

PART I

Introduction

1 | The Economy of Late Achaemenid and Seleucid Babylonia: State of the Problem, Methodology and Sources

Introduction

The division of this book into two key parts – structure and performance – takes its cue from a 1978 paper by Nobel laureate Douglass C. North, ‘Structure and Performance: The Task of Economic History’. The fact that the latter part clearly outweighs the former in this volume does not imply a postulated precedence of economic performance over structures as key determinant of an economy’s potential for growth or the welfare of a society. Nor should it be taken as indicative of a research strategy focussing on the quantification of data to the detriment of qualitative historical analysis. Rather, it reflects the state of sources for an economic history of Late Achaemenid and Seleucid Babylonia. On the one hand, we have at our disposal a remarkable series of commodity prices contained in a text genre known as the Astronomical Diaries, which allows for unmatched sophistication in the analysis of an ancient economy. On the other, the dearth of archival material from this period means that many aspects of the background to these prices can be elucidated only rudimentarily and by recourse to parallel situations both within and beyond the Seleucid Empire.

The Babylonian Astronomical Diaries (henceforth ADs, or diaries) are a set of cuneiform tablets recording a variety of observed celestial, climatic, ecological and economic phenomena, as well as giving accounts of historical events.¹ They comprise one of the largest collections of observational data available from the Ancient World, consisting of hundreds of tablets dating from c. 650 to 60.² The reason for taking the turn of the fifth to the fourth century as the starting point for our analysis is the increasing

¹ The Astronomical Diaries (ADs) have been published in several volumes by H. Hunger and A. Sachs (Astronomical Diaries and Related Texts = ADART). Relevant for this investigation are ADART I (1988), ADART II (1989) and ADART III (1996). The tablets from these volumes are quoted with the siglum ‘AD (astronomical year recorded)’. See Clancier 2009, especially 159–63, 169–72, 185–95 and 212–13 on the provenance of the diaries and their collection history in the British Museum.

² All dates are BCE unless otherwise specified. This interest in the collection of data, for the purpose of establishing an empirical basis for both astronomical and astrological prediction, differed markedly from Greek science, see Rochberg 2004: 147–51.

availability of price data after *c.* 400, as for the fifth century only three diary fragments containing prices are extant (and even fewer for the earlier years).³

The better part of the information contained in the Astronomical Diaries relates to astronomical observations, and in particular the position of the moon in the ecliptic during each night of a given (Babylonian lunar) month. However, the ADs are at the same time the single most important source for the political history of Late Achaemenid and Seleucid Babylonia. Among the historical accounts, the quite extensive report of the battle of Gaugamela and Alexander the Great's subsequent entry into the city of Babylon (Kuhrt 1990 and van der Spek 2003) has attracted particular attention, as has the description of preparatory measures preceding the First Syrian War between the Ptolemaic and the Seleucid Empires in 274/3 (see Will 1979²: 146–50). At this point, it has to be emphasised that the somewhat misleading term 'Astronomical Diaries' was coined in 1948 by their later editor, A. Sachs, who was mainly interested in the astronomical content of the tablets. The more neutral Babylonian designation was *našāru ša ginê*, meaning 'regular observation'.

Furthermore, with a total of more than 2,000 observations of the silver equivalents of six different commodities, among which are the staple foods barley and dates, the ADs together with a handful of Late Babylonian Commodity Price Lists provide us with one of the largest economic datasets for any pre-industrial society in world history.⁴ This wealth of material has not failed to elicit scientific interest, and two monographs as well as several shorter articles have already been dedicated to an analysis of the price equivalents of the ADs. The first systematic investigation of this price series was A. Slotsky's *The Bourse of Babylon* (1997a), which was followed in 2001 by *A History of Babylonian Prices in the First Millennium BC. I, Prices of Basic Commodities* by P. Vargyas. The former certainly chose a more innovative approach. A trained economist, Slotsky attempted a statistical examination of the long-term trends in the datasets of the individual commodities by means of a regression analysis. Vargyas on the other hand provided a discussion of both short-term and long-term fluctuations, but employed a much cruder methodology and restricted himself mainly to simple discussions of changes in the monthly equivalents and of centennial averages.

³ A synoptic overview of the available data on commodity prices from Babylonia during the fifth and fourth centuries is provided by Hackl and Pirngruber 2015: see 118–20 for the price data culled from the diaries -461, -453 and -418.

