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Living Standards in Angola, 1760–1975

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The Arthur Lewis Lab for Comparative Development
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LIVING STANDARDS IN ANGOLA, 1760–1975¹

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1. Introduction

The mobilization of labor played a pivotal role in the establishment and maintenance of colonial rule in Africa (Cooper 1996, van Waijenburg 2018). We delve into the experiences of Angolan urban workers over a span of 200 years under colonial influence. By leveraging a novel dataset assembled from archival and secondary sources, we establish for the first time real wages and welfare ratios spanning the years 1760 to 1975. Our wage series encompass both skilled and unskilled workers in two urban centers—Luanda and Benguela (Appendix, section A1). These are then juxtaposed with their counterparts in the Americas, Asia, and Europe.

We find that Angolan workers faced generally worse living conditions than their counterparts in other parts of the globe. Living standards witnessed a decline during the 19th century, followed by modest improvements in the first half of the 20th century, and more substantial growth from the 1960s—especially in the early 1970s – prior to a demographic transition having taken place. We attribute these trends to the varying incidence of labor market distortions stemming from the prevalence of coerced and indentured labor within the waged labor market.²

We frame our findings within the ongoing discussions concerning the economic history of sub-Saharan Africa, specifically those exploring how colonialism and coerced labor have shaped patterns of economic growth. Our argument centers on the legal framework of the Portuguese empire, coupled with relatively low investment and stringent policies towards its subjects, as factors contributing to the low living standards experienced by the Angolan population.

Our investigation commences in the 1760s, a period marked by the efforts of early colonial elites and the mainland government to implement new development policies for the coastal Angolan settlements under Portugal's nominal control (Santos 2008). This timeframe aligns with a surge in annual slave exports from Western Central Africa, as evidenced by historical records (Miller 1988; Lains 2003; refer to our Appendix, section A2 for additional details). Our study extends until 1975, encompassing the aftermath of the independence war in

² For further considerations regarding the wage labor in Africa, see Cooper (2000) and Cooper (2017).

Angola (1961–1974), a period characterized by critical transformations in the country's social and economic landscape.

2. Historical background and recent debates

In the past two decades, the resurgence of the field of quantitative economic history of Africa has provided researchers with valuable datasets on population, real wages, taxation, and institutional capacities. However, these datasets predominantly cover the post-1880 period (Frankema and van Waijenburg 2012; Austin and Broadberry 2014). This influx of new data has empowered economic historians to construct a more precise understanding of growth and inequality in Africa, particularly sub-Saharan Africa (Broadberry and Gardner 2022). Conventional viewpoints, such as the notion that African polities were inherently incapable of sustained growth, are being reconsidered. This re-evaluation is driven by the observation of periods marked by economic booms, challenging previous assumptions, despite the absence of a demographic transition and the presence of extractive institutions (Jerven 2022).

Conversely, economic historians have persistently questioned the extent to which colonial rule contributed to diminished real wages by artificially inflating the supply of coerced labor. While such labor policies may have spurred short-term growth within Africa, they simultaneously posed challenges for a transition to sustained economic development (Gardner 2023). Furthermore, the ultimate beneficiaries of this growth are not always clear. The literature on colonial income inequality highlights that in former British and French colonies, only a small minority of indigenous people enjoyed income levels comparable to their European counterparts (Alvaredo et al. 2021). Settler societies often prioritized rising the real wages of Europeans, while indigenous populations did not experience proportional benefits (De Zwart 2011). Coercive labor demand in colonial contexts has also been linked to higher mortality rates (De Zwart et al. 2022). Simultaneously, inequality among Africans was already high before the late 19th-century commercial revolution (Hopkins 2019; Abogaye and Bolt 2021). Alongside coercive and slave labor, the significance of waged labor in the study of the economic history of pre-colonial Africa has only recently regained attention (Rönnbäck 2016; Alfagali 2018; Channing and Everill 2020).

We examine the welfare ratios of two enduring colonial port cities, Luanda and Benguela, with roots dating back to 1576 and 1617, respectively. Both cities have historical ties to the

transatlantic slave trade, orchestrated by the Portuguese and Luso-African elites to meet the demands of the American plantation system (Miller 1988; Ferreira 2012). The independence of Brazil in 1822 prompted a shift in the priorities of the Portuguese empire towards its African possessions.³ Although the colonization of Angola's hinterland gained effectiveness only from the late 19th century onwards, the two coastal locations boast a substantial colonial history, marked by a lengthy trajectory of socioeconomic activity characterized by unequal power relations (Freudenthal 2001; Cândido 2013).

The long-term evolution of living standards in both Luanda and Benguela remains obscure, with Angola being a neglected case study in the literature (Porteous 2022). The Portuguese empire allocated comparatively few resources to its colonies while endorsing a set of enduring and stringent labor policies for the local populace (Cooper 1996; Keese 2014; Jones and Gibbon 2024). Our investigation seeks to elucidate the extent to which the living standards of both skilled and unskilled workers mirror the impact of these policies. While slavery and coercion existed prior to European presence in the region, the colonizers actively contributed to distorting the labor market, perpetuating such practices.

The qualitative literature suggests that living conditions in Angola witnessed improvement in the 1960s, marked by the cessation of the forced labor regime and increased access to education and healthcare (Ball 2005; Wheeler and Pélissier 2009). Additionally, the persistence of cultural practices and the nuanced nature of labor and social reforms contributed to the maintenance and perpetuation of segregation between the European and African populations, impacting the socioeconomic status of the latter (Havik 2018). Despite these insights, a comprehensive study on the evolution of urban real wages in Angola over time is yet to be undertaken—a gap that we address by offering the first assessment of living standards during both the early colonial and colonial periods.

