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EARLY PORTUGUESE DATA FOR WAGE DEVELOPMENTS IN INDIA: KANNUR (CANANOR), 1516-1517

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This essay discusses new evidence for wage developments in Western India from c. 1300 to 1600. By introducing wage and price data for Kannur (Cananor in Portuguese and British sources) for the years 1516-1517 we contribute to a larger discussion about standards of living in South Asia. These figures from unpublished Portuguese archival sources are compared to Indian ones for the early fourteenth and late sixteenth centuries (no other being available so far). We conclude that the overall purchasing power of wage earners in Kannur in 1516-1517 was not substantially lower than in Delhi 1311. This suggests that real wages remained stable at a low level in the fourteenth and fifteenth centuries, then rose during the sixteenth century to an all-time high around 1600, before dropping again (if expressed in grain), though never returning to the low levels of 1300-1500.

Keywords: real wages, standard of living, occupations, great divergence, India.

Resumo (PT) no final do artigo. Résumé (FR) en fin d'article.

This essay introduces and discusses new evidence for wage developments in Western India from the late Middle Ages to the times of Mughal emperor Akbar (1556-1605). These data may contribute to a larger discussion about standards of living in South Asia as compared to other parts of Eurasia and Western Europe in particular. This discussion is known as the Great Divergence debate in which real wages play an important role as indicators of diverging economic performance and welfare in China and England, now often broadened to Asia vs. Western Europe.¹ This controversy focuses on the question when precisely welfare in Asia started to drop, in contrast to Europe where it was rising. Our article provides evidence much needed to further this debate, but it does not engage directly in it.

¹ Parthasarathi (2011) provides a good overview of the discussion.

So far, the earliest data for India used in this debate stem from the late sixteenth century from the *Ain-i-Akbari*, a manuscript dated to around 1595.² Nevertheless, earlier data for the fourteenth century are available. They have been well researched but have never been used in the Great Divergence debate, possibly because of the time gap of over two centuries with the *Ain-i-Akbari*. Until now historians have also neglected the rich Portuguese sources that are available. By introducing wage and price data for Kannur (Cananor in Portuguese and British sources), a town located on the western coast of India, for the years 1516-1517 we do not only intend to contribute to the earliest period covered by the debate so far, but also to elongate the time frame and even to link it to fourteenth century wage data.

Although participants in the Great Divergence debate differ widely as to when European and Indian economic performance definitely drifted apart – in the seventeenth, the eighteenth and even in the early nineteenth century –, all seem to agree that this still was not the case around 1600. Perhaps this unanimity is partially due to a lack of sources. For earlier centuries not many data are available, and for that very reason it is difficult and problematic, if not impossible, to reconstruct a GDP or other encompassing welfare indicators for India. One of the few options open to the historian is the reconstruction of real wages. In the Indian case, however, early wage data are much scarcer than for Europe at that time. Only after the 1630's prices and wages data for India become somewhat more abundant. Najaf Haider, a specialist in the economic history of the early Mughal Empire, has tried to combine all this early evidence and concluded that his findings broadly support the arguments by Broadberry and Gupta that wages were lower in South Asia compared to Europe. At the same time he stresses that more empirical evidence needs to be adduced (Haider 2010, 35).

What is the argument of Broadberry and Gupta? For more than a decade now these two authors dominate the Great Divergence debate as far as India is concerned while being much more pessimistic than other participants in the discussion (e.g. Parthasarathi). In their much-quoted 2006 article they argue that not only in the advanced parts of China and of India, grain wages were comparable to those in north-western Europe, but that silver wages were substantially lower at levels more comparable to the stagnating southern, central and eastern parts of Europe. The implication for general income levels is, according to them (who consider the earliest source to be the *Ain-i-Akbari*), that by 1600 they were higher in

² The *Ain-i-Akbari* is a detailed document on the administration of the Mughal Empire under Akbar.

north-western Europe because silver wages reflected high productivity in tradable goods and services. In a paper of nine years later they attempted to reconstruct the Indian per capita GDP, which according to their figures dropped substantially between 1600 and 1811 and then stagnated until at least 1871. They conclude that around 1600 India's GDP per capita at wheat price PPP (purchasing power parity) was 71.2% of England's, and at silver exchange rate, only 14.5% (Broadberry, Custodis and Gupta 2015). Thus, contrary to the claims of Pomeranz, Parthasarathi and others, these authors sustain that by 1600 India was already lagging behind, certainly if wages are expressed in pure silver. Haider (2010) even suggests that this may have been the case as early as 1500. But it also seems apparent that the debate is currently at an impasse, mostly because of lack of good supplementary data – a fact underscored and deplored by all involved.

