12 Mediterranean, Near East, and Iran

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12.A Economic Dynamics in the Hellenistic Empires

I Introduction

The Hellenistic economy was a complex interplay of numerous regionally connected economies, on the one hand, and overarching fiscal-military regimes, on the other.¹ The greater fragmentation of the Achaemenid Empire after the establishment of the successor kingdoms created new dividing lines and new political centers in the imperial space of the Afro-Eurasian region. There were now three imperializing monarchies and several breakaway polities that sustained capitals, courts, and armies with the productive capacity of the regions they dominated. Yet despite much regional heterogeneity, the strategies the kings adopted appear to have been similar enough to allow us to approach the Hellenistic world as a connected economic space with recognizable structures that aimed at concentrating imperial capital.² All successor kingdoms inherited common institutions from the Achaemenids, and the innovations they introduced were informed by the same Graeco-Macedonian experience. Differences accrued from long-term local continuities and the multipolarity of the underlying economic systems that continued to mark the Afro-Eurasian region. The economies of Egypt and Babylonia were shaped by strong institutional traditions that had developed over millennia in response to particular ecologies, social contexts, and religious structures. The economies of the city-states of the Mediterranean, western Asia, the Levant and Judaea profited from their civic organization, agrarian hinterlands, and local networks of exchange that had also developed over

¹ Chronologically, this chapter covers the third to first centuries BCE. Yet, many of the regions under Graeco-Macedonian domination ceased to be ruled by Hellenistic kings from the mid-second century onward. Macedonia became a Roman province in 169 BCE, Greece and the Aegean by 146 BCE, and the kingdom of Pergamon turned itself over to the Romans in 133 BCE. The Parthian and Bactrian *satrapies* had defected from Seleukid rule by the mid-third century, but arguably remained just semiautonomous for several generations. Yet from the mid-second century Hellenistic Asia transformed. With the expansion of the Arsakids into Media and Mesopotamia, Seleukid Asia was reduced to its Syrian core, while the Hellenistic connections of the Central Asian kings declined together with the growth of Arsakid, Indian, and other connections reaching into the nonsedentary Inner Asian world. The central focus of this chapter is thus the third century BCE, while Hellenistic institutions continued to reverberate in the Greek and non-Greek cities that had developed in the first generations of the Hellenistic period. For the fluidity of premodern empires and many aspects of heterogeneity discussed in this chapter, see Strootman 2019.

² Haldon 2021 for this notion, and for patterns of imperial economies in comparative perspective.

several centuries. The economies of the Caspian and Bactrian *satrapies* are not well documented, but their lasting military strength after breaking away from the Seleukid core suggests that they also had long-established tributary and economic structures that continued to be effective across periods of imperial rupture. There were, moreover, immense inequalities and imbalances within the Hellenistic Empires. Large mountain ranges and desert regions were hard to penetrate, both politically and physically, and the potential for economic exploitation and control of people from faraway imperial centers must have seemed limited. All economies, furthermore, maintained and expanded relationships of exchange beyond the local and regional level; some economic actors – traders, financiers, and agents of local powerholders – were active in long-distance trade and exchange.

The great challenge of approaching the Hellenistic economy is therefore to balance the effects of the fiscal and military regime of the imperial states, on the one hand, and local responses to this regime, on the other. What were the new, common outcomes of the loosely connected economies under Hellenistic rule? What were the driving factors of these outcomes, and who benefited from them either directly or indirectly? Another challenge is the degree to which the relationships between imperial centers and local economies changed over time. As these relationships became increasingly institutionalized, and as local economies developed their own new dynamics, the Hellenistic economy also developed over time. What were the long-term effects of regime change in the Hellenistic period? And how did they affect circuits of exchange within and across imperial frontiers?

II Models of the Hellenistic Economy

These questions have not been asked since the great prewar economic historians who described the Greek and Near Eastern economies against the background of the globalizing economies of their own times. Following the modernizing historical trend of contemporary scholarship, Fritz Heichelheim and Michael Rostovtzeff believed that, from the beginning of the Hellenistic period, international markets for staples, construction materials, labor, and luxuries developed in the Mediterranean and Near East that supplied the demand of courts and elites in the thriving metropolises of the newly established kingdoms.³ Heichelheim concentrated on the indices for market development, which he detected in related price developments and interest rates extant from Egypt, Delos, and Uruk. According to his analysis, they fluctuated in tandem and according to common economic rhythms. Rostovtzeff proposed a more comprehensive model of political, social, and economic change. The con-

³ Rostovtzeff 1941; Heichelheim 1930; cf. von Reden and Speidel, vol. 1, ch. 17, 704–705 for further discussion.

sumption of the Hellenistic courts, armies, and administrations stimulated new volumes of trade that both served and enriched urban bourgeoisies who were concentrated in the Hellenistic metropolises. The payment of mercenaries, moreover, who were employed in the incessant campaigns of the kings and their dynastic rivals, required massive volumes of coinage that was minted in large numbers of mints across Egypt and Asia. The expenditures of migrating mercenaries oft on the move poured money into local economies that, through the sale of local produce in the market, generated the monetary tribute that fueled international trade. Money and markets drove an economy whose potential was halted only by the lack of integration of local peasantries into this thriving economy. Rostovtzeff adopted a very Greek perspective: It was Alexander and the Macedonian kings, the Greek urban elites, Greek money, and Greek mercenaries that drove economic development, while the rural population and the oriental structure of agrarian organization in the conquered territories undermined the potential consolidation and growth of the imperial economy. In a grand summarizing statement, he emphasized the great division between city and countryside, and between Greek freedom and Oriental state control:

Within the great monarchical states (other than Macedonia) the rulers never succeeded in attaining stabilization and consolidation. They never found a way to escape from the great antinomy in the political, social, and economic life of their dominions, to which the conquest of Alexander had given rise: the conflict between the two leading forms of civilized life, the Eastern and the Western, between Greek city-states and Oriental monarchies – between Greek ‘*politai*’ and Oriental subjects; between the Greek economic system, based on freedom and private initiative, and the State economy of the East, supervised, guided, and controlled. And finally they were faced with the great eternal problem of human society, as acute in the ancient world as it is in the modern: the antinomy between the rulers and the ruled, the haves and the have-nots; the bourgeoisie and the working class, the city and the country.⁴

Rostovtzeff’s ideas were strongly influenced by his disenchanted experience of early twentieth-century Russia, where prosperous urban bourgeoisies thrived, moving toward western capitalism and parliamentarianism in face of a still feudal agrarian empire.⁵ Yet apart from the orientalizing and colonial observation of failed modernization, Rostovtzeff’s model has been rejected on substantive grounds. First, extant evidence for prices, monetization, and market development does not sustain a theory of connected international markets of supply and demand across the Mediterranean and Near East. Second, the urban model that underlies the supposed division of city and countryside does not apply to the ancient world. Ancient cities were agro-towns with a highly permeable urban-rural divide. Urban elites maintained strong social and cultural investments in the countryside, either by combined rural and urban residence, or by the fact that land ownership granted civic status and

⁴ Rostovtzeff 1941, 2:1031.

⁵ See Fabian, vol. 1, ch. 13, 582–584 and 603–604.

reliable social and financial relationships in the urban economy. The Greek *poleis* of the Mediterranean in particular brought about a powerful connection between urban and rural culture. This political and social structure proved very successful in the Hellenistic period, precisely because it linked urban and rural development. And third, the analogy that Rostovtzeff suggests between rulers and ruled, haves and have-nots, is not borne out fully by ancient evidence: tributary extraction was most successful where local and imperial elites combined their interests. Where this collaboration failed, social instability and unrest were the near-predictable consequence.

Scholars of the post-Rostovtzeff age have turned instead to more regional perspectives. This was partly due to the antimodernizing turn following Moses Finley's influential Sather lectures.⁶ Yet it evolved also, and probably more importantly, from the greater disciplinary specialization that marked postwar scholarship. Given the different expertise that is required for understanding Hellenistic Asia Minor, Judaea, Babylonia, and Egypt, as well as other economic regions of the Hellenistic economy, the Hellenistic economy is now an interdisciplinary field of study. The local impact of fiscal administration, monetization, and royal agrarian politics is noted in all regional perspectives, as is the new culture of political communication and urban organization.⁷ Yet the greater specialization of the field has made scholars shy away from attempts to characterize the Hellenistic economy as a totality.⁸ Overall economic outcomes, the behavior of different actors, and the different roles of tools that contributed to such outcomes have become more difficult to fathom than ever before.

This chapter thus proceeds by proposing a number of hypotheses rather than a model for the political economy of the Hellenistic imperial space as a whole. It will start by suggesting indications of economic growth (III), followed by an outline of the temporal and geographical variation of economic development (IV). I will then discuss various factors of change, from a social (V), institutional (VI), and technological (VII) perspective. Finally, I will look at changing circuits of exchange that emerged from the multipolarity of the Hellenistic Empires, on the one hand, and their maritime orientation, on the other (VIII).

III Indications of Growth

There are some indications that the Hellenistic World experienced what has been termed extensive or aggregate economic growth. Extensive growth refers to the pos-

⁶ Finley 1973; von Reden and Speidel, vol. 1, ch. 17, 707.

⁷ As suggested in von Reden, ch. 2, this volume.

⁸ Recent overviews include Reger 2002; Davies 2006; von Reden forthcoming, while Reger 2007; Manning 2007; and van der Spek 2007 concentrate on individual regions of the Hellenistic world.

sibility that the total productive outcome in an expanding imperial space grew. It is much more difficult, and indeed impossible, to show that the productivity of every productive unit grew (intensive growth).⁹ While the total productive outcome of the Hellenistic economies across the empires cannot be assessed, let alone set in relation to previous levels of outcome, the growth of armies and the growth of royal capitals suggest that greater tax income and supplies for urban populations were generated by agrarian development, or that there were more effective ways of concentrating surplus. I will suggest that a combination of both was achieved around royal capitals and in areas well integrated into the royal administrations.

III.1 Growth of Armies

The Hellenistic period was one of not only almost incessant warfare but also growing armies, larger ships and crews, and changing military technology, including catapults, siege engines, and war elephants. Alexander started with an army of 40,000 to 50,000 men,¹⁰ which may be compared to the 13,000 soldiers (plus 16,000 reserve) that the Athenians led into the war against the Peloponnesians.¹¹ Ptolemy IV's army in the battle of Raphia, in contrast, is said to have numbered around 75,000. Antiochus III mobilized 62,000 infantrymen and 6,000 cavalrymen for the same encounter.¹² Kings also experimented with larger and heavier ships. The first 'hexareme' (six-oared warship) is attributed to Dionysius II of Sicily (396–ca. 337 BCE). The fleet of Ptolemy II is said to have included two thirty-oared ships, 1 'twenty,' 4 'thirteens,' 2 'twelves,' 14 'elevens,' 30 'nines,' 37 'sevens,' 5 hexaremes, and 224 'fours,' plus triremes and smaller ships. Possibly the largest of these ships were built just for representative purposes.¹³ Elephants became part of the shock troops of Hellenistic armies. Much of the growing maritime infrastructure along the Red Sea can be explained by the Ptolemies' demand for elephants from Nubia and Aithiopia. The Seleukid supply originated in the border politics between Seleukos I and the first king of the Mauryan Empire.¹⁴

Military costs rose accordingly. Fischer-Bovet has calculated that the annual costs of maintaining the Ptolemaic fleet at war would have reached between 4,000–6,700 *talents* (= 28,000,000–40,200,000 *drachms*), with the land army swallowing

⁹ Von Reden, ch.2, 48–49, this volume, and Saller 2001 for discussion.

