 2002 (unpublished dissertation). Additional focused historical and socio-economic studies of the kingdom include Van Dijk 1965, Sigrist 1977 and Van De Mieroop 1987, 1992, and 1993.

[4] RIME 4.02.05.add05 ex. 01 col. ii lines 10-14 (MS 2871). Gungunum's twenty-first year name (1912) commemorates the construction of the wall of Larsa, the same event commemorated in the royal inscription.

that, when he constructed the wall of Larsa, one shekel of silver could buy either 3 gur of barley, 10 minas of wool, or 15 sila of oil. If true, 3 gur of barley per shekel of silver is indeed a low barley price, lower than its price attested in private legal documents, administrative texts, or law codes and a third of its baseline price of 1 gur per shekel. Two tablets with prices date to his reign. One is a sale of land possibly from Kisurra dated in his tenth year. The other is a receipt of 6 quantities of wool dated possibly to his sixteenth year.[5] The wool is valued at 6 minas per shekel (10.50 shekels per talent) for highest quality wool and 7 mina per shekel (8.50 shekels/talent) for "regular" wool, which makes it more expensive than what Gungunum claims in his inscription but in line with its baseline price (Table 5.0-1). A lone wool:barley price equivalency on the tablet values barley at 2 gur per shekel, which is also more expensive compared to his inscription but 50% below its baseline price.

The struggle between Larsa and Isin continued during the eleven-year reign of Abi-sare (1905-1895), Gungunum's successor. Militarily, he was likely not nearly as successful as Gungunum. Only one of his year names, his ninth year, commemorates a military victory (over Isin). He probably lost control of Nippur, and, at the end of his reign, he may have even lost control of Ur for a few months to Bur-Sin of Isin.[6] There is scant data on prices from his reign: four house sales from Ur and one field sale. The house sales average 278% over baseline. The field sale (sales of fields are rare in the south) was priced 38% below baseline.

Abi-sare was succeeded by Sumu-El, who reigned 29 years (1894-1866). Due to contradictory sources for his year names, their order is subject to interpretation.[7] However, one

[5] OLA 220, 446-450. MU É {d}Inanna BA.DÙ "Year the Inanna temple (in Larsa) was constructed" is the year date for Gungunum's 16th year. However, this year date formula could also be an abbreviated year date for Rim-Sin year 4 (1819), possibly even Warad-Sin year 5 (1830), both of which also commemorate construction of a temple to Inanna.
[6] Charpin 2004: 72; Fitzgerald 2002: 50-51; Van De Mieroop 1992: 57.
[7] See Fitzgerald 2002: 57-63 for her reconstruction of the sequence of Sumu-El's year names.

thing is clear from them: Sumu-El was preoccupied with military exploits throughout much of his reign. In fact, about half of his year names commemorate military successes. Year five records a victory over the army of Uruk, year eleven his defeat of the army of Kish,[8] and year fifteen commemorates his victory over the king of Kazallu. Judging from these and other victories celebrated in his year names, Sumu-El campaigned far to the north of Larsa over much of his rule. This put him in conflict with Irra-imitti of Isin.[9] Several of Sumu-El's year names refer to canal or dam building activities. It is possible that some of these (year 21 for example) were undertaken to deprive his enemies of water.[10] Thirty-eight prices and price equivalences dated to his reign provide some insight into economic conditions at the time. Commodity prices seem to have been high during his reign. Eleven commodity price equivalences averaged 76% above their respective baselines. Unfortunately, the sources do not allow one to pinpoint when commodity prices rose, which means we cannot determine if high commodity prices were a consequence of his military exploits.[11] Eight house sales averaged 29% above their baseline, and eight land sales averaged at baseline. Five slave sales averaged 48% below their baseline, suggesting that Sumu-El's military exploits expanded the supply of slaves.

At the end of Sumu-El's reign, a catastrophe engulfed the Kingdom of Larsa, which brought Nur-Adad to the throne. The catastrophe is described in two letters written by Sin-iddinam, Nur-Adad's son and successor, that accompany an inscription concerning a statue he fashioned of his father. According to Sin-iddinam, an unspecified enemy (possibly an internal

[8] Charpin believes this took place in 1885, when Kish was ruled by an independent dynasty. See Charpin 2004: 89 and de Boer 2014: 237.
[9] See de Boer's review of CUSAS volume 36 (de Boer 2019: 241-244). CUSAS 36 contains correspondence between Sumu-EL and his subordinates concerning this conflict.
[10] Hypothesized by Walters 1970: 159-164 (esp. 162) with regard to Isin.
[11] Five of the twelve commodity price equivalences, which all seem high, come from undated letters and lists of expenditures that belong to the Ipqu-Sin archive, which dates to the reign of Sumu-El. Two other (dated) barley price equivalences are derived from loans.

revolt) diverted water from the canals which resulted in a famine in Larsa. Nur-Adad defeated the enemy, reopened the canals, and restored stability to Larsa.[12] Once upon the throne, Nur-Adad's sixteen-year reign (1865-1850) seems to have been relatively peaceful. His year names and royal inscriptions focus on dedications of statues and thrones to the gods, temple and canal construction, and the rebuilding of the wall of Larsa rather than military victories. It is unfortunate that there are so few texts dated to Nur-Adad that give prices. The database contains four sales,[13] two of which are damaged, one court case, and one loan dated to his reign. In one of his inscriptions, Nur-Adad tells us about prices and wages during his reign:

> "During my good reign, in the markets of my land, thus one shekel of silver purchased 2 gur of barley, 2 *sūtum* of sesame oil, 10 minas of wool, 10 gur of dates."[14]
>
> And when he built the great wall of Larsa, he goes on to say:
>
> "The wages per man were 3 *sūtum* of barley, 2 sila of bread, 2 sila of beer, 2 shekels of oil. In one day, thus they received it."[15]

Nur-Adad was succeeded by his son Sin-iddinam, who ruled seven years (1849-1843). During his reign, conflict increased between Larsa and its northern neighbors. Several of his year names commemorate military accomplishments, including a defeat of the army of Babylon (year 4), the destruction of Ešnunna (year 6), and the building of the wall of Maškan-šapir (year 7).[16] Nothing can be gleaned about economic conditions at that time from three texts in the database that bear his year names.[17] Like his father, Sin-iddinam quoted prices for staple commodities that were purportedly in effect at the time of his reign:

---

[12] See Van Dijk 1965 and Fitzgerald 2002: 83-90. Van de Mieroop 1992: 59 believes the attack could have taken place during Nur-Adad's reign.
[13] One of these is a house sale from Ur (UET 5, 136) dated to his accession year.
[14] RIME 4.02.08.07 lines 57-63.
[15] RIME 4.02.08.07 lines 66-70.
[16] See Guichard 2014 for the discussion of a treaty that Sin-iddinam forged with Uruk and Ešnunna against Sabium of Babylon and Nērebtum, a town in the Diyala area allied with Babylon. His defeat of Babylon commemorated in year 4 was probably against Sumu-la-El (Guichard 2014: 17).
[17] TIM 5, 18 (sale of a house); UET 5, 629 (list of expenditures); YOS 14, 293 (delivery of wool).

> "In the days of my gracious reign, which the god Utu, my lord, gave to me, 4 gur of barley, 12 gur of dates, 15 minas of wool, 3 sūtum of sesame oil, 5 sūtum of lard, in the markets of Ur, Larsa, and my land, so much was sold per one shekel of silver."[18]

Sin-iddinam also boasts about the generous wages he paid to workers who restored the Ebabbar temple:

> "When I dug the Tigris, the great river, the wages for 1 man were: 1 gur barley, 2 sila bread, 4 sila beer, and 2 shekels oil. In one day, thus he received it."[19]

If one believes Nur-Adad and Sin-iddinam, the Kingdom of Larsa enjoyed prosperity during their rules: prices were low, and wages were high. However, judging from what we have learned about prices and wages, their claims seem somewhat exaggerated, Sin-iddinam's more so than his father.[20] This is apparent when one compares the prices in their inscriptions to actual retail prices in TMH 10, 105, which gives quantities of barley (2.40 gur), sesame oil (1.20 *sūtum*) and wool (4 mina) that were purchased for one shekel of silver in the years Samsu-iluna 21-23. These are the lowest prices found in the database. TMH 10, 105 does not give a price for dates, but 12 gur of dates for one shekel is almost 75% below the lowest price of 3 1/3 gur dates per shekel of silver found in the database.[21] Further proof comes from the Ešnunna law code, which specified quantities of barley (1 gur), sesame oil (1.20 *sūtum*) and wool (6 mina) that could be purchased for 1 shekel of silver, making them substantially more expensive than what Nur-Adad and Sin-iddinam claim in their inscriptions. While Sin-iddinam's claim that he paid wages of 1 gur (300 sila) barley per day is outlandish and fanciful, Nur-Adad's claim that he paid 3 *sūtum* (30 sila) of barley per day (3 gur of barley per month) seems plausible, at least for his highest

[18] RIME 4.02.09.06 lines 58-69 (Sin-iddinam B).
[19] RIME 4.02.09.02 lines 51-59 (Sin-iddinam A).
[20] Discussing prices in royal inscriptions, Vargyas 1997 and Zaccagnini 1997: 368 reach essentially the same conclusion.
[21] YOS 12, 122 (Si 4).

paid workers. Such high wages were not unheard of. TLB 1, 58 (RS 33-57), for example, has a monthly wage that works out to 2 1/2 *sūtum* of barley per day. And in UET 5, 582 (no date), a worker hired for forty days receives a wage of 4 gur of barley, which works out to 3 *sūtum* per day. As pointed out in section 4.2.2.1, in addition to wages, contracts of hire from the late OB period frequently specified a worker's daily food and beverage allowance. Two sila bread and 2-4 sila beer are reasonable. An allotment of two gin sesame oil per day (1 sila/month or 12 sila/year) is generous, about double the 6 sila/year one typically finds in adoption/support agreements.[22]

Little is known about the political situation and economic conditions under the next three rulers of the Kingdom of Larsa: Sin-iribam reigned 2 years (1842-1841), his son Sin-iqišam reigned 5 years (1840-1836), and Ṣilli-Adad reigned less than one year (1835). Year 5 of Sin-iqišam refers to his victory over the armies of Elam, (Kazallu), and Zambija of Isin, and year 3 of his building the wall of Larsa. There are only seven texts with prices and none with wages dated under their reigns. One sale of an orchard dated under Sin-iribam averaged 148% above baseline,[23] and five sales of houses dated under Sin-iqišam averaged 122% above baseline. Only a single slave sale is dated under Ṣilli-Adad.[24]

The reign of Ṣilli-Adad was apparently cut short by Kudur-Mabuk, who installed his son Warad-Sin on the throne. The circumstances surrounding this regime change are unclear. His and his father's name (Simti-šilhak) suggest that he was of Elamite origin, but Fitzgerald and Charpin recognized that the evidence is inconclusive.[25] Although Kudur-mabuk did not call

[22] See above 5.4 and Stol 1998: 64-65.
[23] YOS 5, 133. The high price does not seem surprising. Its location borders a canal and the mayor's orchard, which suggests it was a prime property.
[24] YOS 5, 117. Although couched as a sale, it is actually a loan with a female slave valued at eight shekels given as collateral.
[25] Fitzgerald 2002: 130-132; Charpin 2004: 116-117; and, more recently, Fiette 2020: 283, who does conclude that he was of Elamite origin.

himself "King of Larsa," neither in his inscriptions nor in inscriptions issued jointly with his son,[26] he ruled alongside his son (and likely was the true power behind the throne) through Warad-Sin's entire reign.[27] The latter's twelve year reign (1834-1823) seems to have been generally peaceful.[28] Apart from the year name of his second year, which commemorates his destruction of the city wall of Kazallu and a victory over Mutiabal (synonymous with Kazallu), and year names ten and eleven, which commemorate the (re)construction of city walls, the remainder of his year names and almost all of his royal inscriptions are dedicated to cultic activities (dedication of statues, installation of the En-priestess) and temple construction. Tablets from Nippur bearing his year names indicate that he was recognized as ruler in that city during much of his reign.[29]

Along with political stability, economic conditions under Warad-Sin also seem to have improved, at least for the upper class. House prices declined.[30] Prices of houses sold under Warad-Sin averaged 33% above baseline (25 sales), compared to 118% under Sin-iqišam (5 sales). Those with surplus silver took advantage to augment their real estate holdings. Several private archives, such as those of Ištar-ili and Balmunamhe, show them aggressively purchasing real estate. Ištar-ili first purchased two small "empty" house plots in Sin-iqišam year 2.[31] He purchased five additional house plots in Warad-Sin years 8-11,[32] and two more in Rim-Sin year

[26] Charpin 2004: 117 cites one exception.
[27] In YOS 5, 127, a house sale dated WS 12, the sellers swear an oath by Warad-Sin and Kudur-Mabuk.
[28] Fitzgerald 2002: 137. She notes that the year names of Warad-Sin's contemporaries who ruled at Isin (Iter-piša, Ur-dukuga and Sin-magir) and Babylon (Sabium and Apil-Sin) do not mention conflict with Larsa.
[29] Sigrist 1977: 369. Warad-Sin year 6 commemorates his installation of 14 statues in Nippur.
[30] A decline in house prices is in itself not necessarily an indicator of prosperity, especially if it can be determined the decline was due to forced sales That would mean more people were taking on debt, finding themselves unable to pay, and forced to sell their house to their creditor. Unfortunately, the data does not allow us to determine what percentage of total sales were forced sales. The same holds true for land.
[31] TCL 10, 129 and 130.
[32] TCL 10, 6; 7; 8; 9; and 11.

2.[33] The archive of Balmunamhe, son of Sin-nur-matim, is extensive and was the subject of an in-depth study.[34] It spans the years Warad-Sin 6 to Rim-Sin 31, a period of 38 years. In Warad-Sin 9, Balmunamhe and his father purchased 24 sar of "empty" land from the Nanna temple for 2 minas of silver.[35] It is hard to imagine anyone paying that much silver unless they felt political and economic conditions were stable. Land, slave, and possibly commodity prices also declined. Eight land sales (fields and orchards) averaged 17% below their respective baselines. Eight slave sales and guarantees (all adult males) averaged 21 shekels, 17% below baseline. Balmunamhe begins purchasing slaves during the reign of Warad-Sin, which is discussed below. Three commodity prices from expenditure lists averaged 23% below their respective baselines.[36]

Although there are no legal or administrative texts that give wages during his reign, an inscription of Warad-Sin, describing his building of the wall of Ur, gives the following wages:

> "When I built the wall of Ur, the wages for one man were: 3 sūtum barley, 2 sila bread, 2 sila beer, and 2 shekels of oil. In one day, thus he received it.[37]

As discussed above, a daily wage of 3 *sūtum* of barley is generous but possible.