In order to test these claims we will collect as many data as possible on wages and prices in Kannur from the list of annual expenses (1516-17). Wages expressed in food prices, i.e. the purchasing power of wages, after all provide insights into welfare levels. In order to frame a result in a wider time perspective it is necessary to go further back by studying more closely the earliest evidence available for India. We will therefore compare the data from the *Ain-i-Akbari* with published Indian wages and prices from around 1300 (in section 1), and especially with unpublished materials from Portuguese sources on India from around 1500 (section 2). The ensuing trend, as summarized in the concluding section, may contribute to understanding long-term developments in India between 1300 and 1600, and, finally, to compare these developments with those of other parts of Eurasia. The text is complemented by an appendix where some methodological issues concerning conversions are clarified.

1. North-Indian sources c. 1300 and 1600

Apart from wage indications in the *Arthashastra* of Kautilya (1992), of which the best available copies date from the third century CE,³ the earliest wage data for Northern India have been preserved only for the Delhi Sultanate.⁴ This sultanate was founded at the end of the twelfth century and soon controlled Northern India. For some time it comprised also Bengal. In 1229 it was recognised by the Abbasid Caliph in Bagdad. Ala'uddin

³ See also Jha (2005).

⁴ For Southern India price data are also available in Tamil inscriptions for the Chola period (850-1279) – see Hall (1994), who does not mention wages, however.

Muhammad Khalji, Delhi Sultan 1296-1316, introduced strict wage and price regulations, resulting in very low nominal rates especially in comparison to half a century later. These regulations were strictly applied in Delhi and its hinterland.⁵ We can get a very rough idea of the purchasing power of artisans' and servants' wages by comparing the wage and price levels under Ala'uddin Khalji with other periods (see tables 1 and 2).

Table 1. Daily wages in and around Delhi in the fourteenth century (1305-1354)

	Ala'uddin Khalji (1296-1316) 1305	Qutbuddin Mubarak (1316-1320)	Firuz Shah Tughluq (1351-1388) 1354
Tailor	2.00		20.00
Artisans (tailors and weavers)	2.00-3.00		20.00-30.00
Servant (chakar)	1.33-1.60	0.79-14.65	
Overall	[unknown]	(4 x 1305's level)	(4 x 1305's level)

Sources: Habib (1994, 89, 97, 104). **Notes:** Wages are expressed in jitals per day (48 jitals = 1 tanka). Wage developments for tailors are partially derived from piece rates: 4 to 6 jitals per robe (c. 1305), and 48 jitals per robe (c. 1354).

As a result of Ala'uddin Khalji's price regulations artisans earned the equivalent of $1/3$ *man*, equivalent to 3 kg of wheat, or to some 4.5 kg of rice (or 0.33 grams of silver) per day. Servants earned the equivalent of some 1.75 kg of wheat or 3 kg of rice (or 0.187 grams of silver). Price data for these centuries are rather consistent with the exception of the wheat price in the 1290's which was quoted during a great famine. As to the prices of sugar in the middle of the 13th century we should be aware that the sources are not straightforward. Literally they report "half *diram* (one *ser* of refined) sugar; one *jital* somewhat less (than one *ser* of) white sugar". Habib takes *diram* to be a synonym for *jital*. For refined sugar his $1/2$ jital per *ser* makes only 7.5 jital per *maund*, and for white sugar only 16.5 jital per *maund*. We cannot explain the substantial difference with the price notations by Haider, on this occasion checked with the text edition of the *Tarikh-i-Firozshahi* (p. 310), which we therefore follow.

⁵ Extensively discussed in Habib (1994, 97-100, 104-105) and Haider (2011 and 2015). The reliability of these regulations is also discussed by them, concluding that we should use these regulated prices as the best proxy. Habib (see Raychaudhuri and Habib 1982, 26n) refers also to unpublished work on this topic by Simon Digby (1932-2010), probably to be part of his collected works in 10 volumes, since 2016 under contract by Oxford University Press, Delhi.

Table 2. Food prices in and around Delhi (1246-1595)

	Nasiruddin Mahmud (1246-1266)	Jalaluddin Khalji (1290-1296)	Ala'uddin Khalji (1296-1316)	Muhammad bin Tughluq (1324-1351)	Firuz Shah Tughluq (1351-1388)	Akbar (1556-1605) Ain-i-Akbari
Wheat	7.5	40	7.5	12.0	8.0	0.30
Barley	4.0				4.0	0.20
Rice (<i>paddy</i>)	5.0		5.0	14.0 ^a		2.75 Grade I 2.50 Grade II
Pulse (<i>mash</i>)	5.0					0.40
Pulse (<i>moth</i>)	3.0					0.30
“Gram”	5.0		4.0-5.0		4.0	0.20 0.40 Kabul
Sugar refined	100.0					
Sugar white	60.0		19.9			3.20
Sugar red			7.5			1.40
Clarified butter (<i>ghee</i>)	13.3		6		26.7	
Sesame oil					13.3	0.50 White 0.75 Black
Salt					2.0	0.40