¹⁰ Diodoros Siculus (Diod. Sic.) 17. 3–5.

¹¹ Thucydides 2. 13. 5.

¹² For the Ptolemaic army, Polybios (Polyb.) 5. 65 with Fischer-Bovet 2014, 77–81; for the Seleukid figures, Sekunda 2007, 347.

¹³ E.g., Plutarch *Demosthenes* 34. De Souza 2007, 357–367; von Reden 2010.

¹⁴ Bugh 2006; Sekunda 2007 for changing military technology; Sidebotham 2011, 39–53 for Red Sea development and elephant imports; Kosmin 2014, 31–58 for Seleukid Indian diplomacy and the supply of war elephants.

another 6,200–6,700 *talents* (= 37,200,000–40,200,000 *drachms*).¹⁵ Apart from the costs of larger fleets, armies, and new technologies, there was a competition for the highest honoraria to be paid to soldiers on the occasion of victory. Many of these occasions had a highly celebratory character, so that new coinages were minted in the name of a victorious king.¹⁶ After the battle of Raphia, 300,000 gold coins, equivalent to 6,000,000 *drachms*, were distributed to the troops.¹⁷ It is no surprise that the best offers made to mercenary soldiers became a hallmark of royal power in the Hellenistic period.¹⁸

It has often been argued that by the end of the third century BCE, the Hellenistic kings had exhausted their economic potential. There was almost no silver currency left in Egypt; the Antigonids, never a strong economic player after the death of Alexander, succumbed to the stronger Roman armies in two great battles at Kynoskephalai (197 BCE) and Pydna (167 BCE); and the Seleukid Empire quickly disintegrated after the energetic military campaigns of Antiochos III that for a short time recovered the lost *satrapies* in Central Asia and the Middle East. Yet the capacity of the Hellenistic kings to field considerable armies right up to the very end of their political power militates against the argument of economic decline. The Antigonid king Perseus was still able to pay for an infantry of 26,000 men at Pydna despite the fact that the Macedonians had just paid 1,000 *talents* (6,000,000 *drachms*) in indemnities to the Romans.¹⁹ Massive indemnities were also demanded from other states, such as 15,000 *talents* from Antiochos III in 188 BCE, 500 *talents* from the Aetolian league in 189 BCE and 300 from Kappadokia in 188 BCE.²⁰ The Ptolemies no longer expanded their empire after the first three generations, but their financial resources still enabled them to maintain their core, suppress internal warfare, and engage in substantial local building activity.²¹ At the same time, Roman businessmen flooded Eastern Mediterranean markets. Trade and credit flourished when the Romans declared Delos a taxfree port, and Roman provincial governors and tax collectors were able to squeeze enormous amounts of tribute from the eastern provinces from the second century BCE onward. While the political power of the Graeco-Macedonian dynasties declined, the economies of their imperial realms and the fiscal income derived from them continued to thrive. Financial resources to pay for strong armies did not shrink substantially until the wreckage that was caused by the Mithridatic Wars in the first century BCE.²²

¹⁵ Fischer-Bovet 2014, 72, 64–78 for comparison with the Seleukid empire; several comparative discussions also in Burrer and Müller 2008.

¹⁶ Thonemann 2015, 24–42.

¹⁷ Raphia Decree Gr. Text A, ll. 1–20 (Thissen); von Reden 2007, 50 and 76.

¹⁸ E.g., Theocritus *Idylls* 14.

¹⁹ Millett 2009, 503.

²⁰ Chaniotis 2005, 139 for these figures.

²¹ Fischer-Bovet 2014, 114; Manning 2003, 230.

²² Chaniotis 2005; von Reden vol. 1, ch. 1, 47–48.

III.2 Urban Growth

The nature of urban growth in the Hellenistic Empires has been outlined in the previous volume.²³ Large numbers of garrison towns were founded and veterans settled along the routes of Alexander's campaigns. A policy of internal colonization and settlement of soldiers continued under the Successors and early kings, especially in Asia Minor, Syria, and Mesopotamia but also in Egypt, Greece and Macedonia.²⁴ There were several Ptolemaic foundations on Cyprus, Crete, and Cyrene, while some Macedonian and early Seleukid foundations flourished also in Central Asia and Iran. Not all foundations were newly built cities. Some were simply refoundation acts that granted existing cities a royal cult and a new identity in a dynastic geography. Many new settlements were very small. The significance of city foundations, therefore, does not so much lie in their number but in the demographic significance of some of these foundations.

By the third century BCE that some ancient cities exceeded the demographic threshold of 100,000 inhabitants, and these were all royal capitals. The densely populated metropolises of Alexandria, Ptolemais Hermiou, Seleukeia-Tigris, and the Seleukid Tetrapolis including Antiocheia-Orontes were massive by pre-Hellenistic standards.²⁵ Antiocheia-Orontes and Seleukeia-Tigris are estimated to have housed something like 100,000 to 300,000 people, Alexandria possibly as many as half a million by the mid-third century BCE. The populations of central administrative cities of secondary size were still considerable. The hinterland of Ai Khanoum, built in the fertile irrigated Oxus valley early in the Seleukid period, may have supported a population of 20,000 to 30,000.²⁶ In all these cases it was the new centrality of the settlements combined with the expansion of agrarian hinterlands and riverine connections that facilitated their growth. Population sizes of urban centers can only increase, and be sustained, if the negative factors of urban living, such as a greater susceptibility to infectious disease, are set off by an absolute improvement of standards of living.²⁷ This includes not only nutritional and housing standards, but also heating, clothing, freshwater supply, and protection against manmade and natural enemies. The famous splendor of Alexandria, its airy streets and impressive water supply system, show the aesthetic side of this correlation.²⁸

Ancient authors attributed the prosperity of cities to the ingenious vision of heroic founders who had chosen the perfect sites for their towns. The reality was a

²³ Von Reden, vol. 1, ch. 1, 35–39.

²⁴ Millett 2009, for Macedonia under Philipp II and Alexander; Kosmin 2014 for the Seleukid Empire; Müller 2006 for the Ptolemies.

²⁵ Pella, the capital of the Antigonids, experienced its main urban growth at the time of Philipp II and somewhat missed out on the opportunities that the conquests implied; see further Millett 2009.

²⁶ Von Reden, vol. 1, ch. 1, 37.

²⁷ Scheidel 2007.

²⁸ E.g., Diod. Sic. 17. 52. 1–5; Strabo (Strab.) 17. 1. 8–10; Pseudo-Caesar *Bellum Alexandrinum* 5–6.

little more imperial. The well-being of urban conglomerations was not just the product of fertile surroundings and proximity to navigable waterways. Comparative research into premodern urban development suggests several factors that impact the growth of metropolitan cities: imperial (overseas) expansion, regime change, and a changing position in an urban hierarchy.²⁹ Alexandria's growth is the best example for the triangular relationship of maritime expansion, regime change, and the changing position of a city vis-à-vis several rivals. Alexandria was founded by Alexander, Ptolemy I made it the capital of Egypt, Ptolemy II made it the cultural center of a maritime empire, and the economic structures that developed in this course sustained large populations in the long term. The establishment of Alexandria as the royal capital happened at the cost of several other cities that had assumed some centrality in the urban system along the southeastern Mediterranean coast and the Nile Delta: Memphis, Naukratis, and possibly Tyros.³⁰ The rise of Alexandria to the status of a capital was symbolized early on by the transfer of the mint from Memphis to Alexandria and the burial of Alexander's physical remains in Alexandria, which signaled the city's centrality in the Hellenistic imperial space as a whole. The urban development of Alexandria had started before Alexander's death and continued after its establishment as a capital city of the Ptolemies. Its first phase of urban growth, however, was spurred by the rapid expansion of the Ptolemies into Cyrene (321 BCE), Cyprus (312, reconquered in 295/4 BCE), Syria-Phoenicia (301 BCE), and coastal Asia Minor (280/279 BCE). The Ptolemies in Alexandria could draw on the resources of these possessions, most notably bronze from Cyprus, wine and choice products from the Greek islands, subsidiary grain from Cyrene and Syria in times of low domestic yields, and human capital from Asia Minor and the Aegean.³¹ Alexandria's major growth phase is likely to have happened under Ptolemy II (279–246 BCE) when the empire had reached a new peak, with archaeological remains of imperial architecture, such as the subterranean foundations of the Serapieion, the Pharos, and the Heptastadion, dated to the phase.³² The *museion*, library, and court life, founded on Greek cultural experts drawn from the Greek speaking world, also created a major demographic pull to the city.³³

²⁹ Scheidel 2004.

³⁰ The motivations for centralizing Alexandria as a capital city may have been manifold, the competition with inland Memphis, Tyros on the Levantine coast, and the formerly Greek port town of Naukratis being among them; Cohen 2006, 356 for the latter; for competition with Memphis, Strab. 17. 1. 32; Scheidel 2004, 30.

³¹ Hölbl (1993) 2001, 48 with note 78; Huss 2012, 33–45 for further imports.

³² McKenzie 2011, 41–52; Sabottka 2008 for the Alexandrian Serapieion.

³³ The intellectual attraction of Alexandria as a pull factor for immigration should not be underestimated. Egyptians and Jews, willing to express themselves in Greek, also became part of Alexandrian science and court life.

The growth of Seleukeia-Tigris shows similar patterns. The foundation of the town situated on the western bank of the Tigris some 60 km away from Babylon took away the political centrality of the former royal capital. Seleukeia-Tigris was established as a Seleukid capital most likely soon after 312 BCE when Seleukos had taken control of the eastern part of Alexander's empire and created a new temporal era in his name.³⁴ The growth of the city benefitted from the fertility of Mesopotamia, Seleukeia's new centrality in the urban network of the region, and the canal system that facilitated the transportation of bulk goods into the city. New *poleis* were founded under Seleukos I in order to increase agrarian hinterlands. The development of the alluvial plains along the Diyala River, a tributary of the Tigris, is particularly noteworthy in this context, as it shifted the productive gravity from the Euphrates to the Tigris.³⁵ The proximity of Opis situated opposite Seleukeia across the Tigris, called by Strabo the *emporion* of all Assyria,³⁶ may have linked the supply systems of the city into a wider commercial network (though it is possible that this was a later development).³⁷ Scholars tend to attribute the prosperity of Seleukeia to its location on the great trade route between the Caspian Sea and Indian Ocean.³⁸ But there is little evidence that the road between Persepolis and Ekbatana (and possibly beyond) had been intensely used by traders before the Hellenistic period, and there is no evidence that Babylonian priesthoods were particularly interested in the products of long-distance trade.³⁹ Such trade is more likely to have been a secondary development in the course of Seleukeia's growth rather than the reason for its prosperity in the first instance. Of more immediate importance were the connections to the Zagros Mountains and Seleukid westward expansion toward the Mediterranean.⁴⁰ The colonization of Asia Minor and Northern Syria under Seleukos I and Antiochos I, all going along with substantial land donations and agrarian development, also contributed to a better supply and thus population growth of Seleukeia.⁴¹

A considerable degree of administrative, agrarian, and monetary reconstruction in the regions under direct imperial control sustained the size of imperial capitals

³⁴ For different dates for the shift of the capital to Seleukeia, Cohen 2013, 163. Cohen argues convincingly for an earlier rather than later chronology in light of the battle of Ipsos (301 BCE), which shifted Seleukid attention further to the west, resulting in the establishment of another royal capital, Antiocheia-Orontes.