Warad-Sin was succeeded by his brother Rim-Sin, who reigned sixty years. Rim-Sin's reign can essentially be divided in two, with the first half covering the period from his accession through his capture of Isin (1822-1793), and the second half covering his 31st through 60th year (1792-1763). The remainder of this chapter covers the political and economic history for each

[33] TCL 10, 18 and 22.
[34] Van De Mieroop 1987.
[35] YOS 5, 122 (collated text edition and commentary in Charpin 2020b: 221-226).
[36] YOS 5, 202 (barley) and YOS 5, 207 (wool and sesame). Based on their structural similarity, both tablets probably come from the same archive.
[37] RIME 4.02.13.20 lines 40-44.

half. Section 6.2 covers the political and economic history of Larsa under Hammu-rabi and Samsu-iluna.

Rim-Sin must have been a child when he ascended the throne, given that he reigned sixty years. His father Kudur-mabuk was still alive at that time, and likely exercised full power until his death.[38]

Rim-Sin's first thirteen year names were mainly devoted to peaceful activities: temple building, canal construction and statue dedications. Three year names, however, describe defensive measures, the construction of walls or gates. All that changed beginning with the year name of his fourteenth year, which commemorated his victory over a coalition of Uruk, Isin, Babylon, Sutium and Rapiqum in 1810. According to his year names, over the next six years, Rim-Sin captured several other cities, culminating in 1803 in his capture of Uruk, an event commemorated in his 21st year name. Uruk was incorporated into the Kingdom of Larsa, bringing the Sin-kašid dynasty to an end. Around 1802, Rim-Sin took control over Nippur.[39] Following his capture of Uruk, five of his next six year names were dedicated to irrigation projects. However, year 25 (1798) records a victory over Damiq-ilišu of Isin, which took place the prior year. In 1794, he captured the city of Isin itself and overthrew Damiq-ilišu, an achievement he commemorated in the year name of his 30th year (1793). Rim-Sin was now at the pinnacle of his power. As can be seen from Figure 6.1-1, in the course of the first thirty years of his rule, he had significantly expanded the borders of his kingdom.

[38] According to Van De Mieroop 1993:51, Kudur-mabuk died shortly before Rim-Sin's eighth year. Fitzgerald 2002: 138, on the other hand, believes he was dead by Rim-Sin's fifth year. More recently, see Charpin NABU 2018/11, who places his death in Rim-Sin's fourth year.
[39] Sigrist 1977: 370. Prior to that, control of the city had alternated between Isin and Larsa (Sigrist 1970: 372-374).

Charpin characterized the first thirty years of the reign of Rim-Sin as "*les trente glorieuses*"[40] and (along with the reign of Warad-Sin), as "…*une période de prospérité exceptionnelle*."[41] His choice of words seems warranted, especially if one considers low prices to be an indicator of prosperity. Rim-Sin's military successes and expansion of his kingdom's borders were accompanied by an increase in real estate sales.[42] During these years, following in the footsteps of his father Ištar-ili, Iddin-Amurrum continued to acquire houses and house plots, expanding the size of his property. Based on tablets from his archive, Charpin estimated his holdings at around 500 m^2.[43] Balmunamhe was also actively purchasing real estate during the first half of Rim-Sin's reign,[44] as was Adad-gugal[45] and Enlil-issu[46] at Ur. Charpin noted that archaeological excavations of the city of Larsa revealed an increase in the size of private houses and "*grand structures*," at least in the northeast quadrant of the city.[47]

Along with the increase in real estate sales, prices for houses and land continued to decline. Prices for houses under Warad-Sin averaged 33% above baseline (a decline from earlier rulers), and 27% above baseline during Rim-Sin's first 30 years. A further breakdown of sales for his first thirty years shows that thirty-seven house sales averaged 41% above the baseline for years 1-15, and twelve house sales averaged 5% below the baseline for years 16-30. Twenty-four land sales[48] dated to his first 30 years averaged 50% below baseline compared to 8 land

[40] Charpin 2004: 119. Borrowing a phrase coined by the French demographer Jean Fourastié, "The Glorious Thirty" refers to the thirty years from 1945 to 1975 following the end of the Second World War in France.
[41] Charpin 2004: 123.
[42] The database contains 52 house sales and 24 land sales dated to Rim-Sin years 1-30. A total of 44 house sales and 19 land sales are dated prior to Rim-Sin.
[43] Charpin 2004: 124. This is exclusive of his purchases of orchards.
[44] Van De Mieroop 1987: 12-16; 19-20
[45] Van De Mieroop 1992: 164-165 and 297-298.
[46] The archive of Enlil-issu was found in the house designated by Woolley as #1 Store Street. See Van De Mieroop 1992: 156-158, 291-292, and, more recently, Charpin 2020a: 101-117.
[47] Charpin 2004: 123.
[48] Apart from sales of "stubble fields" from Nippur and one field sale from Larsa, all of these are sales of orchards.

sales under Warad-Sin that averaged 17% below baseline. Commodity and livestock prices and house rental rates also declined. During Rim-Sin's first 30 years, prices for commodities averaged 1% above their respective baselines. Livestock prices averaged 34% below baseline, and house rentals averaged 19% below baseline.

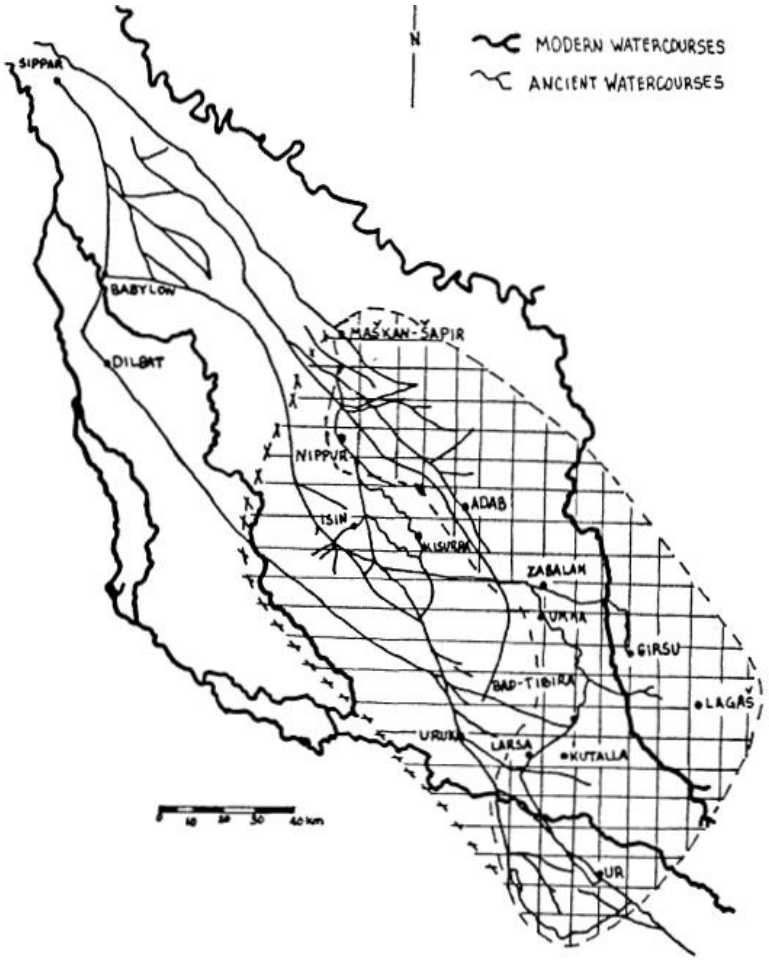


Figure 6.1-1: Tentative outline of the area controlled by Rīm-Sin: vertical crosshatch in 1822 (RS 1); horizontal lines in 1793 (RS 30). SOURCE: Van De Mieroop 1993: 54.

To summarize: 147 prices from all sources dated to Rim-Sin's first 30 years averaged 0% (that is, baseline), down from 21% above baseline in the period from Sin-iribam through Warad-Sin (1842-1823). Disregarding the (exaggerated) claims made by Nur-Adad and Sin-iddinam in

their royal inscriptions, this means that prices during the first 30 years of the reign of Rim-Sin were lower than they had been under the previous rulers of the Kingdom of Larsa.

While the above bespeaks of economic prosperity, certainly for the upper classes, there were troubling signs that point to economic hardship among the general population. One of the most troubling is the number of self-sales and sales of children into slavery. Thirty-three slave sales or slave guarantees (pledges) date to the first 30 years of Rim-Sin's reign. In 12 of them, either adult males sold themselves into slavery, or parents sold their children, or brothers and/or sisters sold siblings.[49] In many of these, Balmunamhe is the purchaser. He is also the recipient in many guarantees, meaning that the guarantors (often a slave's parents) pledge to pay him the price specified in the contract should the slave run away or stop working. Several self-sales note that the proceeds of the sale were used to pay off the seller's debt,[50] but it's safe to assume that debt was the motive behind all of them. These sales are in marked contrast with slave sales under the 1st Dynasty of Babylon, where there were no self-sales or sales of children. Another indication of increasing debt among the general population are several real estate sales contracts and related legal documents that are evidence of "forced" sales.[51] Although "forced" sales were not unique to his reign,[52] they must have been worrisome because Rim-Sin found it necessary to issue at least three "royal decrees" remitting private debt, an attempt to restore economic balance. These decrees, which are not preserved[53] but are alluded to in sales, court cases, and related documents, nullified the original "sale" and allowed sellers to seek redress through the

[49] YOS 8: 8, 17, 31, 36, 40, and 78; YOS 5: 132, 141 and 145; Riftin SVJAD 25; RA 69, 133-135 no. 11; VAS 13, 64.
[50] E.g., YOS 5, 132; YOS 8, 31 and 78.
[51] See section 1.1.4.
[52] E.g., forced land sales at Kish under local dynasts. See section 1.2.4.
[53] One decree may, in fact, be preserved (CUSAS 10, 18) per Moore, NABU 2018/67.

courts and thereby receive compensation from the buyers.[54] All of this leads me to conclude that, while the upper class prospered, the majority of the population toiled under increasing debt. In other words, "the rich got richer, and the poor got poorer."

The political history of the Kingdom of Larsa for the first half of Rim-Sin's reign is better documented and therefore better understood than the second half of his reign. One reason is because the year names of his next 30 years (1792-1763) were named for consecutive years following his capture of Isin (year 2 after the capture of Isin…year 3, etc.).[55] Year names are an important source of information for historical events, and, regrettably, this new year naming convention leaves us guessing about what transpired over the second half of his reign. Fact is, we know little about Rim-Sin's military exploits in those years apart from the last couple of years of his reign, when the Mari royal correspondence enlightens us. Several of these letters describe the growing hostility and tense political situation between Hammu-rabi of Babylon and Rim-Sin of Larsa, culminating in Hammu-rabi's attack on Larsa, his siege of the city, and its capture in 1763.[56] Rim-Sin's fate is unknown. Two Mari letters tell us that Rim-Sin escaped and was later captured and brought to Babylon,[57] but Hammu-rabi himself makes no claim to have captured or killed Rim-Sin. In 1763, Rim-Sin was an old man, having ruled for 60 years. Given his advanced age, it is highly unlikely that the Rim-Sin who led a rebellion over twenty years later against Hammu-rabi's son Samsu-iluna was the same person.

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[54] The existence of three of them is established: one in or before Rim-Sin 25, the second in or before Rim-Sin 34, and the third in or before Rim-Sin 41. Each of them had repercussions for several years since court records refer to the first edict, for instance, until Rim-Sin 29, if not 31 (see Charpin 2004: 126).

[55] It is usually assumed that Rim-Sin felt that his capture of Isin was his most significant accomplishment, which could have been the motive behind his new dating convention. Van De Mieroop offered an alternative explanation: He concluded that Rim-Sin "ruled over a shaky state, constantly faced with Babylonian expansionism, and he did not accomplish anything worth celebrating in his year names." (Van De Mieroop 1993: 55-57).

[56] Based on the Mari letters, the siege of Larsa started at the very end of 1794 and lasted six months. See Van De Mieroop 1993: 59-61, Charpin and Ziegler 2003: 231-232, and Charpin 2004: 317-323.

[57] ARM 27, 156 and 158. See Van De Mieroop 1993: 60 and Charpin and Ziegler 2003: 232.

There is also less data for prices from the second half of Rim-Sin's reign, although there is more data for wages. Eighty-nine "usable" price and price equivalences date to the second half of Rim-Sin's reign as opposed to 147 for the first half of his reign.[58] Tables 5.1.2 and 5.3.1 show that prices for houses and livestock continued to decline and that land prices and house rental rates may have risen slightly. Commodity prices continued to be low at least until his 39th year but may have risen thereafter (Graph 5.1-2d). Ten sources of wages for independent labor for the second half of his reign averaged at the baseline wage. All told, we cannot conclude from the price or wage data that the Kingdom of Larsa suffered an economic downturn in the second half of his reign.

According to Charpin, Larsa experienced a famine in years 39-42 of Rim-Sin's reign (1784-1781).[59] He reached that conclusion based on a group of letters, which show that Rim-Sin sent merchants from Larsa to Ešnunna to procure barley.[60] Apparently, the merchants were having difficulty transporting the barley to Larsa. Transport by boat was the most economical way, far less costly than on the backs of donkeys, but the shipment was held up by political wrangling and river levels too low to allow barges laden with barley to safely navigate the waterways. Confirmation that commodity prices were extraordinarily high in Rim-Sin year 39, a sure sign of famine, comes from TCL 10, 94, a list of expenditures dated that year. In the text, six sila of dates were valued at 0.42 shekels of silver, 4100% above the baseline price,[61] and 10 gin of sesame oil were valued at 0.128 shekels, 804% above the baseline price.[62] Prices for

[58] There are a total of 107 price and price equivalences for the second half of his reign. For the 89 "usable" price or price equivalences, a baseline price can be established and its percentage price deviation computed.
[59] Charpin 2004: 126 and 384. Cf., Van De Mieroop 1993: 57-58.
[60] See Charpin 1983-1984: 104-106 for a discussion of these letters. Leemans 1960: 57-77 discusses seven texts found at Larsa from Rim-Sin years 39-42 that deal with trade between Larsa and Ešnunna.
[61] TCL 10, 94:6-7.
[62] TCL 10, 94:10.

beer[63] and flour[64] on the tablet were also extremely high. It is puzzling that nine orchard sales dated between Rim-Sin 38-40 do not show any unusual price variation, averaging 20% below their baseline.