Sources: Haider (2004, 10 and 21-24). **Notes:** Data in col. 3 refer to Delhi in 1305, and in col. 6 to Agra/Lahore in 1595. Prices in the first five columns are expressed in jitals per maund of 8.8032 kg; in the last column to the right in rupees per maund of 25.1200 kg. Except for data on periods 1290-1316. Haider uses the contemporaneous man (maund) of man-i-Akbari (25.12 kgs.) This explains the differences with Hasan (1994, 175-176), who quotes prices according to the later man-i-Shahjahani (33.48 kgs). Habib (1994 and 2011, 50, fn 9) for the conversion of the fourteenth-century maund into 8.8032 kg and Deyell (1994, 126, fn 38) (prices 1305 without references) who provides the following keys for coins: 1 jital = 0,29 g Ar, 1 dam = 0.28 g Ar, 65-120 tankas = 715-1320 g Ar, 1 mohur = 9.4 rupees or 106.5 g Ar; and for weights in 1305: 1 man = 13.1 kg and 1 ser = 0.87 kg; but for 1595 1 man = 25.2 kg. On this basis we have converted his prices for sugar and ghee from jitals per ser to jitals per maund.

^a Husked rice.

We have to wait more than one century before finding new wage data. From the sixteenth century onwards, the rich Portuguese sources open up (see below), but there is otherwise little data available in texts in non-European languages. According to Najaf Haider (2007, 306) labourers and masons at Jaunpur in 1572 were paid in copper dams, but he does not specify how many.⁶ The best series stems from the Ain-i-Akbari, reflecting the situation in the Delhi-Agra region around 1595. Apart from military wages, which are omitted here, this source contains several construction wages, differentiated according to skill grades (I-V).

⁶ Recently, Najaf Haider has uncovered more late medieval data, which he hopes to publish in the near future.

Table 3. Monthly wages in and around Delhi (c. 1595)

	Grade I	Grade II	Grade III	Un-differentiated
carpenter	5.25	4.50	3.00	1.50
bricklayer	2.63	2.25		2.25
lime worker	5.25	4.50	3.75	
wood-sawyer				1.50
bamboo-cutter				1.50
thatcher				1.50
water-carrier	2.25	1.50		
ordinary labourer				1.50

Sources: Haider (2004, 63-64; 2010, 30). A summary (but without the ordinary laborer) is to be found in Prakash (2007, 340), after the *Ain-i-Akbari* (1977, pp. 235-236). **Notes:** Wages in rupees.

A confrontation between wages and prices suggests that artisans earning 3 rupees per month were able to buy more than 8 kg of wheat per day, or about 1 kg of second grade rice. Ordinary labourers earned half as much. In comparison to two centuries earlier this meant a substantial rise in purchasing power if expressed in wheat, without doubt the basis for the diet of inland Northern India. Comparatively, rice had become much more expensive, a development that seems to have already started in the first half of the fourteenth century, and which must have led to a situation where the workers in central Northern India would have been able to eat it only at the time of festivals.

2. Portuguese sources for Indian wages since the early sixteenth century

Portuguese ships reached India for the first time in May 1498. From then on, a rich source of information begins to flow, including on wages and prices – a source that has not been tapped yet for this purpose. Until the middle of the sixteenth century many travelogues and accounts of Portuguese settlements are available, many of which have been published, though unpublished manuscripts are laying in libraries and archives. After 1554 the system of accounts becomes more uniform, covering all Portuguese settlements east of the Cape of Good Hope, i.e. from Mozambique and the East African Coast via the Persian Gulf and the Indian West Coast (no less than 21 settlements, from Diu in the north to Manar in the south), to Ceylon, Malacca, Timor and Macao, in China. Some of these general overviews, entitled *Tombo geral do Estado da Índia*, have already

been published.⁷ The wage and price data in these general *tombos* and similar sources have generally been neglected by economic historians, although they are available in different formats until the second half of the twentieth century, that is, for nearly 500 years. For our reconstruction of long-term trends in nominal wages, prices and real wages we have begun to process these data, starting with the accounts of the settlement of Cananor.

Prices notations of commodities and wages in areas under Portuguese influence in India in the early sixteenth century are still limited, especially those of wages paid to local workers. The destruction of the documentation in the *Casa da Índia* (House of India) during the Lisbon earthquake of 1755, is partly responsible for the dearth of information. However, several other sets of wage and price data are available. The chronicles of Gaspar Correia, João de Barros, Duarte Barbosa, and Fernão Lopes de Castanheda (early sixteenth century) to name a few, contain various data on the price of staple food, merchandise and wages paid to Portuguese crew and military personnel.⁸ The *Regimentos* (Instructions) for the Indian fortresses also left important data.