³⁵ Monerie 2018, 218–221.

³⁶ Strab. 16. 1. 9.

³⁷ Cohen 2013, 161.

³⁸ Thus, e.g., Hoo 2018. Henkelman 2017, 137–138, and Briant 2012 for this route and its use by travelers and workers in the Achaemenid period.

³⁹ Aperghis 2004, 73 with McEwan 1981, 199.

⁴⁰ For the importance of regional trade, Aperghis 2004, 75.

⁴¹ Von Reden, vol. 1, ch. 1, 37–38, with Kosmin 2014 for Seleukid settlement policy in Northern Syria.

in the long term. Although none of these changes were motivated by a deliberate policy of urban supply, demographic stability was the effect. Examples are the development of the Diyala valley, just mentioned, and the Fayum in Egypt. The Diyala valley had been irrigated and settled from the neo-Babylonian period onward, but urbanization and irrigation massively increased in the Seleukid period. From the late third century onward, well into the Arsakid period, the population of the area increased from about 20,000 to ca. 300,000 in the first century CE. More people lived in towns and cities, which meant a considerable restructuring of the region from a system of small farmsteads and villages to one of cities with urban hinterlands.⁴² The combined papyrological and archaeological evidence of the Fayum allows detailed insights into the nature of agrarian development.⁴³ Like the Diyala valley, the Fayum Oasis had been settled before, but its cultivable area was considerably extended, which resulted in the growth of numerous local towns and larger *metropoleis*. Making the new land cultivable required the collaboration of Greek engineers and local landlords as well as an existing infrastructure for mobilizing labor that cleared the land of shrubs and built the irrigation and drainage system.⁴⁴ Yet the Alexandrian court stimulated the project by settling large numbers of soldiers in the Fayum and by making land donations to the most trusted friends of the court. In the early years of the project, the district was renamed from *limne* ('the marshes') to the Arsinoite *nome*, thus making it part of a dynastic geography with Alexandria at its center. Agriculture in the Fayum, as in other parts of Egypt, was dominated by wheat production. Yet viticulture received particular administrative attention, and the development of new vineyards was encouraged by a favorable tax rate. The policy had long-term economic effects. From a second-century BCE *apomoira* (tax on vineyards and orchards) account, it has been estimated that the total production of wine in the Fayum was on the order of 220,000 hl.⁴⁵ Depending on average adult consumption rates (ca. 0.5 liter per day) and estimated population figures of the Fayum in the second century BCE (somewhere between 50,000–100,000 adults), such an output would have doubled, if not quadrupled, the estimated consumption of wine in the Fayum itself. Large quantities of surplus wine would have been available for marketing outside the Fayum, as with other products suitable for the Alexandrian market.

⁴² Monerie 2018, 220–221; Manning 2018, 116 for increased irrigation in the Middle Euphrates and Tigris valleys; Adams 1981 for both. Kosmin 2014, 196–197 for further canalization programs; Van der Spek 2000, 31–32 for the use of newly reclaimed temple land at Uruk under Antiochos III.

⁴³ Weaverdyck and Fabian, ch. 8.A, IV.1.2, this volume.

⁴⁴ Thompson 1999a; Römer 2017.

⁴⁵ Clarysse and Vandorpe 1997, 67–70 with *P. Köln* 5. 221 (second century BCE).

IV Rhythms of Change and Geographies of Growth

Economic development did not happen in an uninterrupted upward curve from the beginning of the Hellenistic period to the political decline of individual empires at different times. Such an interpretation would be misleading not just because of the lack of an overall political economy of the Hellenistic imperial space but also because at either end of the period there was much institutional continuity.⁴⁶ Empires have their own temporal structures. Given that we cannot assume a homogenous political economy across the Hellenistic imperial space, continuity and change were also not synchronous in all regions.

Arguably, there was a phase of intense economic transformation during the first 70 years of the Hellenistic period in the new imperial centers, gradually also spilling over to the administrative *metropoleis* of constituencies further away. It needs no further elaboration that the first three generations during and after the conquests, between 330 and about 240 BCE, were marked by a great mobility of soldiers, voluntary and involuntary migration, urbanization, increase of coinage in circulation, and increase in state expenditure.⁴⁷ This was the time when the core regions in Asia and Egypt benefitted from expansion, population politics, and the intense efforts of the Successors and kings to increase their fiscal income by introducing new administrative institutions. The foundation of new administrative centers such as Ptolemais Hermiou in Upper Egypt under Ptolemy I and Ai Khanoum in Bactria under Seleukos I extended the administrative practices of the courts into more remote imperial regions. The settlement of migrant soldiers who did not intend to return home was most intense during this period.⁴⁸ Agrarian reorganization (where it happened), colonization, and strategic refoundation of cities concentrated during these decades. The volume of coinage in circulation did not decrease after this period, but the push of monetization that had been caused by the unprecedented volume of coins put into circulation during Alexander's lifetime was exceptional.⁴⁹

A second and very different period of transformation evolved from the late third and early second century BCE onward. Greater degrees of institutionalization of administrative practices and local adaptations to these practices weakened the central power of the kings vis-à-vis their local constituencies. Roman military expansion into the Eastern Mediterranean began to be felt either directly, as in Macedonia, or indirectly by the greater presence of Italian merchants and Roman diplomats in Eastern Mediterranean cities and capitals. The period from the beginning of the sec-

⁴⁶ See esp. Taasob, ch. 8.B, this volume, regarding the Arsacid Empire.

⁴⁷ Reger 2007; Manning 2007; van der Spek 2007.

⁴⁸ Stefanou 2013 argues that immigration continued to the end of the third century BCE; yet it was most intense in the first 80 years of the Hellenistic period (Clarysse 2019). Chaniotis 2005 and Reger 2007 for Hellenistic migration more generally.

⁴⁹ De Callatay 2009.

ond century onward has therefore often been regarded as one of political and economic decline. Yet the successful campaigns of Antiochos III and continuing stability of Ptolemaic rule in Syria-Phoenicia, Thrace, Cyrene, and Cyprus, combined with continuing urban development (in parts of Asia), local building activity (especially in Egypt), and royal munificence, do not evince economic decline. It is better considered, following Fischer-Bovet, a period of crisis leading to substantial reform.⁵⁰ In Egypt, for example, economic relationships between the rulers and ruled and between the kings and local priesthoods were renegotiated, leading to a greater integration of local populations and a more stable institutional framework for economic activity that was shared by a wider range of people. In Seleukid Asia, there was dynastic change during the mid-second century when the local Arsakid dynasty took over the core regions of the empire. Yet Seleukid administrative institutions, law, and money continued to operate and developed further under the Arsakids along the paths that had been set by their predecessors.⁵¹ If economic development in the early Hellenistic period concentrated in the core regions and was driven above all by royal politics, this changed in the second century. Unfortunately, the fragmentary evidence prevents us from gaining a full picture of individual local developments and their interplay.

The empire of the Antigonids – Macedonia, parts of Thrace, Greece and the northern Aegean islands as well as some tribute-paying territories in Asia – profited least from Alexander's conquests. There had been considerable economic restructuring and urban development under Philip II (r. 359–336 BCE), which had allowed him and his successor to build a formidable army. But the impact was limited in the long term, most likely because any fruits of restructuring, most notably the reformation of the coinage and a more intense exploitation of the gold and silver mines, went into the royal army rather than the productive economy at home.⁵² The output of the mint in Amphipolis between 332 and 318/7 BCE was massive.⁵³ Yet much of this coinage was spent elsewhere. Any economic upward trend of this region seems to have ebbed away already at the end of the fourth century BCE. However, the Macedonian economy continued to benefit from the restructuring under Philip. Its particular assets can be taken from the measures the Romans undertook to weaken Macedonia after their victory at Kynoskephalai: They closed the gold and silver mines, prohibited production of timber, and cut up the kingdom into four districts.⁵⁴

The Greek *poleis* in Greece and the Aegean both profited and suffered from the rise of the Hellenistic monarchies. Most if not all of these *poleis* in the Classical

⁵⁰ Fischer-Bovet 2014, 86.

⁵¹ For the great continuities of Seleukid institutions under the Arsakids, see Taasob, ch. 8.B, this volume.

⁵² Millett 2009.

⁵³ De Callatay 2012, 178–179.

⁵⁴ Millett 2009, 503.

period had transformed into monetized market economies in connection with the precarious grain supply of larger cities combined with a great degree of intercity division of labor required for the manufacturing of special local products.⁵⁵ The Athenian maritime alliance in the fifth century BCE, moreover, had yet increased coordinated economic behavior, which continued to affect the Aegean after the dissolution of the alliance. Athenian coinage had become the dominant currency acceptable anywhere in the Eastern Mediterranean and beyond, and was widely imitated.⁵⁶ There were special maritime courts in Athens, open also to all merchants, for the speedy settlement of disputes.⁵⁷ There was a thriving economy of credit and banking across the cities. And the constant need for grain in many of them had created a trade network extending from the Black Sea to North Africa. Yet from the time of the Macedonian rise to power, the treasuries of Greek *poleis* were heavily affected by the new magnitude of military expenditure. Urban infrastructures, harbors, and defensive walls to protect against heavy artillery had to be financed from special funds and the pooling of federal income.⁵⁸ It was typical for Greek cities not to impose regular taxes on their citizens but to rely on harbor tolls, indirect taxes, and the generosity of wealthy citizens to finance collective projects.⁵⁹ Elite donations for protecting the city, repairing walls, or supporting allied cities increased in importance (see below). The general tendency of *poleis* to organize their resources and manpower in leagues expanded considerably in the Hellenistic period and helped to meet increasing military expenditure.⁶⁰ Another source of strength lay in harbor tolls. Not all *poleis* profited from the common two percent harbor tax (*pentekoste*) to the same extent. Yet the large harbors of Athens, Byzantium, Rhodes and Delos massively did so. Athens had been able to finance the entire final phase of the Peloponnesian War with the harbor dues of its allies. By the beginning of the second century BCE, Rhodians claimed to have had an annual income of almost one million *drachms* (127 *talents*) from harbor taxes.⁶¹ Although we do not know figures from other *poleis*, there can be no doubt that cities with a strong maritime orientation profited much from increasing volumes of trade in the Eastern Mediterranean from the Hellenistic period onward.