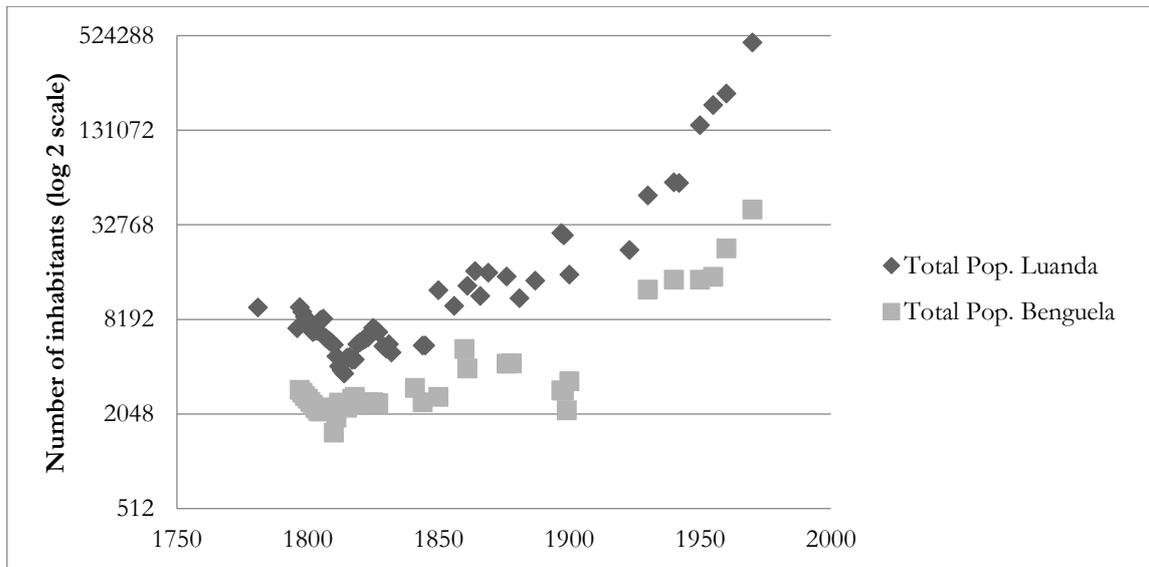
However, we currently possess some information on how the populations of Luanda and Benguela evolved over these 200 years. Demographic trends can offer valuable insights into the historical development of a region, despite the challenges of reliability often associated with such data, as seen in other African cases.⁴ Figure 1 illustrates a notable pattern of accelerated demographic growth in both Luanda and Benguela from the early 1900s onward.

³ See Lambais and Palma (2023) for ongoing work about living standards in colonial Brazil.

⁴ For a discussion of the quality and reliability of Portuguese early colonial and colonial demographic sources, please see Appendix, section A3.

However, the nineteenth century presents distinct trends between the two locations. Luanda experienced population growth during two specific periods: 1844-1850 and 1880-1900. Within the latter period, there was a substantial increase of 124 percent in population, rising from 5,605 to 12,565 inhabitants over six years. This surge was primarily attributed to the growth of African and Luso-African residents, accompanied by a slight decline in the European population (Mourão 1997; Curto 1999). There was no demographic transition in Angola during the period we cover in this paper (United Nations 2022).

Figure 1: Demographic estimates for Luanda and Benguela, 1760–1975



Sources: see Appendix, Section A3

There is uncertainty regarding the proportion of the enslaved population during the 1850s and 1860s, subsequent to the ban on the slave trade two decades prior. The increase in the 1880s is less documented, although it may be linked to a slight improvement in nominal wages for Angolan laborers, as previously identified (Dias 1998). It is noteworthy that the period between 1870 and 1920 was marred by a significant epidemic in the hinterland of Luanda, resulting in a substantial decline not only in the population in the basins of fertile riverine areas nearby (Zaire, Dande, Kwanza, and Lukala) but also in the food supply chain. This had the consequence of urban prices rising (Dias 1981, 2011).

Regardless, another clear demographic increase is evident from the 1930s, accelerating between 1940 and 1960. Over these two decades, Luanda's population experienced a staggering growth of 267.9 percent (Amaral 1978, Cruz 2020). This demographic surge can be attributed to various factors, with the arrival of European settlers being considered

secondary when compared to the substantial migration of African laborers from the hinterland (Clarence-Smith 1979; Castelo 2007).

The case of Benguela diverges not only in total population — 12,674 inhabitants compared to Luanda’s 50,588 around 1930 — but also in terms of growth rate. The most significant distinction lies in the absence of prominent demographic shifts during the 19th century. However, the persistence of slavery until the end of that period, following the ban on the slave trade in 1836, led to population changes due to the increased number of enslaved individuals, while the proportion of free inhabitants likely declined (Freudenthal 2011; Cândido 2020). Nevertheless, the extent of the consequences for the living standards of those engaged in the waged labor market was not previously known. Our study provides an answer: as Figure 1 illustrates, Benguela experienced modest population growth in the first half of the 20th century, with significant changes only becoming apparent in the 1950s.

3. Angolan labor markets

The analysis of Angolan labor markets from 1760 to 1975 can be approached from various perspectives. For our purposes, three factors are of critical relevance: the gradual impact of the colonial legal framework as it progressively changed prior practices, the consequences of the growing Atlantic trade on the evolution of labor relations, and the effects of heightened commercial demand following the ban on the slave trade. These key factors play a crucial role in shaping the dynamics and outcomes within the labor markets of Angola over the specified time frame.

The significance of waged labor for early colonial living standards has been a subject of debate for decades. Current scholarship generally acknowledges the coexistence of “free” and various unfree labor regimes, with waged labor increasing during periods of increased commercial demand (Austin 2009; De Zwart and Van Zanden 2015; Cooper 2017). In the North American context, enslaved and forced labor did not affect the wages of European settlers, as they did different jobs that were complementary (Allen et al. 2012). However, in the case of late colonial Angola, coerced labor impacted the wages of European unskilled settlers (Clarence-Smith 1983).

Pre-colonial West African labor markets were influenced by factors such as proximity to the coast, labor availability, and employment conditions. Even in coastal European outposts around the Gold Coast, where waged labor was more present and observable, employers still sought enslaved workers (Hernaes 2006; Hopkins 2019; Rönnbäck 2016). The increasing commercial demand since the late 19th century accelerated both the decline of slavery and the gradual rise of waged labor. However, this transition often involved the implementation of coercive work regimes to meet the demands of external markets (Austin 2009; Neto 2017). The literature on African economic history has used extensively the Nieboer-Domar model to explain why slavery and other forms of coercive work tended to be high, given the land abundance and shortages of labor as existing preconditions (Austin 2005, 2009, 2022; Hopkins 2019). Yet, the model has been also criticized both theoretical and empiric grounds, given, for instance, the coexisting of slavery with remaining forms of labor and their impacts in the production processes (Green 2014). In turn, other criticism has been raised concerning the widespread notion of land surplus in many parts of the African continent. Cândido (2022) has challenged such assumption for coastal Central Western Africa, based on the existence of legal disputes over land since the early colonial period, with particular emphasis during the 19th century. We adopt a nuanced perspective of the model for this case study of urban Angola. While the idea of land surplus regarding the Portuguese urban colonial domains in Angola does not hold, it is true that the recursion to enslaved and coerced workers was highly promoted throughout the period to meet the market demand both for public and private sector.

The seasonality of labor in Africa exhibited variations across regions. For instance, in the Asante kingdom, part of modern-day Ghana, there was no established pattern of regular annual, monthly, or seasonal wage labor (Austin 2005). Conversely, interwar and postwar labor reports indicate a working week of six days (or 312 days per year) in urban contexts of former British colonies (Frankema and van Waijenburg 2012). While the diverse reality of Angola may present alternative scenarios, there is some evidence suggesting a six-day working week in both Luanda and Benguela, particularly in the public sector. A pay sheet from the public works of the municipality of Luanda, dated from December 11-17, 1864, reports that within a sample of 499 workers, 87.6 percent (437) worked six days, while the remaining were divided between a five-day (4.8 percent) and a one-day (4.6 percent) working week.⁵ Moreover, workers in both plantations and fisheries in southern Angola during the

⁵ AHU, *SEMU*, CU, Angola, cx. 34 (635, 2-1L) (22), doc. 44.

