

REAL WAGES AT THE CAPE OF GOOD HOPE

A long-term perspective, 1652-1912

Abstract

The Cape Colony is an interesting case for debates on the long-term economic development of Europe's former colonies. Yet there is no agreement on how to assess the Cape's long-term economic growth trajectory. Consensus has thus far been hindered by the lack of a consistent overall growth measure. This paper contributes by calculating real wages for the Cape, from its foundation in 1652 up to the unification of South Africa in 1910, using wage and price data from a wide variety of sources. The results nuance two contrasting views on the Cape's eighteenth century growth. It is shown that the early nineteenth century was a relatively dynamic period, while the real wage data do not support the 'traditional' view of a clear economic take-off after 1870.

1 Introduction

The Cape Colony, as one of sub-Saharan Africa's oldest European colonial settlements, provides an interesting case study to contribute to recent debates on the economic performance of Europe's former colonies. Numerous factors explaining the divergent economic development of the colonies have been put forward, ranging from pre-colonial geographical conditions and settler mortality to the identity of the coloniser, institutions and inequality.¹ In over 250 years of colonial rule at the Cape, many developments took place which directly relate to these factors; for example a change of coloniser in 1795 and

* I am grateful to Kati Buzasi, Sarah Carmichael, Dan Curtis, Peter Foldvari, Johan Fourie, Ewout Frankema, Benjamin Guilbert, Sandra de Pleijt, Lex Heerma van Voss, Jan Luiten van Zanden and the editors of *TSEG* for valuable comments and suggestions. Naturally, all remaining errors are mine.

1. The literature is vast, well known examples are: K.L. Sokoloff and S.L. Engerman, 'History lessons: institutions, factor endowments, and paths of development in the New World', *Journal of Economic Perspectives* 14 (2000) 217-232; D. Acemoglu, S. Johnson and J.A. Robinson, 'The colonial origins of comparative development: an empirical investigation', *American Economic Review* 91 (2001) 1369-1401.

1806,² followed by institutional changes and resource windfalls later in the nineteenth century.

Yet there is no consensus at present on how to assess South African economic growth prior to the twentieth century. Traditionally, the Cape Colony of the seventeenth and eighteenth centuries has been regarded as a backward economy, almost entirely dependent on agriculture.³ Development was apparently hindered by mercantilist policies of the Dutch East India Company (*Verenigde Oostindische Compagnie*, henceforth: *voc*, or the Company), a scarcity of capital and labour, and the limited size of the market for commodities. Thus, according to De Kock ‘the Cape advanced with almost extreme slowness.’⁴ As recently as 2005, this view was put forward by Feinstein, who claimed that before the watershed of the 1870s ‘markets were small, conditions difficult, and progress slow.’⁵

This view has been contested by a number of scholars. Most notably by Van Duin and Ross who suggested that this portrayal of the Cape’s economy is not based on quantitative empirical evidence, and that their data in fact shows that ‘the market for Cape products was much larger, more dynamic and quicker growing than has previously been thought.’⁶ They demonstrate a steady growth in the supply of, and demand for, the Cape’s agricultural products: a process that was driven to a large extent by the growth of its internal market. Boshoff and Fourie recently provide evidence that the eighteenth-century Cape Colony attained significant economic growth, but show that this was the result of exporting goods to other settlements and providing services to ships calling at the Cape.⁷ Brunt, on the other hand, has argued that economic growth only took off after the British seized control of the colony in 1795, and was further stimulated after 1843 when property rights in land became more secure.⁸

Hindered by the lack of a consistent overall growth measure over the long term, the issue is far from settled. This paper therefore contributes to

2. The British occupied the Cape first in 1795 then returned power to the Batavian Republic in 1803 according to the terms of the Peace of Amiens, followed by the second British occupation in 1806.

3. C.W. de Kiewiet, *A history of South Africa. Social and economic* (London 1976).

4. M.H. de Kock, *Economic history of South Africa* (Cape Town 1924) 39-40.

5. C.H. Feinstein, *An economic history of South Africa. Conquest, discrimination and development* (Cambridge 2005) 3.

6. P. van Duin and R. Ross, ‘The economy of the Cape Colony in the eighteenth century’, *Intercontinenta* 7 (Leiden 1987) 3.

7. W.H. Boshoff and J. Fourie, ‘The significance of the Cape trade route to economic activity in the Cape Colony: a medium-term business cycle analysis’, *European Review of Economic History* 14 (2010) 469-503.

8. L. Brunt, ‘Property rights and economic growth: evidence from a natural experiment’, *CEPR Discussion Paper* 6404 (2007).

the debate by exploring the development of real wages at the Cape, from the beginning of European settlement in 1652 up to 1912. While GDP per capita is still the most widely used measure of the overall economy, these estimates are difficult to obtain and are subject to large margins of error, especially for the period before the twentieth century.⁹ Real wages are a more reliable source of information about living standards in developing countries before 1870.¹⁰ For this paper, wage and price data were compiled from a wide variety of sources from archives in Cape Town, London and The Hague, and real wages were calculated following Robert Allen's subsistence basket methodology.¹¹ This allows for the assessment of long-run Cape living standards in comparison with other parts of the world. Such an investigation not only sheds light on the discussion in South African historiography, but can provide insights for the wider debates on colonialism and economic growth as well. Was British colonial rule economically more benign than Dutch rule? Do proper institutions and secure property rights matter more than factor endowments?

This paper proceeds as follows: the next section discusses more extensively the different views in the literature on the Cape's economic history between 1652 and 1912, thereby identifying the main issues to be examined. Section 3 discusses the representativeness of wage labour and the wage data. In section 4 the cost of living is calculated and used to deflate these wages. In section 5 an analysis of the established real wages is offered, focusing on long-term trends and global comparisons. Section 6 concludes with the implications of the results for our understanding of South African economic history and provides an agenda for further research.

2 Context and historiography

The Cape Colony was founded in 1652 as a refreshment station for ships of the VOC on their way to and from the East Indies. As the Company had no intention of providing new homes for Dutchmen overseas, its sole purpose was to provide their vessels with fresh foodstuffs. It was not expected that the Cape station would make a profit by itself, and thus the VOC tried to keep

9. R.C. Allen, 'Real wages in Europe and Asia: a first look at the long-term patterns', in: R.C. Allen, T. Bengtsson, and M. Dribe (eds.), *Living Standards in the Past New Perspectives on Well-Being in Asia and Europe* (Oxford 2005) 157-185.

10. S. Özmucur and Ş. Pamuk, 'Real wages and standards of living in the Ottoman Empire, 1489-1914', *Journal of Economic History* 62 (2002) 293-321.

11. R.C. Allen, J.P. Bassino, D. Ma, C. Moll-Murata, and J.L. van Zanden, 'Wages, prices, and living standards in China, 1738-1925: in comparison with Europe, Japan, and India', *Economic History Review* 64 (2011) 8-38.

the costs of its administration to a minimum. The Dutch hoped they could provide for their needs primarily by trading with the indigenous inhabitants of the area, the Khoesan, as they seemed to have large herds of sheep and cattle.¹² However, the *voc* quickly discovered that this trade was insufficient to meet its needs.¹³ Therefore, in 1657, a number of *voc* employees were released from their contracts in order to become farmers at the Cape as free burghers. After the failure of intensive agriculture during the early decades of settlement, these farmers switched to extensive agriculture, which required expansion into new territories. Between 1679 and 1717 this type of production was supported by the Company. Immigration from Europe was actively stimulated (as the *voc* paid for immigrants' voyage), and land was made available to the settlers on a first come, first serve basis. After 1717, however, immigration was no longer encouraged and population growth relied on high fertility rates among the settlers: the white population grew from 1,300 in 1700 to around 22,000 by the end of the century. Labour had to be supplied predominantly by slaves imported from the shores of the Indian Ocean as well as indentured Khoesan.¹⁴ This period laid the foundation of the Cape economy for the remainder of the eighteenth century. Cape Town, though not the only town, was the sole port and main market for agricultural products. Wine and wheat farms, worked by slaves, dominated the area surrounding Cape Town, while further into the interior pastoral livestock farmers occupied an ever expanding territory.¹⁵

It is this economy that has been described as backward by proponents of the traditional school of thought about the Cape. Their view runs as follows. Whereas during the 1660s and 1670s the colony was dependent on rice imports from Batavia to meet its needs, overproduction became a serious economic problem from the beginning of the eighteenth century, as the market was limited to Cape Town and the passing ships, whose number had not significantly increased since the 1670s.¹⁶ Since there was 'virtually no foreign trade and very little internal trade',¹⁷ there was no outlet for farmers' surplus produce. Thus, in good years the farmers were hurt by this surplus of agricultural products leading to low prices, while in bad years they suffered from

12. The Khoesan consist of two different groups: the Khoikhoi nomadic herders and the San hunter-gatherers: R. Elphick, *Kraal and castle: Khoikhoi and the founding of white South Africa* (New Haven 1977).

13. R. Ross, 'The Cape of Good Hope and the world economy, 1652-1835', in: R. Elphick and H. Giliomee (eds.) *The Shaping of South African Society, 1652-1840* (Cape Town 1989) 244.