Archaeological evidence combined with a strong statement by the historian Polybios has been taken to indicate that economies of Aegean *poleis* suffered from

55 Bresson 2016, 299–381; 2011 for the distributional capacity of Greek cities at times of food shortage; von Reden 2019, for discussion and further bibliography on all these developments.

56 Van Alfen 2005.

57 Weaverdyck and Fabian, ch. 8.A, III.1.4, this volume.

58 Chaniotis 2005; Van Alfen 2005 for the expenses for repairing walls.

59 Chaniotis 2005, 115–142; Boehm 2018, 93–97; Bresson 2016, 345–350 on the effect of market exchange on the volume of harbor tolls and market fees.

60 Mackil 2013.

61 Polyb. 30. 31. 12.

the military and political transformations of the Hellenistic period.⁶² The interpretation of the evidence is by no means straightforward. Polybios states that cities were deserted and fields had become unproductive (Polyb. 36. 17. 5–6). Yet this statement is part of a complaint about low birth rates and changing attitudes to marital relationships, and may not be based on morally neutral observation. There may have been also changing patterns of landholding and settlement, with more dispersed plots of land being cultivated from fewer sites. By the second half of the fourth century BCE, magnificent and lavishly furnished private houses and tower farmsteads appear in the Athens and Attica, suggesting that some estate holders profited from new agrarian strategies, at least in Attica.⁶³ More conspicuous consumption of political elites continued in the Hellenistic period, with wealthy citizens showing off their spending power through impressive funerary monuments, golden statues, generous spending on public buildings, contributions to the grain supply, festivals, city walls, and porticos surrounding Hellenistic agoras. *Euergetism* and the public display of status which benefactors gained in return for their generosity became a structural pattern of Hellenistic *poleis*.⁶⁴ Men of economic power had started to dominate political life from the late fourth century BCE onward, and continued to do so in the Hellenistic period.⁶⁵ A recent analysis of floor plans of Hellenistic houses (as proxy for standards of living) suggests, however, that the greater prosperity of the elite did not happen necessarily on the costs of poorer people. On the basis of samples from Delos and Olynthos (on the Macedonian Chalkidike), Geoffrey Kron has argued that with an increase in the size and luxury of some elite and sub-elite houses, median house size slightly declined, but the trend was modest. This evidence reflects continued widespread prosperity and greater poverty for only a small part of the population.⁶⁶ More research of this kind is needed, but if the example is representative, the greater luxury of elite displays combined with the relative stability of general standards of living suggests a rather robust economy of the Greek cities until the beginning of the first century BCE.⁶⁷

In Asia and Egypt there was marked, though probably regionalized, economic development and growth of markets in connection with the growth of the royal capitals and the settlement politics of the kings.⁶⁸ The cities of Seleukid Asia and

⁶² Alcock 1993, 33–92 for the archaeological evidence of *poleis* in the Argolis; Reger 2007, 466–468 for discussion.

⁶³ Lohmann 1995.

⁶⁴ Reger 2007, 472–474.

⁶⁵ Von Reden 2021 for discussion and further literature on this tendency.

⁶⁶ Kron forthcoming. For continuous prosperity of the cities in Asia Minor, Walser forthcoming; for increase of number of sites, especially toward the east, Alcock 2007, 681.

⁶⁷ Thus Bresson (2007–2008) 2016 for the classical and Hellenistic period; Alcock 1993, 13–14; and Chaniotis 2005, 140 suggest heavy destruction and economic decline in the Greek cities from the mid-second century onward.

⁶⁸ To judge from their minting activity, Susa and Ekbatana remained flourishing urban centers in the Seleukid period.

Egypt grew into large consumption centers from which the economies of their immediate hinterland as well as regional and interregional trade profited. Kings settled soldiers in particular areas where land was either desolate or newly developed for this purpose. They made land donations to high-ranking officials and granted tax relief to cities and harbors, which encouraged economic activity. They interfered with agricultural and commercial practices where they expected to raise tax income. Examples are the land grants and development scheme in the Fayum by Ptolemy II, those on the island of Failaka in the Arabian Gulf, around cities in western Asia Minor and Phrygia by Antiochos III, and the regulations that Antiochos III passed in Babylonia to raise the productivity of land planted with dates.⁶⁹ New cities were founded in fertile regions of northern Mesopotamia and northern Syria. In Parthia, cities were founded in the oases of the Elburz and Kopet Dag ranges, others in the fertile valley of Hyrkania.⁷⁰ Tax exemption was granted, for example, to Jerusalem and Judaea by Antiochos III, Demetrios I and II, and by Antiochos III to Herakleia.⁷¹ City foundations, land grants, and tax remissions were part of royal diplomacy and cannot be regarded as targeted economic strategy.⁷² They did have economic effects, however. They brought additional land under cultivation, created incentives to participate, allowed better control of free-floating resources in local constituencies, and resulted in administrative integration and market development within particular circuits of extraction and exchange.⁷³ Yet if we look at the Hellenistic imperial space as a whole, they nevertheless seem to have been relatively localized.

V Social Contexts of Change

When looking for agents of change in the Hellenistic economy, scholars have naturally turned to Greek actors – courts, kings, elites, armies, and immigrant settlers. Rostovtzeff's model has been cited above. The growth of the royal capitals in Asia and Egypt with significant Greek-speaking populations seems to point in similar directions. The Belgian papyrologist Jean Bingen, moreover, has argued that especially Greek immigrants, skilled in the use of money and markets, introduced new entrepreneurial strategies into the economy of Egypt which up to then was characterized by weak markets and low degrees of monetization. As tax farmers and agrar-

⁶⁹ Van der Spek 2000; Ma 2013.

⁷⁰ Aperghis 2004, 90–91 for these and other city foundations in fertile territories.

⁷¹ Aperghis 2004, 168–171 with Josephus *Antiquitates Judaicae* 12. 138–144; 13. 49–53; 1 *Maccabees* 2. 34–35; Herakleia: Mileta 2008, 47 with *I. Ilion* 33, 47–48.

⁷² Aperghis 2004, 91 goes too far in suggesting a cohesive economic and fiscal policy in Seleukid land grants and urban foundations.

⁷³ Ma 2013, 344; for the importance of free-floating resources as an imperial asset, Manning 2010, 125 with Eisenstadt (1963) 2010, 33 and 121–124.

ian middlemen, well-off Greek civilians invested money into the purchase of tax companies, or gave advance payments of rents to landholders that were short of cash, so as to make a profit from the margins to be earned.⁷⁴ Their activities were typical examples of entrepreneurial strategies we identified as portfolio-capitalism in chapter 2 of this volume.

While the economic impact of Graeco-Macedonian immigrants, royal capitals, Greek coinages, and the development of hinterlands in the course of Greek-style urbanization cannot be denied, it would be wrong to focus just on Greek populations as agents of change in the Hellenistic Empires.⁷⁵ The proportion of Greek immigrants, many of them being ordinary soldiers and mobile civilians, among the populations of Asia and Egypt was in fact quite small. For Egypt, it has been estimated at 5 to 10 percent, including Alexandria, of an estimated total population of about 4 million.⁷⁶ Total estimates, however, conceal important local variation. In the Fayum, the number of Greek military settlers was around 15 percent plus perhaps a further 15 percent of civil tax Hellenes (a category of privileged tax payers that included some Hellenized non-Greeks). The number of Greek Alexandrians is more difficult to calculate, but if the size of the city was in the range of half a million, a concentration of Greeks in this hypertrophic urban center implies that in large parts of Egypt, the number of Greeks was negligible.⁷⁷

The ways in which Greek presence influenced local economic cultures and agrarian systems has taken center stage in research on the Hellenistic world. First, the strong opposition between Greek and ‘oriental’ economic behaviors that informed Rostovtzeff’s and to some degree still Bingen’s research has been abandoned in favor of more detailed analyses of control over land and people and their gradual transformation in different parts of the Hellenistic world.⁷⁸ In particular, scholars have focused on different categories of land – royal, temple, civic, and private – to which the kings had different claims.⁷⁹ There has also been a greater emphasis on varying degrees of change. While there were regions where administrative changes had considerable effect, such as in Lower Egypt, Syria, or Asia Minor, there were also remoter regions where administrative change happened far more gradually. Given the small proportion of Greeks that were present in the conquered territories, more emphasis is now put on the adaptation of Greek institutions to local

⁷⁴ Bingen (1978) 2007b.

⁷⁵ Fabian and Weaverdyck, ch. 3.A, III, this volume.

⁷⁶ Fischer-Bovet 2011; Rathbone suggests about 10 percent. Clarysse 2019 expresses some doubt about the low figure.

⁷⁷ Aperghis (2004, 56–58, cf. 247–8) has estimated population figures for Seleukid Asia, yet on the basis of very different data. He suggests a total number of people under Seleukid control in the range of 20 million in 280 BCE. The proportion of Greeks in this total cannot be compared to that of Egypt, as the Seleukid Empire included a large number of traditionally Greek cities in Asia Minor.

⁷⁸ Manning 2003; Capdetray 2007; Mileta 2008.

⁷⁹ Monerie 2018, 217 comparing royal land in Egypt and in Babylonia.

conditions, and on the ways immigrant and nonimmigrant populations and elites interacted in creating new institutional forms.

None of the actors considered in chapter 3.A of this volume were culturally or socially homogenous. They became increasingly mixed collectives that were open to newcomers. If we ask what was new in the Hellenistic economy, we must focus on how these collectives transformed and interacted in their mutual interest. In the early years of Hellenistic rule, the conquerors were confronted with a number of status groups. Such were the Greek-speaking *poleis*, *demoi* (cities without the status of *poleis*) and *ethne* ('tribes') in Asia Minor, the *dynasteis* ('kings') in various vassal kingdoms and imperial constituencies, or the priesthoods in Egypt, Judaea and Babylonia.⁸⁰ In addition, there were the military status groups, infantry and cavalry, whose status was reflected in the agrarian economy through the allotment of differently sized *kleroi* (land grants). A further status group was the holders of large estates, being either attached to temples or, as gift estates, to the royal courts. The kings themselves were holders of large estates (the royal land) and thus particularly powerful players in this latter group. All status groups, except landless occupational groups (which in the Egyptian tax records were referred to by the term of *ethne*), were defined by particular titles to land, and in some cases, territorial rights and rights over people. Status groups structured the fiscal administration and were the addressees of royal edicts, correspondences and administrative intervention. They were also important factors in taxation and the legal system.⁸¹ Most importantly, transfers of land and interpersonal credit operations happened most typically within particular status groups or between people bound as agents into their hierarchies. This created some social restrictions to economic activity, especially on the transfer of land. But it also created trust in transactions among people belonging to the same status. The prevalence of economic activity within status groups, in short, constrained the growth of free markets in land, labor, and credit, as well as the development of strong 'middling' social groups.⁸² Yet given that status groups also provided trust within new social and economic environments, they reduced costs of transactions, and facilitated communication between central and local economic activities.

The ability to act across status groups created interesting further dynamics in the Hellenistic economy. Kings collaborated with civic proprietors, local aristocrats, dynasts and priesthoods both in their capacity as landlords and as fiscal overlords in order to negotiate control over local income, populations, and resources. Local elites had their own interest in collaborating with the kings that not only strength-

⁸⁰ Capdetray 2007, 90–91; Musti 180–181; Manning 2007, 450–451.