19th century typically had only one day of rest per week, commonly observed on Sundays. These work schedules persisted into the post-slavery period (Clarence-Smith 1979, pp. 33–35).

The intensity and duration of employment could vary based on the contractual terms and the employer. Given that a substantial number of wages were disbursed by the public sector, annual salary payments were prevalent, particularly in skilled occupations. However, it was also common to witness Angolan urban skilled and unskilled labor being remunerated on a weekly or daily basis. This payment structure applied to various roles, such as Cabinda rowers, employed by the administration during both the 19th and 20th centuries. Others were engaged by the private sector, serving as unskilled workers such as servants and washermen, or skilled workers like carpenters and masons (Martin 1985).

After the Portuguese imperial slave trade ban in 1836, with stricter enforcement from the 1840s, slavery within Angola expanded. This growth may have been in response to the demand for labor supply brought about by subsequent agricultural transitions and increasing commercialization. However, there is disagreement in the specialized literature, and further research is needed to fully understand this dynamic (Freudenthal 2005; Cândido 2020; Vos and De Matos 2021). In the early colonial periods of Luanda and Benguela, particularly before the 1880s, high rates of enslavement were evident, indicating a significant unfree labor supply. Both Portuguese and Luso-African elites, along with many other local individuals, were reported to have a variable number of slaves. These individuals performed various tasks, including household chores, and were sometimes directed to the commodified labor market, often being rented out (Oliveira 2014). In 1781, 57.2 percent (5,583 inhabitants) of the civilian population of Luanda was listed as “enslaved”. Although this percentage slightly decreased to 50 percent around the turn of the 1800s, it remained around that share fifty years later and throughout the late 1860s (Curto 1999; Curto and Gervais 2001; see Appendix, section A4). In the early 19th century, Benguela showed similar proportions between the civilian free and unfree populations. However, after the slave export ban, the percentage of slaves started to expand, reaching nearly 80 percent by the last reliable population count in 1860, just before the abolition of slavery (Cândido 2020).

The influence of alterations in the legal framework had a profound impact on the evolution of labor markets in Angola. The new legal provisions implemented after the 1880s

significantly affected the rights of Angolan laborers. Starting in 1899, the moral obligation of African natives (then known as *indígenas*) to work was institutionalized, accompanied by various extraction mechanisms, including the implementation of the "hut tax" (Havik 2018; Jerónimo 2015, 2018). In addition to forced labor, which was commonly employed in public works, compulsory labor under the 1911 code was categorized into two groups: those who fulfilled their obligations without direct state intervention (*voluntários*) and those who had to be compelled to "offer" their services (*contratados*) (Clarence-Smith 1979). This legal framework imposed a distinction between "civilized" and "native" Africans, with only the former theoretically having access to the same rights and labor markets as white settlers did (Clarence-Smith 1985).

The above-mentioned combined measures compelled Angolans to transition from the subsistence sector and increase the supply of waged labor, a trend observed elsewhere in sub-Saharan Africa (De Zwart 2011). In 1875, around 20 percent of the African population under the nominal control of Portuguese locations were enslaved. By 1914, the number of registered *serviçais* (coerced "contract" laborers) reached approximately 200,000 – representing slightly less than 10 percent of Angola's population. Waged labor, already prevalent in the urban coastal context, proliferated under colonialism, and *serviçais* became the first significant group of commodified Angolan wage earners (Vos 2014; Neto 2017). Between 1940 and 1950, only a small proportion of black Angolans were considered "civilized" (around 0.7 percent).⁶ In the 1940s, the share of the "native" population in Luanda constituted around two-thirds of the total (67.7 percent), while in Benguela, it was 76.2 percent.⁷

When comparing with the pre-1900 period, these developments suggest an even greater distortion in the labor market with consequences for the welfare of unskilled workers. The imposition of legal distinctions, coercive labor practices, and the institutionalization of various mechanisms led to a notable shift in the dynamics of labor relations, potentially impacting the well-being and rights of unskilled workers within the colonial framework.

Angola's pre-colonial free labor has not received significant attention from either African historians or economic historians. However, occasional mentions in the literature indicate

⁶ Bender (1978). For Angola as a whole, the number of blacks would have been 3.7 million, while there were 28 thousand *mestiços*, and 44 thousand whites, in 1940 (Censo 1940).

⁷ Censo (1940).

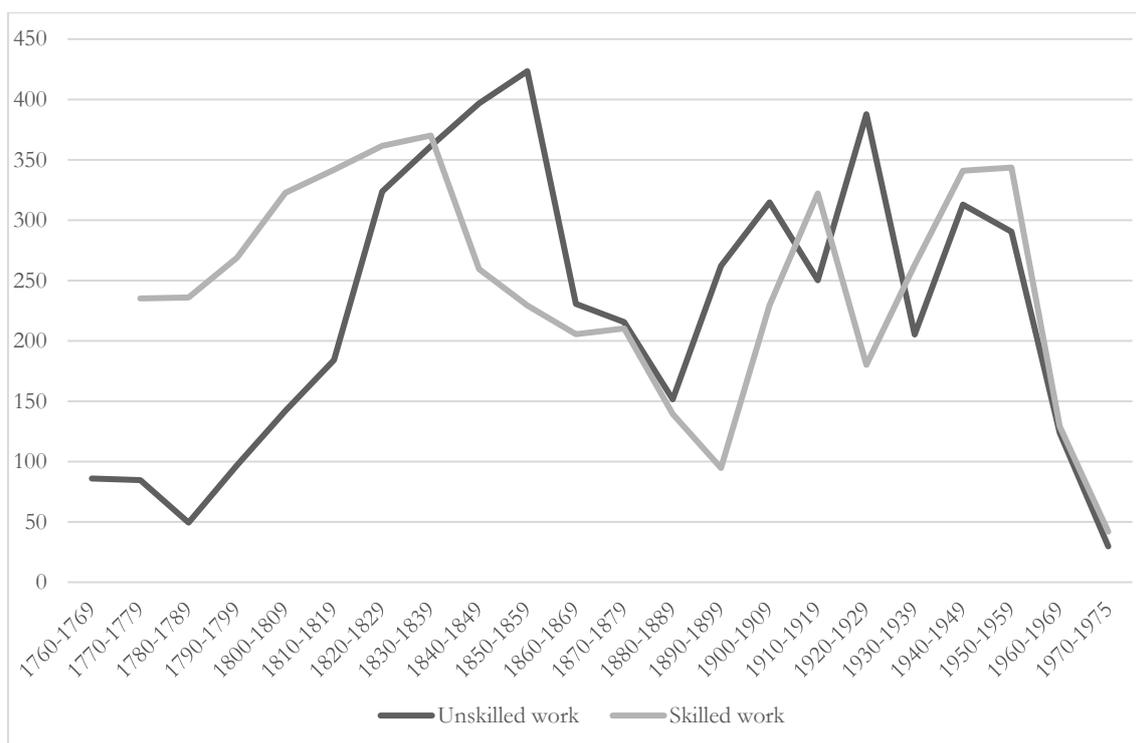
that free labor was indeed employed in early colonial Luanda and Benguela, both by the Portuguese administration and in the private sector. For example, in the 1770s, carpenters were hired by the colonial state, and residents of Luanda Island supplied the city with fish (Ferreira 2012). In the mid-nineteenth century, Lima (1846) asserted that Luanda had approximately 2,500 individuals working in the secondary sector, of which 1,500 were considered “free” labor. In the early-nineteenth century (1806), the parish of S. Filipe in Benguela reported various categories of waged labor in its urban labor force, including 22 men of the sea, 30 farmers, 52 tavern/innkeepers, 71 day laborers, 215 cashiers and craftsmen, 315 servants, and 425 business agents, constituting 45.3 percent of the urban labor force.⁸ Similar to other European settlements in coastal Africa, these pre-colonial cities had a relatively high involvement of wage labor, a trend that can be traced back to at least the mid-18th century.