14. T. Keegan, *Colonial South Africa and the origins of the racial order* (Charlottesville 1996) 15.

15. Van Duin and Ross, 'The economy', 2.

16. A. Biewenga, *De Kaap de Goede Hoop: een Nederlandse vestigingskolonie, 1680-1730* (Amsterdam 1999) 20.

17. De Kock, *Economic history*, 39-40.



Ill. 1 Charles Bell, *Jan van Riebeeck arrives in Table Bay in April 1652* (1850).

Source: Wikimedia Commons: http://en.wikipedia.org/wiki/File:Charles_Bell_-_Jan_van_Riebeeck_se_aankoms_aan_die_Kaap.jpg.

drought and crop failure.¹⁸ Apparently, the dire economic situation encouraged many free burghers to try and improve their situation by moving further away from the Cape peninsula to become self-sufficient pastoralists, or to give up farming altogether and settle in Cape Town as artisans and traders.¹⁹ The restrictive policies of the *voc* have frequently been highlighted as the main cause of the economic retardation and free burghers' misery. The Company placed numerous restrictions on external trade. Allowing private exports would have raised the prices obtainable by farmers, which would have made it difficult for the *voc* to keep prices at the Cape low, thereby jeopardizing the initial purpose of the Cape as a refreshment station. Nonetheless, even if the Company had allowed private trade, the impact on the farmers' situation would have been marginal: despite relentless smuggling, they did not prosper.²⁰ According to De Kiewiet, the major error of the *voc* was that it did not create a proper economic system suited to the Cape's specific climate and conditions.²¹ With no significant capital investments made, and lacking

18. Feinstein, *An economic history*, 25.

19. L. Thompson, *A history of South Africa* (New Haven and London 1990) 36.

20. Feinstein, *An economic history*, 24.

21. De Kiewiet, *A history*, 10.

an appropriate export crop, the Cape suffered from the relatively high costs and low quality of its products, as well as its remote geographic location. Although the situation improved somewhat with the take-over by the British in the late eighteenth century, economic progress seemingly remained relatively slow until the discovery of diamonds and gold in the second half of the nineteenth century. Feinstein, the most recent proponent of this view, suggested that before the 1870s South African economic growth compared unfavourably with other areas of British settlement, such as Canada, Australia and New Zealand, but that after that growth accelerated.²² His claims are not based on any data on overall growth, but on indirect indicators such as trade and immigration.

Van Duin and Ross, on the other hand, argue that ‘any description of the Cape’s economic life in terms of “overproduction” must be not only empirically false, but also conceptually absurd, since it is difficult to imagine any entrepreneurs who would continue to produce for a structurally glutted market, on which, presumably, they would continually be operating at a loss.’²³ They provide extensive empirical evidence for their argument of a dynamic Cape economy and on the basis of their figures, they conclude that all major sectors of the Cape’s agrarian economy, namely wheat and wine production and sheep and cattle ranching, underwent continuous expansion and that this growth was in response to a steady expansion of the domestic, and, to a lesser extent, external market. They also speculate that this growth in production led to a general increase in wealth, although Van Duin and Ross provide no evidence for this. Finally, Van Duin and Ross argue that since the Cape economy was so dynamic, the *voc* must have stimulated economic growth.²⁴

These last two claims can be disputed. Figure 1 shows Van Duin and Ross’ data on total population, cattle and wheat and wine production (unlike Van Duin and Ross, the last three are expressed in per capita terms). Regarding the first claim, figure 1 shows that population growth might have diminished the increases in per capita income supposedly caused by the rise in production. Nonetheless, the notion of a general increase in wealth has received some support in the past years. Du Plessis and Du Plessis suggest that *voc* officials at the Cape enjoyed increasing living standards over the eighteenth century as a result of declining prices.²⁵ Fourie and Uys found evidence from probate inventories showing that luxury goods possession of Cape farmers

22. Feinstein, *An economic history*, 3-4.

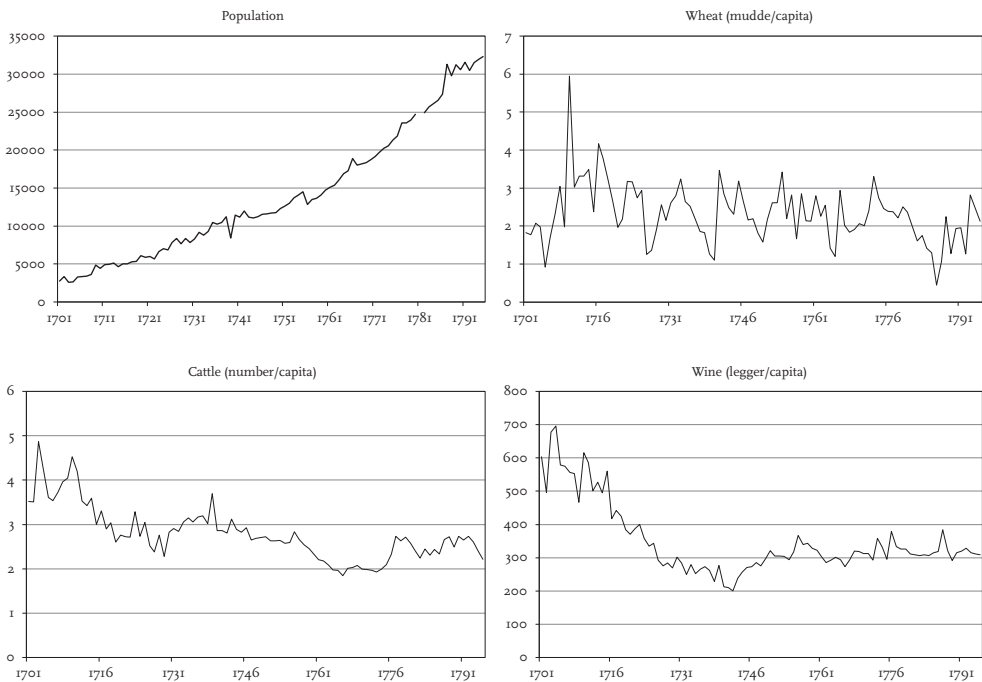
23. Van Duin and Ross, ‘The economy’, 3.

24. *Ibid.*, 88.

25. S. du Plessis and S. du Plessis, ‘Happy in the service of the company: the purchasing power of *voc* salaries at the Cape in the 18th century’, *Economic History of Developing Regions* 27 (2012) 125-149.

compared favourably with England and Holland, and that the poorer farmers became wealthier over the course of the eighteenth century.²⁶ Regarding Van Duin and Ross's latter claim, production growth could have taken place *in spite of* rather than *because of* the voc. Yet, their argument is reinforced by the recent study of Boshoff and Fourie, who have shown that the passing ships (and thus the external trade controlled by the Company) did have a considerable positive economic impact, which they demonstrate via a statistically significant relationship between ship traffic and wheat, and, to lesser extent, wine production.²⁷

FIGURE 1 *The economy of the Cape Colony in the 18th century*



Source: Van Duin and Ross, 'The economy'.

Contrary to both the traditional and revisionist accounts of the Cape economy, Brunt suggests that economic growth was mainly stimulated by institutional changes during the early decades of British rule.²⁸ He argues that insecure property rights and arbitrary taxation under the exploitative voc government

26. J. Fourie and J. Uys, 'Luxury product consumption in eighteenth-century Cape Colony households', *Tijdschrift voor Sociale en Economische Geschiedenis* 9 (2012) 29-60.

27. Boshoff and Fourie, 'The significance'.

28. Brunt, 'Property rights'.

led to 'suboptimal' levels of investment and thus low levels of growth during the eighteenth century. Only after 1795 when the British seized control of the economy, did growth take off. He demonstrates that agricultural output growth increased from 1.93 per cent per annum between 1701 and 1794 to 4.54 per cent annually between 1795 and 1813.²⁹ Another impetus to growth was the establishment of a new land-holding system in 1843, which meant that the Cape farmers gained secure freehold property rights over their land. This led to increased fixed capital investment in irrigation (which increased the amount of land available for production) and machinery (which increased labour productivity). Brunt shows that between 1843 and 1875 a dramatic increase occurred in the amount of land under cultivation, as well as in output per worker, which is also supported by the pattern of real wages. It is, however, unclear how these real wages are calculated, or where the data come from. Finally, Brunt argues that two other possible break points in the Cape's institutional history (1814, when the Cape was definitively ceded to Britain, and 1827, when the British system of adversarial and common law justice was introduced), did not have any impact on the rate of economic growth.

Thus, a multitude of views on the Cape's economic history continues to exist: ranging from the traditional interpretation of absolute stagnation before the 1870s, to claims of significant expansion during the first half of the nineteenth century and arguments in favour of a dynamic economy in the eighteenth century. Claims have increasingly been backed up by quantitative empirical data. However, consensus has been hindered by the lack of a consistent overall growth measure (and data for such a measure) in the long run. In an earlier paper,³⁰ De Zwart examined real wages of 'European' and 'coloured' labourers and the wage-gap between these workers in the nineteenth century.³¹ The current paper contributes by employing new data from earlier periods, in order to extend the time frame all the way back to the foundation of the colony in 1652. Thus, data from between 1652 and 1910 are employed in a consistent framework over the long term, which allows the analysis of trends over periods which have hitherto only been dealt with separately.

29. *Ibid.*, 23.

30. P. de Zwart, 'South African living standards in global perspective 1835-1910', *Economic History of Developing Regions* 26 (2011) 49-74.