The revenue and expense books of the various Portuguese trading posts (*feitorias*) and fortresses in India are possibly the richest sources for a first exploration of the real wages of the populations interacting with the Portuguese. In these books the scribe of the *feitor* (royal factor) carefully noted down all revenues and expenses with many details about goods and services, quantities, currencies and names of buyers and sellers. Other records relating to shipments made to supply vessels for their return to Portugal are useful. Many of the revenue and expense books, and cargo lists are housed in the National Archives of Torre do Tombo (*Núcleo Antigo*) and attracted the attention of Geneviève Bouchon (1977 and 1987), Luís Filipe Thomaz (1966), and Artur Teodoro de Matos (2006), among others. Few of these records have been transcribed and published, despite their enormous potential in the study of local populations. In this article we start by exploring Kannur (Cananor). In the near future we will add additional data on Chaul, Calicut and Kochi (1506-1520) by using similar revenue and expense books, thus enhancing our

⁷ See, for instance, the *tombo* of 1554 by Felner (1868), the *tombo* of 1571 by Matos (1999) and the *tombo* of 1574 by Godinho (1982).

⁸ For example, Gaspar Correia (1868, 147) describes the payments made to the crew and military personnel of Cabral's fleet in 1500. Duarte Barbosa (1921, 227-231) offers a complete portrait of spices and its prices on the Malabar Coast.

knowledge on prices and wages in the Portuguese settlements of the Indian Ocean.⁹

The Portuguese presence in Kannur (1501-1663) is linked to the first voyages of exploration of the maritime route to India, and the recognition of both political geography and trade routes in the Indian Ocean. In 1498 Vasco da Gama entered the port's bay on the initiative of Kannur's king, who had offered provisions to the Portuguese after their setback in Calicut. The first formal contacts were established in 1501, when ships of the powerful navy of Pedro Álvares Cabral anchored in Kannur, invited by the local sovereign. In that same year a trading post was founded at Cabral's request, with the consent of Kannur's king (who offered the land and endowed all necessary construction materials to the Portuguese).¹⁰ In 1503 the *feitoria* was in full operation, and in 1505 it was fortified by the first viceroy of India, D. Francisco de Almeida, making it one of the first Portuguese constructions in Asia (Biedermann 2006, 233-234).

In the late fifteenth century Kannur was a commercial port on the Malabar Coast. Portuguese chroniclers such as João de Barros and Duarte Barbosa report it as an important town populated by Muslims and Hindus with a thriving merchant class equipped with all kinds of vessels. Goods were traded from Ormuz to the Maldives and Ceylon in a well-organized trade where an enormous variety of products was transacted (Matos 2006, 87). D. Francisco de Almeida was aware of Kannur's importance in supplying the Portuguese ships of the *Carreira da Índia* and private merchant vessels. He informed his king that "there are considerable supplies in Kannur" and that "if Your Majesty does not have a fortress on this coast, all your trade will be lost along with all the authority that Your Majesty has in the region" (Costa and Rodrigues 2006, 26).

The town and its hinterland supplied ginger and cardamom, but it was clearly eclipsed regionally by Calicut and Kochi, both large spice suppliers of the Malabar Coast (Ferreira n.d). One of the most sought commodities from Malabar was pepper, which was of a superior quality but could only be obtained in small quantities in Kannur. How, then, can one explain the growing importance of this fortress? Despite the economic centrality of Calicut and Kochi, the Portuguese suffered seri-

⁹ Thanks to a recent grant, generously offered by Fundação Calouste Gulbenkian to carry on the research project "Local and European Wages in the Portuguese Indian Ocean, 1500-1650. New sources and analytical tools".

¹⁰ The literature on the establishment of the Portuguese in Kannur is vast. For an overview see Ferreira (n.d.), Bouchon (1975), Matos (2006), and Mailaparambil (2007, 61-90).

ous political and military setbacks in their relationship with local leaders, who were also regularly involved in wars amongst themselves (Bouchon 1992, 44-46). The Portuguese tried to build a trading post in Calicut in 1500, but they were promptly attacked and much of the garrison perished. Tensions remained high until 1513 when Afonso de Albuquerque managed to negotiate peace, though it was short-lived. After the setback of Calicut, the Portuguese established relations of cooperation with the king of Kochi, but in 1504-1505 they were attacked by the Samorim of Calicut. These episodes, the constant political instability of the Malabar Coast, and the fact that Kannur was a great center for shipbuilding may explain the growing interest of the Portuguese authorities in Kannur as an alternative port. In short, at the end of Albuquerque's term as viceroy, in 1515, this fortress was part of a restricted network of large fortresses slowly emergind in the Portuguese State of India.