Although Rim-Sin's first thirty year names paint a "rosy picture" of successful military exploits and territorial expansion, and the year names for his second thirty years leave us uninformed, there are indications that Rim-Sin suffered at least two military setbacks during his reign. The first took place in 1800, in his 23rd year. Sin-muballiṭ claims to have defeated Larsa, an event commemorated in his fourteenth year name (1799). As noted by Van De Mieroop, one possible indication of trouble is that Balmunamhe raised the penalty that guarantors paid him for runaway slaves from 20-30 to 60 shekels silver during those years, which led him to speculate that unstable conditions at that time encouraged more slaves to escape.[65] In any case, judging from graph 5.1-2e, it does not seem as if Sin-muballiṭ's victory had any serious or long-lasting impact on the economy of the Kingdom of Larsa. The second military setback took place in 1787, in Rim-Sin's 36th year. The year name of Hammu-rabi's seventh year (1786) commemorates his capture of Uruk and Isin from Larsa the prior year. Again, the price data from the Kingdom of Larsa is inconclusive, and it's not possible to ascertain whether Hammu-rabi's victory had an adverse economic impact.[66]

The next section examines the political history of the 1st Dynasty of Babylon in light of what we have learned about prices and wages.

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[63] Line 19: 2 (BÁN) KAŠ KÙ.BI 1 GÍN IGI X [GÁL]. (≥15.15 shekels/gur) compared with TCL 10, 86 (RS 34), 1 shekel/gur, TCL 10, 39 (RS 14) 1.50 shekels/gur, or TCL 10, 100 (RS 45) 5.20 shekels/gur.
[64] Lines 8-9: 3 SILA$_3$ ZÍD.GU ⌜KAR⌝.BI 6 KÙ.BI 1/2 GÍN (50 shekels/gur).
[65] Van De Mieroop 1987: 9. There is only one slave sale during these years, the sale of a male slave for 20 shekels silver in RS 27 (YOS 8, 86).
[66] BIN 7, 168, a field sale dated RS 45 (1778) that Kraus 1951: 110-111 assigned to Isin, indicates that Rim-Sin eventually regained control of the city.

6.2 1st Dynasty of Babylon

Sumu-la-El (1880-1845) was the founder of the 1st Dynasty of Babylon.[67] The political and economic situation in northern Babylonia prior to and during his reign was, to say the least, complicated. It was an unsettled time, a period when tribal chiefdoms, rulers of city-states and small kingdoms (local dynasts) jockeyed for power with the kings of Isin, Larsa, Uruk, Ešnunna, and Babylon. Sumu-la-El spent much of his reign combatting (and sometimes collaborating with) these local dynasts. A number of his year names commemorate his military successes as well as defensive measures.[68] By the end of his reign, the local dynasts had disappeared, and Sumu-la-El had carved out a small kingdom that extended from Sippar in the north to Marad in the south, which included Babylon, Dilbat, Kish, Damrum, Borsippa, Lagaba, and Kazallu. It would endure for the next 250 years.

At the onset of the Old Babylonian period, and in sharp contrast to the Ur III period, northern Babylonia experienced a veritable explosion in the number of private legal documents: sales (of houses, fields, and orchards), loans, field rentals, divisions and exchanges of property. This took place not just in the nascent Kingdom of Babylon, but also in city-states such as Kish/Damrum, Sippar, and Marad that were ruled by local dynasts.

A considerable number of house and land sales from Sippar and a handful from Dilbat and Kish bear Sumu-la-El year names. It's unfortunate, however, that most of the real estate

[67] See Charpin 2004: 80-86. De Boer 2018: 53 refers to Sumu-abum as a "pan-tribal Amorite leader." See also section I.3.

[68] Starting with his 3rd year name, Sumu-la-El records a victory over Halum-pi-umu of Kazallu/Marad. Subsequent year names record victories over Kish (year 13, including the dismantling of its city walls in year 19) , Kazallu (years 18, 20, and 25), and Malgium (year 34), as well as the building of city walls and fortresses (years 5, 27, 29, 31). In one of his royal inscriptions (RIME 4.03.07.05 lines 36-54), Samsu-iluna refers to restoring 6 fortresses built by Sumu-la-El.

sales dated under him do not state a price, recording only that "silver was paid."[69] The same holds true for real estate sales from Sippar dated under local dynasts, who were predecessors or contemporaries of Sumu-la-El.[70] Thus we are deprived of what would have been an invaluable source of real estate prices for the early Old Babylonian period.[71] Seven land sales and three house sales dated to his reign averaged 88% and 4% respectively above their baseline. That's not enough data to even speculate on economic conditions during his reign. The absence of livestock or commodity prices or information on wages also doesn't help.

In contrast, real estate sales dated under the local dynasts of Kish/Damrum do give prices. Land prices may have risen under Manana and Sumu-Jamutbal, compared with Manana's predecessors (Table 5.1-4); however, the forced land sales discussed in section 1.2.4 and sales of children sold into slavery by their parents bespeak of economic hardship under the rulers of the Manana dynasty.

As their year names show, Sabium (1844-1831) and Apil-Sin (1830-1813) were occupied with the continued fortification of cities and the construction of waterways and temples. Sin-muballiṭ (1812-1793), however, initiated a series of military ventures into central and southern Babylonia. His year names record victories over Larsa (year 14) and Isin (year 17). Several record construction of walls and fortifications (years 7, 10, 11, 12, 18, and 20).

As was the case with Sumu-la-El, our sources for prices and wages from the reigns of Sabium, Apil-Sin, and Sin-muballiṭ are also insufficient to make a definitive judgement on economic conditions during their reigns. Overall, however, it seems that prices declined from

[69] Eleven real estate sales dated under Sumu-la-El give a price. The area of one land sale is damaged.
[70] Three sales dated under Immerum of Sippar give a price.
[71] See Goddeeris 2002. She collected early Old Babylonian real estate sales from Sippar, Dilbat, and Kish and used these to reconstruct private family archives.

Sumu-la-El through Sin-muballiṭ (Table 5.1-1 and Graph 5.5.1). If true, that is a good sign of political stability. Although Hammu-rabi inherited a kingdom that was relatively weak in relation to Samsi-Addu's Upper-Mesopotamian Kingdom in the north and the Kingdom of Larsa in the south, he nevertheless could have had a sound economic footing on which to further his ambitions.

Hammu-rabi's forty-three year reign (1792-1750) is relatively well documented and better understood compared to the other rulers of the 1st Dynasty of Babylon. At the time of his accession, it was once thought that he had been in a subordinate relationship to Samsi-Addu, but this idea has subsequently been abandoned.[72] The year names of Hammu-rabi's seventh to eleventh years (1786-1782) record a series of victories over cities as far away as Uruk and Isin in the south, Rapiqum in the north on the Euphrates, as well as military successes over Malgium and Emutbal in the east. This burst of warlike activity is followed by eighteen years in which no military activity is mentioned. During these years, his year names show him strengthening his kingdom by fortifying its cities (years 19, 21, 23, and 25), but most simply record his dedications to various Babylonian deities. All that changed beginning with his 30th year name, which commemorates his victory over Elam in 1764. One year later, he defeated Rim-Sin and captured Larsa, thereby bringing the Kingdom of Larsa to an end. Over the next several years, he defeated Ešnunna, Malgium, Subartu, and Mari, substantially increasing the size of his kingdom.[73] By the end of his reign in 1750, the Kingdom of Babylon controlled an area that stretched from the Persian Gulf into northern Mesopotamia.

[72] Charpin 2004: 155 and note 714. This theory was first proposed by Gadd based on a court case (BE 6/1, 26) dated Hammu-rabi year 10, which features a double oath by Hammu-rabi and Samsi-Addu.
[73] Hammu-rabi's conquest of Larsa and subsequent conquests are covered in detail in Charpin 2004: 317-331.

The overall economic picture for the Kingdom of Babylon during the reign of Hammu-rabi is one of continued improvement. Even before his thirtieth year, after which prices no doubt reacted to his continued military successes, prices were lower than they had been under his predecessors, and wages seem to have risen (Graph 5.5-1). Successful military campaigns had several positive results. One was an increase in the number of Prisoners of War (POWs), who became state property and served as slaves. They could be ransomed back to their country of origin or sold.[74] The decline in the price of slaves, which occurred in the last thirteen years of Hammu-rabi's reign and which continued into the early years of Samsu-iluna, was likely a consequence of this increased supply.[75] Second, Hammu-rabi's military victories also benefitted his troops, as the taking of booty from a defeated enemy is an outcome of military success.[76] An influx of booty coupled with lower prices/higher wages meant increased purchasing power and a betterment in the standard of living for the populace as a whole. Third, his victories benefitted (enriched) the crown, as many soldiers from conquered kingdoms were settled in the countryside in military colonies where they were given state land in return for military service, paying taxes, and performing corvée labor, such as assisting with the harvest or with canal maintenance and construction.[77]

[74] Note CUSAS 8, 2 (Aṣ 5), where a female slave that is being sold is described as "booty from Kalkala." See Gelb 1973, Van Koppen 2004: 16-17, and Charpin 2014a. Also, CAD A/2 p. 331 sub *asīrum*.
[75] Van Koppen 2004: 15-19 addresses this topic extensively.
[76] See Charpin 2004: 291-292 for his comments on the economic consequence of war (with footnotes 1540 and 1541 for additional bibliography).
[77] Boer 2016 examines an archive from one of these military colonies called Jaḫrūrum šaplûm, a region which contained a number of villages located along canals between Kish, Marad, and Dilbat. Dating to the reign of Samsu-iluna, this archive deals with men from Uruk and Malgium performing corvée labor (their *ilkum* duty) on state land. Some of these men were probably settled there by Hammu-rabi and later by Samsu-iluna, in the aftermath of the revolt of the south against him.

Hammu-rabi's post-conquest treatment of Larsa shows that he tried to minimize economic disruption. In the prologue of his law code, he claimed to have spared the city of Larsa and its inhabitants. Table 5.3-1 lends support to this claim. It shows that prices overall were lower in the south under Hammu-rabi compared to Rim-Sin, with forty-three sources dated between Hammu-rabi years 31-43 averaging 27% below their baselines. Following his conquest, Hammu-rabi wisely declared a *mīšarum*, a "remission of debt" for the south.[78] Moreover, he retained the *ilkum*-system of land distribution that Rim-Sin had put in place thirty years earlier,[79] replacing Rim-Sin's administrators with his own. In addition, Hammu-rabi's letters to his subordinates in the south -- Šamaš-hazir and Sin-iddinam -- show that he was concerned with fair and honest administration of the land, directing them to investigate and resolve disputes over land and chastising them when they failed to do so.[80] One notable impact of his conquest, however, is a marked drop in the number of land sales in the south. There are 31 land sales dated to Rim-Sin's last thirty years compared to only two from the south under Hammu-rabi and nine under Samsu-iluna.

Further evidence that Hammu-rabi's conquest of Larsa did not disrupt the kingdom's economy comes from private archives. Two divisions of property from Larsa are dated in the first year of Hammu-rabi's rule in the south.[81] Although there is a significant drop-off in the number of legal texts dated under Hammu-rabi and Samsu-iluna compared to Rim-Sin that were unearthed by Woolley from the private houses in Ur, the archive of Ku-Ningal (#7 Quiet Street) confirms that at least two of Ku-Ningal's sons continued to inhabit the house and retain

[78] See Charpin 2004: 323 and NABU 1991/102.
[79] Van de Mieroop 1993: 61-62.
[80] Letters from Lu-Ninurta, Hammu-rabi's "minister" (title unknown) in Babylon, to Šamaš-hazir express the same concern. See Fiette 2018: 94-98 and passim. The letters were published in AbB 4.
[81] OECT 15, 38 and Boyer Contribution 109 (pl. 4).

ownership of land under Hammu-rabi and Samsu-iluna.[82] The archive of Šep-Sin, "overseer of the merchants" of Larsa, and his associates extends from Hammu-rabi year 32 to Samsu-iluna year 7. It shows that business continued "as usual" after the conquest.[83] Hammu-rabi's treatment of Larsa can be characterized as one of "economic exploitation."[84]

To summarize: The military successes between Hammu-rabi's thirtieth and fortieth years and the political stability he brought to both the north and south had a profoundly positive effect upon the economy. It ushered in a period of lower prices, which continued into the reign of his successor Samsu-iluna, and which may have served to raise the standard of living enjoyed by the population as a whole.

Although Hammu-rabi appears to be invincible after his fortieth year, several scholars have proposed that his kingdom was on the defensive. Dorothy Ormsby took perhaps the most extreme view when she asserted that:

> "Upon the death of Hammurapi (and perhaps even before his decease), Samsuiluna fell heir to a rapidly disintegrating empire, an empire not only threatened by invasion from without, but also teetering on the verge of collapse from disunity within."[85]

This theory rests upon the assumption that the building of defensive walls by Hammu-rabi, commemorated in the year names of his 42nd and 43rd years, represents evidence of external pressure on his kingdom. This assumption is not borne out either by the economic or the political evidence. If Hammu-rabi's kingdom was indeed in desperate straits after his fortieth year, one would expect to see this reflected in some manner in the data for prices and wages. To

[82] In UET 5, 215 (Si 2), Enamtisud, one of Ku-Ningal's sons, leases out a field of 2 bur belonging to him and his brother. Ku-Ningal's sons are lessors in several field rentals under Rim-Sin. In UET 5, 254 (Ha 32), Enamtisud is involved in a court case (see Charpin 1986: 90-91).
[83] See Stol 1982: 131.
[84] See Stol 1982 for details as to how the state exploited its resources.
[85] Ormsby 1972: 90.

be precise, if I have correctly interpreted the economic and political evidence for Hammu-rabi's reign, in which military victories coincided with apparent prosperity, one would expect the reverse to be true in a situation where the kingdom is politically or militarily unsound. But, in fact, one finds no evidence of economic hardship. Instead, as we've seen in chapter 5 (summarized in Graph 5.5-1), the final years of Hammu-rabi and the early years of Samsu-iluna appear to have been a time when prices were low, one of the few times when barley, for example, was valued at less than 1 shekel per gur. I agree that the construction of walls by Hammu-rabi along the banks of the Tigris and the Euphrates near Sippar and the strengthening of the city's fortifications were defensive in intent.[86] One need only recall that almost three hundred years earlier, Šu-Sin, the fourth king of the Ur III dynasty, had also controlled all of lower Mesopotamia. In order to prevent outsiders from entering his kingdom, he had found it necessary to build a wall between the Tigris and Euphrates just north of Sippar. Like Šu-Sin, Hammu-rabi was well aware of this avenue for invasion, and, after pacifying his enemies, he undertook to strengthen the northern approach to his kingdom. Had an attack been imminent, one would expect to find some mention in Samsu-iluna's first few year names of campaigns along Babylonia's northern borders or the continued fortification of this area. Instead, the first seven years of Samsu-iluna's reign (1749-1712) seem to have been peaceful. Upon ascending the throne, Samsu-iluna declared an *andurārum*,[87] which he commemorated in the year name of

[86] Charpin 2004: 332 would disagree, contending that the measures Hammu-rabi took were primarily intended to avoid flooding.