31. The term 'coloured' is used in the sources. I follow Feinstein who notes that this group includes 'the descendants of the Khoesan, of slaves brought to the Cape by the Dutch and of black slaves freed at the Cape in the decades after Britain's abolition of the slave trade in 1808, and also many of the children born from the interracial sexual relationships that have occurred throughout South Africa's history': Feinstein, *An economic history*, xix-xx. Since this group thus does not include only Africans, the term 'coloured' is employed throughout this paper.

3 Labour and wages

While GDP is often used as a measure of economic performance, there is considerable discussion about other measures. GDP per capita is a simple average and does not take distributional issues into account. As pre-industrial economies such as the Cape Colony are often very unequal societies, GDP per capita provides little information about the living standards of ordinary people.³² Real wage data are often of better quality than GDP estimates, and are available for a wider range of regions over a much longer time period. Many studies have therefore relied on real wages – the purchasing power of an unskilled or skilled labourer – as the most reliable indicator of the economic well-being of the majority of the population.

Some scholars have questioned to what extent wage labourers are representative for the working masses in pre-industrial societies.³³ Between 1658 and 1838, the Cape was a slave-based economy and slaves formed almost half of the entire population during the eighteenth century. European settlers constituted about 40 per cent of the population, and the remaining 10 per cent were Khoesan.³⁴ However, this estimate concerns only those Khoesan participating in the Cape economy and surely the total Khoesan population must have been much larger. From 1721 onwards, the children of slave men and Khoesan women, as well as the children of Khoesan who worked for farmers were indentured for periods of 18 years. While a few scattered notations of Khoesan wages and prices for slave hire were found, the focus of this paper is inevitably on the European population. From 1657 onwards, some of the European settlers became farmers as the Company started to give out large pieces of land, in order to increase agricultural production. The rest of the European population consisted of wage-earning Company employees and *knechts* ('servants'). There were two types of *knechts*, Company *knechts* and free *knechts* who worked without a contract. Company *knechts* were VOC soldiers or sailors hired out to a settler. They signed a renewable one-year contract with the head of a household and received a monthly cash wage. After 1692 all contracts between Company *knechts* and settlers had to be in written form and wages were fixed until 1795. The free *knechts* (including free blacks) did not enjoy institutional and contractual protection from the

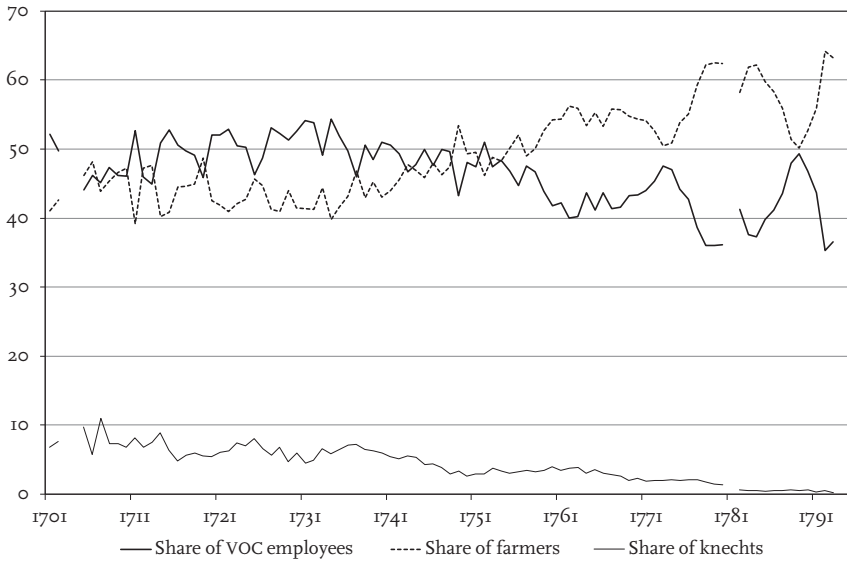
32. Allen, 'Real wages', 111; Fourie and Van Zanden recently presented preliminary estimates of eighteenth century GDP at the Cape: J. Fourie and J.L. van Zanden, 'GDP in the Dutch Cape Colony: The national accounts of a slave-based society', *Mimeo* (2011).

33. A. Booth, 'What do trends in wages tell us about living standards? Some evidence from Southeast Asia', *xiv International Economic History Congress* (Helsinki, 2006).

34. Fourie and Van Zanden, 'GDP'.

voc, but their wages were significantly higher.³⁵ Figure 2 was constructed on the basis of Van Duin and Ross' population data and shows the shares of voc employees, farmers and free *knechts* among the free male population. While Fourie claims that wage labour formed only a minor part of the Cape labour force,³⁶ figure 2 shows that until the 1750s the number of wage labourers exceeded that of farmers.

FIGURE 2 Share of voc employees, farmers and *knechts* among the free male population



Source: Van Duin en Ross, 'The economy'.

There are no comparable data available on the shares of wage labourers versus landholders for the nineteenth century. Yet, in the light of the tremendous growth of the European population at the Cape from 21,700 in 1798 to 579,700 in 1904 (partly the result of increased European immigration) it is likely that this share remained significant.³⁷ After the abolition of slavery in 1838, many former slaves and Khoesan became wage labourers rather than subsistence farmers, as in a process of 'conquest and dispossession' the European settlers took control over most of the land in South Africa, thereby depriving Africans of their means of economic independence. At the same time, several laws were issued and taxes raised that pushed the coloured

35. R.C.-H. Shell, *Children of bondage. A social history of a slave society at the Cape of Good Hope, 1652-1838* (Johannesburg 1997) 13.

36. Fourie, 'The remarkable wealth of the Dutch Cape Colony: measurements from eighteenth-century probate inventories. *Economic History Review* 66 (2013) 419-448, 420.

37. Feinstein, *An economic history*, 28.

population into the system of wage labour.³⁸ It can be concluded that even if wage labourers did not constitute a majority of the total population; they constituted a representative group for the lower classes of society (comparable to ordinary workers in Europe).

The next step is to establish the level of wages. The *voc* muster rolls, stored in the Dutch National Archives, are a well-known source for studying the Company personnel. These rolls state monthly wages of company servants employed at the different *voc* establishments in the East Indies. Du Plessis and Du Plessis have assembled wages from five of these rolls for the Cape between 1699 and 1790.³⁹ To their numbers, I have added wages from the earliest muster rolls from the years 1657 and 1658. These data demonstrate that, similar to the other *voc* establishments in Asia, Company wages were fixed throughout the seventeenth and larger part of the eighteenth centuries,⁴⁰ only in 1790 Du Plessis and Du Plessis find an increase in the wages of soldiers (which represent the lowest ranking *voc* employees).⁴¹ Apart from their monthly wages, *voc* employees received some additional compensation. From a report of the Council of Policy from 1717,⁴² and two *voc* cashbooks (from 1754 and 1786),⁴³ it becomes clear that the lowest ranking *voc* employees received an additional $\frac{3}{4}$ *reaal* and 31 pounds of wheat per month as board, while skilled craftsmen receive $1\frac{1}{2}$ to 2 *reaal* extra per month as well as 3 *muids* of wheat annually.⁴⁴ The monetary value of these additions was added to the monthly wages.⁴⁵

Despite these additional remunerations, references to wages of free *knechts* from different sources demonstrate that these were still significantly higher than Company wages. Zacharias Wagenaar, Commander of the Cape,

38. Feinstein, *An economic history*; S. Terreblanche, *A history of inequality in South Africa, 1652-2002* (Pietermaritzburg 2003); De Zwart, 'South African living standards'.

39. Du Plessis and Du Plessis, 'Happy in the service'.

40. F. LeQuin, *Het personeel van de Verenigde Oost-Indische Compagnie in Azië in de achttiende eeuw, meer in het bijzonder in de vestiging Bengalen* (Leiden 1982); M. van Rossum, 'De intra-Aziatische vaart: schepen, zeelieden en ondergang van de *voc*?', *Tijdschrift voor Sociale en Economische Geschiedenis* 8 (2011) 32-69.

41. Du Plessis and Du Plessis, 'Happy in the service': their data from 1756 shows that unskilled building labourers (*fortificatie werkers*) who often represent unskilled labourers in real wage studies, earn a similar monthly wage as soldiers. There are no data for skilled construction workers for 1790, but I have assumed a similar increase between 1778 and 1790.

42. Western Cape Archives (wca), Council of Policy (C) 2749; Report of the Council of Police, 1717. This infamous report advised against further stimulation of immigration from Europe, and in favour of the (increased) use of slave labour.

43. Dutch National Archives: Archives of the Dutch East India Company (*voc*) ref. no. 4199 ff. 717-837 for 1754; wca, C2734 for 1786.

44. 1 *reaal* was worth 48 *stuivers*, same as the rix-dollar (*rijksdaalder*), and 2.4 times the guilder (which consisted of 20 *stuivers*): Wolters (2008).