The oldest accounts available for Kannur have been preserved in a manuscript, entitled *Livro da receita e da despeza do anno de 1516 feita a dita receita e despeza em Cananor*.¹¹ We have used an unpublished transcript by Artur Teodoro de Matos, consisting of two parts: an unnumbered part, partially dated November 1516-January 1517, annotated by him with 156 endnotes; followed by folios 46-79, not annotated, covering the years 1515-1521. The manuscript lists incomes and food expenses, other goods and *soldos* (wages). By expressing wages in amounts of grain (both wheat and rice) this enables us to reconstruct real wages directly without bothering about the silver value of the various currencies (see the appendix).¹² In this volume we have found no less than 125 wage observations for 25 different occupations or jobs.¹³ In general, wages per occupation were fixed during the period from November 1516 to January 1517. For only four occupations out of these we found varying wages per occupation, so we had to calculate averages. The variety within these four occupations probably has to do with different skills, like in the case of carpenters and servants in Malabar, who were paid collectively (e.g. “pay 1300 fanoes to 1250 jornaes of carpenters, silicet 650 of 12 tangas, 600 of 10 tangas etc.”). They also may have to do

¹¹ The original is kept in the Instituto dos Arquivos Nacionais/Torre de Tombo, Núcleo Antigo 804. All wages and prices data discussed in this paper are to be found in the 1516-1517 part of the manuscript.

¹² In the future we hope to be able to express these wages also in a basket of goods as developed by Bob Allen as in principle prices for all necessary commodities are available in this manuscript.

¹³ Besides, there are many wage data in the manuscript that had to be excluded from our analysis where the number of days was lacking. Most of these imprecise wages refer to sailors and military personnel, most likely from Portugal, Goa and Kochi. In other cases the scribe aggregates in the same entry salaries and goods purchases, making it impossible to reconstitute the daily wages.

with age differences, as we find five wage scales for these carpenters (from 14, 12, 10 and 8 tangas to, in some cases, 1 fanão).¹⁴

The 169 price observations for 51 different commodities show a larger variation. Here we will concentrate on the main articles that are important for the maintenance of the ordinary people, i.e. rice and wheat.¹⁵ The prices for these goods involve mainly large amounts (12 lots of rice and 14 of wheat respectively), sold by a great number of different sellers to only one customer (with two exceptions), Ambrósio do Rego, the accountant for the supplies of the fortress (*almoxarife dos mantimentos*). Although these 14 lots of wheat, 11 of which were probably locally produced, vary between less than 500 to nearly 50,000 kg, their prices vary hardly. Moreover, as far as they do there seems to be no relation between price and amount, and only a small between places of origin: while the average wheat price is 4.87 réis per kg, the imported lots (38% of the total amount arrived from outside, usually by sea) are less expensive (3.99 réis per kg).

Price variations for rice are somewhat bigger and do correlate with the amounts: the larger the lot, the lower the price in general. Four lots of 15,000 kg and over are priced on average at 3.20 réis/kg, while three lots of 1,200 kg and less are priced at 7.43 réis/kg. Most of the largest lots with the lowest prices arrived from Kochi and Diu/Chaul, other Portuguese settlements along India's west coast. We can conclude that in the case of wheat we have to do with mainly local products, offered by various Portuguese¹⁶ and Indian sellers at a wholesale price to the authorities who used them to feed their personnel or dependent poor. Rice, however, to a great extent (60%) came from overseas, at a lower price than the local supply. People provisioned by the government consumed a little more wheat than rice (192 tons of wheat against 157 of rice). Wages are given either under the denominator of "maintenance" or of "wage" proper (tables 4 and 5). To start with the former, they show the following pattern:

¹⁴ More or less similar to the grades in the *Ain-i-Akbari* (see Table 3).

¹⁵ We are very aware of the limitations of this "basket", but this stems from the scarcity of eatables recorded in our source. However, wheat and rice provide the basic food. Generally speaking our source does not provide enough prices for cloth, firewood, oil, etc.

¹⁶ Mark the substantial number of Portuguese, most of them in the army, engaged in grain trade, buying from local suppliers, thereby apparently replacing local traders at such an early date.

Table 4. Sums spent on daily “maintenance”, Kannur 1516-1517

Number of items	Occupation	in réis per day	Equivalent in edibles	
			Rice	Wheat
3	Slave	10.00	2.14	2.05
4	Gun man	14.00	3.00	2.87
3	Gun man	16.67	3.57	3.42
3	Crossbow man	16.67	3.57	3.42
3	Scribe	25.50	5.46	5.24
7	Carpenters	20.00	4.28	4.11
1	Native (male) of the King of Cochin	10.30	2.21	2.11
1	Official	30.00	6.42	6.16
4	Chargé d'affaires	360.00-390.00	77.09-83.51	73.92-80.08

Sources: Livro da receita e da despeza do anno de 1516 [...]. **Notes:** The equivalent in rice is calculated at 4.67 réis/kg, and in wheat at 4.87 réis/kg.