⁴ The Commodity Price Lists have been published by Slotsky and Wallenfels 2009; the texts are quoted with the siglum S/W (number of text).

However, both of these investigations have met with severe criticism. An important review of both studies by van der Spek and Mandemakers (2003) found fault in particular with the failure of both authors to convert the silver equivalents into genuine prices prior to analysis, which in both cases lead to several errors in the interpretation, and with their non-consideration of the impact of political history on commodity prices. An elaboration of the first point is provided in the above-mentioned review (especially 523–4 and 535–7), and we shall thus confine ourselves to a brief example. Between February and April 278, the equivalent of barley rose from 156 to 198 litres for 1 shekel of silver. This rise was in all probability caused by an improved supply situation as the barley harvest in Babylonia took place in April. The difference of 42 litres corresponds to a relative increase of 27 per cent in the equivalent; however, the decrease in the actual price (shekels per ton or *kurru* of barley) amounts to only 21 per cent.⁵ Hence, sticking to equivalents conveys a flawed idea of the magnitude of actual price increases or decreases. Furthermore, a conversion of the equivalents of the ADs into genuine prices will also facilitate comparisons with other historical periods, from Mesopotamia or other regions.⁶

It is thus the main aim of this book to add a historical perspective to the price data contained in the Astronomical Diaries and the Commodity Price Lists. Rather than providing a mere statistical description⁷ of the data, it will attempt to explain the general trends found in commodity prices as well as the deviations thereof. Particular attention will be paid to exogenous shocks, defined as historical events which had tangible repercussions in the price data. To be sure, there have already been first assessments of the impact of political history and ecological phenomena on the Babylonian commodity prices. Pertinent examples are several papers by van der Spek on the impact of warfare and royal policy (especially 2000), a study by Müller (1999/2000) on the influence of climate as visible in the changing river level of the Euphrates or a contribution by the present author on the detrimental effect

⁵ This principle emerges even more clearly by means of a fictitious example of a decrease in the equivalent from, say 60 to 30 litres per shekel, which is a halving (–50 per cent) of the equivalent but a doubling (+100 per cent) of the price. Also, note that as opposed to modern price quotations the Babylonian way of recording prices tends to emphasise particularly low prices in graphic representations, see Müller 1995/6: 164.

⁶ Throughout this book, shekels (8.33 grams) of silver per *kurru* (180 litres) of a given commodity have been chosen as price unit in order to facilitate comparison with the price data from the Neo-Babylonian period analysed by Jursa 2010, which is the most obvious reference point.

⁷ See the criticism of Slotsky 1997a by van der Spek and Mandemakers 2003: 523.

of locust invasions (Pirngruber 2014).⁸ The following analysis of the price data seeks to advance our knowledge of the impact of exogenous shocks by investigating in a systematic manner which types of events influenced commodity prices and to what extent in Late Achaemenid, Early Hellenistic and Seleucid Babylonia. Rather than discussing a single type of potential impact or one particular period only, and in order to avoid oversimplifying mono-causal attempts at explanation, we shall opt for a comprehensive approach and attempt to integrate as much information as possible. To this end, hitherto uncharted methodological territory in Ancient Near Eastern studies, namely regression analysis employing dummy variables, will be employed alongside a more traditional historical investigation of the price data in order to integrate historical events in a formal statistical model. This part of the analysis will thus allow us not only to trace developments in prices for basic goods during the Late Achaemenid and Seleucid periods, but also to see which types of exogenous shocks – comprising such different events as warfare on an imperial scale and more localised natural disasters – have an impact on commodity prices in Babylonia and to quantify them. Furthermore, it enables us to make qualified statements about the performance of the economy, which in this context can be succinctly defined as ‘the capability of markets to adapt to exogenous shocks.’⁹

Such an analysis of any group of commodity price data is, however, necessarily incomplete without due consideration of the general socio-economic and political fabric into which it is embedded: in short, the realm of what North famously called an economy’s institutional framework: ‘the underlying determinant of the long-run performance of economies.’¹⁰ In this section of the book, which will by logic precede the price analysis, the focus will be *inter alia* on the existing patterns of land tenure and storage practices: Not only do these two aspects fundamentally impact price formation, but the former in particular also sheds light on the close ties between

⁸ Other important articles dealing in one way or another with the price data include Vargyas 1997 and the response Slotsky 1997b; Zaccagnini 1997 (especially 375–7); Grainger 1999; van der Spek 2000a, 2006b and 2014; Temin 2002; Földvári and van Leeuwen 2011; van der Spek and van Leeuwen 2014; Huijs, Pirngruber and van Leeuwen 2015; van der Spek, Földvári and van Leeuwen 2015.