⁸¹ The Ptolemaic tax system, for example, favored Hellenic status, which included not just Greeks but also non-Greeks; Clarysse 2019.

⁸² See, in contrast, the Roman and Han Empires, Weaverdyck ch. 12.C and Leese-Messing, ch. 15, this volume.

ened their local social power but also offered support in times of crisis. Both the kings and local elites orchestrated moments of demonstrative cooperation that bridged the gap between cultural and religious differences between them. Such moments were festivals and processions, worship of common gods, ruler cult, invention of common histories, and expressions of common decisions in multilingual inscriptions.⁸³ In the context of such events, incentives to cooperate were encouraged and reinforced by the bestowal of gifts from the kings, special rights, and fiscal privileges. Such expressions of goodwill were reciprocated in the form of inscriptions praising the privileges granted, by honorific decrees, and statues to the kings.

At a less conspicuous level, cooperation between Greek immigrants and local populations happened in the context of households, local *metropoleis*, temples, armies, and military settlements. Such cooperation was indispensable for the successful development of agriculture, irrigation, and administration, especially in regions of intense Greek settlement.⁸⁴ Social upward mobility and the chances to broaden one's sources of monetary gain and agricultural income were the most important incentives for local populations.⁸⁵ Many individuals cut across their status groups by their involvement in administrative and economic contexts dominated by Greeks, while remaining firmly grounded in their own cultural tradition.⁸⁶ There developed also an entirely new, supralocal status group that was not so much constituted by common social or military backgrounds but by reference to specifically Greek cultural behavior and ideals – a typical globalization process that Grewal refers to as network standardization.⁸⁷ Thus, while notable cultural and sociopolitical distinctions persisted, cosmopolitan elites and “cultural brokers” developed forms of communication and interaction that allowed cooperation and economic relationships across status groups.

Local power holders could be extremely effective in operating across status groups. A particularly instructive example is the history of a powerful local dynasty, the Toubiads, who controlled large agricultural territories in Transjordan.⁸⁸ Several

83 Fischer-Bovet 2016, for Egyptian transcultural festivals, gods, multilingual decrees, and shared collective memories; Hauboldt 2016 for shared histories; Sherwin-White 1991 on the Antiochos cylinder as an expression of shared goals of the kings and the priesthood of Nabû/Ezida in Babylon; Johannsen 2020, on the building inscriptions of the Milkashart temple in Hammon/Um-el-Hamed near Tyros.

84 On tax collection, Thompson 2001; on agriculture and irrigation, Thompson 1999a; 1999b; Römer 2017.

85 Fischer-Bovet 2014, 318–319 for people working both in Egyptian temples and the army; Lewis (1986) 2001, 104–136 for the economic advantages of cooperation in the administration.

86 For an example for this much explored social phenomenon, Lewis (1986) 2001, 88–103; generally, Clarysse 2019; and Hauboldt 2016.

87 Von Reden, ch. 2, this volume; for the development of this status group, von Reden, vol. 1, ch.1, 28; Ma 2013; Hauboldt 2016.

88 For other individuals bridging Greek and Egyptian culture, Fischer-Bovet 2016, 124–128; Johannsen 2020, 297–311; for cultural brokers, Kettering 1986.

representatives of the Toubiad dynasty are known to us over a period of 200 years. Already under Artaxerxes I (465–424 BCE) one Toubias held the important position of ‘servant of Ammon’ in the province of Ammon, also called the Ammonites in the Old Testament.⁸⁹ In the early third century BCE, when the region across the Jordan River was under Ptolemaic control, another Toubias of the same family appears as local dynast in control of large stretches of land. According to several of the Zenon papyri, he held an important position as an eponymous officer commanding cavalry and infantry soldiers that called themselves by his name.⁹⁰ Also entertaining diplomatic contacts with the Ptolemaic court, Toubias sent gifts accompanied by Greek letters to Ptolemy II. In one dispatch, a eunuch and four boys were sent to Alexandria; in another, horses, dogs, mules, and asses.⁹¹ Yet the connections of the Transjordan dynast with the Alexandrian court did not end with diplomatic gifts. Two of his agents, one of them a Greek immigrant, also had business with Zenon, at that time traveling agent of Apollonios the *dioiketes* of Egypt. As might be unsurprising in this Hellenized context of interaction, the three agents made an agreement in Greek contractual form:

[In the reign of Ptolemy] son of Ptolemy and of his son Ptolemy, year 27, [the priest] of Alexander and of the Brother and Sister Gods and the *kanephore* of Arsinoe Philadelphos being those in office in Alexandria, in the month of Xandikos, at Birta in the Ammanitis: Nikanor son of Xenokles, Knidian, in the service of Toubias, sold to Zenon son of Agreophon, Kaunian, in the service of Apollonios the *dioiketes* a [Babyl]onian (or [Sid]onian?) named Sphragis, about seven years of age, for 50 *drachms*. [Guarantor ...] son of Ananias, Persian, *kleruch* of the troop of Toubias. Witnesses [...] *dikastes*; Polemon son of Straton, Macedonian, *kleruch* of the cavalrymen of Toubias, Timopolis son of Botes, Milesian, Herakleitos, son of Philippos, Athenian, Zenon son of Timarchos, Colophonian, Demostratos, son of Dionysos, Aspendian, all four in the service of Apollonios the *dioiketes*.⁹²

The guarantor and one of the witnesses were members of Toubias’ troops; four other witnesses were in the service of Apollonios. This shows the degree of social in-group behavior that we mentioned as structurally typical for the Hellenistic economy.⁹³ At the same time, Toubias was neither Greek nor was he a direct subject of the Ptolemaic king. Zenon’s men when traveling through his territory describe it as “the

⁸⁹ Nehemiah 3. 35; for a historical reconstruction of the Toubiads, Pfeiffer 2011; Johannsen 2020, 336–338.

⁹⁰ For Toubias’s position of eponymous *strategos*, Pfeiffer 2010.

⁹¹ *P. Cair. Zen.* I, 59075 and 59076; trans. in Bagnall and Derow 2004, no. 65.

⁹² *P. Cair. Zen.* I, 59003 (May 259 BCE) = Durand 1997, no. 3; trans. Bagnall and Derow 2004, no. 143, with minor adaptations; for *dioiketes* (top financial administrator in Alexandria), *dikastes* (judge), and *kleruch* (military settler), see von Reden, vol. 1, ch. 1, 33–34. The *kanephore* (basket bearer) was the eponymous maiden in the cult for the Ptolemaic dynasty and part of every official dating formula.

⁹³ Terpstra 2019, 83–124.

territory of Toubias.”⁹⁴ Apparently, Toubias enjoyed considerable autonomy and control over people while being the commander of an army in the service of King Ptolemy. The gifts he paid to the Ptolemaic court were part of the way he negotiated his role in the Ptolemaic imperial state. Yet the business relationships his agents maintained with the agents of the Ptolemaic *dioiketes* were voluntary and in his own social and economic interest. If Johannsen is correct in his recent analysis of Ptolemaic Syria, the territory of the Toubiad family, unlike the surrounding areas, shows exceptional settlement continuity from the Persian to the Hellenistic period. This continuity, Johannsen suggests, was indicative of the social and economic success that resulted from the opportunities the Toubiad family gained from combining their local economic power with the benefits that resulted from acting in the imperial service.⁹⁵

The formation and transformation of particular status groups would not have been possible without a great degree of geographical mobility and social change. In the Greek cities of the Classical period, for example, civic status and landed property had been determining factors for an influential and prestigious career in politics. Land ownership remained an important priority in the Hellenistic period, but wealth earned in trade, manufacture, or banking allowed individuals to increase their political status. Grants of citizenship to outsiders became more common, and an increasing number of people could gain double citizenship. Noncitizens, such as women, resident aliens and slaves, became more visible – and valued – by being included in civic rituals that became crucial moments of urban life.⁹⁶ Festivals, processions, and common feasting, often generously financed by wealthy benefactors, were now by no means exclusive to male citizens. Many foreign residents (*metics*) were awarded with citizen rights or improved legal status, which could include the right to hold land, exemption from taxes and from customs, marriage rights, and access to the local law courts.

There were several reasons for greater mobility and political reintegration. The most important one, of course, was the army. Recruitment was not by force, nor through patriotism, but through economic incentives. The Hellenistic kings, and independent cities following their model, pursued a combined military and settlement strategy in which the award of land attracted individuals to leave their home, while at the same time providing for the courts a loyal fighting force in strategically useful places. In Egypt they were settled in selected areas along the Nile valley and in Asia in colonies endowed with a fertile hinterland. In Egypt, these settlers obtained a privileged tax status, and in Asia, the colonies of soldiers could attain the status of a *polis*, which also entailed improved fiscal and political status. Thousands of mercenaries were attracted by the prospect of land ownership. In some cases,

⁹⁴ *P. Zen. Pal.* 6, 175–176 with Johannsen 2020.

⁹⁵ Johannsen 2020, 338–339 with Ji 2001, and Ji and Lee 2004.

⁹⁶ Von Reden 2021.

they came in large groups. We happen to have a series of inscriptions that tell us about some 1,000 Cretans who had been called by the Milesians to serve in their army and were subsequently invited to settle in newly conquered territory.⁹⁷ The Cretans who came with their families were given Milesian citizenship rights with full control over their land. The generosity was explained by the long-term kinship between Cretans and Milesians. There may also have been economic push factors at play. As Chaniotis suggests, economic opportunities in Crete were in decline at the end of the third century due to overpopulation and land concentration.⁹⁸ Military service did not just offer opportunities for individuals but propelled the expansion of economic opportunities in an expanded imperial world.

Other mobile groups also benefitted from the expansion of opportunities, including artisans, doctors, and artists. While these had been typically mobile occupations in previous centuries, the wider geographical radius and greater demand for particular styles, skills, and expertise spread more people more widely. Local festival cultures, ruler cult, and games in all parts of the Hellenistic world required dancers, actors, and musicians, while the spread of Greek art and monumental building affected the mobility of sculptors, carvers, metalworkers, and so on. The greater specialization of skills and mobility of artisans can also be seen archaeologically in the increase and greater spread of fine pottery styles and amphora stamps stating the origin of transport containers that appear in much greater numbers and more widely distributed.⁹⁹

VI Institutional Change, Fiscal Regime, and Incentive Structures

The constituencies of the Hellenistic Empires have revealed very different kinds of institutional change. In the old Hellenic *poleis*, institutions that responded to greater community interaction and integration, such as *synoikism* (merging of *poleis*, usually under the supremacy of one of the cities), *proxenia* (grants of the status of ambassador to individuals), and agreements of *isopoliteia* or *sympoliteia* (mutual citizenship rights in two or more *poleis*) have been discussed as responses to greater mobility, more intense relationships between *poleis*, and a response to greater financial and economic hardship as they allowed coordinate action and sharing of resources.¹⁰⁰ In the context of the cities in Asia Minor, the effects of the grants of

⁹⁷ Chaniotis 2018, 308–309 with *Milet*. 6.1, 33–38; Daubner 2011 for further examples of resettlement and invitation to citizen rights.