[87] The legal ramifications of an *andurārum* versus a *mīšarum* and the difference between the two is not entirely clear. Charpin 1987: 36-44 does a semantic and etymological analysis of *andurārum* and defines it as "*retour au statut original*" (p.38). See also his comments on both terms in Charpin 1990: 13-24. The term *andurārum* occurs in the CH with regards to the freeing of slaves and distrainees and in private legal texts referring to the manumission of slaves. Some hint as to its intended meaning may come from its Sumerian equivalent AMA.AR.GI, literally "return to mother." In a private communication, Rients de Boer suggested that the term meant something like "preferred status-quo, a (previous) ideal situation in which things are as they should be." He went on to say that this could mean "the cancelation of burdensome debts, the return of property sold under distress, and also the return of a slave to his rightful owner." CAD M/2 p. 116 defines a *mīšaru(m*) as a "legislative act to remedy certain economic

his second year. Year names 3 and 4 commemorated the digging of two new canals, necessary to control flooding and bring additional land under cultivation. Year names 5 through 8 commemorated cultic activities. During these years, prices were the lowest of any period tracked.[88] To me, all of this signifies that his kingdom faced no immediate external or internal threats.

Charpin has proposed that, beginning in his eighth year, the economic situation rapidly deteriorated, forcing Samsu-iluna to declare a second *mīšarum* eight years after his first.[89] He hypothesized that the canal Samsu-iluna dug to relieve flooding in the north, which he commemorated in his third year name, had the unintended consequence of diverting too much water from the south, resulting in a series of bad harvests and the piling up of debts.[90] Charpin's assertion that there were a series of bad harvests in the south in the early years of Samsu-iluna's reign is not borne out by the data for commodity prices. High commodity prices are a reliable indicator of "hard times," but there is no evidence of this for the first seven years of his reign.[91] Unfortunately, there are no sources for commodity prices from Larsa or the south after year 7, so it is indeed possible that the situation changed after that date.

Nevertheless, Samsu-iluna's second declaration of a *mīšarum*, coming so soon after his first, is perplexing, especially in light of the low prices mentioned above. The rapid deterioration

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malfunctions." One of its consequences was to abolish certain debts between private individuals; hence, my use of the definition "debt remission." We saw in chapter 2 how a *mīšarum*-edict could redress a "forced" sale of a house, resulting in a creditor having to return the house to its original owner (debtor). But CAD mng. 2 shows that the term was also used to mean "justice (in general)," which suggests that a *mīšarum*-edict had wider implications.

[88] One hundred and thirty-six sources of prices (north and south) averaged 30% below their respective baselines (Table 5.1-1). Prices in the south declined even more than in the north (Table 5.3-1).

[89] Charpin 2004: 337 and Charpin 2000: 190-197.

[90] Charpin 2004: 337.

[91] Twenty-eight sources of commodity prices (north, south, and undetermined provenience), dating between Samsu-iluna years 1 to 11, average 40% below their respective baselines. Eleven of these, dated between years 1 and 7, are from Larsa. They average 36% below their respective baselines. Three of the eleven, all from year 7, are barley loans, where the barley's silver equivalent is given or can be determined: TCL 11, 216 (50% below baseline); Boyer Contribution 196 (32% below baseline); AUCT 4, 5 (67% below baseline, although this low price reflects a late payment penalty).

of the political situation in the eighth year of his rule (see below) might account for it. But there had to have been economic motives behind its issuance. One possible motive may be inferred from Table 5.2-2, which shows that wages for all worker categories were also low during his first eleven years. Perhaps the drop in wages more than offset the benefits of a drop in prices, increasing borrowing among wage-earners. Perhaps barley prices dropped too low. At first thought, it seems paradoxical that low barley prices could have been a source of dissatisfaction. But depressed barley prices meant that: 1) farmers might not have had sufficient surplus barley after feeding their families to purchase the other necessities they needed for their household, such as oil, wool and meat;[92] and/or 2) farmers who borrowed silver in the months prior to the harvest to purchase barley with repayment in barley after the harvest "according to the going rate," (very common in loan contracts) may have chaffed under the burden of having to repay substantially more barley than if the price of barley had been higher. All things considered, issuance of a *mīšarum* was normally done to remedy an economic imbalance, and it is difficult to find one here.

In Samsu-iluna's eighth year (1742), trouble appeared on two fronts. Samsu-iluna's ninth year name, which normally refers to events that took place the prior year, is named rather enigmatically as "The year Samsu-iluna pulled out the root of the Kassite troops (at) Kikalla."[93] In that same year 1742, the south revolted. The chief protagonist was Rim-Sin II of Larsa, joined by Iluni of Ešnunna, and, for a short time, by Rim-Anum of Uruk.[94] The revolt was widespread

[92] See above section 5.4 (cost of living).
[93] See Van Koppen 2017: 52-53 for his interpretation of this event. He does not consider it evidence of a Kassite invasion. Rients de Boer (private communication) suggests that Kassites were among the soldiers settled in the countryside under an *ilkum* scheme and that Kikalla was probably the name of one of their military colonies. He believes this was an internal matter and not an external attack on the kingdom by Kassites.
[94] A recently published statue inscription of Samsu-iluna provides new information on the Rim-Sin II revolt. See Lambert & Weeden 2020.

and initially successful.[95] During Samsu-iluna's 9th year (1741), when Rim-Sin II controlled the south, legal texts from Larsa, Ur, Kutalla, Isin, and Nippur were dated with his year names, and no texts from the south have been found dated to the 9th year of Samsu-iluna.[96] Samsu-iluna claimed to have suppressed the uprising, killed Rim-Sin II, and captured Iluni.[97] His 10th year name commemorates his victory over the armies of Idamaraṣ, Jamutbal, Uruk, and Isin. Texts dated with Samsu-iluna's 10th and/or 11th year names (1740-1739) reappear at Larsa, Kutalla, Ur, and Nippur lending credence to his claim. But his supposed victory was short-lived, and conflict must have continued since his 11th year name records the destruction of the walls of Ur and Uruk. For reasons that are not entirely clear, in 1739 Samsu-iluna lost control of the south, this time for good.[98] There are no tablets dated after 1739, and archaeological evidence shows that the major urban centers of the south (Ur, Larsa, Uruk) were abandoned, and remained so for the rest of the OB period.[99] Refugees from Larsa and Uruk sought refuge in the north.[100]

Two real estate purchases from Kutalla hint at the economic disruption brought about by the widespread rebellion against Babylonian rule and Samsu-iluna's subsequent recapture of the south. In TS 86, Ibni-Adad sells Ṣilli-Ištar and his brother Awil-ili 1.33 sar of "ruined" house for

[95] Samsu-iluna claimed in a royal inscription (RIME 4.03.07.07, lines 101-103) that 26 rebel kings participated in the revolt. For a chronology of the revolt and the role the city of Uruk played in it, see Seri 2013: 26-36, 42-47, and 238-240 (expanding on a prior study by Stol 1976). See Charpin 2014b for his review of Seri's work and pp. 128-130 for his suggested modifications to her chronology of events.

[96] Little can be gleaned about prices or wages under Rim-Sin II from the 5 sales, 2 contracts of hire, 1 house rental, and two miscellaneous texts bearing his year names. Two of these (OECT 15, 61 and BIN 2, 73), hint that barley prices were high under Rim-Sin II, which would support Charpin's assertion (Charpin 2007: 158) that the south experienced famine under his rule (see above 5.1.2).

[97] RIME 4.03.07.07 lines 92-115.

[98] Charpin 2004: 342 speculates that the abandonment of the south could have been caused by an attack from Elam or from the rulers of the Sealand. He also raises the possibility that climate change in conjunction with the shifting course of the Euphrates River and their resultant impact on agriculture were responsible. Van De Mieroop 1992: 69-70 sees the cause as a general agricultural decline brought about by a faltering bureaucracy.

[99] There is some uncertainty as to whether or not Ur continued to be occupied (Van De Mieroop 1992: 69).

[100] Charpin 2004: 343-345. While the Sealand kingdom was emerging at this time, the role it played in the abandonment of the southern sites and the flight of the refugees is unclear. See Boivin 2018: 86-94 for an overview of the early history of the Sealand kingdom.

2.33 shekels of silver. The contract is dated month xi of Rim-Sin II year b (1741).[101] Written one year later in 1740 (Si 10 month xi), TS 84 is a virtual duplicate of TS 86 -- same property and same seller, buyers, and witnesses. Only the price is now 4.42 shekels of silver, about double the price of the original sale. When Samsu-iluna recaptured the south, for reasons that are unclear, he apparently required contracts drawn up under Rim-Sin II to be re-executed. Why, however, the price doubled, is a mystery.[102]

The economic impact of the unsettled political conditions in these years is most apparent at Nippur, which Samsu-iluna retained for a time. In the opening paragraph of her article entitled "Economic Crisis and Social Upheaval in Old Babylonian Nippur," Elizabeth Stone stated the following: "In the eleventh year of the reign of Samsu-iluna (1739), the city of Nippur, and indeed all of southern Babylonia, suffered an economic crisis."[103] According to Stone, the crisis at Nippur "…was characterized by a concentration of property sales associated with a drop in land values and cessation of loan and rental documents."[104] Stone graphed house and land sales from Nippur from 1880-1720. Her graphs show a marked drop in the prices of both in the years 1739-1738.[105] In *Nippur Neighborhoods*, she correlated the economic crisis with specific stratigraphic layers and excavated private houses that indicated a partial abandonment of the site at that time.[106] Stone's assertion is corroborated by the additional texts that have been published since her article and which are utilized by this study. Graph 6.1-1 graphs percent deviation from baseline of house and land prices at Nippur from 1763-1721, corresponding to Hammu-rabi's

[101] Based on his analysis of TS 84 and 86 and earlier work done by Stol on the chronology of the rebellion of Rim-Sin II, Charpin 1980: 194-195 proposed that year date Rim-Sin II b is the equivalent of the 9th year of Samsu-iluna (=1741).
[102] Charpin 1980: 195.
[103] Stone 1977: 267.
[104] Stone 1977: 280.
[105] Stone 1977: 272-274.
[106] Stone 1987: 32, 37, 74, 129-130.

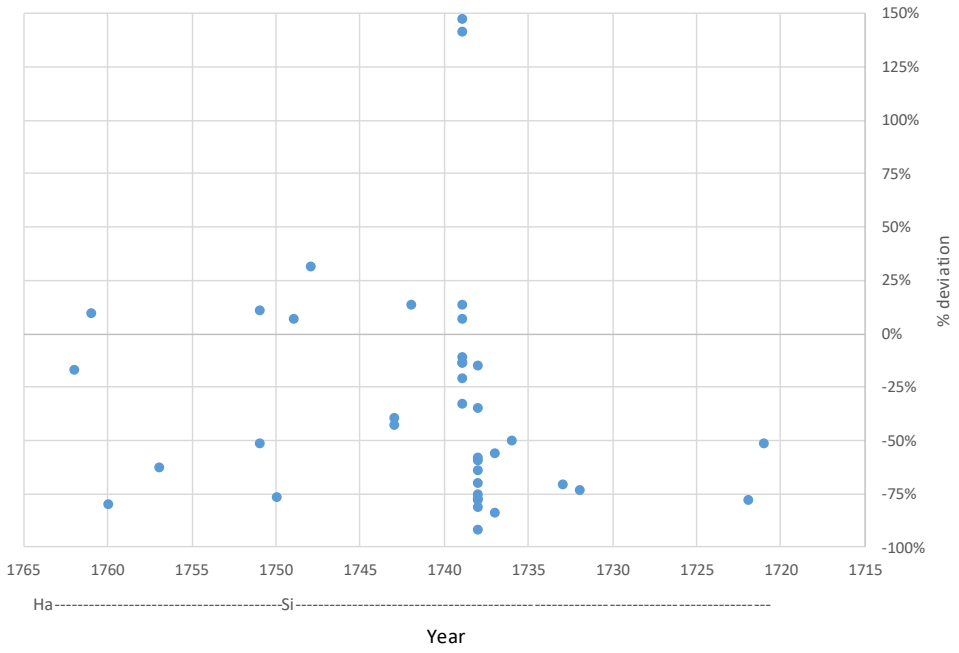
conquest of the Kingdom of Larsa up to Samsu-iluna's loss of Nippur to Ili-ma-ilum of the Sealand Dynasty.[107] After about a three year gap when there are no real estate sales, there are a flurry of sales in 1739 and 1738, many at prices sharply lower than the preceding years, which confirms Stone's findings. It also shows that, in the post-crisis period, (1737-1720 according to Stone),[108] real estate prices at Nippur remained depressed.

Graph 6.1-2 graphs percent deviation from baseline of house and land prices at Sippar from 1763 through the end of Samsu-iluna's reign in 1712. At the onset of Samsu-iluna's reign, the graph shows real estate prices dropped, but there is no indication of either the flurry of sales or the sharp drop in prices that occurred at Nippur in 1739-1738. From 1738-1725, real estate prices remained relatively stable, although they appear to have risen in the remaining years of his reign— two sales even show a percentage deviation greater than 150%.