⁹ Van der Spek, van Leeuwen and van Zanden 2015b: 3.

¹⁰ The classic formulation is North 1990: 3: ‘Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction’; the quotation in the text: 107. A convenient fuller definition is provided by Menard and Shirley 2008: 1, according to whom institutions ‘include (i) written rules and agreements that govern contractual relations and corporate governance, (ii) constitutions, laws and rules that govern politics, government, finance, and society more broadly, and (iii) unwritten codes of conduct, norms of behavior, and beliefs.’

the political and the economic. Moreover, it brings us into the sphere of another key determinant of the efficiency of commodity markets, that of the factors of production – land, labour and capital – and the ways they are deployed by those who wield power over them.

By jointly analysing aspects of the structure and performance of the Babylonian economy in the Late Achaemenid and Seleucid periods, rather than by considering the price data of the Astronomical Diaries in isolation (as is the case in both Slotsky 1997a and Vargyas 2001), I hope to achieve a piece of genuine ‘economic history with economy’, to take up the challenge posed by Manning and Morris.¹¹

Structure of this Book

In what follows, recent trends in the debate concerning the nature of ancient economies will be discussed. In particular, the potential contribution of New Institutional Economics to shed new light on ancient economies will be pointed out. The remainder of this introductory chapter will then give a description of the sources drawn upon in this assessment of the structure and the performance of the Babylonian economy. Chapter 2 discusses the overall historical and socio-political framework into which the price data of the Astronomical Diaries is embedded. Emphasis will be laid on the question of continuities and breaks with the preceding and exceptionally well documented Neo-Babylonian and Early Achaemenid period. Chapter 3 then takes the above-average price volatility during the Late Achaemenid period as its point of departure. An analysis of the distribution of the main factors of production – land, labour and capital (assets) – sheds new light on the prevailing institutional framework that can be shown to be not at all conducive to economic stability or even growth. Chapter 4 tries to contextualise the Babylonian price records by analysing the extent of inter-annual storage (or carry-over) of the basic foodstuffs barley and dates in Hellenistic Babylon. Such an assessment of a strategy of risk aversion is particularly relevant for the question of price volatility.

Chapter 5 proceeds to a price history of Late Achaemenid and Seleucid Babylonia. This chapter is partly descriptive in that it traces the development of the prices of the various commodities over time. The basic characteristics of the dataset of prices, in the main the mean price and the average deviations thereof, are also discussed. The price data was organised according

¹¹ Morris and Manning 2005: 3.

to four different periods (Late Achaemenid, Early Hellenistic, Early and Late Seleucid), which each exhibit a different structural background. In addition to the descriptive part, each subchapter on the different historical periods also includes analytical sections. I have first sought to explain the overall movement of prices in terms of variations in the three major price-determining factors, namely supply, demand and amount of money in circulation. The historical background will be shown to have exerted a strong influence on the price data. I will pay due attention to outliers, hence particularly high or low prices, and their relationship to political history. Peak and trough prices visible in the graphs in this chapter are explained in the light of available historical information from the ADs and other sources. The Hellenistic period, for example, was characterised by continuous warfare within but also beyond Babylonia, and a high level of monetisation made possible by the capture of the treasures of the Achaemenid kings. It is thus not unexpected that prices during these three decades are significantly higher compared to the preceding and subsequent periods, a fact that needs to be duly accounted for in any assessment of the long-term development of prices in Babylonia. Also, in the section of this chapter headed ‘The Late Achaemenid Period: The Issue of Price Volatility’, which deals with the price data from the Late Achaemenid period, some basic comments on statistical description and the pitfalls encountered are made. Economic terminology that the historian may be unfamiliar with is briefly explained in the form of a glossary at the end of the book.