On the other hand, there is some evidence that in Luanda during the second half of the 18th century, there were minimal differences between the value of the provisions given to enslaved workers and the pay rate for unskilled day laborers (Miller 1988). This suggests a real impact of coercion on the labor markets. One hundred years later, around 1880, while post-abolition coercive contracts had diminished the welfare ratios of workers below the subsistence level in the south (Moçâmedes, nowadays Namibe), the coastal north witnessed some degree of competition for day labor, with positive effects on the nominal wages of a few thousand laborers (Clarence-Smith 1979; Dias 1998). However, the benefits for Angolan urban workers were ephemeral. At the beginning of the 20th century, most Africans and “mixed” workers in Luanda, including the creole elites, were notably relegated to low-paid, inferior strata jobs in the administration and elsewhere, with consequences for their economic standing within the urban landscape (Clarence-Smith 1983). Indeed, the process of land and job appropriation by European settlers and the subsequent displacement of Angolans toward peripheral urban areas — the slums known as *muceques* — had its origins before the early twentieth century (Dias 1984). The period from 1900 to 1930 catalyzed this process with legislation favoring colonizers, as mentioned. Ultimately, postwar “development” approaches for the welfare of colonial populations did not seem to have generally improved living conditions. For example, development plans for Angola in the late 1950s allocated only 6 percent of its budget to investments in social areas (such as education), while contemporary Belgian Congo and Uganda dedicated 20 and 25.8 percent, respectively,

⁸ AHU, CU, Angola, cx. 118 [120], d. 8526.

to those areas (Jerónimo and Pinto 2015). This comparatively low investment aligned with counterparts on the mainland. During the same period, Portugal invested 1.3 and 0.8 percent of GDP in education and social affairs, respectively, while the European average peaked at 3.5 and 3.9 percent (Amaral 2019, pp. 181-82). In any case, the maintenance of a colonial system based on African unskilled and coerced labor favored inequality among the latter and settlers.

Figure 2: Ethnicity pay gap in urban Angola, 1760–1975 (in percentage)



Sources: See Appendix, section A5.

Figure 2 shows the evolution of the ethnicity pay gap in the long run.⁹ While different trends are observed for the first half of our period, the pay gap for both skilled and unskilled labor was generally above 100 percent for the same occupations. The pay gap for unskilled work peaked at around 400 percent in the 1850s and 1920s for both categories, although until the early 1960s it remained mostly above 200 percent. In turn, the gap for skilled labor rose from

⁹ The ethnicity pay gap that we consider compares the wage of white vs. black workers. This is far from ideal, as the issue of creolization in Western Central Africa is complex, together with other problems concerning social classification, as well as the insertion of individuals in the apparatus of the colonial state. We use this term for simplicity while acknowledging that multiple ethnicities existed among Africans. For comparison purposes, mixed workers (*pardos*) are here considered “white” in the early colonial period (Corréa 1937; Cândido 2013). Racial discrimination is more visible in the sources during the twentieth century, as the categories of “European”, “Indigenous”, and “Civilized” workers were in the line with the ongoing institutional practices (Havik 2018; Jerónimo 2018).

250 to 350 percent until the 1830s, and then declined to 100 percent until the 1890s, only to raise again until the 1960s.¹⁰ We suggest that the first decline is related to the expansion of the enslaved labor after the slave trade ban increased enforcement from the 1840s. The end of the slave trade, combined with the continuation of slavery in the Angola territory itself, meant a comparatively higher supply of slaves in the Angolan mainland than had previously been the case during the nineteenth century. This further distorted Angola's urban labor markets, leading to the impoverishment of free workers. The increase in the enslaved labor supply, performing both skilled and unskilled occupations, lowered the pay gap. In turn, the legal labor framework, implemented since the 1890s, may have had the opposite effect, especially on unskilled work.

The exception to this general scenario lies in the first period up until 1800, where the unskilled pay gap (again, in free labor) was relatively low, especially in Luanda. Until 1900, Luanda's unskilled pay gap was higher than its Benguela counterpart, but the situation reversed from early 1900s onwards. In Benguela, a lower wage differential coincided with a stagnant demographic situation. In both cases, the pay gap tended to be higher in the 20th century, which corroborates the effect of the coercive legislation in the loss of economic power of the Angolans. In turn, the evidence also highlights the incentives given to European settlers to establish themselves in both cities. This is particularly notorious in the case of the unskilled European workers of Benguela from 1920 onwards, who earned from 440 and up to 548 percent more than their native Angolan counterparts.

The pay gap would be even wider if other occupations from the private or informal sector were considered. Our evidence comes predominantly from jobs in the public sector, as these are more systematically available in the extant sources, and readily comparable to most other existing studies. However, anecdotal evidence from the slums of Luanda in the early 1970s suggests that a European trader could earn about ten times more than their African counterpart (Monteiro 1973). This evidence aligns with well-documented instances of wage discrimination in neighboring areas. In the former Belgian Congo, an early 20th-century report highlights the wage differences between European workers in railway workshops and

¹⁰ The skilled work ethnicity gap is measured by a comparison white vs. black carpenters (with occasional wages of masons to fill in some gaps when necessary). We do not include master carpenters and master masons. This means we can safely assume that Europeans and Africans performed the same relative levels of skill, even if in the 20th century the introduction of new technologies, at least temporarily, made the skills of some European-trained workers more valuable (e.g. they had experience working with electricity or engines). While this could mean that they would perform more managerial and or senior-level roles, as documented by Frankema and van Waijenburg, in our present case we do not run the risk of confounding ethnicity-premium with a skill premium.