⁹⁸ Chaniotis 2018, 308–309.

⁹⁹ Chaniotis 2018, 309–310.

¹⁰⁰ Reger 2007; Mackil 2013, 264–325.

land to the cities by Alexander have received particular attention. Through a clear demarcation of royal land vis-à-vis the land of *demoi*, *ethne* and *poleis*, the king had full control over the management and income of his own royal land while allowing a high degree of fiscal autonomy and property rights over land to the urban communities.¹⁰¹ A notable increase of urbanization in the region and greater opportunities for trade and exchange seem to have been the effects of this policy.¹⁰² In the cuneiform documentation of Babylonia, relatively little institutional change has been detected down to the early second century. Yet there was more intense use of coined money instead of weighed silver and a gradual adoption of Greek contractual forms that offered to the contractual partners a greater chance to claim their rights.¹⁰³ The economic effects of such changes are difficult to assess. Commercial exchange and market integration had been highly developed in the pre-Hellenistic period and remained so in the Seleukid and Arsakid periods. Land could be conveyed, yet full property rights were still encumbered by ownership rights of temples, a network of noble families, and the king.¹⁰⁴

In Egypt, where the papyrological evidence provides the best conditions for studying institutional change, several changes are regarded as the most significant in the long term.¹⁰⁵ The introduction of a general coinage resulted in a much greater degree of monetization and flexibility of money use. The plurality of legal traditions led to new contractual arrangements and improved enforcement of contracts. The land tenure regime led to better opportunities to mobilize labor and money. The bureaucratization of the fiscal administration (land registration, census lists, accounting, issuance of tax receipts, etc.) also affected the administration of large estates. In combination, these changes created stronger and more reliable state structures and facilitated the coordination of financial resources, production, consumption, and trade at a nonstate level.¹⁰⁶ Yet the economic impact of such changes was still limited in comparison to those of the Roman period. A still rather high tax burden and restricted property rights resulting from entrenched social conventions and institutional claims of ownership of land, not just by the king,¹⁰⁷ discouraged investment in land and other assets, while a formal judicial infrastructure that ensured the enforcement of contracts or protected cashless monetary instruments also remained limited.¹⁰⁸

101 Mileta 2008; for contrast with the Achaemenid period, Walser forthcoming.

102 Walser forthcoming.

103 Monerie 2018, Klinkott forthcoming; van der Spek 1995 for the use of Greek contractual forms.

104 Van der Spek 2014, 225.

105 Weaverdyck and Fabian, ch. 8.A, this volume; see also the excellent discussion in Manning 2005; cf. Manning 2003; 2010. For monetization and monetary instruments, von Reden 2007, 181–204.

106 For more reliable state structures, Manning 2010.

107 Monson forthcoming.

108 Manning 2005; 2012; forthcoming for the former; Terpstra 2019 for the latter; von Reden 2007, 290–294 for the limits of giro transfer in the Ptolemaic period.

The fiscal demand of the imperial states was the single most powerful institutional interference in local economies.¹⁰⁹ Initially addressing an intermediary level of the administrative hierarchy, the Hellenistic kings soon penetrated more deeply into the economic fabric of local economies.¹¹⁰ A greater interest in the fiscal coordination of larger political spaces is probably best reflected in Ps.-Aristotle's *Oikonomika*, which can be read as a theoretical manual systematizing the fiscal levels and range of taxes that existed in the post-Achaemenid empire. It is a broad-brush order of different categories of revenues of a royal (imperial) household subdivided into *satrapies* and cities, enriched by a collection of tricks gathered to demonstrate how kings, tyrants, and cities could collect money and special taxes in extraordinary circumstances. In practice, the Hellenistic kings did not impose a fiscal grid on their empires, nor did they cheat their members into contributions they were unwilling to pay. Such strategies would have exceeded the network power of the foreign rulers and risked local unrest. It is interesting to observe, in contrast, that the kings – apart from benefitting from the hierarchical and military structures on which their ‘spear-won’ empires rested – made great efforts to establish an infrastructure of communication and to make local economies gradually more ‘legible’ to them.¹¹¹ This involved ritualized gatherings with local elites, communication in the form of royal orders and letters, and above all interaction and reciprocity: *do ut des*.¹¹² Greater legibility was achieved by the establishment of a common terminology for local fiscal institutions, the establishment of Greek coinage as a general unit of account and medium of exchange and payment, and the standardization of a range of direct and indirect taxes. Beyond this, the kings relied to a large extent on knowledge and practices embedded in local experience, meaning that they built on existing fiscal practices and instruments, gradually changed them, or translated them into their own administrative idioms.¹¹³ A good example of the latter is the famous “Letter to an *Oikonomos*,” discovered among the Tebtunis papyri in Egypt.¹¹⁴ The form of this letter of instruction is regarded as pre-Ptolemaic, but under the Ptolemies it turned into a means of carefully supervising taxable assets such as cultivated land, animals, and royal monopolies in order to maximize the fiscal revenue of the king.

An important aspect of Hellenistic fiscal politics was the negotiation of rights over assets through offers of tax relief and self-governance. The Hellenistic kings were confronted with different sociopolitical systems, and they dealt with the differences accordingly. As we just said, already Alexander had granted the cities of Asia

109 For detailed discussion, Weaverdyck and Fabian, ch. 8.A, II, this volume.

110 Monson forthcoming, also for the following.

111 Monson forthcoming with Scott 1998.

112 Ma 2000, 106–235 for Seleukid Asia Minor; Manning 2019 for Egypt. For the role of priestly synods, von Reden, vol. 1, ch. 1, 30.

113 Again Scott 1998.

114 *P. Tebt.* 703.

Minor a high degree of autonomy by separating a civic *chora* from royal land.¹¹⁵ A clear distinction between revenues designed for the civic treasury (*to politikon*) and for the king (*to basilikon*), however, remained. Royal revenues could be waived or ceded to the civic treasury by acts of royal benefaction.¹¹⁶ The Seleukids also tended to avoid the term *phoros* ('tribute') in a civic context, replacing it with the more euphemistic term *suntaxis* ('contribution') instead.¹¹⁷ In Judaea, royal taxes and tribute were not collected directly but farmed out to a hierarchical pyramid of tax farmers and local rulers, thus maintaining a system of taxation by intermediaries that was abandoned in other parts of the Hellenistic world.¹¹⁸ In the *nomes* of Lower Egypt and the Delta, the Ptolemies were able to establish a rather direct system of taxation based on land surveys and census lists run by the local branches of the royal administrations. Only monetary taxes and income from the state monopolies were auctioned to tax farmers, the function of whom was not so much to create a space of autonomy as to guarantee a stable monetary income to the treasury. The larger part (in terms of aggregate value) of taxes on grain land and grain harvests were collected in kind by the royal administration directly.¹¹⁹ In the Thebaid (Upper Egypt), by contrast, the temples remained major administrative institutions down to the late third century BCE. Although being subordinate to an *epistates ton hieron* ('supervisor of the temples') who was a royal functionary, temple personnel (*arch-hiereis* or *lesoneis*) collected the rents and taxes from the vast temple estates from which the temples still drew considerable income.¹²⁰ Only after the great revolt of the Thebaid were temple scribes replaced by royal scribes, and temple granaries became royal granaries.¹²¹ The situation was yet again different in Babylonia, where the Seleukids inherited separate royal and temple administrations from the previous Neo-Babylonian and Achaemenid regimes.¹²² Since the Neo-Babylonian period, there had been a royal official (*epistates* in Greek) who oversaw the economic, administrative, and judicial activities of the temples. In the Hellenistic period, this official was still active, although he was no longer a member of the Seleukid administration but was drawn from the temple staff itself.¹²³ In total, these flexible policies made self-governance and control over taxes and income negotiable assets, which granted local constituencies a degree of agency in the arrangement of their economic affairs, though not complete autonomy.

115 Mileta 2008, and above.

116 Monson forthcoming.

117 Aperghis 2004, 149.

118 Monson forthcoming.

119 Monson 2019, forthcoming; Manning 2007.

120 Monson 2019, 154.

121 Vanderpe 2000 for a detailed analysis of this transformation.

122 Clancier and Gorres 2021.

123 Clancier and Gorres 2021 with examples from the Rēš temple at Uruk and Esagila in Babylon.

For some reasons that are not yet fully explained, Hellenistic cities, confederacies, and other corporate bodies developed *polis*-like institutions and forms of communication in the course of the Hellenistic – and early Roman – periods.¹²⁴ The process by no means happened at the same time and to the same degree everywhere. Most of the newly founded garrison towns strove for the grant of *politeia* (*polis* status) throughout the Hellenistic period as it brought with it the chance of being addressees of royal grants and other kinds of munificence. Greek city leagues (*koina* or *sympoliteiai*) coordinated their institutions to express themselves in common. Polybios (mid-second century BCE) enthusiastically praised the Achaean League for their common *pragmata* – their ability to act in common like a single *polis* – using the same laws, coinages and institutions.¹²⁵ Many old cities, most famously Jerusalem and Susa, had an assembly, council, magistrates, and municipal law by the Roman and Arsakid period. New Hellenistic cities and refoundations of preexisting towns developed *polis*-like urbanism and monumental buildings like theaters (functioning as meeting places for popular assemblies) and *gymnasia* (where adolescents served the *ephebeia*, i.e., civic-military training, as a precondition for citizenship) from the time of their inclusion into the royal geography.¹²⁶ In the royal capitals, where the courts created their own political infrastructures alongside the *polis* organization of the cities, *polis* institutions and the citizenry became more influential in the course of the later Hellenistic period. In the city of Babylon, a collective of *puliṭê/puliṭanu* (= Gr. *politai*, citizens) appears in the time of Antiochos IV as a civic assembly that acted either separately from, or overlapping with, the Babylonians who were ruled by the Esagila temple and the old Babylonian nobility.¹²⁷ From that time onward, it appears that the importance of Esagila as the main interlocutor of the king inside Babylon declined, political responsibilities shifted from the Babylonians to the *puliṭu*, and from the role of the *šatammu* to that of the *epistates*. The old Esagila temple organization continued to exist but with little power left.¹²⁸

124 In the past, the phenomenon was understood in terms of Hellenization, but this explanation has become unsatisfactory with a changing perspective on the concept of Hellenization and its colonial undertones. Out of a vast bibliography, Chaniotis 2018, 122–147 summarizes key aspects in a broad overview; Clancier 2017 on Babylonia; Tcherikover 1964 for the *polis* status of Jerusalem; Mitchell 2017 on cities in Anatolia; Cohen 2006 and 2013 for summary evidence of *polis* institutions in individual cities.

125 Polyb. 2. 37. 10–11. This, of course, was an ideal rather than a reality, but shows the desire for community building under changed political circumstances; see Mackil 2013, 5 note 15 on this passage.

126 See also Weaverdyck and Fabian, ch. 8.A, II.2.2, this volume, and Boehm 2018.

127 See also Taasob, ch. 3.B, this volume.

128 Clancier 2017, 80, and *passim* for the controversial issue of the ethnic composition of the citizenship and their relationship with the assembly of the Babylonians; for an alternative view, i.e., that Babylonian *politai* remained a distinct political group acting vis-à-vis the assembly of the temple, van der Spek 1987.