The lowest sums do not cover all maintenance costs. For slaves we find also separate expenses to clothe them: 67 cloths were bought for the slaves of the vessel *Santo Espirito* because they were considered by their Portuguese masters to be dressed “improperly”.¹⁷ Clothing will also have been an extra expense for soldiers. Besides, apart from rice and meat they will also have been fed with meat, dry fish, and coconuts. Taking this into account the sums noted down as wages proper seem rather low if compared to “maintenance” costs. A possible explanation is that – with the exception of slaves – “maintenance” money was paid out mainly to Portuguese subjects, while wages were destined for Indians. If that is the best possible explanation, for our comparisons with other Indian wage-earners we have to select the wages of the “Malabar servants” (equal to 2.22 kg of rice and 2.13 kg of wheat per day) as representative for unskilled wages in Kannur at the beginning of the sixteenth century and those for the carpenters at the docks (equal to 2.52 kg of rice and 2.41 kg of wheat per day) for skilled workers. This means that skilled workers earned 13.5% more, expressed in grain or rice, than unskilled workers, which is a rather small skill premium.

¹⁷ Transcription, p. 120.

Table 5. Sums spent on daily “wages”, Kannur 1516-1517

Number of items	Occupation	in réis per day	equivalent in edibles	
			Rice	Wheat
2	Native women in the supplies warehouse	3.75	0.80	0.77
1	Native man producing ropes from cotton waste	8.10	1.73	1.66
1	Scribe for making notes on cotton waste production	8.10	1.73	1.66
2	Native cutting palm tree leaves	6.25	1.34	1.28
1	Native on board	12.00	2.57	2.46
3	Nayre supervising those cutting palm tree leaves	10.00	2.14	2.05
1	Muslim working in the tanks	2.00	0,43	0.41
24	Malabar servant	10.37	2.22	2.13
40	Carpenter at the docks	11.76	2.52	2.41
1	Native to paint flags	20.00	4.28	4.11
1	Bow man to play ‘arbaryra’	30.00-32.50	6.42-6.96	6.16-6.67
1	Man buying palm tree leaves to feed the elephants	40.00	8.57	8.21
1	Nayre to manage the elephants of the king of Cochin	40.00	8.57	8.21
1	Nayre for supervising the constructions	40.00	8.57	8.21

Sources: Livro da receita e da despeza do anno de 1516 [...]

3. Long-term trends 1300-1600: A preliminary conclusion

This paper provides new data on prices and wages in India from Portuguese sources and compares them with other data found in the literature. It is now possible to make comparisons as far apart in space and time as Delhi in the early fourteenth century, Kannur in the early sixteenth century, and a number of places in the same part of India in the period between 1595 and 1650. Thus, we obtain the following results:

Table 6. Purchasing power of wage developments, 1300-1650

Year	place	Wheat grain wage (kg per day)		Rice grain wage (kg per day)		Silver wage (grams per day)	
		unskilled	skilled	unskilled	skilled	unskilled	skilled
1311	Delhi	1.75	3.00	3.00	4.50	0.19	0.33
1516-17	Kannur	2.13	2.41	2.22	2.52	0.91-0.98	1.03-1.11
1595	Agra/Delhi	4.19	12.60	0.50	1.01		
1595	Agra (Broadberry & Gupta)					0.67	1.62
1595	Agra (Haider)					0.57	1.71
1610-13	Golconda			5.70		1.15	
1616	Surat	3.00		2.40		0.86	
1623	Surat	3.80		2.90		1.08	
1637	Agra	3.80	8.30	2.90	6.50	1.08	2.37
1640	Surat	4.50		3.50		1.29	
1600-50	East Godavari Delta			3.20		1.44	

Sources: See text and for 1595 ff see Broadberry and Gupta (2006, 14, table 5).

The outcomes of Broadberry and Gupta for skilled labourers in 1595 are much more optimistic than the ones we arrived at using Haider's figures in our Table 3, and this goes especially for wages expressed in rice. However, the hike in real wheat wages between the beginning and the end of the sixteenth century in both cases is undeniable. If we may presume that rice was hardly consumed by workers in the Delhi-Agra region, the big price differences between rice and wheat (8 to 9 times) as recorded by the *Ain-i-Akbari* according to Haider may have had no effect on their standard of living. For Agra 1595 we take the carpenter of grade 2 as "skilled".

We first observe that in Kannur it seems that rice was much cheaper than grain, whereas in the north it was the other way around. Expressed in grain, Kannur wages were very low in contrast to everywhere else across time. Expressed in rice, however, they were not bad at all in comparison to the Delhi wages in the Khalji period and were even equal to unskilled wages under Akbar. Second, the series of silver wages looks rather erratic and suggests that the favourable situation at the end of the sixteenth century had had a very early start. Third, we observe that the results according to the three conversion methods differ widely: not only for wheat and rice, but especially for silver. Our continued research into the rich Portuguese sources for the sixteenth and early seventeenth century may be able to shed more light on this important methodological problem which some researchers

(like Broadberry and Gupta) treat too lightly we think. We therefore prefer the grain wages for our analysis.