Africans, irrespective of skill level: while the former received 20-25 francs per day, the latter's wage varied between 0.5 and 10 francs, indicating pay gaps ranging from 2 to 50 times (Galvão 1913).

4. Sources and methods

We compiled a new dataset consisting of 965 price entries and 499 wage observations, covering 11,783 paid-out wages in two cities, Luanda and Benguela, spanning the period from 1760 to 1975 (see our Appendix, sections A6 and A7–A9). The dataset gathers a plethora of evidence from both primary and secondary sources, mostly collected from the Historical Overseas Archive, in Lisbon (*Arquivo Histórico Ultramarino*). The collected prices are urban retail prices gathered from the yearly accounts of the public granary (*Terreiro Público*, existing in Luanda since the 1760s), as well as from other local organizations.¹¹ The majority refer to staple goods, such as manioc/cassava flour, beans, meat, and palm oil. To evaluate the living standards of each category of free and unfree workers, we assemble welfare ratios following the methods proposed by Allen (2001), Allen et al. (2011), and Arroyo Abad et al. (2012). We also avoid assumptions about the working year and family size by calculating the number of subsistence baskets that a daily wage can buy (Allen and Weisdorf 2011; Humphries and Weisdorf 2019).

Table 1: Angolan subsistence basket, 1760–1975

Commodities (person/year)	Units per year	Calories (per kg)	Protein (per kg.)
Cassava flour (kg)	160	3,610	160
Chicken/pork meat (kg)	10	1,310/2,200	120/134
Beans (kg)	60	1,544	71
Palm oil/ghee (kg)	3	8,840	0
Linen/cotton (m)	3	-	-
Soap (kg)	1.3	-	-
Candles (kg)	1.3	-	-
Firewood (M. BTU)	2	-	-
Totals per day (chicken)		1,945	85
Total per day (pork meat)		1,969	86

¹¹ Exceptionally, when retail prices were not available, we collected export prices instead. We have checked that for years when both are available, they are typically similar. See details in our Appendix, Section A11.

Source: our calculations, based on the information in Miller (1988), and adapted from the African subsistence basket of Frankema and van Waijenburg (2012); see Appendix, Section A12.

We construct real wages and welfare ratios using the abovementioned subsistence basket (Table 1). This provides around the number of calories to maintain an adult male body after a day of work (1,945 cal.), together with 85 grams of protein (1,969 cal./86 grams of protein in the case of pork). We used a coefficient of 3.15 persons per household, corresponding to 2 adults and 2 children (including rent).¹² We also consider 312 days of work per annum, or six days per week, as corroborated in the former section, and as is the default in the literature for sub-Saharan Africa (Frankema and van Waijenburg 2012).

Table 2: Angolan subsistence basket, 1760–1975, in compared perspective

Commodities (person/year)	Angola (urban)	Europe (barebones)	Mexico/Peru/Bolivia/Colombia	British Africa	Calories (per kg)	Protein (per kg)
Cassava flour (kg)	160	-	-	-	3,610	160
Meat (kg)	10	5	35	3	2,500	200
Beans (kg)	60	-	45	-	1,455	71
Wheat/oats (kg)	-	155	-	-	3,370	88
Maize (kg)	-	-	165	185	3,370	70
Butter (kg)	-	3	-	-	7,286	7
Sugar (kg)	-	-	-	2	3,750	-
Palm oil/ghee (kg)	3	-	-	3	8,840	-
Soap (kg)	-	1.3	1.3	1.3	-	-
Linen/cotton (m)	3	3	3	3	-	-
Candles (kg)	1.3	1.3	1.3	1.3	-	-
Lampoil (kg)	-	1.3	1.3	1.3	-	-
Firewood (M. BTU)	2	-	-	2	-	-
Fuel (M. BTU)	-	3	3	1.3	-	-
Total daily calories	1945	1936	1943	1939		
Total daily protein	86	60	60	43		

Sources: for Angola, see Table 1; for Europe, see Allen, 2001 and Allen et al. 2012; for Latin America, see Abad et al. 2012; for British Africa, see Frankema and van Waijenburg 2012

¹² Evidence of household composition suggests an average of 4.5 persons per household in the northern Angolan hinterland circa 1910, while in the slums in Luanda at the end of our period (1971) this coefficient was in average of 5.6 (Monteiro 1973; Vos 2023). We use the coefficient of 3.15, as is standard in the literature, for the purpose of global comparisons.

Our sample comprises 11,783 wages paid between 1760 and 1975, all within the waged labor market. Due to the extensive duration of this period, we endeavored to gather, whenever feasible, at least one wage observation for both skilled and unskilled labor, encompassing both native Africans and European settlers, for each decade and for both locations. We collected and analyze wages from both coerced and non-coerced labor sources, as in Allen et al. (2012). We did not collect wages occasionally paid to enslaved workers, but recognize their significant impact on the labor market as a distortion factor. Primarily, these entries depict labor hired directly by the organizations of the colonial administration — municipality, army, naval port, hospital — and, less frequently, by the private sector, such as the Luanda confraternity (*Misericórdia*) or maritime contractors.¹³ Wages are calculated on a daily basis, although the majority, likely due to their public sector origin, imply that workers were engaged in work throughout the year. We grouped these wages per location and occupation in HISCLASS groups. HISCLASS is the state-of-the-art international classification scheme that has been widely used to classify historical occupational groups (van Leeuwen and Maas 2011). According to evidence on skills and the nature of the work, we used 12 HISCLASS groups, from high echelon managers (group one) to unskilled farm workers (group 12). Day laborers were used for unskilled wages (HISCLASS 11), while carpenters and masons were used for skilled wages (HISCLASS 7). If wages from these occupations were not available at a certain benchmark, then alternatives we used were low-paid positions in the colonial administrative apparatus (for example guards and doormen), as well as their skilled counterparts, such as scribes and treasurers (mostly in HISCLASS 5).