Chapter 6 then goes deeper into the issue of price developments under the impact of historical events. In the methodologically most innovative part of this book, a regression analysis was run on the Babylonian price data, with the information on political history modelled in the form of dummy variables. Two different approaches were pursued – one summarising the historical data in the form of political episodes, the other focusing on the basic factors underlying price oscillations – and their results compared, also to the findings of the preceding chapters. The repercussions of certain categories of historical events in the price data can thus also be shown in a formal way.

The brief conclusion will summarise the results obtained and consider the Late Achaemenid and Seleucid price data in a comparative context. I close this book with the question of conceptualising research on the ancient (or perhaps better pre-industrial) economies beyond the by now sterile debate between primitivists and substantivists versus modernists and formalists, and the fruitful integration of new theoretical approaches provided by recent research in Institutional Economics.

Prices, Markets and the Ancient Economy

The prices in the diaries, which will be at the centre of this investigation, are – typically for Mesopotamia – quoted as price equivalents, thus as amount of the commodity which can be purchased for one fixed unit of silver, namely 1 shekel (8.33 grams) of silver.¹² The commodities at issue are barley, dates, sesame, cress, cuscuta – a parasitical plant used mainly to season date beer in the first millennium – and wool, almost invariably in this sequence.¹³ The precise nature of these price notations has occasionally been questioned and the possibility of their treatment in economic terms doubted,¹⁴ but by now, it can be considered a given that we are dealing with historical prices, the formation of which is owed to market forces. To the impressive array of empirical arguments collected by van der Spek 2000a (295–6), one can add the econometric analyses of Temin 2002 and Földvári and van Leeuwen 2011, both confirming that the behaviour of these commodity prices, and in particular their unpredictable oscillations, is exactly as expected in a market situation. We would like to explicitly emphasise at this point that we consider the prices to be observed entities just like all other events recorded in the diaries (with the exception of a few predicted astronomical phenomena).

This occasionally voiced scepticism concerning the veracity, or rather even the reality, of the Babylonian price data is of course rooted in the debate on whether something like a ‘market’ – both as a physical entity and as an institutionalised process – actually existed in Ancient Babylonia. The starting point for this debate was an essay by the economist Karl Polanyi entitled ‘Marketless Trading in Hammurabi’s Time’ (1957). Polanyi distinguished between three forms of economic exchange, reciprocity, redistribution and the market. In his view, the latter played at best only a very marginal role in pre-industrial societies, where economic activities were strongly embedded in their social environment. His conceptualisation proved to be influential

¹² Slotsky 1997a: 8–11 provides numerous references to this particular manner of formulating commodity prices from the late third to the late first millennium.

¹³ See Slotsky 1997a: 23–42 for an extensive discussion of the commodities. Curiously enough, Slotsky and Wallenfels (2009: 13) cast doubt on the identifications of *kasû* with cuscuta, *sahlû* with cress and of *samaššammû* with sesame. However, they do not provide any kind of justification for their revisionist reasoning. Suffice it to briefly mention Bedigian 1985 and Stol 1983/4 and 1994 (all referred to in Slotsky 1997a) for the well-established and overall accepted interpretations of *sahlû* and *samaššammû*, only the identification of *kasû* with cuscuta (Stol 1994) is still occasionally doubted, e.g. by Geller 2000.

¹⁴ Zaccagnini 1997: 375–6, and Joannès 1997: 315.

in the field of Ancient Near Eastern studies, but also provoked a great deal of (justified) criticism.¹⁵

The antipode to Polanyi are scholars like M. Silver and D. Warburton, who apply concepts borrowed from modern, i.e. neo-classical, economics rather uncritically and often with a scarce command of the primary evidence – as was the case with Polanyi, too – to ancient societies (e.g. Silver 2004). This approach likewise results in a rather distorted portrait, subordinating livelihood to the rationality of an abstract *homo oeconomicus*, whose motivations and needs/wants are supposed not to have changed throughout the course of history.