Assuming that grain and rice was equally important for the diet of wage earners in Kannur (it is significant that the accountant of the fortress recorded the purchase of a total of 189 tons of wheat against 157 tons of rice) we may conclude that the overall purchasing power of wage earners in Kannur in 1516-1517 was not substantially lower than in Delhi 1311. This suggests that real wages remained stable at a low level in the fourteenth and fifteenth centuries, but so far we have no data to corroborate this impression, and important fluctuations in between certainly may not be excluded. The skill premium in Kannur in 1500 was remarkably lower than in Delhi in 1300, and certainly in 1600. Waiting for early wage data from more Portuguese settlements on the Indian coast we can conclude that the low level in Kannur was due to a technically more primitive type of society in this small port city as compared to the capital of a mighty power like the Delhi Sultanate, or the Mughal Empire, covering most of South Asia.

At some point in the sixteenth century wages rose to an all-time high around 1595, fluctuated in the following half century if expressed in rice, but dropped if expressed in grain. As later data by Broadberry, Gupta and other show, they did not, however, get back to the very low levels of the Late Middle Ages. As we can suppose that wheat in Delhi was a much more substantial part of the daily diet of the commoners than rice, we may admit that the high level of 1595, as found under the reign of Akbar, would have been maintained at least in the first half of the seventeenth century.

Two results stand out of this exploratory research in Portuguese sources: (1) the debate about real wages in India may be pushed back with at least one century to start in the beginning of the sixteenth century; (2) the favourable situation in the period c. 1595-1650 did not yet exist around 1500. Future research in Portuguese sources will be needed to substantiate this outcome; to find out when precisely in the long sixteenth century real wages have risen; and also whether our impression that in the Great Divergence Debate a midway position has to be explored between “pessimists” and “optimists”.

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APPENDIX

Weights, volumes and currencies in Kannur 1516-1517

It is not easy to determine with total accuracy the correspondence between Kannur's weight and volume measurements at the beginning of the sixteenth century and the decimal metric system. The same applies to the various coins that were used and which saw their real value fluctuate over this period. The best proxy for estimating weight and capacity measurements in the early sixteenth century is the *Livro dos Pesos e Medidas* written by António Nunes (Head of Treasury of the Portuguese State of India) in 1554, following the viceroy's orders to compile an overview of the several weights and currencies used in the Portuguese trading posts.¹⁸ This primary source mentions the major volume and weights units used in Kannur, as *bornin* or *bar* (and its subdivisions). Other measures such as *candil* or *arroba* had to be deducted from neighboring Portuguese settlements like Kochi and Goa, since they tended to have some wider geographical coverage.

The coinage systems mentioned in the source raise, however, important questions. The main one relates with the *fanão*, the local currency and by far the most used in Kannur. Normally the local inhabitants were paid in this currency, while the Portuguese crews and military received *réis* or *cruzados* (Portuguese currency) in most of the payments. According to the *Livro dos Pesos e Medidas* (1554) the rate of *fanão* would be c. 27 réis,¹⁹ but we have reasons to fix it to 20 réis for 1516-1517. Several entries of the source allow us to be confident on this conversion. For example entry # 146 states that the 352 *fanões* price payed for a shipment of 44 packages of rice equals 19.5 *cruzados* (consequently the *fanão* is 1/20 of *cruzado*). As the *cruzado* fluctuates between 360 and 390 réis for this period the *fanão* would range between 19.43 and 21.60 réis. This rate is also similar to the one proposed by Luís Filipe Thomaz (2018, 55) in a recent study, by

¹⁸ See also Pedro Barreto de Resende "Livro de toda a receita e despeza [...]", dated 1634 (Ms. Biblioteca da Sociedade de Geografia de Lisboa, Res. 2 – bundle 3,4) and Godinho (1963).

¹⁹ "Réis" is the plural of "real", the standard currency of the Portuguese Monarchy. See Serrão (2013). All the conversions are given here in "réis".

making use of the same source. Besides *fanão*, other currencies circulated in Kannur as the *cruzados*, *pardaos*, *réis*, *xerafins* and *tangas*. Fortunately, sometimes the scribe provides the equivalent payment in different currencies, allowing us to finetune the rate between different coinage systems.²⁰ Only one coin (and its subdivision) poses some real problems: the *tanga*. It was used in several trading posts, such as Bassein, Mallaca, etc., where it was a subdivision of the *xerafim* and *pardao* – the currency of Goa – and corresponded approximately to 60 réis. In the *Livro dos Pesos e Medidas*, *tanga* appears sometimes isolated, but in most cases, it is mentioned after the *fanão*.