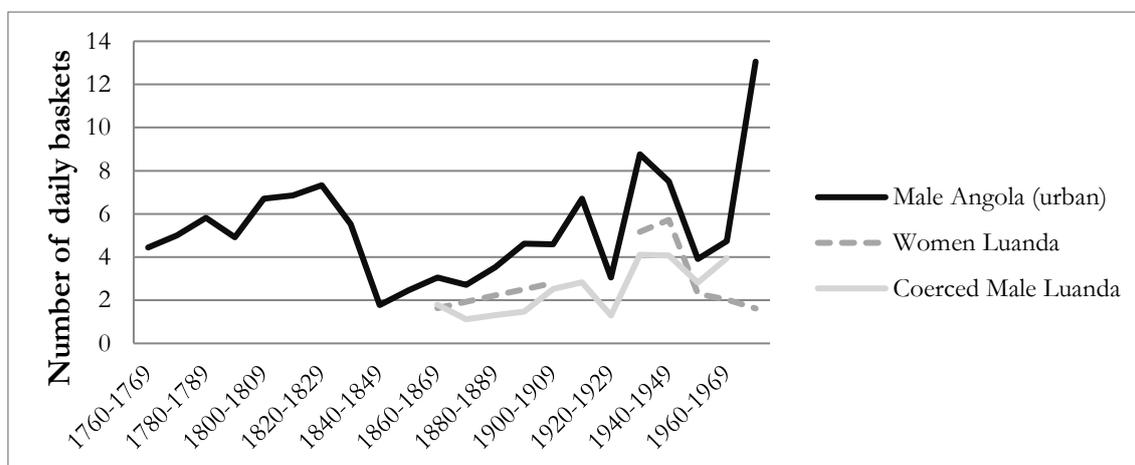
5. Real wages and living standards in urban Angola in comparative perspective

We will now examine the results for Angola before delving into international comparisons. We will repeat the process for both unskilled and skilled labor, commencing with the former.

¹³ We consider the matter of representativeness of public sector employment in the Appendix, section A13. In sum, we find that for skilled workers public sector jobs generally do not pay a premium over the private sector, while for unskilled labor there is a premium. Yet, the fact that the public sector jobs work here as an upper bound only reinforces how lower were Angolan real wages, and thus strengthens the main argument of the article.

5.1. Unskilled labor

Figure 3: Number of subsistence baskets an African unskilled daily wage can buy, 1760–1975.

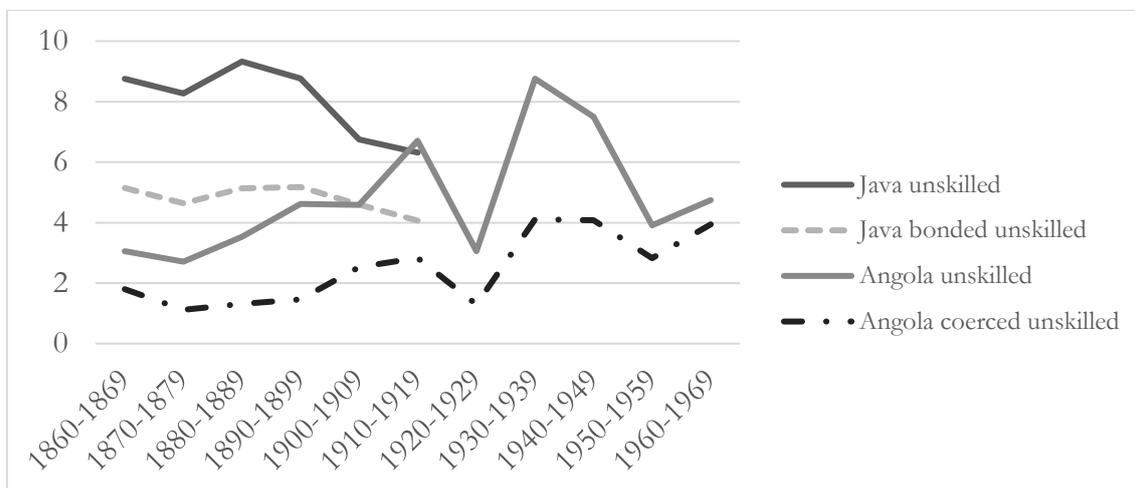


Sources: Appendix, Section A14.

Figure 3 illustrates the trajectory of real wages over the period, evaluating the purchasing power of an individual's daily salary in terms of subsistence baskets. Regarding male unskilled workers, who also serve as an upper bound for unskilled African laborers, there is a discernible trend of increasing real wages until 1810–1819. However, a clear decline in purchasing power becomes evident after 1830. It only begins to recover at the turn of the 20th century, peaks around 1930, and is notably high in the early 1970s. Exceptions to this trend are observed in the benchmark of 1920–1929, during which a significant rise in the prices of consumables caused a temporary decline in the living standards of all workers, particularly those under coercion. This increase might be associated with the period of epidemics that affected the Angolan hinterland between 1870 and 1930, leading to a reduced supply of foodstuffs to urban areas (Dias 2011). Unskilled women generally had lower real wages compared to male workers but fared better than coerced laborers at least until the 1950s, when a clear decline in their real wages became evident. While the study of female welfare ratios is left for future research, this later decline is primarily attributed to the occupation of washerwoman (*lavadeira*), which, by the end of the period, was both the most common (42.5 percent of the sample) and the lowest-paid female occupation among the slums in Luanda, where most Africans lived. Moreover, regardless of other periods, the average share of income that female labor represented for Luanda households was around 8.6 percent in 1970 (Monteiro 1973). On the other hand, coerced laborers, comprising the

majority of African workers, experienced comparatively low real wages. They could afford less than two baskets until 1900 and never exceeded four daily baskets until 1975.

Figure 4: Number of subsistence baskets an unskilled daily wage can buy in Angola and Java, 1860-1969

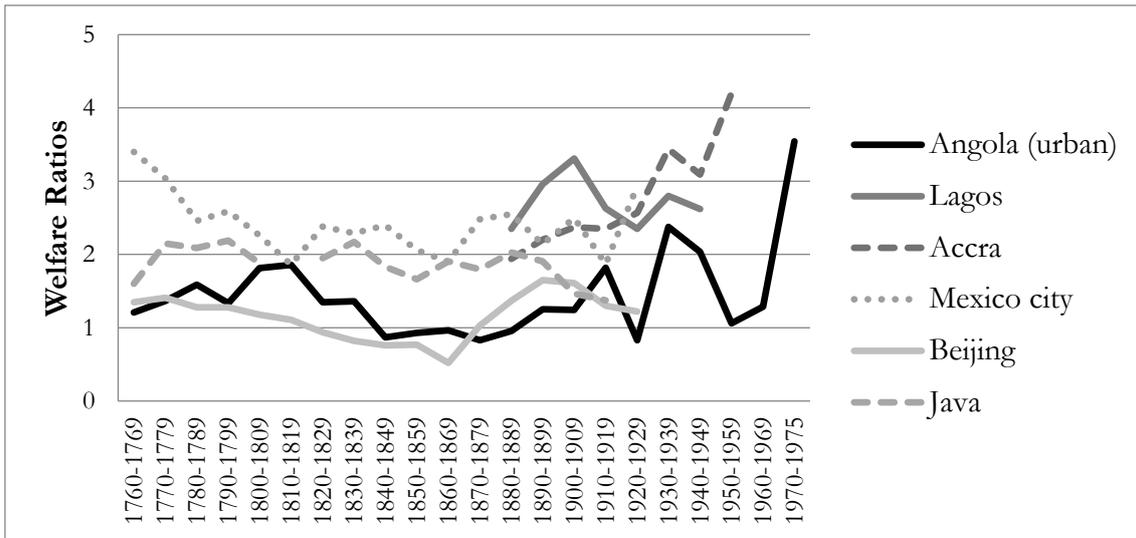


Sources: for Java, see de Zwart and van Zanden 2015; for Angola, see Appendix, Section A15.