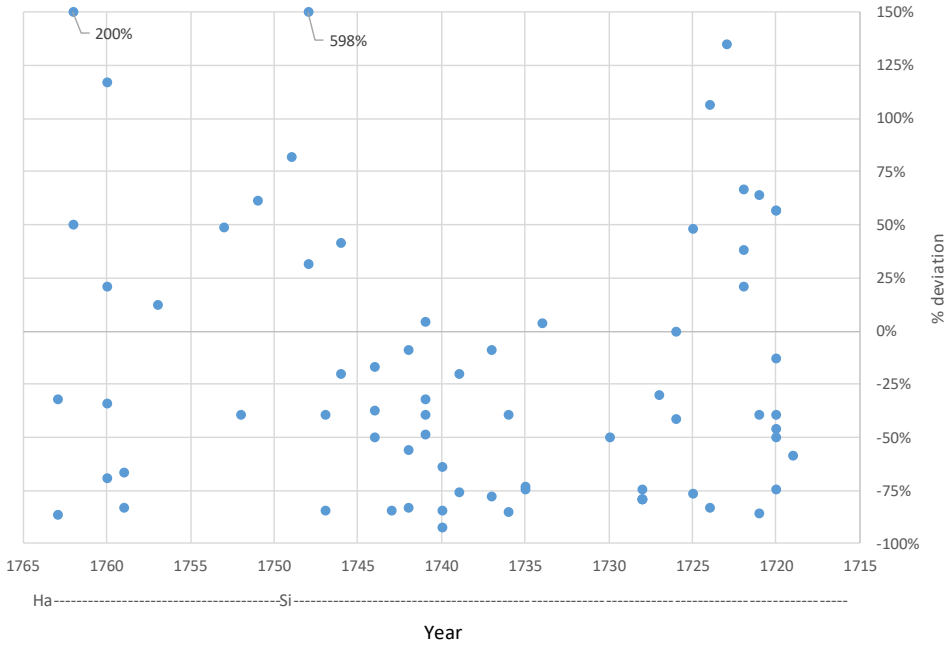
Graph 6.1-3 graphs percent deviation from baseline of house and land prices for Larsa, Kutalla, Ur, and Isin for the same period. It shows that every real estate sale but one during that time was below its respective baseline. It also shows that real estate prices at these cities averaged lower than prices at Sippar during the first eleven years of Samsu-iluna.[109] Given that Larsa, Kutalla, and Ur were abandoned in 1739, it is no surprise that there is no evidence from these cities of the economic crisis that gripped Nippur in that year. The situation in Isin is unclear as there are only a handful of sales from that city in the following years.

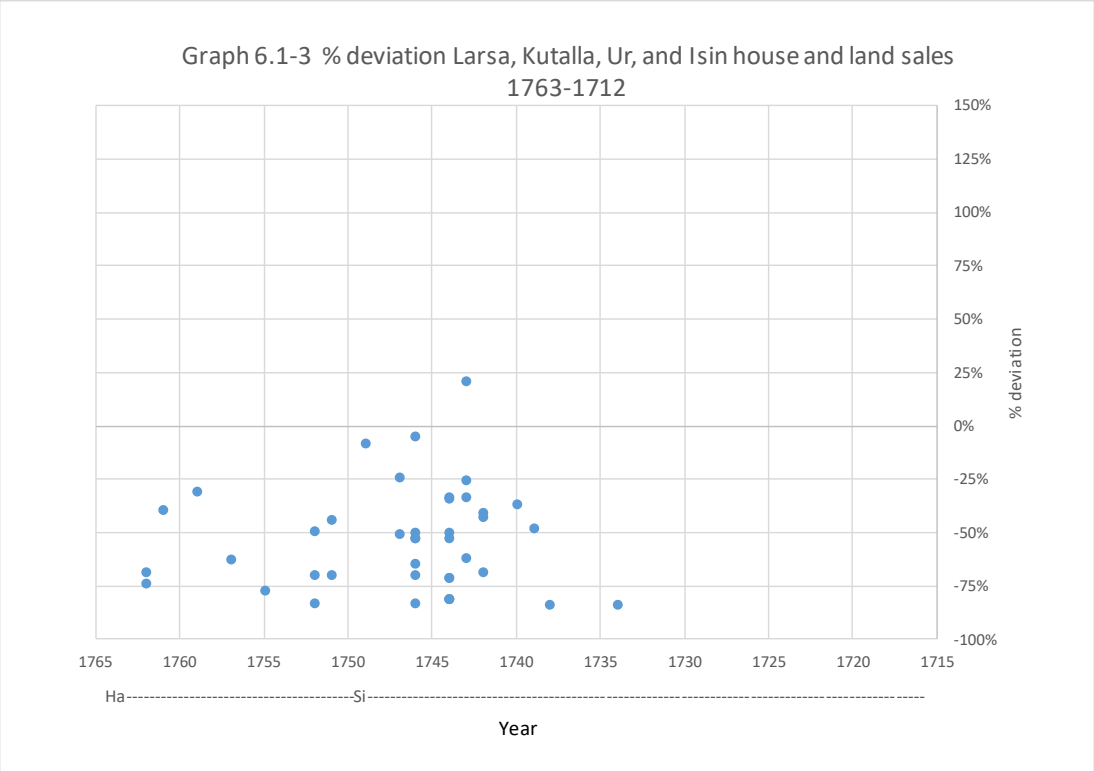
[107] There are no real estate sales from Nippur dated under Rim-Sin II.
[108] Stone 1977: 270. Cf., Goddeeris 2016: 195 who points to the high prices in TMH 10, 105 for barley, oil, and wool as evidence that the economic crisis at Nippur persisted until at least 1735.
[109] 27% below baseline at Sippar (24 sales) versus 48% below baseline for Larsa, Kutalla, Ur, and Isin (28 sales). Table 5.5-1 breaks down real estate sales into houses and land and compares northern to southern Babylonia. It shows that, from Samsu-iluna year 1-11, houses were less expensive and land was more expensive in the south compared to the north.

Graph 6.1-1 % deviation Nippur house and land sales 1763-1721



Graph 6.1-2 % deviation Sippar house and land sales 1763-1712





To summarize: The reconstruction proposed by Stone is correct. The sources do, in fact, indicate that Nippur suffered a drop in land prices in conjunction with an increase in the number of land sales in 1739. The economic crisis, which manifested itself at Nippur but not at Sippar, must be related to the abandonment of southern Babylonian cities that same year. It undoubtedly was precipitated by the rebellion against Samsu-iluna 1742, its chief protagonist being Rim-Sin II of Larsa.

After the loss of the south, judging from year names twelve through thirty, Samsu-iluna continued to deal with intermittent military challenges. He suppressed revolts in his own kingdom (years 12,13, and 14), campaigned in the Diyala valley and defeated Ešnunna (year 20), rebuilt/restored walls and fortifications (years 15, 16, 17, 24), and campaigned in northern

Mesopotamia (years 23 and 28). During this time, Samsu-iluna declared two more *mīšarum* in years 17 and 28.[110]

There are 101 sources for prices and 7 for wages dated from Samsu-iluna's twelfth through his thirty-fourth year.[111] These indicate that prices for commodities rose, prices for houses, house rentals, and slaves remained about the same (although the number of slave sales declined sharply),[112] and land prices declined (see Table 5.1-1). Wages may have risen (Table 5.2-1).

Our best source for understanding commodity prices during these years is TMH 10, 105, which records expenses for barley, oil, and wool over a nine-year period, from Samsu-iluna year 15 to year 24.[113] According to the text, barley sold as high as 5 shekels silver per gur in years 15-16 but dropped to 0.42 shekels per gur in years 21-23. In the same period, sesame oil dropped from 2.50 shekels to 0.83 shekels per *sūtum*, and wool from 30 to 15 shekels per talent. I would attribute the high prices of barley, oil, and wool in years 15-16 to the unsettled political conditions of the preceding years. Apparently by year 21, Samsu-iluna had restored political and economic stability, and this is reflected in the declining prices of all three commodities. In his 30th year (1720), Samsu-iluna lost control over Nippur, and shortly thereafter, the city was largely abandoned.[114] The latest sale at Nippur is dated to his 29th year (1721).[115] Thereafter, a few sales are dated under Ili-ma-ilum, ruler of the Sealand Dynasty.[116] After Samsu-iluna year

[110] Charpin 2000: 202.
[111] No tablets with prices or wages dated to his last four years have been found.
[112] See also Van Koppen 2004: 12.
[113] See Goddeeris 2016: 194-196 and 367-368 for transliteration, translation and commentary and section 3.1.3.2 above.
[114] Texts from Dur-Abiešuh show that a skeleton crew of clergy apparently continued to live in Nippur and tend to the Ekur temple until the end of the reign of Ammi-ṣaduqa. The population, by and large, moved north. See Van Lerberghe and Voet 2009: 1 and Charpin 2020c.
[115] BE 6/2, 64 (month ii). Also unpub. UM 29-13-751 (list of expenditures).
[116] E.g., PBS 8/1, 89; BE 6/2, 68 and case; TMH 10, 54a and 54b (case).

30, the number of sources for prices declines. Commodity prices rose in those years, with the price of barley spiking to two shekels silver per gur in Samsu-iluna year 34, the latest dated text with a price from his reign (Graph 5.1-e).

Upon the death of Samsu-iluna, the territory controlled by the Kingdom of Babylon was greatly diminished compared to the beginning of his reign. He had lost control over the south (Ur, Larsa, Uruk) and central Babylonia (Nippur, Isin, Maškan-šapir), and likely also the Middle Euphrates (Mari, Terqa, and Suhum). The cities that defined the "core kingdom" which Sumu-la-El had established remained under Babylonian control as well as the city of Ešnunna and possibly the Diyala valley in the east.

The reigns of the last four kings of the 1st Dynasty of Babylon -- Abi-ešuh, Ammi-ditana, Ammi-ṣaduqa, and Samsu-ditana -- comprise what is generally referred to as the Late Old Babylonian (LOB) period (1711-1595).[117] Compared to Hammu-rabi and Samsu-iluna, much less is known about these rulers. They have left us far fewer royal inscriptions, and their year names record fewer large scale building projects, military campaigns, and victories. They ruled over a kingdom considerably reduced in size compared to the early years of Samsu-iluna[118] and a population swelled by refugees from the south and an influx of "foreigners" such as Kassites, Hurrians and Elamites from the periphery.[119] Their control over the land and its resources was diminished.[120]

[117] Pientka 1998.
[118] Texts found in Terqa dated to the reigns of Ammi-ṣaduqa and Samsu-ditana suggest that both rulers maintained some control over the Middle Euphrates. See Charpin 2004: 380-381.
[119] Charpin 2004: 367; 373-374; Pientka 1998: 264-268; and Van Koppen 2017. Cf. Richardson 2019b (especially 322-325 and note 58 where he cites Dur-Abiešuh texts in CUSAS 8 and 29 as evidence for foreign mercenaries manning LOB fortresses).
[120] Charpin 2004: 370-371.

Abi-ešuh, who ruled for twenty-eight years (1711-1684), struggled to maintain his kingdom's borders. The military situation on his southern flank was precarious. At some point in his reign, Abi-ešuh apparently re-occupied Nippur, still largely abandoned.[121] To protect the city, the Euphrates, and a key waterway from incursions by the rulers of the Sealand Dynasty, Abi-ešuh built a string of forts running south from Nippur. Dur-Abiešuh is the best known of these by virtue of the large number of tablets (illegally) excavated from the site.[122] According to a late OB chronicle, Abi-ešuh campaigned against Ili-ma-ilum, the king of the Sealand.[123] His strategy revolved around building a dam on the Tigris (commemorated in year "o") to divert water and thereby dry up the marshes to starve and weaken the Sealand enemy. He must not have been successful as they continued to harass the kingdom under his successors. In the east, although he claimed to have routed the king of Ešnunna in battle and even captured him (year "dd,"), by the end of his reign, Abi-ešuh had lost control of the city.[124]

As a consequence of these unsettled political conditions, prices rose. Twenty-nine sources of prices averaged 70% over their respective baselines (Table 5.1-1). Five sales of slaves averaged 222% above their baseline, the highest mean price for slaves for any period recorded in this study.[125] One loan valued six minas of wool at 3 shekels of silver,[126] triple the rate found in the Ešnunna law code. Eight house rentals averaged 89% over their baseline rental

[121] His re-occupation of the city is not commemorated in a year name. It is uncertain when this occurred, but it was probably sometime before Dur-Abiešuh was constructed.
[122] The precise location of the fort remains unknown. Its construction is commemorated in the year name of Abi-ešuh year "m," possibly his twenty-first year. Per Abraham and Van Lerberghe 2017: 4, Hammu-rabi had the canal dug "Hammu-rabi is the Abundance of the People" (*Hammurabi-nuhuš-nišī)* in order to provide water for Nippur and cities further downstream. See Charpin 2015: 145-150 and Beranger 2019: 111-112 for their thoughts on the matter.
[123] Charpin 2004: 368.
[124] Charpin 2004: 369. See also Van Koppen 2013 regarding a possible Elamite incursion into Babylonia during his rule and his defeat of the Elamite army.
[125] Cf. Van Koppen 2004: 17. He attributes this to diminished supply.
[126] YOS 13, 340. Loan of silver with repayment in wool.

rate. However, the three house sales and nine land sales dated under Abi-ešuh do not show any unusual price fluctuation. Wages also rose. Five contracts of hire averaged 84% above their respective baselines.[127] This is the highest average wage paid for any period recorded in this study.

Under Ammi-ditana (1683-1647), the economic and political situation seems to have once again improved. While most of his year names commemorate cultic activities (dedications of statues, thrones, and sacred objects to the gods), several record the building of fortresses (years 9, 11, 16, 32, 35), an action he took to improve security, maintain control of the country-side, and safeguard his kingdom. One year name records a possible military victory (year 17), and another, his last year (year 37), the dismantling of the walls of Udinim, constructed by Damiq-ilišu, ruler of the Sealand. We know from a letter found at Dur-Abiešuh dated Ammi-ditana year 11 that fighting continued in Nippur.[128] Other letters and temple lists from Dur-Abiešuh show that he managed to maintain control of the city.