45. Using the price series to convert the 3 *muids* of wheat into monetary values.

noted in 1666 that free Dutch servants received ‘besides their gratuitous subsistence, ten and twelve, aye! fourteen and fifteen guilders monthly.’⁴⁶ Biewenga suggests that the average wage of a building labourer around 1700 was 13 to 14 guilders per month (roughly 1.5 times the wage of a soldier).⁴⁷ Skilled work was even more lucrative, as G.W. van Imhoff, Governor-General of the *voc* in Batavia, noted that free masons and carpenters earned between 8 and 9 *schellingen* per day in 1743, twice the wage of a *voc* craftsman.⁴⁸ To take this into account, the *voc* wages were corrected for underestimation, by assuming ‘free’ unskilled wages were constantly 1.5 times, and ‘free’ skilled wages constantly 2 times higher than the *voc* rates, and then adding shifting weights to the ‘free’ wage and the *voc* wage on the basis of the information in figure 2.⁴⁹ As the share of *knechts* declined vis-à-vis *voc* employees, this procedure led to a slightly declining trend in the estimated average wages.

For the period between 1795 and 1835 wage data were taken from a wide range of sources. These include financial documents, such as accounts and receipts, from a number of institutions in Cape Town found in the Western Cape Archives,⁵⁰ as well as numerous documents from Theal’s *Records of the Cape Colony*.⁵¹ Simple averages were taken when different wages for similar occupations were found for the same year. Concerning the period between 1835 and 1913, two sources in the British National Archives, the Blue Books and Statistical Tables,⁵² contain data on the prevailing ‘average wage rates’ for ‘European’ and ‘coloured’ workers in various occupations.⁵³ In some cases minimum and maximum rates were given instead of average rates; assuming a bias towards minimum rates, the average wage was then derived by tak-

46. D. Moodie, (ed.), *The record, or a series of official papers relative to the condition and treatment of the native tribes of South Africa* (Cape Town 1960) 293.

47. Biewenga, *De Kaap*, 101.

48. J.X. Merriman, (ed.) *The reports of Chavonnes and his council, and of Van Imhoff, on the Cape. With incidental correspondence* (Cape Town 1918).

49. Employing the shares of *voc* employees and *knechts* as weights for minimal and maximum wage rates. No data on these shares were available for the period between 1652 and 1700, therefore a linear time-trend was fitted to the share of *voc* employees on the available data for 1701-1790: $voc = 0.1484t + 77.798$ ($R^2 = 0.84$).

50. WCA various documents within the following archives: 1.1. Council of Policy (C); 1.2. Court of Justice (CJ); 1.3. Master of the Supreme Court (MOOC); 1.10; First British Occupation (BO); 1.14. Batavian Republic (BR); 1.61. Government Farm (GPF); 1.70. Civil Engineer (CE); 1.82. Burgher Council (BRD); 1.83. Burgher Senate (RDG).

51. G.M. Theal, (ed.), *Records of the Cape Colony*, 36 vols. (London 1905).

52. British National Archives, Archives of the Colonial Office (CO): 53/72 – CO 53/88: *Colonial Blue Books of the Cape Colony*. Issues 1837-1854. And: CO 442/27 – CO 442/63: *Statistical tables relating to British self-governing dominions, colonies, possessions, and protectorates*. Issues 1854-1913.

53. In some cases, minimum and maximum rates were reported. For conversions to average rates, see appendix.

ing a lognormal average.⁵⁴ Additionally, some of these wages included ‘food’ or ‘board and lodging’. Based on ‘average rates of board and lodging’ and ‘average monthly rent’ (also stated in the sources for a number of years) and those years for which wages in the same professions were reported excluding board and lodging it was estimated that wages which included food had to be increased by 50 per cent. In the absence of urban unskilled wage data for the late 1830s and 1840s, these were extrapolated based on the skilled wage level.⁵⁵

TABLE 1 *Daily wages in Cape Town, 1653-1913, in grams of silver*

Year	European, Unskilled	European, Skilled	European, Rural	Coloured, Unskilled	Coloured, Skilled	Coloured, Rural
1653-1675	6.32	11.54	9.41			
1676-1700	6.23	11.49	6.10			
1701-1725	6.08	10.32	5.26			
1726-1750	5.96	9.58	5.24	(9.28) ¹		
1751-1775	5.73	9.24	4.34			
1776-1800	7.30 ²	12.16 ³	(21.44) ⁴	(7.54) ⁵	(10.98) ⁶	
1801-1825	14.52	24.37	9.73	11.58		(3.62) ⁷
1826-1850	11.43	23.82	12.44	8.56	(12.68) ⁸	(1.99) ⁹
1851-1875	17.86	37.66	13.91	12.19	31.11	7.58
1876-1900	19.81	47.63	15.77	10.70	36.21	7.97
1901-1913	22.12	52.58	16.27	10.77		10.12

Sources: see text.

1 One observation of a slave earning ‘between 1s 8d and 2s’ a month from Theal (1888) p. 124. It is unclear what part of this amount (if any) the slave could keep.

2 Rise here is also partly the result of using the wage of a messenger between 1790 and 1795.

3 I have assumed a similar wage level between 1790 and 1792.

4 Average of 9 observations. Five of these for *knechts* from account books of ‘cattle and sheep purchased, 1798-1800’ (MOOC 14/238 and MOOC 14/245) that are unrealistically high (between 26 and 30 grams of silver per day, almost three times the wage of a skilled craftsman in this period). This figure is therefore omitted from the further analysis.

5 Twelve observations of slave rent: BRD 32, BRD 41, C2734, MOOC 14/238.

6 Two observations of price paid to hire slave masons: C 2734

7 Two observations of wages for Khoikhoi, and one for a coloured rural servant: Theal, *Records*, vol. 16, p. 219; vol. 20, p. 357.

8 Three observations for Hottentot and coloured masons: Theal, *Records*, vol. 29, p. 457; vol. 35 pp. 179, 315, 330.

9 Four observations of wages for Khoikhoi: Theal, *Records*, vol. 30, pp. 169; 171; 175 and vol. 35, pp. 179, 315, 330; and 343.

54. As is also done by Frankema and Van Waijenburg (2012).

55. Using the following equation: URBAN WAGE = 0.3634 SKILLED WAGE + 3.2729 (R² = 0.53)

All wages were reported in guilders, rix-dollars (during the Dutch period),⁵⁶ or pounds sterling (during the British period) and had to be converted into grams of silver in order to allow comparisons over time and space (see appendix for conversions). Monthly wages had to be converted to daily and annual rates. Following Allen it is assumed that the average working man worked 250 days per year (5 days per week for 50 weeks).⁵⁷ Table 1 displays the daily silver wages at the Cape. It must be acknowledged that the series on European rural workers regarding the period before 1837,⁵⁸ and those for all coloured labourers before 1854, are based on relatively few observations (also see notes from table 1). The table makes clear that after the *voc* era of stable wages, wages of European workers doubled in the first decades of British rule, and continued to rise after that. Wage increases for coloured labourers were much less impressive. Did the rise in European silver wages during the British period also translate into greater well-being?

4 Prices and living standards

To find out what standard of living these wages represented, it is necessary to calculate the cost of living at the Cape. Following Allen et al., this is done on the basis of a consumption basket that reflects the 'barebones' cost of subsistence.⁵⁹ It provides little over 1940 calories per day from the cheapest available carbohydrate at the Cape (wheat), sufficient protein, as well as some cloth and fuel: indeed 'it would be hard for a person to survive on less than the cost of this basket.'⁶⁰ This Cape basket, shown in table 2, is very similar to those for Europe, as consumption patterns are to a large extent determined by culture and environmental conditions. Thus, as the Cape Colony was first a Dutch and then a British colony with a high number of settlers from European descent, and the climate and geography at the Cape allowed the cultivation of crops also produced in Europe, it is likely that consumption patterns were more or less similar to those in Europe.⁶¹ This basket differs from the one employed by Du Plessis and Du Plessis which contains much greater amounts of meat. This perhaps reflects consumption patterns at the Cape

56. A guilder consisted of 20 *stuivers* and a rix-dollar of 48 *stuivers*.

57. R.C. Allen, 'The great divergence in European wages and prices from the Middle Ages to the First World War', *Explorations in Economic History* 38 (2001) 411-447.

58. Total of 24 observations spread between 1658 and 1825.

59. Allen et al., 'Wages, prices'.

60. *Ibid.*, 22.

61. Jordan describes that the European settlers continued their European food practices: S.C. Jordan, 'Coarse earthenware at the Dutch colonial Cape of Good Hope, South Africa: A history of local production and typology of products', *International Journal of Historical Archaeology* 4 (2000) 113-143.

more accurately, but limits the extent to which we can make international comparisons.⁶²

TABLE 2 *Cape Barebones subsistence basket. Based on Allen et al. 'Wages, Prices'*⁶³

	Unit	Quantity per person per year	Nutrients per kg		Nutrients per day	
			Calories	Grams of Protein	Calories	Grams of Protein
Wheat	kg	179	3400	132	1667	65
Beans	kg	20	3383	213	185	12
Meat	kg	5	2500	200	34	3
Butter	kg	3	7268	7	60	0
Soap	kg	1.3				
Candles	kg	1.3				
Lamp oil	litre	1.3				
Cotton	m2	3				
Fuel	mbtu	3				
Total					1945	80

Prices for the products in this basket could be found in a number of documents. For the seventeenth century, prices were taken from expense bills (prices of products loaded on bypassing ships) and trade books (prices of products stored in the Cape Town warehouse) that were part of the 'Received letters and documents from the Cape of Good Hope' in the voc archives.⁶⁴ Prices for the eighteenth century were taken from the voc *Scheepssoldijboeken* (ship's pay-ledgers) that state the expenses made per voc ship sailing to and from the East Indies, including the expenses of taking on supplies at the Cape.⁶⁵ Further data comes from the *rendementen* (lists presenting details of the profits that were made on the sale of goods) that for the Cape are still available for the period 1747-1775 (also part of the 'received letters'),⁶⁶ as well as prices from the auction lists from the estates at the Cape, which are available online.⁶⁷ As for the wages, prices for 1795-1835 were mostly found in the

62. Their basket contains between 26 and 100 kg. meat.

63. For wheat, caloric values were taken for wheat flour from the USDA National Nutrient Database <http://ndb.nal.usda.gov>

64. voc 3989-4051.