Certainly, a comparison between the purchasing power of Angola and Java for both non-coerced workers and those under some form of coercion is illuminating (Figure 4). Coerced Angolan workers were not only significantly poorer than their free counterparts (by smaller margins around the 1920s and 1950s) but also had distinctly lower real wages than bonded Javanese workers, at least until the beginning of the 1910s.

The disparity between the two narrowed from more than twice what it had been in the early 1860s, decreasing to approximately one basket per day in the early 20th century, following the trends of unskilled non-coerced real wages in both cases. Comparing Angolan unskilled welfare ratios, which serve as the upper limit for unskilled workers, with counterparts around the world reveals a prevailing trend of poverty, albeit with nuanced variations over the long term (Figure 5).

Figure 5: Unskilled Angolan urban welfare ratios in perspective, 1760–1975



Sources: for Angola, see Appendix, Section A16; for Accra and Lagos, Frankema and van Waijenburg (2012); for Beijing, Allen et al. (2011); for Java, De Zwart and Van Zanden (2015); for Mexico City, Challú and Gómez-Galvarriato (2015).

Following a modest rise and a plateau that endured until the 1820s, Angolan unskilled welfare ratios experienced a decline throughout the 19th century. However, a recovery began in the early 20th century, marked by significant peaks in welfare ratios during the 1930s and, notably, the 1970s. The drop in welfare ratios from the 1830s onward aligns with the abolition of the slave trade in 1836 and an increased availability of enslaved labor. This heightened availability of enslaved labor likely contributed to greater distortions in the labor market, impacting the rise of nominal wages in relation to the cost of living. On the other hand, anecdotal evidence from the correspondence exchanged between officers of the colonial government during the 1850s describes rising prices of foodstuffs due to supply issues with the local chiefs within the hinterland. One of the proposed solutions for the problem focused on reducing the high number of slaves owned by Luanda’s free population, as the non-sustained mouths could cause public disruptions (Santos 1973, vol. V, pp. 315-316). Despite the existence of periods of high inflation (such as during the 1850s and 1920s), the trend of increasing welfare ratios—ongoing since the early 1900s—is visible, with the most significant increase occurring from the 1960s to the 1970s, accompanying the abolishment of forced labor in 1962. This suggests that Angola’s labor market had previously been strongly distorted by the presence of coerced labor, which lowered the living standards of unskilled workers.

Another major takeaway is that Angolan unskilled workers fared worse than their counterparts in other African urban locations. The evolution of welfare ratios in Accra and Lagos illustrates this point. While the trends of respective welfare ratios are somehow similar since 1910, with the development of agriculture and commerce in Western Central Africa as a macro region potentially playing a role, Angolan workers consistently experienced higher poverty. It took thirty years for Angolans (in 1910) to achieve the welfare ratios levels that Accra's unskilled workers enjoyed in 1880—a similar scenario to their Lagos (Nigeria) counterparts.

The welfare ratios of both Luanda and Benguela African unskilled workers are generally comparable to their Beijing counterparts throughout most of the 200-year period we cover, except for 1790–1840. This challenges the idea of Africa as the poorest continent in historical perspective. However, it is certain that Javanese unskilled workers fared better throughout the 19th century, as their welfare ratios stagnated, while Angolan welfare ratios declined after the slave trade ban in 1836. A comparison with the American case (Mexico City) tells a similar story. Apart from the comparatively high welfare ratios presented by Benguela workers (see Figure 7), Mexican urban unskilled workers fared better throughout the nineteenth century, with the difference clearly noticeable since the 1830s.

In summary, the living standards of unskilled indigenous workers under Portugal's colonial domains were worse than their counterparts in the Dutch and British empires. This is evident across all labor markets, not only in the upper bound but also in the highly distorted low-skilled labor market, as seen in the relatively lower real wages of coerced laborers in Angola compared to their Javanese counterparts. This discrepancy reflects a comparatively lower level of colonial investment and the impact of harsher and more prolonged periods of coercive laws and practices, at least until 1962 (Havik 2018).¹⁴

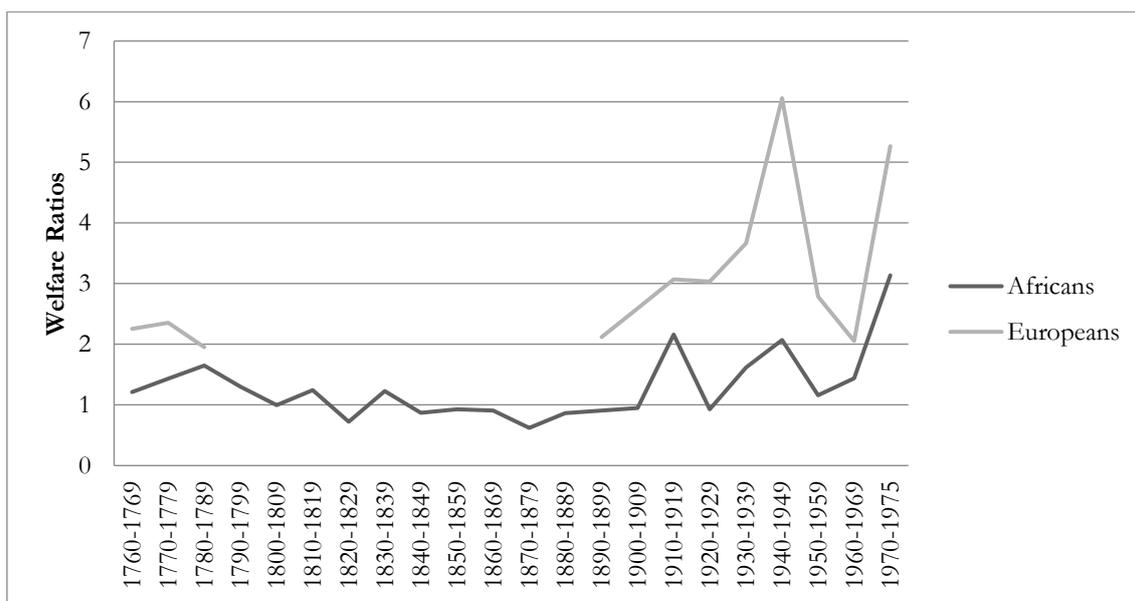
In a comparative perspective, the coercive laws and practices of the Portuguese empire were at times harsher than those practiced in other colonial regions. This was particularly the case in the period between the mid-1940s, when the postwar 'development' approach towards the colonies gained momentum, and the end of the colonization approached (Havik 2018,