Prices during Ammi-ditana's reign show a gradual improvement compared with prices under Abi-ešuh. Twenty-four sources averaged 46% above their baselines for his first ten years, and 54 sources averaged at baseline for years 11 to 37 (Table 5.1-1). During his reign, slave prices declined even though they remained considerably higher under Ammi-ditana compared to the end of Hammu-rabi's reign and the early years of Samsu-iluna: 10 sales average 135% above baseline for his first ten years, and 9 sales average 33% for years 11 to 37. Prices for houses and

[127] JCS 5/3, p. 97is most telling. In it, a male slave is hired for one month to do brewing work. His wages are 1.66 shekels. This is two-thirds higher than the baseline wage of 1 shekel silver (or 1 gur barley) per month for an independent worker specified in the CH and LE.
[128] See Van Lerberghe, K. and Voet, G. 2009: 6-7 for a translation of this letter. See Béranger 2019 for a more substantial treatment of the episode.

land averaged about 50% below their baselines, continuing a trend of declining real estate prices. Livestock prices averaged slightly below their baselines. One sign of price stability is the fact that, from at least Ammi-ditana year 22 through the rest of his reign (and into the reign of his successor Ammi-ṣaduqa), the palace maintained a fixed exchange rate of 10 to 12 shekels of silver per talent of wool "sold" on credit. Like prices, wages may have been high at the start of Ammi-ditana's reign but declined over its course. Here, the evidence for a drop in wages is less compelling as several of the earlier dated contracts of hire are for harvest workers, which typically were paid more. Ten sources averaged 20% above baseline for his first ten years, and seven sources averaged 7% below baseline for years 11 to 37.

Ammi-ditana was succeeded by his son Ammi-ṣaduqa, who ruled 21 years (1646-1626).[129] Apart from year 11, which records the construction of a fortress, the rest of his year names commemorate peaceful activities (dedication of statues, thrones, and other objects, canal building). Ammi-ṣaduqa is best noted for his promulgation of an edict remitting debts, the best preserved and most studied *mīšarum*.[130]

Evidence that at least the first fifteen years of his reign were peaceful can be inferred from the stability of both prices and wages in those years. Under Ammi-ṣaduqa, the palace continued to sell wool on credit, valuing the wool at ten shekels silver per talent, at least through his thirteenth year, the latest dated wool credit sale under his reign. Prices for slaves also continued to decline, averaging 42% below baseline. Slave prices under Ammi-ṣaduqa were as

[129] See Pientka 1998: 92. While Babylonian Kinglist B assigns him a reign of 21 years, only the order of the first sixteen is certain.
[130] See Kraus 1984. Cf., Charpin 2010a for an edict of Ammi-ditana.

low as during the early years of Samsu-iluna.[131] Prices for livestock averaged 13% below baseline, about the same as under Ammi-ditana. House rental rates declined. Commodity prices had risen compared to the first ten years of Samsu-iluna, with barley prices now averaging above one shekel silver per gur of barley[132] (as opposed to below one shekel per gur in the first ten years of Samsu-iluna). Sesame oil under Ammi-ṣaduqa sold for about 1 shekel silver per *sūtum* of oil, almost double the price in the early years of Samsu-iluna. Wool, valued at 10 shekels of silver per talent under Ammi-ṣaduqa, had been valued at 6.00-7.50 shekels per talent in Samsu-iluna's early years (Graph 3.3-1). One extremely high price for dates is found on a list of expenditures dated Ammi-ṣaduqa year 5. It is the only price for dates from his reign, and the price is 898% above its baseline price.[133] The cause for such a high price is unknown. Wages under Ammi-ṣaduqa were lower than under Ammi-ditana but probably higher compared to Samsu-iluna's first ten years.

Beginning late in the 15th year of Ammi-ṣaduqa's reign, the political situation deteriorated, judging from a series of letters he wrote to his subordinates in Sippar warning them of impending attacks by hostile groups identified as Bimatû and Samharû.[134] It was a precursor of things to come. Shortly thereafter, Sippar experienced a calamity. Archaeological evidence shows that at least a part of the city was destroyed by fire.[135] In the house of Ur-Utu, which was

[131] Also noted by Van Koppen 2004: 17-19. He attributes this to increased supply possibly due to an influx of war captives, opening of new markets, and decreased slave sale restrictions.
[132] It cannot be determined whether a barley price greater than one shekel per gur was the norm for his entire reign as all of the sources but one are dated year 10 or later, or their year cannot be determined. The exception is BE 6/2, 120 (loan of 7 gur barley valued at 14 shekels silver),which is dated Ammi-ṣaduqa year 4, month one.
[133] YOS 13, 166:8 (5 *sūtu* of dates for 5/6 shekel silver). The other two price equivalences on the tablet are for sheep (42% below baseline) and sesame oil (23% above baseline).
[134] In his article "The Early Kassite Period," Van Koppen 2017: 45-92 discusses these two groups (and see 84-86 for his assessment of the significance of the letters).
[135] Van Koppen 2017: 54 and 57 (referring to the findings of the 2002 season of the University of Baghdad excavation at Abu Habbah).

burnt, tablets strewn about the floor in several rooms testify to the owner's hasty departure.[136] The perpetrators of this calamity are unknown (although Van Koppen considers the Bimatû and Samharû prime suspects).

Two letters from Ur-Utu's archive hint at economic difficulties at some point during his reign.[137] In the first (MHET 1/1, 87), the Ahlamu (nomads) are apparently responsible for the delivery of barley to the warehouse (in Sippar) and seem to be impeding its delivery. The second (MHET 1/1, 89) indicates there's a shortage of barley. In it, the sender complains that, as a result of the household not receiving its monthly food allotment, "we are starving." Furthermore, the workers hired to carry reeds to feed the oxen refuse to work for silver and insist on being paid in barley.

Sources for prices and wages literally "dry up" in Ammi-ṣaduqa's final years, but there is some evidence that barley prices rose towards the end of his reign. A group of barley loans made by the diviner Sin-nadin-šumi in which he valued the barley loaned in silver indicate that the price of barley could have doubled from years 15 to 18.[138]

Samsu-ditana (1625-1595), son of Ammi-ṣaduqa, was the last ruler of the 1st Dynasty of Babylon. Little is known about him, his reign, or the circumstances surrounding his accession. Not a single royal inscription is attributed to him. And none of his year names commemorate a monumental public works project, temple reconstruction, or a military campaign or victory, leading one to suspect that he was a weak and ineffective ruler. There is, however, solid evidence to show that prices were high during his reign. Sixteen sources of prices for slaves,

[136] Tanret 2011: 279-280.
[137] My thanks to Dominique Charpin for bringing these letters to my attention.
[138] See above, section 3.1.3.2.

livestock, commodities, and house rentals dated under Samsu-ditana averaged 880% above baseline. These sources span years 2 to 27, covering almost his entire reign. With one exception,[139] the price in every source is significantly higher than its respective baseline. In addition, research done by Charpin on the cost of ransoming captives during the OB period points to a rise in prices under Samsu-ditana. He cites a number of texts that showed the cost to do so was substantially higher during his reign compared to sums paid to ransom captives under Hammu-rabi, Samsu-iluna, Zimri-lim of Mari, or Rim-Sin.[140] It would be interesting to know if wages similarly rose, but, unfortunately, only a single contract of hire is dated to his reign, and its wage rate is subject to interpretation.[141]

In the 31st year of Samsu-ditana, the kingdom of Babylon, too weak to prevent a Hittite raid on its capital, succumbed shortly thereafter to the Kassites. So goes the traditional explanation for the end of the 1st Dynasty of Babylon. The memory of this event was passed down through a variety of sources. The earliest, the Hittite Telepinu Edict, was composed approximately one hundred years after the event itself.[142]

In Van Koppen's 2017 article dealing with the early history of the Kassites cited above, the author put forth his theory on the kingdom's fall. Based on year names, inscriptions, and letters, he proposes that three different population groups (so-called "Kassite tribes") entered the Kingdom of Babylon in three waves: the first early in the reign of Samsu-iluna (referred to as Kaššû), the second during the reign of Abi-ešuh (the Bimatû), and the third during the reigns of

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[139] JNES 21/2, p. 75 (VAT 1176) – loan of 20 shekels silver to purchase a healthy male Subarian slave.
[140] Charpin 2014a. See above, section 2.1.3.
[141] YOS 13, 219 (hire of a female slave, dated Samsu-ditana year 6). Wages on line 7: 1 (BÁN) 2 SILA$_3$ ŠE *i-da-ša*. The duration of hire is not given, nor is there any indication as to whether the wages are daily or monthly. My assumption is this is a daily wage (=1.20 gur/month or 14.40 gur/year). If so, this is a generous wage, considerably above the baseline wage for slaves.
[142] Richardson 2016b: 103-122. See also Van Koppen 2010. He proposed a historical reconstruction of events that transpired in Babylonia post Samsu-ditana (the so-called "Dark Ages") and a timeline that favors the "low" chronology, which dates the fall of Babylon to 1499.

Ammi-ṣaduqa and Samsu-ditana (the Samharû). The first two waves were relatively peaceful, with the Kaššû and Bimatû serving in the military. But the arrival of the Samharû, whose numbers were far larger, disrupted the kingdom. Although they settled primarily in the Diyala Valley, on the eastern periphery of the kingdom, the Babylonian military was unable to stop them from launching destructive raids into the kingdom. Van Koppen believes that the Samharû took advantage of the Hittite raid on Babylon to take control. The result was the so-called "Kassite Dynasty."[143]

Seth Richardson offers an alternative explanation for the fall of the 1st Dynasty of Babylon, one focused on insurgency and rebellion, which he views as a regular feature of Mesopotamian political life.[144] In a recent article, he used a Neo-Assyrian oracular query (*tāmītu*) concerning military troubles during the reign of Samsu-ditana to support his contention that the fall of the dynasty was the result of rebellion within the kingdom by its own mercenary (ethnically non-Babylonian) troops, which resided in fortresses situated in the countryside, and not foreign invasion.[145] As early as 2004, Charpin had also cited the aforementioned Neo-Assyrian *tāmītu* as evidence of internal dissention; namely, that the loyalty of the citizens of an unnamed city (presumably Babylon) to Samsu-ditana was questionable.[146]

The economic evidence cannot tell us whether the fall of the 1st Dynasty of Babylon was due to invasion or an internal rebellion. It does suggest, however, that the high prices we see under Samsu-ditana, which seem to persist throughout his reign, are an indication of an unstable political environment. The Hittite raid could have been the "spark that ignited the flame."

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[143] Van Koppen 2017: 78-79.
[144] Richardson 2016a: 32-33. See also 39-45 where he talks about irregular warfare such as predatory raiding and its disruption to economic production and civilian life.
[145] Richardson 2019a: 215 and 230. He reaches this conclusion based on his analysis of W.G. Lambert's Babylonian Oracle Question No.1 (BOQ 1) in conjunction with his previous research (Richardson 2005) regarding unsettled conditions in the LOB countryside.
[146] Charpin 2004: 382. See also Richardson 2016b: 116-118.

Chapter 7: Conclusion

Although the preceding chapter has not served to dramatically alter our conception of Old Babylonian political history, it nevertheless affords us the opportunity of relating the political fortunes of the Kingdoms of Larsa and Babylon with the economic conditions in each kingdom. This study has shown that economic prosperity, to a large degree, is contingent upon periods of political stability.[1] Low prices (and high wages) are one way, but not the only way, to gauge economic prosperity. Political stability depends upon: 1) the amount of territory that the state can effectively control (and exploit economically); 2) the ability of the state to maintain itself in the face of internal or external pressures; and 3) the success of its rulers in expanding its borders.

The relationship between political stability and low prices is best exemplified by the reigns of Rim-Sin, Hammu-rabi, and Samsu-iluna. The first thirty years of Rim-Sin's reign were a time when he was expanding the borders of his kingdom. It coincides with low prices in the Kingdom of Larsa. In the last thirteen years of his reign, Hammu-rabi essentially defeated all of his rivals and expanded the borders of his kingdom, which also coincides with a time of low prices, which remained such through at least the first seven years of Samsu-iluna, a period which seems generally peaceful.

[1] This notion is not new. Renowned economist and economic historian Peter Temin demonstrated the relationship between prices and political stability using grain prices in the Roman Empire (Temin 2009) as well as with agricultural prices in Hellenistic Babylonia (Temin 2001). In the former, he created an index of economic instability to compare with an index of inflation. What he found was that grain price inflation in the Roman Empire correlated to the number of emperors in any time period, which he considered a sign of political instability (Temin 2009: 11-12). In Hellenistic Babylonia, based on prices for staples in the astronomical diaries, he showed that the prices of agricultural goods rose sharply after the death of Alexander the Great and stayed high for some years thereafter, which he attributed to a breakdown of order. Prices declined and stabilized once order was restored with the establishment of the Seleucid dynasty. Prices again rose toward the end of the Seleucid period, albeit this time more gradually, which he believed was due to a gradual weakening of the political structure (Temin 2001: 56-59). See also Pirngruber 2017: 93-209.

The relationship between political instability and high prices is best exemplified by the reigns of Samsu-iluna, Abi-ešuh, and Samsu-ditana. After Samsu-iluna's tenth year, prices rose as a consequence of the loss of the south and persistent warfare in the years immediately following. Under Abi-ešuh, the Kingdom of Babylon struggled to fend off attacks from the Sealand dynasty and a rebellion by Ešnunna, and the high prices that persisted during his reign indicate that he was unable to regain the territory that Samsu-iluna had lost. Lastly, the high prices that characterized the reign of Samsu-ditana went hand in hand with political instability due to a weak ruler and a weakened kingdom.

Based on the above, prices and wages can be used to augment, or even to speculate on political conditions for other periods, especially where historical sources are scant or non-existent. For the Kingdom of Babylon, prices and wages were stable for about forty years, from the second half of Ammi-ditana's reign through the first 15 years of Ammi-ṣaduqa. This leads me to believe that the kingdom was politically stable during those years. For the Kingdom of Larsa, given the paucity of historical sources for the second half of Rim-Sin's reign (post-Isin conquest), the stability of prices and wages that lasted through most of those thirty years implies that his kingdom was not in dire economic straits as some scholars have suggested, although that might not hold true for the final years of his reign. Along this same line of reasoning, I propose that high prices under Sumu-El is evidence that his military exploits strained the resources of his kingdom, and that he may not have been as militarily successful as his year names would have us believe. Economic discontent may have factored into his demise.

Looking at fluctuations in prices at a category level and the number of sales within a category over time also provides insight into socio-economic and political conditions. This can best be seen through real estate and slave prices, and to a lesser degree, commodity prices.

As was noted in chapter 1, the gradual decrease in the price of land over the course of the Isin-Larsa/OB period in both north and south coupled with a reduction in field rental rates pointed to a drop in land productivity. A decrease in the number of house sales coupled with an increase in the number of house rentals over time could mean that many people had lost their houses and were forced to rent.