In recent years, however, this unhelpful dichotomy between primitivism/substantivism versus modernism/formalism¹⁶ has increasingly been replaced by a different and more fruitful approach. It is, then, no coincidence that the name of Douglass C. North was already mentioned at the very beginning of this introductory chapter, as it is the strand of research associated chiefly with his name, the New Institutional Economics (NIE), that has started to gain a foothold in Ancient (Near Eastern) history. The towering monument attesting to this trend is the *Cambridge Economic History of the Greco-Roman World* (Scheidel, Morris and Saller 2007), which contains two sections dealing with the periods and regions under discussion in the present book. P. Bedford, in his chapter on the Achaemenid Near East,¹⁷ dedicates a significant amount of analysis to the legal framework within which economic activities took place, and the impact of the prevailing socio-political constellations. R. van der Spek's (2007) account of the Hellenistic Near East focuses *inter alia* on increasing monetisation of the Babylonian economy after the conquest of Alexander the Great, and the effect of Seleucid policies on the local economy.

Some of the latest works on aspects of the economy in the field of Ancient Near Eastern studies follow the above-mentioned research trend, albeit

¹⁵ Polanyi's writings have generated a vast literature, see, e.g., North 1977 and the contributions in Clancier, Joannès, Ruouillard and Tenu 2005. Veenhof 1972: 351–7 provides an early rebuttal of the theory of a marketless society on the basis of Old Assyrian material. For Polanyi's influence in the field of Ancient Near Eastern studies see succinctly van de Mierop 1999: 116–18.

¹⁶ This debate is succinctly summarised from an Ancient Near Eastern perspective by van de Mierop 1999: 108–23; see also Garfinkle 2012: 5–17 with a focus on the Ur III period in the late third millennium. A valuable take on current approaches to the economy of the Ancient Near East is found in Jursa 2010: 13–25. For the Mediterranean World see, e.g., Morris, Saller and Scheidel 2007; the essays collected in Scheidel and von Reden 2002 provide a convenient overview of research on the ancient economy from the 1980s and 1990s CE.

¹⁷ Bedford 2007. The pertinent data culled from cuneiform tablets from Babylonia plays an important role in his account, as the region is one of the better-documented areas of the Achaemenid Empire.

often without explicit reference to theory. S. Garfinkle (2012), for example, in his study of the archives of important merchant families from the Ur III state in the late third millennium, puts forward a striking criticism of the alleged dichotomy of private versus state economy. Instead of engaging in this (rather sterile) debate, he convincingly reinterprets these entrepreneurs to have been facilitators of different types of economic transactions, from money lending to commercialisation of agricultural produce to long-distance trade. Although they acted upon their own initiative, the state and its agents relied upon their activities to such an extent ‘that the efficient operation of the economy by the central administration of the Ur III state was dependent upon the existence of entrepreneurs whose activities were not controlled by the state’.¹⁸ This focus on an institution perceived as economically efficient is of course reminiscent of much NIE research, not least of North’s earlier work (e.g. North 1977; but see now Ogilvie 2007 for a critical assessment of this approach), and Garfinkle stresses this point in several passages of his concluding chapter. Moreover, he discusses the presence of features associated with market exchange such as competitive and profit-orientated actors in the peculiar setting, or institutional framework, of the Ur III period.¹⁹ In this regard, he follows the assessment of Wilcke, who characterises the economy of that time as a ‘System gewinnorientiert wirtschaftender Pfründen’, albeit one with strong redistributive elements (Wilcke 2007: 114). In the latter article, the motive of pursuit of profit is thus extended from merchants and other entrepreneurs to state officials, the holders of the allotments/prebends Wilcke refers to.

Closer to the period dealt with in the present book, and with a detailed discussion of the theoretical framework employed, is L. Graslin-Thomé’s (2009) monograph dedicated to long-distance exchange in the Ancient Near East in the first millennium. The influence of North is clearly discernible (and explicitly accounted for); a central part of the book is dedicated to the question of transaction costs, a key concept in the NIE.²⁰ On the one hand, she analyses the ways in which long-distance trade, especially during the Neo-Assyrian period, was facilitated by means of various measures taken by the state. Agreements between rulers – mainly the Neo-Assyrian king and the petty kings in the empire’s orbit – and the imposition of a

¹⁸ Garfinkle 2012: 137 and *passim*.

¹⁹ For example, Garfinkle 2012: 14 reiterates that ‘the presence of entrepreneurial households allowed for greater efficiency in managing the institutional economies’. The competitive elements in the economy of the Ur III are acknowledged *ibid.*: 150.

²⁰ Graslin-Thomé 2009: 343–79; see also 120–3. On transaction costs see, e.g., North 1990: 27–35.