Quite often the *almoxarife* (treasurer) used two different currencies for a single payment. On the one hand he was dependent on the coins available in the fortress at that moment, on the other it was convenient to complete the payment by combining two different currencies. We presume that the treasurer or his scribe (unconsciously) followed the metal hierarchy, since the *fanão* was made of gold and the *tanga* of silver. In any case, our internal analysis of this particular document from Kannur in 1516-1517 points in a totally different direction than the conventional *tanga* of other fortresses. The 1516-1517 Kannur *tanga* worked as a subdivision of the *fanão*. Each *fanão* had approximately 16 *tangas*. Many examples like the following one (extracted from entry # 415, our translation) clearly shows this:

Item. He has spent 2.632 <i>fanões</i> [and] 14 <i>tangas</i> , for the payment of 1.003 <i>paras</i> of rice to João Pais, soldier, bought at the rate of 2 <i>fanões</i> and 10 <i>tangas</i> each <i>pará</i> , which rice has be delivered to Ambrósio do Rego, supervisor of the supplies.	146 cruzados 4 fanãos 14 tangas //
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There are also several other concrete examples regarding salaries. Therefore, when *tanga* is used alone or in conjunction with *pardaos* we assume its value to be 60 réis, as was common in other Portuguese settlements. When, however, *tanga* is followed by a *fanão* its value was around 1.25 réis, as each *fanão* had approx. 16 *tangas*.

We can now summarize the most important equivalences we have followed in this paper:

²⁰ See, for instance, entry # 297 (p. 66), which expresses the payment in *fanões* (715) but in the margin the scribe states the equivalent in *cruzados* (39).

Original unit	Equivalence	Notes
Currencies		
1 Cruzado	390 réis	Godinho (1963, 134-135). See also the online database <i>Prices, Wages and Rents in Portugal</i> – http://pwr-portugal.ics.ul.pt/ .
1 Fanão	20 réis	Thomaz (2018, 55).
1 Pardao	300 réis	Godinho (1982, 352).
1 Tanga	1.25 réis	In Kannur. Authors' calculation, as explained above, and manuscript information on currencies. See also Thomaz (2018, 55).
1 Xerafim	300 réis	Serrão (2013).
Weights		
1 Bar	208.16 kg	Each bar has 20 <i>façarolas</i> of 10.41 kg each.
1 Candil	218.27 kg	Each candil has 14 <i>parás</i> of 15.59 kg each. In Kochi.
1 Mão	11.02 kg	In Goa.
Volumes		
1 Chodene	8.4 liters	Each chodene has 6 <i>canadas</i> of 1.4 liters each. In Kochi.
1 Pipa	470 liters	Each pipa has 25 <i>almudes</i> of 18.8 liters each. See Silva (1789, 454).

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DADOS PORTUGUESES PARA O ESTUDO DOS SALÁRIOS NA ÍNDIA: CANANOR, 1516-1517

Este artigo analisa novas informações para o estudo dos salários na Índia Ocidental de c. 1300 a 1600. Ao introduzir dados sobre preços e salários em Cananor para os anos de 1516-1517 contribui-se para uma discussão mais ampla sobre a comparação dos padrões de vida na Índia. Estes dados, provenientes de fontes portuguesas inéditas, são comparados com informações indianas disponíveis para os inícios do século XIV e finais do XVI. Conclui-se que o poder de compra dos trabalhadores assalariados em Cananor em 1516-1517 não era substancialmente inferior ao de Deli em 1311. Isto vem sugerir que os salários reais permaneceram estáveis em níveis baixos nos séculos XIV e XV, aumentando algures no século XVI com um máximo por volta de 1600, período após o qual desceram (se expressos em grão) sem atingirem, contudo, os baixos níveis registados entre 1300 e 1500.

Palavras-chave: salários, nível de vida, ocupações, grande divergência, Índia.

DONNÉS PORTUGAIS POUR L'ÉVOLUTION DES SALAIRES EN INDE: CANNANORE, 1516-1517

Cet article analyse de nouvelles preuves du développement des salaires dans l'Ouest de l'Inde entre 1300 et 1600. En collectant les informations relatives aux salaires et aux prix dans la ville de Cannanore (Kannur aujourd'hui située dans l'état du Kerala; dite Cananor dans les sources portugaises et anglaises) dans les années 1516-1517, nous contribuons à alimenter un débat plus large sur les niveaux de vie dans l'Asie du Sud. Ces chiffres, tirés de sources d'archives portugaises inédites, sont comparés à des sources indiennes datées du début du XVe siècle et de la fin du XVIe siècle (les seules données disponibles à ce jour). Nous en arrivons à la conclusion que le niveau des salaires trouvés à Cannanore en 1516-1517 n'était pas substantiellement inférieure à celui de Delhi en 1311. Nous montrons que les salaires réels sont restés stables, à un niveau bas, au cours des XVe et XVIe siècles; qu'ils ont augmenté au XVIe siècle (mais nous ne savons pas précisément quand) pour atteindre leur maximum autour de 1600; qu'ils ont ensuite chuté, si on les exprime en grain, sans jamais revenir aux niveaux les plus bas de la période 1300-1500.

Mots-clés: salaires réels, niveau de vie, occupations, grande divergence, Inde.