The decline in the price of slaves in the last fifteen years of Hammu-rabi's reign through the early years of Samsu-iluna was likely a consequence of Hammu-rabi's military successes, which swelled the supply of slaves. Similarly, Rim-Sin's military successes in the first thirty years of his reign brought about the drop in slave prices during those years. One could consider low slave prices during the first fifteen years of Ammi-ṣaduqa's reign as evidence that he was militarily successful, although there could have been other causes for the drop in prices.[2] To the contrary, the high price of slaves under Abi-ešuh and the early years of Ammi-ditana indicates a restricted supply of slaves, implying the Kingdom of Babylon was militarily on the defensive during those years.

The mix of slave sales tells us something about socio-economic conditions. The preponderance of sales of children by their parents and adult self-sales, which we see under the rulers of the Manana Dynasty of Kish/Damrum and also during the first thirty years of Rim-Sin's reign, are a sign of economic distress. Given that prices were low during first thirty years of Rim-Sin, at first glance, this seems somewhat of a contradiction. But as I discussed above in section 6.1, economic prosperity should not be defined solely by low prices. While the upper classes benefit, the benefits do not necessarily "trickle down" to the majority of the population.

[2] Cf., Van Koppen 2004: 17. New markets being opened or relaxations of slave sale restrictions are also possible causes. Charpin (personal communication) suggested another factor: *"en période de famine, le prix des esclaves baisserait car on chercherait à se débarrasser de bouches à nourrir."*

Under the rulers of the 1st Dynasty of Babylon, the economic situation must have differed considering that there are no sales of children by their parents and adult self-sales.

Fluctuations in commodity prices are a bit more difficult to gauge. I've considered high commodity prices in a single year (e.g., Rim-Sin year 39) to be an indication of famine (that is, a short term event), whereas high commodity prices over a period of time, for example, the reign of Samsu-ditana, mark a period of economic decline.[3] On the other hand, low commodity prices over a period of time, for example, the early years of Samsu-iluna and the first thirty years of Rim-Sin's reign, indicate economic prosperity.

It may at first seem obvious to the reader that prices would be adversely affected by continued military setbacks and a state's resultant loss of control over the land and its resources, but the connection is less obvious than it would appear. Military setbacks did not in itself cause higher prices. Rather, it created a set of conditions which would bring about higher prices.

In the case of the 1st Dynasty of Babylon during the LOB period, loss of control (or, more accurately, diminished control) over its land, people, and resources manifested itself in different ways. In times when the state was militarily weak, under Abi-ešuh and Samsu-ditana for example, the cities and countryside were more vulnerable to raiding from enemies within and outside its borders. Losses from raiding raised livestock and commodity prices due to reduced supply.[4] Raiders damaged or destroyed irrigation networks,[5] which reduced long term crop yields and drove up commodity prices. I suspect that the state was forced to divert resources to

[3] Beginning with the collapse of the empire of Akkad (c. 2200), Zaccagnini 1997: 370-374 gives examples spanning 1500 years that correlate high barley prices with military invasion, defeats in war, city sieges, or deficient crops.
[4] See Richardson 2016a: 40-45 on the economic consequences of raiding.
[5] Richardson 2016a: 42.

cope with raiders, which meant fewer workers were available for agricultural work and irrigation maintenance, which also indirectly contributed to higher commodity prices.

Control of roads and waterways was essential to the security of overland and riverine trade. Shrunken borders and a weakened state meant that caravans were subject to increased raiding, which drove up prices of imports. The loss of the south in Samsu-iluna's eleventh year deprived the north of the south's resources (e.g., agricultural products and revenue from taxable rents on land) and stifled trade.[6] Moreover, the flight of refugees from the south to the north undoubtedly strained the north's resources, at least in the short term, although eventually the refugees were integrated into and had a positive impact upon northern society.[7]

Abi-ešuh, Ammi-ditana, and Ammi-ṣaduqa no doubt recognized the consequences of diminished control and attempted to counter it by establishing fortresses (or fortress towns) in the countryside.[8] This strategy may have proved successful for a while, as is evidenced by the decline in prices under Ammi-ditana and their stabilization under Ammi-ṣaduqa. However, the fortresses proved to be only a "stopgap" measure. Richardson's theory that these fortresses grew increasingly independent of state control over time and may have played a role in the kingdom's collapse is unproven. Van Koppen places greater emphasis on population movements and argues convincingly that the Samharû took control of the kingdom after the Hittite raid. But, ultimately, the 1st Dynasty of Babylon came to an end due to a combination of factors – political, socio-economic, and climatological.[9] The Kassites were the beneficiaries, but not the sole perpetrators.

[6] See Pientka 1998: 252-253 and 273-274, on the economic consequences of the south's loss.
[7] Richardson 2018 describes how Sumerian exiles from the south influenced and, to some extent, even "sumerianized" northern Babylonian society, culture, and religion.
[8] Richardson 2005: 286-287.
[9] See Pientka 1998: 273-274 for her summary of the causes for the kingdom's demise.

In the introduction (I.2), I laid out the following objectives for this study:

1) Determine long-term fluctuations in prices and wages for northern and southern Babylonia during the Isin-Larsa and OB periods.
2) Compare fluctuations of prices and wages between northern and southern Babylonia at a regional and city-state level.
3) Determine if, and to what extent, fluctuations in wages and prices correlate with political history.
4) If a correlation is determined, utilize price and wage data to improve our understanding of the regions political history where gaps exist in the historical record.
5) Create a database of prices and wages and make it available to scholars.

This study met its objectives. It identified long term fluctuations in prices and wages for northern and southern Babylonia during the Isin-Larsa and OB periods (Graphs 5.5-1, 5.5-2, and 5.5-3). It compared fluctuations of prices and wages between northern and southern Babylonia at a regional and city-state level. It showed, for example, that house and land prices differed between cities (Tables 1.1-4 and 1.2-3). It revealed that real estate prices were declining in both the Kingdoms of Babylon and Larsa over roughly the same time period (Tables 1.1-5 and 1.2-4). It determined that prices overall reached their lowest levels in both north and south in the first eleven years of the reign of Samsu-iluna (Table 5.3-1 and Graphs 5.5-1 and 5.5-2). Examining the interrelationship between Old Babylonian political and economic history, the study showed that low prices occurred during periods of political stability and military expansion, and high prices occurred in times of political instability and military weakness. It also showed, as could be expected, that the rulers' claims of low prices and high wages found in their royal inscriptions were exaggerated compared to prices and wages found in private legal documents, administrative texts, and even law codes. Lastly, a standalone Price and Wage Database for the Isin-Larsa/Old Babylonian period was created that can be used to validate the results of the study and which will be made available to scholars interested in pursuing further study.

There remain many unanswered questions and areas awaiting further investigation. Progress depends upon the publication of additional texts and the availability of Assyriologists to study them. The latter is in short supply due to lack of funding. More data is needed to improve our understanding of prices and wages under rulers prior to Warad-Sin and Hammu-rabi, as well as for all the rulers of the 1st Dynasty of Isin. More data would also give us a better understanding of economic conditions during the second half of the reign of Rim-Sin as well as for the entire reign of Samsu-ditana, which would give us additional insight into their demise. Lastly, due to a scarcity of wage data, the movement of prices versus wages is not always clear. More wage data is needed to rectify the situation.

The Assyriologist, like any historian, often seeks solutions to problems which cannot satisfactorily be answered with the available historical sources. He or she must then either flounder in their own frustration or approach the problem in a novel way. In 1978, my article showed that economic texts could be used to trace the long term movement of prices and wages during the Old Babylonian period. The additional economic texts that have become available since the article's publication and the expanded scope of this study have allowed me to confirm the pattern of price and wage fluctuation I observed for northern Babylonia and compare economic conditions between north and south.

Since the publication of my article, the work of scholars such as Charpin, Stol, Van De Mieroop, Pientka, Goddeeris, Van Koppen, Richardson, and de Boer has significantly increased our knowledge of Old Babylonian economic, social, and political history. This study has utilized and built upon their work. By demonstrating the relationship between prices and political stability, it has taken another step towards providing a deeper understanding of the

interrelationship between economic factors and the political history of the Old Babylonian period.

Appendices

Appendix A: List of texts with "derived" price equivalences

1)

YOS 12, 4
Date: 5.ii.1 Si
Description: Receipt for high quality oil valued in barley.
Relevant portion of text: Line 1: 3 SILA$_3$ Ì.SAG ŠÁM 4 (PI) ŠE.GUR

YOS 12, 9
Date: 22.iv.1 Si
Description: Receipt for high quality oil valued in silver.
Relevant portion of text: Lines 1-2: 3 1/3 <SILA$_3$> Ì.SAG KÙ!.BI 1/3 GÍN KÙ.BABBAR

Szlechter TJDB pl. 65, MAH 16596
Date: 2.xii Si 6
Description: Receipt for barley valued in high quality oil.
Relevant portion of text: Line 1-2: 1 (PI) 2 (BÁN) ŠE ŠÁM 1 SILA$_3$ Ì.SAG

YOS 12, 9 values 1 sila top quality oil at 18 še silver (i.e., 1 *sūtum* = 1 shekel silver). YOS 12, 4 and TJDB pl. 65, MAH 16596 value 1 sila top quality oil at 80 sila barley (i.e., 1 *sūtum* = 2.66 gur barley=1 shekel silver). Pirhum is the provider in all three. This implies 80 sila barley is the equivalent of 18 še silver or 10 sila top quality oil is valued at 1 shekel silver. The equivalency of 80 sila barley = 18 še silver (0.10 shekel) also implies that 1 gur barley (300 sila) is valued at 0.375 shekels silver.

2)

Boyer Contribution 196
Date: 20.ix? Si 7
Description: Loan of dates and sesame oil, repay barley at harvest time (*i-na ši-ip-ka-at* UD.BURU$_{14}$.ŠÈ)
Lines 1-3: 18 GUR ZÚ.LUM 5 SILA$_3$ Ì.GIŠ ŠÁM 14 GUR ŠE

JCS 34, 178, no. 41:1-2, also dated Si 7, values 2 gur dates at 1 shekel silver, which means that 18 gur dates = 9 shekels silver. 5 sila of sesame oil is worth about 1/2 shekel based on the average of price equivalencies for sesame oil. This implies that 14 gur barley is worth 9 1/2 shekels silver or 1 gur barley is worth 0.68 shekels silver.

3)

VAS 7, 20
Date: 1.ix Si 4
Description: House rental

Rental of house for 1 year for 1 shekel silver. Lessor receives an upfront payment of 180 sila barley (line 10). Upfront payments customarily represent up to half the rental price. That implies that 180 sila barley is worth ≤ 0.50 shekel silver, or 1 gur barley is worth <0.83 shekels silver.

4)

YOS 12, 254
Date: 11?.x Si 7
Description: Loan of sesame oil. Repay barley at harvest time.
Lines 1-2: 62 SILA₃ Ì.ᶠGIŠᵀ ŠÁM 6 ŠE GUR

Assuming 1 gur barley = 1 shekel silver means that 62 sila of sesame oil is worth 6 shekels silver, or 1 *sūtum* sesame oil is priced at about 1 shekel silver. Assuming 12 sila sesame oil = 1 shekel silver (LE 1) means that 62 sila sesame oil is worth 5.17 shekels silver, or 1 *sūtum* is worth 0.83 shekels silver.

5)

Szlechter TJA pl. 32 (UMM H32)
Date: 12.xii Aṣ 10
Description: Loan of sesame oil valued in barley. Repay barley at harvest time.
Line 1-2: 2 (PI) I.GIŠ GIŠ.BÁN ᶠ{d}AMAR.UTUᵀ ŠÁM 8 ŠE GUR

Using the price equivalency of 10 sila sesame oil per 1 shekel silver in BE 6/1, 97 (Aṣ 17), 120 sila sesame oil is worth 12 shekels of silver, or 1 *sūtum* of sesame oil is worth 1 shekel silver. This implies 8 gur of barley is worth approximately 12 shekels or 1 gur barley is worth approximately 1.50 shekels at harvest time.

6)

OLA 220, 446-450 (=FS Lerberghe)
Date: _.v Gu 16? (RS 4 or WS 5 are also possible)
Description: Receipt of wool valued in barley.
Lines 5-7: 130 GÚ SÍG GIN 1 GÚ.ŠÈ 17 ŠE GUR.TA ŠE.BI 2210 ŠE GUR

From the wool:silver price equivalency of 8 1/2 shekels silver per 1 talent "second quality" wool given on lines 13-14, in conjunction with this wool:barley price equivalency (17 gur barley per talent of wool), we can deduce that 1 gur barley was valued at 0.50 shekels of silver.

7)

ARN 67
Date: 20.i Ha 32
Description: Receipt? / Exchange?
Lines 1-2: 12 GUR ŠE *ša* 2 GÚ SÍG!

Using the price equivalency for wool found in the Ešnunna Law Code, 2 talents of wool is worth 20 shekels of silver, which equates here to 12 gur barley, meaning 6 gur is valued at 10 shekels silver or 1 gur barley is valued at 1.66 shekels silver.

8)

OECT 15, 87
Date: 1.i Ha 38
Description: Loan of wool, repay barley.
Lines 1-3: 5 GUR ŠE *ša* 20 MA.NA SÍG.HI.A ŠU.DÙ.A šu-nu-ma-DINGIR (Line 3 is unclear to me.)

The debtor receives a loan of 20 mana wool in month one and is required to repay 5 gur barley in month 3, implying 5 gur barley is worth 20 mana wool. Using the price equivalency for wool found in the Ešnunna Law Code (1 talent wool = 10 shekels silver), 20 mana wool is valued at 3.33 shekels of silver, equal to 5 gur barley, meaning 1 gur barley is valued at 0.66 shekels silver. See www.archibab.fr/T20430 for transliteration.

9)

JCS 34, 163, 206, no. 17
Date: 30.vi Ha 41
Description: Purchase of 8 gur barley paid for with 17 gur of dates (lines 1-6).
Lines 1-6: 17 GUR ZÚ.LUM….*a-na* 8 GUR ŠE *i-ša-mu*

JCS 34, 160, 200, no. 11 (Ha 36) has a price equivalency of 2 gur dates per shekel silver. Using that equivalency, 17 gur of dates is worth 8 1/2 shekels silver or 1 gur barley is worth 1.06 shekels silver. If we use JCS 34, 164, 208, no. 19 (Ha 43) with a price equivalency of 1 gur dates = .44 shekels silver , then 17 gur of dates is worth 7.48 shekels or 1 gur barley is worth 0.94 shekels.