65. voc 5269-6842.

66. voc 4177, 4180, 4182, 4185, 4187, 4193, 4197, 4199, 4202, 4207, 4211, 4218, 4221, 4224, 4233, 4238, 4241, 4245, 4249, 4253, 4257, 4265, 4268, 4277, 4280, 4283.

67. TEPC Transcription Project, Inventories of the Orphan Chamber: <http://databases.tanap.net/mooc/>.

financial documents of various institutions in Cape Town. The remaining period is covered by data on 'average market prices of consumables', 'average prices of agricultural produce', and import and export prices from the Blue Books and Statistical Tables. Some gaps were filled by prices as reported in the *South African Commercial Advertiser* between 1826 and 1853.⁶⁸ All prices were given in guilders or pounds sterling and in different kinds of old Dutch and British units of measurement. These units were converted to metric ones and prices were converted into grams of silver, as done for wages. Gaps in the data were filled through inter- and extrapolation.⁶⁹

Since these prices were gathered from a variety of sources, some of them reflect the average market prices of consumer products, while others reflect the prices of unfinished bulk goods or prices paid by large institutions. Not all prices are thus equally representative for the actual prices paid by consumers. However, this problem is not confined to the present paper, for all previous research on prices has had to rely to some extent on wholesale prices. The issue does not appear to be overly problematic, since if it had any significant effect on the consumer price index (CPI), it would have pushed it down, especially during the VOC period. Comparing the Cape prices with those in Europe shows that they were on the same (high) level as in London during the seventeenth and early eighteenth centuries (as shown in figure 3). Over most of the eighteenth century prices declined. This was observed in different sources and is therefore believed to be a genuine decline rather than a measurement error problem.⁷⁰ During the nineteenth century prices fluctuated significantly, were comparatively high until the 1880s and declined thereafter. There seems to be no consistent downward bias in the CPI. Therefore, no allowance was made for retail mark-ups which would unfairly depress living standards.⁷¹

As a final step in computing living standards, the prices of the baskets presented in figure 3 had to be multiplied by 3.15, as Allen et al. estimated that this increase covered the annual budget of a nuclear family including rent. A 'subsistence ratio' can then be calculated by dividing the annual nominal wage of a worker by the annual family budget. The subsistence ratio is simple to interpret: when the ratio equals one, a worker earned just enough to support a family at subsistence level (comparable to the contemporary

68. I thank Jorrit Bakker for making these available to me.

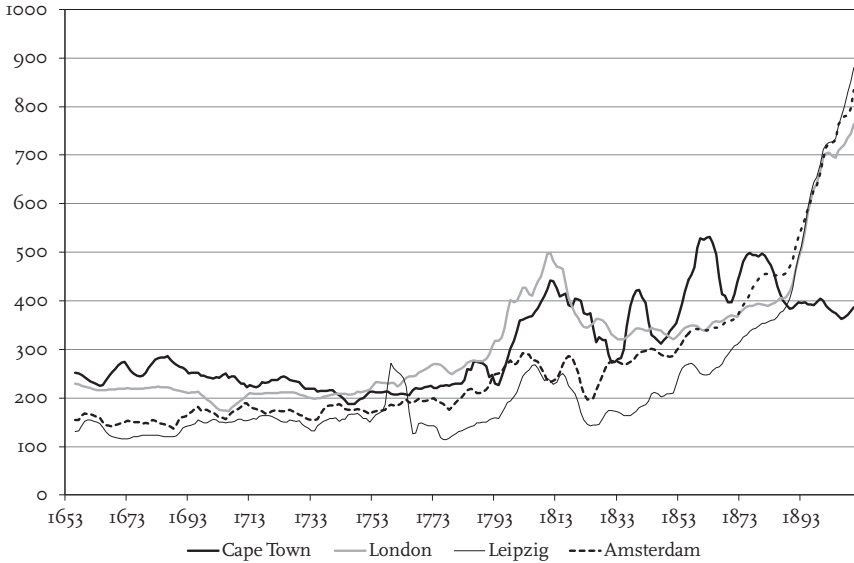
69. Details on these conversions and inter- and extrapolations of the data are discussed in the appendix.

70. Van Duin and Ross, 'The economy'; Du Plessis and Du Plessis, 'Happy in the service'; A.J. du Plessis, *Die geskiedenis van die graankultuur in Suid-Afrika, 1652-1752* (Cape Town 1933).

71. Allen et al. do not employ mark-ups on their Chinese prices either: 'Wages, prices', 22.

World Bank Poverty Line of \$ 1.25 per day).⁷² Higher values indicate that a worker was able to support their family at a higher welfare level, while values below one imply that the family size had to be reduced, the worker had to be employed for more days, or other family members had to become productive, since reducing costs is not an option with the barebones annual budget.

FIGURE 3 Annual basket prices in grams of silver, the Cape and Europe (7-year-moving-averages)



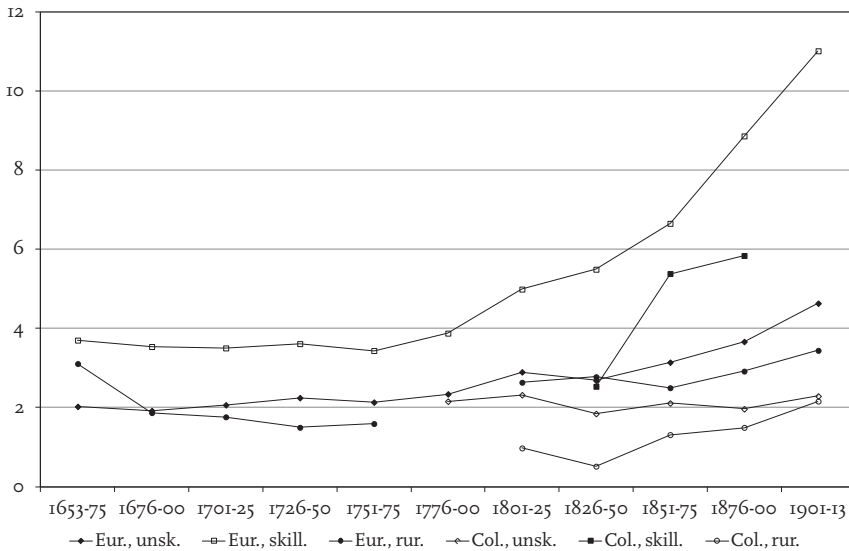
Sources: Cape Town, see text; London, Leipzig and Amsterdam: Allen et al., 'Wages, prices'.

Figure 4 plots the calculated subsistence ratios for a variety of workers. It shows that, with the exception of the coloured rural workers in 1826/50 (which is based on only three observations from 1826, 1828 and 1830), none of these workers were living below subsistence level. In fact, most labourers had a standard of living twice the level of subsistence or higher. These workers did not simply buy double quantities of the products shown in table 2; instead they used part of their wage to buy higher quality foods, or more non-food and luxury products.⁷³ A general rising trend can be discerned over the entire period. Over the nineteenth century, this rise was simultaneous accompanied by increasing inequality, both between European and coloured labourers, and between skilled and unskilled workers.⁷⁴

72. R.C. Allen, T. Murphy and E. Schneider, 'The colonial origins of divergence in the Americas: a labour market approach', *Journal of Economic History* 72 (2012) 863-893.

73. Fourie and Uys, 'Luxury consumption'.

74. De Zwart, 'South African'.

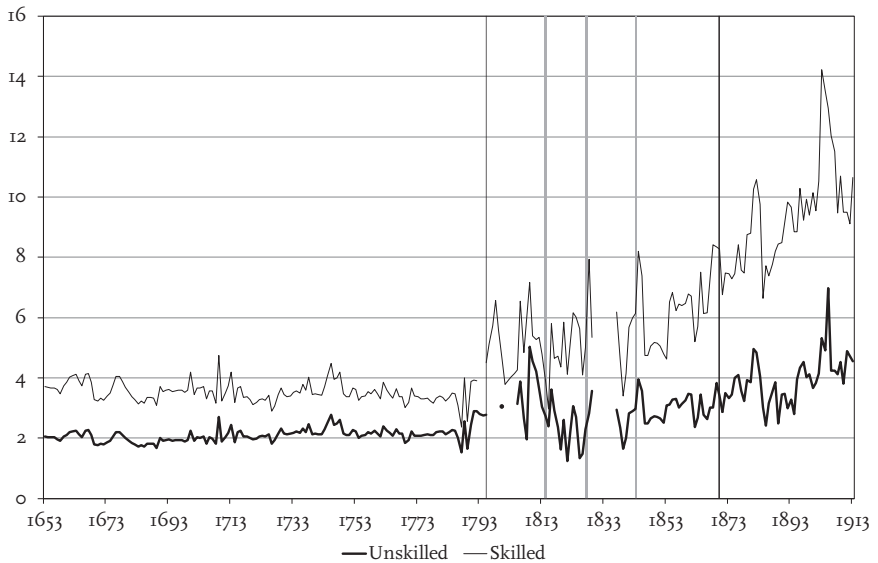
FIGURE 4 Subsistence ratios at the Cape, 1653-1913

Sources: see text.