The development of Greek-style institutions in Babylon and elsewhere, shows the role of political assemblies, not necessarily composed of ethnically Greek citizens, as interlocutors of the king and their representatives. Such assemblies were the addressees of *euergetism* and privileges. If successfully integrated into the royal system of communication they formed the most effective instruments of ‘governance by consent.’¹²⁹ While in Egypt there were few *poleis* comparable to the self-organized cities in the Aegean and Asia, the temple organizations, too, began to express themselves as political assemblies. They deployed Greek epigraphic forms to express their decisions the moment these had been developed in negotiation with the kings.¹³⁰ Arguably, Greek-style institutions, including the very specific articulation of decisions by decrees following a particular form and language, reduced the costs of communication between kings and constituencies, increased the bargaining power of the collectives involved, and above all created new normative orders that were expressed in universally comprehensible terms. Collective decision making, collective honorific decrees, and their inscription on stone proved to be immensely popular forms of public communication in the Hellenistic and well into the Roman period. In their function of not just speaking to faraway kings, but also to local populations and travelers, they fostered network standardization that mobilized humans, resources, innovation, and knowledge.

Already in the mid-fourth century when Athens was in financial distress, the Athenian Xenophon had recommended to his fellow citizens that they attract merchants to settle in Athens by honoring them with front seats in the assembly and treating them as benefactors of the state.¹³¹ This culture of incentivizing individuals by praising them in public took on completely new dimensions in the Hellenistic period. *Euergetism* in the form of material benefactions and munificence was only one aspect of a much wider phenomenon.¹³² Kings were honored for their benevolence in any matter, embassies for their settlement of disputes or sacrifices to local deities. Generals were honored for their bravery, money lenders for their loans, merchants for their grain imports, doctors for their healing skills, officials for their irrigation and construction works – the list is endless.¹³³ If we search for the reason for this astonishing explosion of praise, the answer must be found in the multiple functions it served. Frequently accompanied by a fine statue of the benefactor (which he financed by himself), honorific decrees gave value to participation, made the success of individuals part of the city’s story, praised its institutions, and created a paradigmatic order that connected the local, regional, and imperial order by in-

¹²⁹ For the benefits of and limits to governance by consent in the Hellenistic fiscal regime, Monson forthcoming.

¹³⁰ Fischer-Bovet 2016.

¹³¹ Xenophon *Poroi* 3. 3.

¹³² Fabian and Weaverdyck, ch. 3.A, II.1, this volume.

¹³³ An excellent discussion of the aspects involved in the language of *euergetism* can be found in Ma 2000, 235–242; most recently Strootman 2021.

cluding all benefactors into a universal community of mutual goodwill (*eunoia*). Any social upward mobility that was offered to individuals in the imperial order fed back into local cities where the participants in that order were praised by their local compatriots.¹³⁴ The stories told in the inscribed texts served as a model, and incentive, for any beholder, both present and future. Greek and non-Greek assemblies cultivated this culture of public display with enormous consequences for communal building, network development and the spread of ‘standards’ across the geographical and temporal space of the Hellenistic world.¹³⁵

VII The Development of Science and Technology

Greeks and Romans were not quite as averse to technological progress as was once argued.¹³⁶ A shift of perspective from a history of invention to one of innovation has changed the nature of the debate.¹³⁷ Important technical innovations of the Hellenistic period have been discussed by Fabian and Weaverdyck in ch. 8.A of this volume. Particularly noteworthy are improvements in hydraulic technology, (including the extension of pipeline systems, and the (real!) invention of the Archimedean screw as a water-lifting device), as well as the growing size of ships.¹³⁸ Many Hellenistic innovations grew out of Assyrian, Babylonian, and Pharaonic science and engineering.¹³⁹ Yet in the *museia* and libraries of the Hellenistic capitals and cities, most notably Alexandria, Pergamon, and Seleukeia-Tigris, there emerged a new intellectual tradition, which spread knowledge also into non-Greek centers of learning.¹⁴⁰

There developed also a greater connection between science, technology, and opportunities of their practical application. While the foundations of ancient scientific thought went back many centuries, the Hellenistic world saw a surge of theoret-

134 Chaniotis 2018, 299–304.

135 Von Reden 2021 for the degree of community building that was involved in the public praise of benefactions.

136 Weaverdyck and Fabian, ch. 8.A, VII, this volume.

137 Cuomo 2007, 1–7. Schneider 2007 for a survey of technological changes in the Greek and Roman world.

138 Wilson 2008, esp. 293–96 on hydraulic engineering; Archibald 2007, 264–268; and Foy 2018 for the growth of glass production, and distribution of finished glass products, in the Hellenistic period.

139 Wilson 2008 notes Assyrian antecedents of Hellenistic hydraulic technology; there were, of course, great pre-Hellenistic scientific traditions in other fields of knowledge, which cannot be discussed here.

140 The interpenetration of Greek and non-Greek thought in the Hellenistic period is a complex issue; suffice it to emphasize that by no means all scientific thought developed in Greek-speaking institutions; see Kosmin 2018.

ical and practical literature that was produced in and read by ever growing intellectual circles. Scientific work was patronized by the kings and became part of their competitive cultural politics that affected all those that actively participated in it. Hundreds of treatises on geography, astrology, mechanics, and botany were written and stored in libraries, rendering science a form of knowledge accessible to many elite audiences. The Roman scholar Varro in his *De re rustica* ("On Agriculture," 37 BCE) claims knowledge of 52 works on agriculture that had been written or translated into Greek in the two centuries before his time.¹⁴¹ Such works did not influence the cultivators in the fields as much as they inspired kings, generals, royal engineers, and administrators, who proudly demonstrated the success of the imperial regime and its power to conquer nature. While mass production and standardized work processes were developments under the Roman Empire, the spread of science was the fruit of the Hellenistic period.

Much applied science developed in the context of warfare and imperialism.¹⁴² The construction of catapults and siege engines had become a specialized discipline (*belopoiike*) already in the course of the fourth century BCE.¹⁴³ Military construction work developed into a theoretical and experimental subject studied by specialists who accompanied armies on campaign. Many scientists and military engineers are known to us by name, either because their work in the field found its way into historiographical writing or because their treatises were quoted by later authors: Diades of Pella and Epimachos of Athens, who joined Alexander's armies during their Persian conquests; Epimachos and Diognetos, who worked under Demetrios Poliorketes in the siege of Rhodes; Ktesibios of Alexandria, Philo of Byzantion, and Archimedes of Syracuse all worked at the Alexandrian court, the latter also participating in the defense of Syracuse against the Romans. Diades invented siege towers that could be disassembled and carried along by the army, and his machinery with which the city of Tyros was besieged was remembered as particularly spectacular.¹⁴⁴

There were other scientific writings that had long-term impacts on economic processes. Hellenistic geography, ethnography, and *Periplus* ('circumnavigation') literature also became part of the new scientific culture connected to the specific interests of the kings to control nature, the territory, and the people of their realms.¹⁴⁵ While, once again, such works were not written for traders and travelers, they were also not autonomous productions reserved for consumption at the courts. There was still a long way to go from Hellenistic *Periploi* to the anonymous *Periplus Maris Erythraei* (*PME*) written in the first century CE. But significantly, the author of that

¹⁴¹ Varro *De re rustica* 1. 7–9. Reger 2007, 465.

¹⁴² For research on individual aspects, Oleson 2008.

¹⁴³ Schneider 1996, Cuomo 2007, 47–67.

¹⁴⁴ Vitruvius *De architectura* 10. 13. 3; Arrian *Anabasis* 1. 1. 16–24; Schneider 1996, 78.

¹⁴⁵ Gehrke 2011 for Alexander; Kosmin 2017 for the imperial aims of Eratosthenes' geography; Cuomo 2007, 67–71 with Polyb. 9. 12–16; for the *Periplus Maris Erythraei* and *periplus* as a literary genre, von Reden, vol. 1, ch. 10.B, 469–475.

text adopted the *Periplus* literary form for communicating his practical knowledge about shipping and market opportunities in the Indian Ocean. The geographer Agatharchides of Knidos, who in the mid-second century BCE wrote a *Periplus* of the Erythraean Sea up to the Arabian Peninsula, stimulated the long process of making this space more familiar to travelers and merchants. He is not believed to have explored the oceans himself, nor was he particularly favorable toward commerce. Yet his book is full of economic observations, including toll stations, gold mining, elephant hunting, and the trade of the Nabataeans.¹⁴⁶ The explorer Eudoxos of Kyzikos, who led a maritime expedition from Egypt to the south Arabian coast under the patronage of Ptolemy VIII, is also noteworthy in this context.¹⁴⁷ Either he or an otherwise unknown Graeco-Egyptian explorer called Hippalos is credited with the ‘discovery’ of the monsoon winds. The lives of Eudoxos and Hippalos are dated to the last quarter of the second and first half of the first century BCE, respectively, just when the first Hellenistic pottery appears at southwestern Indian coastal sites that became the major ports of call for Indo-Roman trade.¹⁴⁸ It may not be accidental that the office of “*strategos* and *epistrategos*” of the Erythraean Sea is also attested for the first time in a Ptolemaic inscription dated to the late second or early first century BCE.¹⁴⁹

The impact of Hellenistic science and technology on economic processes must still be regarded as spasmodic and limited to specific contexts.¹⁵⁰ Yet the Hellenistic courts created a new environment for the production of knowledge in a wide range of fields. Moreover, the integration of science and technology into the cultural politics of the kings and ideologies of imperial domination created new incentives for the development of ideas in a competitive political context. The financial patronage of royal courts and the mobilization of knowledge in military, political, and civil contexts fostered the emergence and dissemination of a new culture of knowledge that, like many other Hellenistic developments, affected economies and theoretical thought far beyond the Hellenistic period itself.

VIII Multiple Centers and Maritime Connections

All Hellenistic kings invested heavily in the development of their capitals as places of imperial representation, the strength of their armies, and the maritime orienta-

¹⁴⁶ *FGrH* 86 23b–24b; 54b; 89b trans. in Burstein 1989, 58–60; 95–96, 148–149.

¹⁴⁷ Strab. 2. 3. 4 on Eudoxos; Pliny *Naturalis historia* 6. 100 and Ptolemy *Geographia* 4. 7. 41 attribute the discovery to Hippalos.

¹⁴⁸ Cobb 2018, 41–45 for discussion about when the Greeks were first able to make use of the monsoon winds and for the increase of trade in the Indian Ocean.

¹⁴⁹ Cobb 2018, 45–46 with *SB* 8036 (= Bernand 1969, nos. 352 and 353); Sidebotham 2011, 37.