10)

YOS 12, 526
Date: 12.viii Si 28
Description: Loan of barley to purchase sesame. Repay sesame at sesame harvest.
Lines 1-2: 1 (GUR) 3 (BÁN) ŠE GUR GIŠ.BÁN {d}UTU *a-na* ŠÁM 4 (PI) 5 (BÁN) ŠE.GIŠ.Ì

Debtor receives 330 sila barley for the purchase of 290 sila of sesame. Loan specifies repayment in sesame at the time of the sesame harvest. The barley:sesame ratio is 1 gur barley=0.88 gur sesame. YOS 2, 105 (Appendix A, no. 22) indicates that 1 gur of sesame = 1.40 shekels silver, which works out to 1 gur barley = 1.35 shekels of silver in this text. Judging from the sesame: silver price equivalences collected, sesame tends to be more than twice as expensive as barley.

11)

BIN 2, 88
Date: 10.i? Si 26
Description: Loan of barley. Repay dates.
Lines 1-2: 2 (GUR) 1 (PI) ŠE GUR ŠÁM 7 GUR 3 (PI) ZÚ.LUM

Loan of 660 sila barley, repay 7 gur 3 (PI) dates (=2,280 sila) at the time of the date harvest. 2,280 sila of dates is worth 3.8 shekels silver at 0.50 shekels per gur of dates (mode price), meaning the debtors are repaying the equivalent of 3.8 shekels silver for the barley they borrowed, which works out to the debtors paying 1.73 shekels silver per gur of barley borrowed.

12)

OLA 21, 20
Date: 20.viii Si 30
Description: Expenditure of barley to purchase beer
Line 5: 2 (BÁN) 5 SILA$_3$ ŠE ŠÁM 4 (BÁN) KAŠ

That is, 1 gur of barley is the equivalent in value of 1.6 gur of beer. Indicates barley is more expensive than beer. Insufficient data to derive price of barley or beer.

13)

OECT 15, 92
Date: 3.ii Ha 36
Description: Loan of apples. Repay barley.
Lines 1-9: 6 (GUR) 1 (PI) 1 (BÁN) ZÚ.<LUM>…9 (GUR) 1 (PI) 4 (BÁN) 5 SILA$_3$ GUR ŠE Ì.ÁG.E

Šamaš-hāzir loaned Warad-Amurrim 1,870 sila (=6.23 gur) apples, described as "...the miksu-tax on the orchard of Šamaš-hazir." The contract stipulates repayment of 2,805 sila barley, (= 9.35 gur) one month later. This works out to 33% interest, which is standard on agricultural loans (1870 sila barley repaid as principal + 935 sila barley interest). Therefore, 1870 sila barley is valued at 1870 sila apples, or 1 gur barley is worth 1 gur apples. Unfortunately, there are no price attestations for apples.

14)

TMH 10, 193
Date: _.vi intercalated month Ha 38
Description: List of expenditures
Line 1: 20 MA.NA SÍG.HI.A ŠE.BI 4 ŠE GUR
Line 11: 1 MA.NA 1 (PI) ŠE.TA.ÀM

1 talent wool = 12 gur barley (or 5 minas wool = 1 gur barley). Using the Ešnunna code price of 10 shekels silver for 1 talent of wool implies a barley:silver price equivalency of 1 gur barley = 0.83 shekel silver. Using 1 talent wool = 12 shekels silver implies a barley:silver price equivalency of 1 gur barley = 1.00 shekel silver.

15)

YOS 13, 497
Date: 16.ii Ad 9
Description: Contract of hire.

Son hired out by his father, for wage of 2 gur barley per month, most likely to do harvest work. Line 14 indicates there was an advance payment of 1.66 shekels silver. Typically, the down payment equals up to half the wage, which implies 1 gur barley was worth approximately 1.66 shekels silver.

16)

Waterman Bus. Doc. 47
Date: 14.xii Ad 2
Description: Contract of hire.

3 harvesters are hired from Ina-libbi-eršet. Monthly wages are 3 shekels silver for 1 harvester, which Ina-libbi-eršet has received (*mahrat*), and 3 gur (copy has 30 gur) for 2 harvesters (= 1 1/2 gur barley each), which is to be paid (Ì.ÁG.E), presumably after the harvest. Assuming that they all received the same wage, then 3 shekels silver is the equivalent of 1 1/2 gur barley, or 2 shekels silver is the equivalent of 1 gur barley.

17)

RA 72/2, 128 no. 15
Date: _.xi Ha 42
Description: Loan of sesame oil with repayment in barley at harvest time.
Lines 1-7: 1 (BÁN) Ì.GIŠ…1 (GUR) 1 (PI) 4 (BÁN) ŠE Ì.ÁG.E

Loan of 10 sila sesame oil with repayment of 400 sila barley at harvest time. This sesame oil:barley ratio of 1:40 is exactly half the top quality oil:barley ratio of 1:80 in YOS 12, 4 and Szlechter TJDB pl. 65. Appendix A number 1 shows that 1 gur barley was valued at approximately 0.375 shekels silver at the beginning of Samsu-iluna's reign, which works out here to 1.33 gur barley = 0.50 shekels silver = 1 *sūtum* sesame oil. Another (possibly more accurate) way to derive the price of sesame oil: if we assume interest of 33% on the loan, then 1 *sūtu* sesame oil is worth 300 sila barley, and 100 sila barley is the interest. Using the equivalency of 1 gur barley = 1 shekel silver implies the following: 1 *sūtum* sesame oil = 1 gur barley = 1 shekel silver. This is 20% more expensive than the rate for sesame oil given in LE 1.

18)

Richardson diss. II p. 351
Date: 11.x Aṣ 16
Description: Loan of sesame oil, repayment clause broken (assume repay barley at harvest time).
Line 2: 1 SILA$_3$ Ì.GIŠ ŠÁM 4 (BÁN) ŠE [ ]

Same sesame:barley ratio as RA 72/2, 128 no. 15. If we assume interest of 33% on the loan, then 1 sila sesame oil is valued at 30 sila barley, and 10 sila barley is the interest. Using the equivalency of 1 gur barley = 1 shekel silver implies the following: 1 *sūtum* sesame oil = 1 gur barley = 1 shekel silver.

19)

YOS 12, 553
Date: 1.x Si 24
Description: House rental.

Rental of house for 1 year for 0.36 shekels silver. Line 10 indicates that the owner received 150 sila barley as (full) payment of the rent ("full" implied by the phrase: *libbašu ṭāb*), which gives the price equivalency of 1 gur barley = 0.72 shekel silver).
20)

20)

BIN 7, 158 (=YNER 4 no. 87)

Date: _.ix Se 16
Description: Receipt
Lines 11-12: 1 (PI) ŠE.GIŠ.Ì 1 (BÁN) 2 SILA$_3$ Ì.GIŠ.BI "60 sila sesame worth 12 sila oil"

Using the price equivalency of 7 1/2 sila of sesame oil per shekel of silver given in the same text (lines 1-2 and 4-5) works out to 8 shekels silver per gur of sesame.

21)

CUSAS 29, 204
Date: 27.xii Ad 20
Description: Account
Lines 1-2: "5 *sūtum* of sesame oil for the purchase of 6 sheep" (=0.833 *sūtum* sesame oil per sheep).

Same rate on lines 6-7 and 10-11. 0.833 *sūtum* sesame oil is worth 0.70 shekels silver based on the rate of 1.20 *sūtum* sesame oil per shekel silver given in law 1 of the Ešnunna law code.

22)

YOS 2, 105
Date: Ha 32 – Si 7
Description: Letter
Line 12: ⌜17⌝ GUR ŠÁM 6 GUR ŠE.GIŠ.Ì

This letter, from Nabium-mālik to Šumi-ahija mentions Šēp-Sin. All three names occur passim in Stol 1982 (see his appendix 3) and date from Hammu-rabi year 32 to Samsu-iluna year 7.

17 gur can be restored based on lines 11 and 15. Lines 10-11 indicate that 1 gur barley is valued at 1/2 shekel of silver. Based on line 12, 1 gur of barley is valued at 0.353 gur sesame (=106 sila), which means that 1 gur sesame is worth 1.40 shekels silver.

23)

CT 33, 22 (=AbB 2, 177)
Date: unknown
Description: Letter

The last line of the letter values 11 sila of sesame oil at 1 gur barley. Using the equivalency of 1 gur barley = 1 shekel silver implies the following: 1 *sūtum* sesame oil = 0.91 shekels silver.

Appendix B: Rules for Tables and Graphs

To maximize use of the data, but do so conservatively, the following guidelines were devised to utilize damaged prices, measurements, and dates. For example, in the case where a price or area is damaged, it's sometimes possible to determine a minimum, maximum or range of values for the damaged data.

Tables

Excel automatically gives a count and computes an average for a selected range of cells in a column. Select the cells in a column by dragging the cursor over them.

When counting cells, Excel excludes blank cells from the count.

When computing an average, Excel excludes:

1) cells with a range of values (9.00-9.99)
2) cells preceded by ≤ or ≥ , < or >
3) cells with a question-mark (?)
4) blank cells.

Guidelines

Before selecting a range of cells to compute an average, I made the following modifications:

If a cell had a range of values, I replaced the range with the lowest value.

If a cell was preceded by ≥ or >, I removed the sign.

If either a year or price was followed by a question mark (?), I removed the question mark.

Graphs

Excel creates graphs automatically. This is accomplished by highlighting the range of cells to be graphed and clicking the "insert" tab on the main menu, and then choosing one of the "recommended charts" in the submenu "ribbon" (usually a scatter chart). Before doing so, I edited the selected cells as follows:

Guidelines

If a cell contained a range of years, I replaced the range with the earliest year.

If a cell contained a ruler but the year date was not given or destroyed, I used the ruler's accession year for the year.

If a cell contained a range of prices, I replaced the range with the lowest price.

If a cell contained "≥ nnnn," or "> nnnn," I made it "nnnn" (e.g., year or price).

If either a year or price was followed by a question mark (?), I removed the question mark.

Exceptions to the above are noted in the footnotes.

List of Abbreviations

Bibliographical abbreviations for texts cited follow *The Assyrian Dictionary of the Oriental Institute of the University of Chicago* (CAD) with exceptions noted below:

CAD	**Cited as**
Charpin Archives Familiales	TS
Cig, Kizilyay, Kraus Nippur	ARN
Dekiere OB Real Estate	MHET
Kraus AV	Wilcke Mél. Kraus
Riftin	Riftin SVJAD
Szlechter Tablettes	Szlechter TJDB

Bibliographical abbreviations for texts published after the CAD or which are not in the CAD generally follow CDLI or Archibab. These are noted below:

Title	**Cited as**
De Graef, Ancient Textile Series 17	Wool Economy ANE
Al-Rawi, F. and Dalley, S. *Old Babylonian Texts from Private Houses at Abu Habbah Ancient Sippir*	Édubba7
Cuneiform Texts in the Carl A. Kroch Library	CUSAS
Boer, R., de. *Amorites in the early Old Babylonian Period*	de Boer diss.
Mesopotamia: Rivista di Archeologia, Epigrafia e Storia Orientale Antiqa	Mesopotamia
Richardson, S. *The Collapse of a Complex State: A Reappraisal of the End of the First Dynasty of Babylon, 1683-1597 B.C.*	Richardson diss. II
Richardson, S. *Texts from the Late Old Babylonian Period*	TLOB
Studies in Honor of Åke Waldemar Sjöberg (CM 46)	Mél. Sjöberg 2

Tavolette cuneiformi di varia provenienza delle collezioni della Banca d'Italia (vol. 2)	CBI/2
Texte und Materialien Hilprecht Collection	TMH

Abbreviations for rulers

Ad	Ammi-ditana	1683-1647
Ae	Abi-ešuh	1711-1684
ApS	Apil-Sin	1830-1813
AS	Abi-sare	1905-1895
Aṣ	Ammi-ṣaduqa	1646-1626
BS	Bur-Sin	1895-1874
DI	Damiq-ilišu	1816-1794
Eb	Enlil-bani	1860-1837
Gu	Gungunum	1932-1906
Ha	Hammu-rabi	1792-1750
ID	Iddin-Dagan	1974-1954
Ilim	Ili-ma-ilum	1720-?
Irim	Irra-imitti	1868-1861
IšI	Išbi-Irra	2017-1985
IšD	Išme-Dagan	1953-1935
Itp	Iter-piša	1833-1831
LD	local dynasts	1885-1845
	Abd	Abdi-Erah
	Ahim	Ahi-maraṣ
	Hal	Halijum
	Halun	Halun-pi-umu
	Imm	Immerum
	Jams	Jamsi-El
	Jaw	Jawium
	Man	Manana
	Mani	Manium
	Naq	Naqimum
	Sumd	Sumu-ditana
	Sumj	Sumu-Jamutbal
LI	Lipit-Ištar	1934-1924
Len	Lipit-Enlil	1873-1869
NA	Nur-Adad	1865-1850
RS	Rim-Sin	1822-1763
RS II	Rim-Sin II	1742-1741
Sa	Sabium	1844-1831
Se	Sumu-El	1894-1866

Sd	Samsu-ditana	1625-1595
Si	Samsu-iluna	1749-1712
Sir	Sin-iribam	1842-1841
Sid	Sin-iddinam	1849-1843
Siq	Sin-iqišam	1840-1836
Sl	Sumu-la-El	1880-1845
Sm	Sin-muballiṭ	1812-1793
Smag	Sin-magir	1827-1817
Suab	Sumu-abum	1894-1881 (traditional date)
ṢA	Ṣilli-Adad	1835
Ši	Šu-ilišu	1984-1975
Unin	Ur-Ninurta	1923-1896
Urd	Urdukuga	1830-1828
WS	Warad-Sin	1834-1823
Zam	Zambija	1836-1834

Other Abbreviations (see also CAD "other abbreviations")

≤	date is earlier or equal to absolute date shown
≥	date is later than or equal to absolute date shown
~	date is contemporary with, or approximately the same date
*	provenience or date established on prosopographical evidence
apa	Anum-pîša archive
CH	Hammu-rabi law code (number of applicable law follows)
Dur-Ae	Dūr-Abiešuh
intercalc.	intercalculary month,
LE	Law code of the city of Ešnunna (number of applicable law follows)
LOB	Late Old Babylonian period
MM	Measure of Marduk
MŠ	Measure of Šamaš
nad.	*Nadītum*-priestess
no.	northern Babylonia
so.	southern Babylonia
und.	undetermined (provenience)

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