5 Analysis: trends and comparisons

Rising living standards can in the long term be seen as an indication of economic growth: ‘we know that when economies are growing rapidly, wages rise, and when economies run into trouble, wages fall.’⁷⁵ The relationship between real wages and economic growth is not straightforward, however, especially if real wages are determined to a large extent by institutional forces as in the case of the Dutch Cape Colony. This section will examine what the real wages computed in the previous section tell us about the ongoing debate on the Cape’s economic history between the seventeenth and twentieth centuries. The focus will be limited to the European skilled and unskilled labourers, because the quantity and quality of the wage data of the other series is inadequate for long-term analysis. Figure 5 shows the annual fluctuations in real wages of skilled and unskilled labourers and distinguishes the different periods of growth and/or stagnation as suggested in the literature.

75. J.-L. Rosenthal and R. Bin Wong, *Before and beyond divergence. The politics of economic change in China and Europe* (Cambridge MA 2011) 43.

FIGURE 5 Subsistence ratios of European labourers in Cape Town.

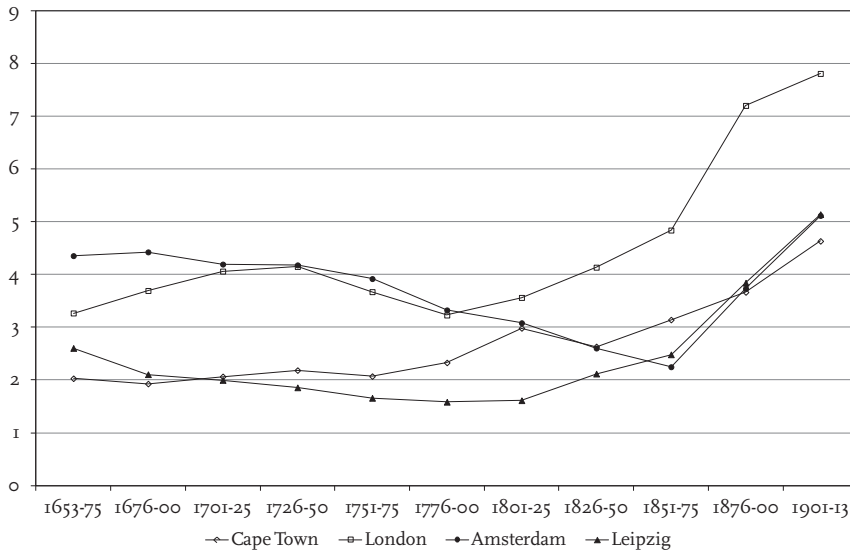
Sources: see text.

By measuring the average annual growth rate of real wages over various periods, it is possible to determine during which period Cape labourers saw their purchasing power increase most significantly. Therefore, the 260 year period under examination has to be divided into various sub-periods. From section 2 it becomes clear that at least three major periods should be distinguished. First, the Dutch period, from 1652 to 1795, was characterized by stagnation according to the traditional view, but viewed as a dynamic period of economic growth by most of the more recent literature. Second, the initial period of British rule from 1795 to 1870, which, according to Brunt, was a period of expansion after the oppressive rule of the *voet*. Third, the period from 1870 to 1913, traditionally viewed as the period during which economic growth accelerated as a consequence of the mineral discoveries (of diamonds in 1867, and gold in 1886). Additionally, in response to Brunt, four more sub-periods between 1795 and 1870 were created by the three ‘breakpoints in the Cape’s institutional history’: 1814, 1827, and 1843. In order to avoid short-run peaks influencing the results, seven-year-averages of the subsistence ratio were taken at the beginning and end of each sub-period.⁷⁶ Hence, the average annual growth rate over the Dutch period was measured between the average subsistence ratio in 1653/59 (centred on 1656) and that in 1789/1795 (centred

76. A procedure also followed by: M. W. Flinn, ‘Trends in real wages, 1750-1850’ *Economic History Review* 27 (1974) 395-414.

on 1792).⁷⁷ The same procedure is followed for the other periods. Comparing the Cape real wage developments with those taking place in Europe (as calculated by Allen et al.), further illuminates the issue. Figure 6 compares the subsistence ratio of the European unskilled labourer in Cape Town with those of his colleagues in London, Amsterdam and Leipzig. Table 3 gives the corresponding annual welfare growth rates.

FIGURE 6 *Subsistence ratios of unskilled urban labourers in Cape Town and Europe*



Sources: Cape Town: see text; Europe: Allen et al., 'Wages, prices'.

77. The average annual growth rate was then calculated by the equation:

$$r = \left[\sqrt[t]{\frac{x}{y}} - 1 \right] \times 100$$

Where: r = the average percentage growth rate; t = the difference in years between the first and last reading; y = the subsistence ratio during the first seven-year-average; and x = the subsistence ratio during the last seven-year-average.

TABLE 3 Average annual welfare growth in percentages, Cape Town and Europe

Growth Period	Cape Town		Europe (unskilled)		
	Skilled	Unskilled	London	Amsterdam	Leipzig
1656-1792	0.02	0.19	0.02	-0.28	-0.44
1792-1870	1.15	0.30	0.60	-0.33	0.67
1787-1814	2.09	1.20	0.33	0.13	-0.63
1814-1827	1.50	-2.34	0.82	0.78	4.07
1827-1843	0.39	1.39	0.46	-1.92	-0.25
1843-1870	0.91	0.38	0.75	-0.23	0.54
1870-1910	0.67	0.75	1.15	2.25	2.01

Sources: Cape Town, see text; Europe: Allen et al., 'Wages, prices'.

What conclusions can be drawn from this? From figure 6 it becomes clear that whereas in the first decades of the Cape's existence, Cape labourers had the lowest purchasing power, by the middle of the eighteenth century their standard of living had surpassed that of Leipzig and had begun to close the gap with London and Amsterdam. The tenfold increase in population (figure 1) was roughly matched by increases in the amount of land under cultivation and rises in absolute production. Real wages were remarkably stable over the Dutch period as a consequence of *voc* policies (figure 5). As the Company was simultaneously the principal employer of wage labour and the largest buyer of agricultural produce from farmers, it was able to fix wages and prices for longer periods. Such policies resulted in real wage levels initially well below those prevailing in Amsterdam and London. This might be surprising as many of the Cape immigrants came from England, Holland, and Germany, and living standards there could have been an alternative for the Cape settlers. Why would they make such a dangerous trip if they did not benefit from it?⁷⁸ Those Europeans enlisting in the lower ranks of the *voc* came from the bottom ranks of society in Europe and upon arrival at the Cape came to belong to the poorest part of a society characterized by severe inequality.⁷⁹ A positive effect of the *voc* price policies was to avert many subsistence crises caused

78. See the literature on migration and real wages: e.g. R.C. Allen, 'Real incomes in the English-speaking world, 1879-1913', in: G. Grantham and M. MacKinnon (eds.), *Labour market evolution. The economic history of market integration, wage flexibility and the employment relation* (London 1994) 107-138; A.M. Taylor and J.G. Williamson, 'Convergence in the age of mass migration', *European Review of Economic History* 1 (1997) 27-63.

79. F. Gastra, *De geschiedenis van de voc. Opkomst, bloei en ondergang* (Leiden 2009) 97; J. Fourie, and D. Von Fintel, The dynamics of inequality in a newly settled, pre-industrial society. *Cliometrica* 4 (2010) 229-267; *ibid.*, 'A history with evidence: income inequality in Dutch South Africa', *Economic History of Developing Regions* 26 (2011) 16-48.

by harvest failures, while the farmers were ensured a guaranteed minimum price for their produce, even in years of abundant harvests.⁸⁰ Furthermore, after their contract with the *voc* ended these workers could try to improve their standard of living by either becoming free *knechts* or freehold farmers. In addition, *Rei* shows there were significant opportunities for promotion for *voc* personnel, which would also have led to an increased income.⁸¹ Relative security and prospects of improvement might have been a very attractive option for the poorer people in Europe.

Following the takeover of the Cape by the British in 1795 and 1806 both wages and prices increased and became more volatile. While this result is partly driven by the use of other and more fragmented sources it also reveals the greater influence of market forces after the demise of the *voc*. The British implemented many reforms in this period. They eliminated most of the *voc*'s constraints on domestic and international trade. A trade boom followed as total imports and exports increased six times between 1806 and 1820. Capital markets were stimulated by the foundation of a government-owned Loan Bank in 1808.⁸² Perhaps most importantly, labour markets were reformed. In 1808 the slave trade was suspended (causing the price of slaves to soar), and in 1809 the Hottentot Law gave more rights to the indigenous population, yet restricting their freedom of movement.⁸³ The rise in purchasing power might thus reflect the adjustment of the real price of labour to its market value, supporting Brunt's claims of increased productivity in this period, or reflect labour shortages following the suspension of the slave trade and better rights for natives.