¹⁵⁰ Schneider 2007, 167.

tion of their empires. The connections developing between a number of wealthy centers of consumption and exchange, on the one hand, and the maritime spaces of the Mediterranean and Arabian Sea/Indian Ocean, on the other, expanded circuits of exchange and laid the grounds for the intensification of Afro-Eurasian trade in the Roman period. The Hellenistic states were heirs to long-established riverine-maritime networks. The connections between the Mediterranean and the Black Sea, the Oxus-Caspian-Black Sea and Tigris-Mediterranean axes, the maritime relationships between the Levant, Cyprus, and Egypt, and the Indian Ocean coastal trade networks including sites along the Arabian Gulf and the Red Sea developed during the early first millennium, and some of them reached back to the Bronze Age.¹⁵¹ Yet the Hellenistic kings more than their predecessors invested in maritime expansion by means of conquest, administrative control, coastal city foundations, protection of itineraries, and customs politics.¹⁵² None of these investments were driven by isolated economic purposes, but they were part of wider fiscal, military, ritual, and ideological schemes that created their own dynamics through the various actors that were involved.¹⁵³

We outlined the imperial politics of the Seleukids and Ptolemies in the first volume: Focal points of expansion and rivalry were the Mediterranean and Pontic coastal cities and kingdoms followed by city foundations by the Seleukids along the roads in Asia Minor and Northern Syria. The Ptolemies were eager to dominate the coastal cities of Asia Minor, controlled some islands in the Cyclades, and founded new cities along the Red Sea coast.¹⁵⁴ Seleukid efforts were also directed toward the control of coastal kingdoms in the Arabian Gulf.¹⁵⁵ Continental imperial network

151 Broodbank 2013 covers most of these connections down to the fifth century BCE; Briant (1996) 2002, 357–387 on Achaemenid royal roads stretching between Persia, Susa, and Ecbatana; Manning 2015 for a long-term perspective on pre-‘Silk-Road’ connections down to the Hellenistic period; for the Caspian-Pontic connections, Lerner 2014, and in a wider chronological frame, Parzinger 2008; Radner 2004 for the Assyrian connections between the upper Tigris valley and the Mediterranean and Levantine coastal cities; Briant (1996) 2002, 381 for Babylonian connections to Elam; Potts 2010 for Achaemenid presence in the Gulf; for Mesopotamian pottery on Fialaka/Ikarios, Aperghis 2004, 75. Kosmin (2013) suggests, on the basis of a new Greek inscription from Bahrain/Tylos that mentions a *strategos*, that this archipelago and Falaika had a Seleukid administration. Kitchen (1997) suggests that the entire coastal zone of the Arabian Peninsula formed a semidependent kingdom called Hagar issuing its own Hellenizing coins from the later third century onward (Robin 1974). Given this limited evidence, the idea of a sprawling trade between the Arabian Gulf and Mesopotamia and Seleukid attempts to control it, seems overstated; for the Oxus-Caspian-Caucasus/Black Sea connection, see also Morris, ch. 13, V.1, this volume.

152 Aperghis 2004, 160–163 may exaggerate the degree of economic policy behind Seleukid administration, but lists the evidence for internal and external customs well; also Mileta 2008.

153 Strootman 2019; Archibald 2007 for the interdependence between empire, economics, religion, and elite consumption involved in the economic relationships between Egypt and the Black Sea.

154 Von Reden, vol. 1, ch. 1, 37–39; for the Ptolemaic maritime empire, see esp. Strootman 2019.

155 For Seleukid presence in the Arabian Gulf, Kosmin 2013. Trade connections between the Seleukid core and the Gulf region are poorly attested. The city of Spasinou Charax, first founded by

building, though by no means absent, was less dynamic and less successful; Parthia, Hyrkania, Bactria, and the Indian *satrapies* were soon given up or lost to local usurpers. Both for continental and maritime connections, the advantages of a royal network of military garrisons for protecting routes and markets, a universally valid coinage, a shared official language, recognizable urban structures, and the maintenance of infrastructures of movement offered new economic opportunities for itinerant individuals and groups such as merchants, artisans, envoys, and explorers.

The evidence of shipwrecks, and stamped and unstamped amphora handles found in hundreds of thousands in the Mediterranean and beyond, is notoriously difficult to interpret, and archaeologists are reluctant to offer this evidence as an indication for changing volumes of trade.¹⁵⁶ But the massive increase of amphora handles extant from the third century BCE in combination with that of Mediterranean shipwrecks from the second cannot fully be ignored. More ships and more goods moved around the Mediterranean in the Hellenistic than in the previous periods. Once again, the greater movement of goods did not just take the form of trade, and the purposes of people moving around were not limited to private commercial enterprises. Commercial and diplomatic voyages often overlapped. Envoys, kings, or *proxenoi* brought or received gifts, negotiated grain imports, or granted reduction of customs and tolls; traders in turn participated in interstate diplomacy.¹⁵⁷ Pirates promoted the slave trade.¹⁵⁸ Yet, although we cannot prove in comparative figures, much of the movement of goods across the Hellenistic imperial space was genuine trade.

While the royal capitals turned into massive nodes of consumption and hubs of exchange, none of them became an unrivalled economic core like the city of Rome. The capital cities successfully took over economic supremacy in regional urban networks, as we argued above, extended their hinterlands, and took advantage of the concentration of resources and tribute mobilized in the wider imperial space. But the political divides that cut across the Hellenistic world, and the successful struggle for political autonomy of the connected Aegean cities, prevented the orientation of trade and production toward a primary consumption center.

Alexandria was the uncontested political and economic hub of the Ptolemaic maritime empire that drove large amounts of trade and exchange from places on the Black Sea and coastal Asia Minor via Rhodes and the southern Levant toward Alexandria, and from there to Ptolemaic allies in the Aegean, the Greek mainland,

Alexander under the name Alexandria, and then refounded as Antiocheia Charax by subsequent kings, was 100 km away from the coast. The site has revealed so far very little continuous urban development in the Hellenistic period; Hauser forthcoming.

¹⁵⁶ Gibbins 2001 for shipwrecks; Gabrielsen 1997, 64–71 for amphora handles in Rhodes.

¹⁵⁷ Gabrielsen 1997, 74–80 for the interconnections between trade, gift-giving, and diplomacy in the case of Hellenistic Rhodes; Archibald 2007 for a similar argument for the Ptolemaic connections with Pontos.

¹⁵⁸ Menander *Sikyonioi* 3–19, trans. Austin 2006, no. 104.

Northern Africa, Sicily, and the Tyrrhenian Sea.¹⁵⁹ Egypt's role in the production and supply of grain for the Mediterranean contributed to this centrality in trade and exchange.¹⁶⁰ Seleukeia-Tigris assumed centrality in the Mesopotamian-Mediterranean trade axis. Antiocheia-Orontes, probably equal in size to Seleukeia-Tigris, was both politically and economically equally important. There were, moreover, other hubs in the Eastern (and Western) Mediterranean like Carthage, Corinth, Rhodes, Byzantium, and the Ionian cities, each taking advantage of their regional networks that dated back to the early millennium. Many Aegean cities became more visible as prosperous centers of consumption, elite public displays, and exchange in the Hellenistic period.¹⁶¹ The genuine market competition among some of these cities might be evident from the fact that Delos prospered once Corinth was destroyed, and that the Rhodians complained before the Roman senate to have lost most of their customs duties when Delos was declared a free port by Rome.¹⁶² Some Greek states took active measures to maintain such competition. This may be taken from the fact that the Rhodians declared war on an ally of Byzantium when the city introduced a tax for the passage through the Bosphorus.¹⁶³ The Hellenistic Empires fostered the growth of royal capitals, created new infrastructures for their supply, and new geographies that served their interests, while local estate holders, bankers, and entrepreneurs took advantage of the new opportunities which fed back into their local economies.¹⁶⁴

IX Conclusion

Extraordinary demographic growth in some urban centers and new scales of military expenditure suggest extensive economic growth in the Hellenistic economy, that is, the mobilization and concentration of greater amounts of resources from an extended economic space. The large royal capitals benefited from imperial expansion and the exchange networks that became part of them. Several initiatives, moreover, to develop productive hinterlands by irrigation and settlement together with tighter supervision of cultivation processes are likely to have increased the total

159 Foy 2018 for Hellenistic shipwreck evidence attesting the trade of Egyptian glass in the Tyrrhenian Sea; Huss 2012 and Arnaud 1995 for Sicily.

160 Gabrielsen 1997, 71 for distances and travel times between Byzantium, Rhodes, Alexandria, and Athens.

161 Gabrielsen 1997 for Rhodes; Archibald 2007 and Reger 2007 for Byzantium; Bresson 2016, 93–94 for Corinth.

162 Bresson 2016, 95 for Delian prosperity after Corinth's destruction; Gabrielsen 1997, 64–71 with Polyb. 30. 31. 9–12 for the tax complaint and continuous prosperity of Rhodes after 166 BCE.

163 Mileta 2008 with Polyb. 4. 49–51.

164 Bintliff 2013, 288.

agrarian output of the Hellenistic economies. But this increase is impossible to measure, and the number of known instances too small to assess their overall effect. More significant economic stimulation, though with equally unquantifiable outcomes, stemmed from greater geographical mobility and new volumes of trade that benefited from imperial connectivity, administrative networks, and political alliances. However, some of these benefits were spoiled by the enormous costs of almost continuous warfare that swallowed large amounts of tribute and local money. The Hellenistic economies never enjoyed a *pax Hellenica* comparable to the *pax Romana* the Romans were able to establish in the first century CE.

The beneficiaries of the new imperial opportunities seem to have been above all mobile individuals and immigrants at all levels of society who succeeded in integrating themselves into new sociopolitical environments. Locally, cosmopolitan elites who translated their local social power into bargaining power vis-à-vis the imperial courts were the greatest winners. For ordinary people, integration into the network of the Greek ethno-class through learning and acting Greek offered new opportunities in the administration and army. At the same time, it extended the social support group from which the royal administration could draw human resources at the lowest costs. Positive economic dynamics also accrued from the institutional responses to fiscal change in different parts of the empire. An ideology of reciprocity was vital for maintaining social peace in the face of high levels of tribute and taxation. It seems, moreover, that kings were most successful in raising revenues when they developed fiscal institutions out of existing tributary practices.

Yet despite some considerable economic development, the Hellenistic economies suffered from some major structural problems. First, the reach of law and jurisdiction that ensured the enforcement of contracts remained limited to the radius of royal administrative control.¹⁶⁵ Second, there were social and political impediments to the development of free markets in land and capital.¹⁶⁶ And third, a great deal of trade and exchange took place in socially dependent agency relationships, including those of the kings and their personnel, which limited the development of entrepreneurial groups that dynamically expanded their network relationships.

Thus the main contribution of the Hellenistic Empires to the development of inter-imperial trade and exchange lay in creating connections and institutions from which later empires benefited. Continental hinterlands drew closer to interconnected maritime spaces. Coinage developed as a dominant medium of exchange and payment across the Hellenistic imperial space. Greek developed as a shared language that stimulated interaction and exchange between places as far apart as the Mediterranean and Central Asia. There developed a Greek-speaking ethno-class that established standards and norms of behavior across an equally large imperial space.

¹⁶⁵ Terpstra 2019 for the former; von Reden 2007 for the latter.

¹⁶⁶ Van der Spek 2014 for Babylonia; Manning 2007 for Egypt.

And large numbers of old and new cities and towns developed political institutions that permitted effective communal decision making, legislation, and external communication both with other cities and with imperial centers.

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