What about Brunt's other break-points in the Cape's institutional history? Firstly, unskilled wages declined after 1814, possibly as a result of the influx of British workers who came to the Cape between 1817 and 1823 as indentured servants. They were contracted to work for periods of about three years and were paid relatively low wages.⁸⁴ Second, the real price of labour increased between 1827 and 1843. This coincided with two more reforms of the labour market. In 1828 the Khoesan and 'other free persons of colour' were made equal to Europeans in the eyes of the law. This effectively ended the system of indentured child labour.⁸⁵ Furthermore, slavery was officially abolished in

80. Ross, 'The Cape'.

81. C. *Rei*, 'Career and wages in the Dutch East India Company', *Cliometrica* (forthcoming 2013).

82. Feinstein, *An economic history*, 27.

83. S. Newton-King, 'The labour market of the Cape Colony, 1807-28', in: S. Marks and A. Atmore (eds.) *Economy and Society in Pre-Industrial South Africa* (London 1980) 171-208.

84. *Ibid.*

85. Terreblanche, *A history*, 167.



Ill. 2 Thomas Baines, *The British Settlers of 1820 Landing in Algoa Bay (1850)* Source: Wikimedia Commons: http://commons.wikimedia.org/wiki/File:Thomas_Baines_-_The_British_Settlers_of_1820_Landing_in_Algoa_Bay_-_1853.png -

1834 (followed by a four-year period of slave emancipation). A consequence of these reforms seems to have been an increase in the price of labour. While wage observations from the early 1830s are lacking, wages were clearly higher in the later 1830s than they had been in the 1820s. Dissatisfaction about these reforms, and about the consequently high price for labour, drove many of the European farmers to leave the Cape between 1834 and 1840 and move further east in the famous population movement known as the Great Trek. Third, Brunt's argument that greatly increasing output per worker in the period following the establishment of a new land holding system in 1843, is supported nor contested by the data on real wages: purchasing power improved, but not dramatically.

The mineral discoveries no doubt gave a boost to exports, and perhaps led to the accumulation of massive wealth in the hands of the few, yet the common working man in Cape Town benefited only marginally. Cape real wage growth rates after the mineral discoveries stayed behind those in Amsterdam, Leipzig and London, which did not have the advantage of resource windfalls. The later nineteenth century was a period of declining international freight rates, increasing productivity and general prosperity in Europe. Agricultural producers at the Cape benefitted from rising demand on European markets. From this perspective, the Cape's welfare growth was perhaps relatively slow.

A further point can be made by looking at the real wages of the coloured labourers: between 1870 and 1906 welfare ratios of urban workers increased

on average by 0.19 per cent annually.⁸⁶ Their purchasing power can be compared with that of their counterparts in other British African colonies, as Frankema and Van Waijenburg recently calculated real wages for various African colonies following the same comparable method.⁸⁷ The comparison in table 4 shows that the welfare of Cape coloured labourers was roughly on a par with those in Gambia and Southern Nigeria and somewhat higher than in the Gold Coast, Mauritius, and Sierra Leone in the early 1880s.⁸⁸ Over the twenty-five years up to around 1908, however, welfare had increased substantially more in the other colonies. One of the reasons for the lack of welfare growth for coloured labourers in South Africa may have been the policies of the government intended to create a cheap African proletariat.⁸⁹ This section thus concludes by noting that a clear take-off of the South African economy from the 1870s, as suggested by Feinstein, is not supported by the evidence on real wages.

TABLE 4 *Subsistence ratios and annual average welfare growth (percentage) in various African Colonies*

	<i>Cape</i>	<i>Gambia</i>	<i>Gold Coast</i>	<i>Mauritius</i>	<i>S. Nigeria</i>	<i>Sierra Leone</i>
1883 ¹	2.2	2.3	1.9	1.8	2.3	1.5
1908 ²	2.3	2.8	2.4	1.9	3.4	1.9
Growth	0.19	1.08	0.99	0.50	1.51	0.99

Sources: see text.

1 7-year-average around 1890 for Mauritius as the data starts in 1887.

2 1906 for the Cape; 1901 for Gambia.

6 Conclusions

Using a wide variety of documents from Dutch, British and South African archives, real wages were calculated for the Cape Colony from its foundation in 1652 up to the unification of South Africa in 1910, employing a consistent methodology allowing for chronological comparisons between geographical

86. Welfare ratios of coloured rural workers increase by 1.34 per cent, yet their purchasing power was relatively low around 1870 (1.4 times subsistence). Purchasing power of European rural workers at the Cape in this period increased by 0.11 per cent annually. There is no data for skilled coloured labourers after 1883.

87. E. Frankema and M. van Waijenburg, 'Structural impediments to African growth? New evidence from real wages in British Africa, 1880-1965', *Journal of Economic History* 72 (2012) 895-926.

88. Their paper also contains data for Kenya, Nyasaland, Tanganyika and Uganda, yet those series start in the early twentieth century and is therefore omitted from this comparison.

89. Terreblanche, *A history*, 190.

regions. This new evidence on long-term real wages gives some interesting insights for the discussion on the Cape's economic history. First, it nuances both views of the Cape's eighteenth century development. The notable stability of real wages over this long period does not point to a very dynamic economy. Nonetheless, in light of significant population expansion and diminishing living standards in different parts of Europe, stable welfare at roughly two times subsistence level is not a poor performance. A positive effect of the *voc* policies was to avert subsistence crises for wage labourers, while ensuring a minimum price for the farmers' produce. Second, wages and prices increased and became more volatile after the British takeover. The rise in purchasing power in this period may reflect three things: (1) the adjustment of the real price of labour to its market value (free from Company control), (2) labour shortages following labour market reforms, or (3) significant output growth as suggested by Brunt. Third, the data on real wages do not support the traditional view of South Africa as a stagnating economy up to the 1870s and an economic take-off based only on the resource windfalls: the pace of welfare growth did not increase drastically after 1870, and was perhaps even relatively slow in comparison with other countries.

These results may be interesting for the broader debates about the different economic performance of Europe's former colonies. This paper shows that institutional changes implemented by the British after their takeover of the Cape had direct effects on the welfare of wage workers, while the impact of resource windfalls on real wages was limited. The inquiry has also revealed that more research has to be done to draw definitive conclusions. Due to data limitations, the focus has inevitably been on the welfare of labourers of European descent. A complete picture of long-term economic growth and development in South Africa requires more research on the standard of living of the indigenous population, about which we know next to nothing for the period before the 1850s. In addition, much recent research has focussed on the eighteenth century, for which there are abundant data available. The later nineteenth century is also relatively well documented. Brunt justifiably devotes a lot of attention to the early period of British rule. Many important changes took place during this period regarding variables relevant to economic growth debates: trade, financial institutions, labour market reforms, migration and property rights. Yet for those decades data are scarce. Accurate assessments of historical economic growth trajectories, supported by reliable data, are crucial to understand the causes of economic development and underdevelopment. Extensive empirical studies on various economic indicators in Europe's former colonies may thus valuably contribute to debates and theories on the long-term effects of colonial rule.

APPENDIX

The data used in this paper to sketch the developments in nominal wages, prices and real wages in South Africa will be made available on the websites <http://www.iisg.nl/hpw> and <http://gpih.ucdavis.edu>. Below details on conversions and calculations are given.

Silver value per guilder: 9.8 grams of silver up to 1680 and 9.61 grams of silver from 1681 onwards. Source: Jan Luiten van Zanden, 'Prices and wages and the cost of living in the western part of the Netherlands, 1450-1800', website *Historical Prices and Wages of the International Institute of Social History*: <http://www.iisg.nl/hpw/brenv.xls>. Last update: December 11, 2009.

The value of the guilder used by the *voc* in Asia was lower than the guilder in the Dutch Republic and the Asian currency was therefore referred to as 'light money'. The value of the Asian relative to the Dutch guilder fluctuated throughout the seventeenth and eighteenth centuries. According to Els Jacobs one Asian guilder was worth 20 per cent less than the Dutch guilder prior to 1743; 16.35 per cent less between 1743 and 1768, while after 1768 the value differences disappeared (see table A1).⁹⁰

TABLE A1 *Value of one Asian guilder*

<i>Period</i>	<i>Expressed in Dutch Guilders</i>	<i>Expressed in Grams of Silver</i>
1652 – 1680	0.80	7.84
1681 – 1742	0.80	7.69
1743 – 1768	0.84	8.04
1769 – 1795	1	9.61

Source: Jacobs, *Koopman in Azië*, 225-228.

The silver value per pound sterling was taken from the excel sheet of Gregory Clark, 'England prices and wages since the 13th century', on the *Global Price and Income History* website: <http://gpih.ucdavis.edu/Datafilelist.htm#Europe>: Last update 10 April 2006. Between 1795 and 1815 the pound was worth 111.4 grams of silver, and between 1816 and 1913 it was 104.6 grams of silver.

90. E.M. Jacobs, *Koopman in Azië. De handel van de Verenigde Oost-Indische Compagnie tijdens de 18de eeuw* (Zutphen: Walburg Pers, 2000) 225-228.

TABLE A2 *The exchange rate of the rixdollar (in pounds sterling)*

Year	£ per Rixdollar	Year	£ per Rixdollar
1795	0.200	1815	0.113
1805	0.167	1816	0.104
1806	0.200	1817	0.089
1807	0.188	1818	0.088
1808	0.165	1819	0.093
1809	0.167	1820	0.088
1810	0.159	1821	0.083
1811	0.139	1822	0.072
1812	0.136	1823	0.078
1813	0.126	1824	0.073
1814	0.114	1825	0.075

Sources: E.H.D. Arndt, *Banking and currency development in South Africa 1652-1927* (Cape Town and Johannesburg 1928); S.D. Neumark, *The South African frontier. Economic influences, 1652-1836* (Stanford 1956).

Metric conversions: Prices were given per old Dutch or English weights and units of measurement. These were converted to metric using the table below. The table was based on Verhoeff (1983) and the datasheet ‘English vs. Metric’ on the *Global Price and Income History* website: <http://gpih.ucdavis.edu/Converting.htm>. Furthermore, data from the datasheet ‘Weight vs. Volume’ on the same website was used to convert litres into kilograms: 1 litre wheat, or beans, is 0.772 kilograms.

Wheat: For the Dutch period prices of wheat were found in several sources, besides those from the voc archives (expense bills and *Scheepssoldijboeken*) the works by A. J. Du Plessis, Van Duin and Ross, and Du Plessis and Du Plessis contained wheat prices.⁹¹ In the event that multiple prices were found for one year, a simple average has been taken. There were no prices for wheat between 1870 and 1910. Because there is a correlation between bread and wheat (and the bread prices themselves were too high to serve as an alternative) the following equation was used to calculate the price for wheat for the remainder of the time period under discussion:

$$p \text{ WHEAT (BU)} = 0.1692 + 16.403 p \text{ BREAD}$$

$$R^2 = 0.5532$$

91. Van Duin and Ross, ‘The economy’; Du Plessis and Du Plessis, ‘Happy in the service’; Du Plessis, *Die Geskiedenis*.

TABLE A3 Metric value per one Dutch or English unit of measurement

<i>Dutch/British unit of measurement</i>	<i>Value</i>	<i>Metric</i>
Aam	153.6	litre
Avoirdupois pound (lb.)	0.45359	kg
Bushel	35.293	litre
Gallon	37.854	litre
Last	3010	litre
Legger	921.6	litre
Mengel	1.2	litre
Mudde	111.5	litre
Picol	60	kg
Pond	0.49409	kg
Quart	11.012	litre
Schepel	27.9	litre
Vadem	2.9	m ³
Vracht	1.58	m ³
Vat	155	litre
Yard	0.9144	m

Peas & Beans: No prices for beans after 1870. Since the price of peas and beans was correlated with price of bread the following equation was used to calculate the price of peas & beans for the remainder of the time period under discussion:

$$p \text{ PEAS \& BEANS (BU)} = 0.2576 + 11.216 p \text{ BREAD} \quad R^2 = 0.5153$$

Butter: For the nineteenth century three different types of butter were found: first 'butter' without further specification for the period 1836-1855, after that butter was subdivided in two series, one for fresh butter and one for salt butter. For the early period the fresh butter was used, before switching to salt butter in 1856 (which was cheaper than fresh butter). During the years in the early twentieth century fresh butter was used, due to a lack of prices for salt butter.

Cotton: A number of different types of cotton cloths were found in the sources for the Dutch period, such as *salempoeris*, *baftas*, and *ginghams*. Because most prices were found for the *bafta*, and because the *bafta* was one of the most common varieties, those were used to create price series for cotton. A *bafta* had a length of 19 gaz and a width of 1 gaz and 9 *tussus*; one gaz was 67.31 cm

and a *tussus* 2.8 cm.⁹² Thus, a *bafta* was 12.78 meter in length and 0.93 meter in breadth. The price per m² cotton could thus be calculated:

$$p \text{ m}^2 \text{ COTTON} = p \text{ BAFTA} / (12.78 \times 0.93)$$

For the nineteenth century, the lack of cotton prices in Cape Town, means that these have been replaced by import prices paid at the Port of Natal.

Fuel: During the VOC period firewood was recorded per *vadem* or per *vracht*. A *vadem* is 2.9 cubic meters and from the price differences between the *vadem* and the *vracht* in 1671-1672 and 1676-1677, it was derived that a *vracht* firewood was 1.58 cubic meters. For the baskets, the price per M BTU was needed. The amount of M BTUs delivered per cubic meter of firewood depends on the type of tree. For the Cape Colony, the White Oak was used (Böeseken, 1938: 31) which delivers 25.7 M BTU per cord.⁹³ One cord is 128 cubic feet, and 1 cubic feet is 0.028 cubic meters:⁹⁴ this gives 3.62 cubic meters per cord, delivering 25.7 M BTU: $3.62/25.7 = 0.14$ cubic meter per M BTU. Thus, the price per M BTU could be calculated as follows:

$$p \text{ M BTU} = (p \text{ vracht FIREWOOD} / 1.58) * 0.14$$

For the period 1653-1800, larger gaps in the price series for firewood were extrapolated with the price of lamp oil:

$$p \text{ vracht FIREWOOD} = 0.2083 + 2.62 p \text{ LAMP OIL} \quad R^2 = 0.7533$$

For the nineteenth century, import prices of coal in Cape Town were compiled. The price of coal was given per Lb., but for the CPI we needed prices per MBtu. According to the University of Wisconsin at Stevens Point, and the Wisconsin Energy Education website: <http://www.uwsp.edu/cnr/wcee/keep/Mod1/Whatis/energyresourcetables.htm>: 1 Lb. Coal (Anthracite) is worth 12,500 Btu = $0.0125 \text{ MBTU} / 0.45359 = 0.027558 \text{ MBTU's}$ per kilogram This conversion is almost similar to the conversion used by Allen et al.: 'the energy content of coal was rated at 27,533 Btu's per kilogram.'⁹⁵

92. S. Hariharan, *Cotton Textiles and Corporate Buyers in Cottonopolis. A Study of Purchases and Prices in Gujarat, 1600-1800* (Delhi 2003) 270, 306.

93. White Oaks at the Cape following A.J. Böeseken, *Nederlandsche Commissarissen aan de Kaap, 1657-1700* ('s-Gravenhage 1938); energy details from the website: <http://mb-soft.com/juca/print/firewood.html>. Last visited 11 July 2011.

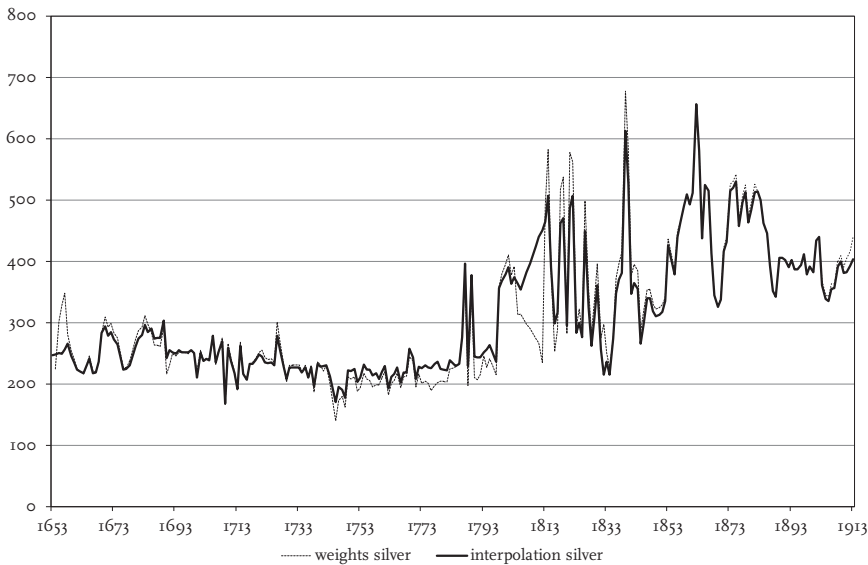
94. Information from the website: <http://www.asknumbers.com/CubicFeetToCubicMeter.aspx>. Last visited 11 July 2011.

95. Allen et al., 'Wages, prices', 35.

Further gaps

For wheat prices (the main driver of the CPI) the gaps were limited and small, yet for some of the other products gaps could be substantial. Therefore two different methods of imputation were tried: simple linear interpolation and by estimating a budget as done by Arroyo Abbad et al. 2012 (for the Cape: wheat 59 per cent, beans 9 per cent, meat 3 per cent, butter 11 per cent, soap 3 per cent, cotton 4 per cent, candles 5 per cent, lamp oil 0.5 per cent and firewood 4.5 per cent): the cost of a basket was calculated on the basis of the available products and increased by the percentage of the missing product(s).⁹⁶ Figure A1 shows that differences between the two methods are generally relatively small. Between 1806 and 1810 no data was found at all. To calculate real wages I used the interpolated series.

FIGURE A1 Cost of barebones basket in grams of silver: results of different methods for filling gaps



⁹⁶ L. Arroyo Abad, E. Davies and J.L. van Zanden, 'Between conquest and independence: Real wages and demographic change in Spanish America, 1530-1820', *Explorations in Economic History* 49 (2012) 149-166.

About the author

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