¹⁴ Following the beginning of the colonial war in 1961, the metropolitan authorities revoked the "indigenous" legal classification (*Estatuto do Indigenato*).

pp. 217-226; Keese 2014). We hypothesize that Portugal’s backwardness, which was both economic and political, was a proximate cause of such practices.¹⁵

Figure 6 illustrates the evolution of welfare ratios for both African and European unskilled labor in Luanda over the long term. There is an increase in the real wages of African workers until the late 1780s. However, the pattern changes throughout the nineteenth century, with welfare ratios generally ranging between 0.8 and 0.9—a common occurrence in developing countries today (Allen 2020). Even with the purported increase in labor demand in Luanda from the 1880s, it does not seem to manifest in the rise of real wages. Welfare ratios close to one at the beginning of our period (1760s) are not surprising. Unskilled laborers elsewhere in coastal West Africa observed similar ratios (about 0.7) in the mid-18th century, as seen on the Gold Coast (Rönnbäck 2014).

Figure 6: Unskilled welfare ratios in Luanda, 1760–1975



Sources: see Appendix, Section A17.

Welfare ratios for African unskilled workers saw a temporary increase between the 1910s and the 1940s, followed by a more persistent rise from the late 1960s.¹⁶ The low welfare ratios can be attributed to the absence of a demographic transition combined with the widespread

¹⁵ For comparative living standards and other developmental outcomes, see Cermeño et al. (2023); for background on the political situation and on human capital, see Palma and Reis (2021).

¹⁶ After independence in 1975, living standards in Angola fell again (Birmingham 1988; Maddison 2007).

availability of coerced labor.¹⁷ The fact that historical living standards for African unskilled workers were, until the 1960s, at subsistence, is not surprising given that this was a Malthusian society (Galor and Ashraf 2011, Galor 2022). However, it is notable that once the institutional constraints to labor markets were gradually removed, there was a rise in living standards despite the absence of a fertility transition (United Nations 2022). Hence, as had happened decades earlier in Brazil, the labor market effects of lower coercion implied a rise in the living standards of unskilled workers (Lambais and Palma 2023). Our evidence hence supports an interpretation suggesting that an extractive elite was keeping wages artificially low (for related points, see Acemoglu and Robinson 2012; Naidu and Yuchtman, 2013).

The income sources of these unskilled workers in Luanda, particularly whether they engaged in petty trading and subsistence agriculture, could be questioned. However, recent challenges to the notion of land surplus in Africa (Austin 2005, 2009) and arguments related to land disputes in urban environments add complexity. Changes in legislation during the mid-19th century allowed premium urban land to be gradually taken away from previous African landowners as the process of colonial occupation intensified (Cândido 2022). Legal disputes over land reduced land-labor ratios, making it more challenging for unskilled African workers to reside in urban areas and pushing them to seek better conditions elsewhere. Simultaneously, the appropriation of land by European settlers, particularly from the 1870s onwards, compelled Africans to become wage laborers in agricultural enterprises (Wheeler 2009).

The welfare ratios achieved by European unskilled laborers are, as anticipated, higher—sometimes significantly so—than their African counterparts. Ratios consistently exceed 2 from the 1880s onwards, reaching a peak of 6 around the 1940s, aligning with the earlier period of increased European migration mentioned before. These migrants were likely attracted by the benefits in compensations and/or wage differentials provided by the colonial state at a certain point. Additionally, it's noteworthy to highlight the decline in European

¹⁷ For instance, in the Luanda parish of Rosário during the 1820s and 1830s, half of the slaves engaged in various occupations, including skilled and unskilled roles such as washers, tailors, barbers, and carpenters, among others (Ferreira 2012). The consistently lower welfare ratios from 1840 to 1900 may have hindered family formation and reproduction. This trend could have influenced population growth, particularly during the period of epidemics in the hinterland and scarcity of foodstuffs mentioned earlier (Dias 2011). After a notable increase between the 1840s and the early 1860s, partly due to the rise in enslaved individuals after the slave trade ban, the population growth appears to be stagnant.

unskilled welfare ratios between 1950 and 1960, correlating with the challenges faced by uneducated European settlers during that period (Clarence-Smith 1983).

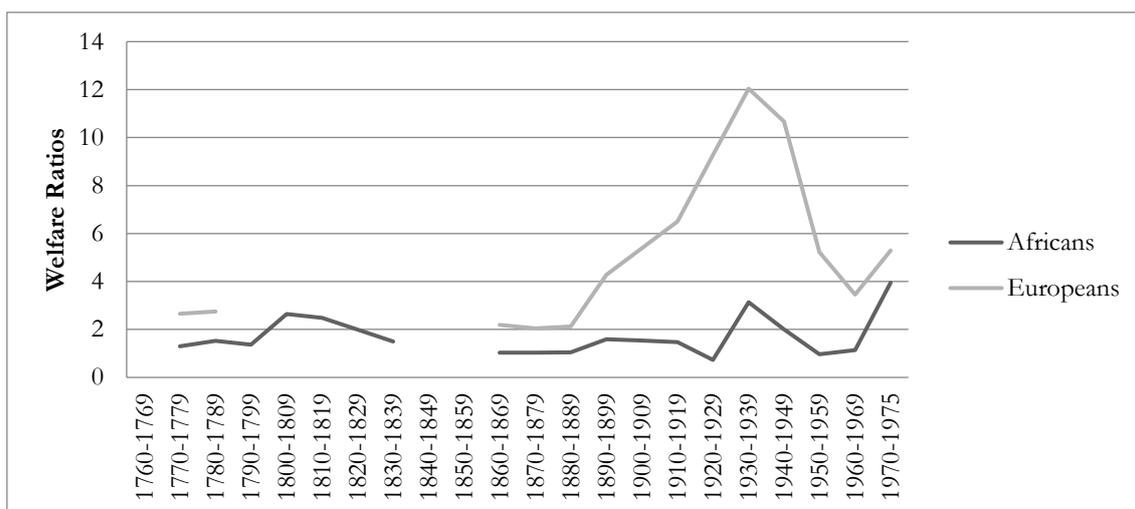
Indeed, a report from a colonial inspector about the practices of the municipality of Luanda in 1961 stresses that European settlers and some ethnically “mixed” individuals should not apply to (and develop work as) third-class servants in the public sector — a low-tier job usually reserved for Africans. Besides the illegal aspect of this tendency (as forced labor applied to ‘indigenous’ workers would formally only end in 1962), the inspector emphasized how low the respective wage was. The inspector hence remarked that it was unworthy for these individuals to live in a “civilized” way.¹⁸ We suggest that having unskilled European settlers applying for these low-paid jobs, in violation of the legal framework, can be interpreted in the context of a decline in living standards, at least until the abrupt reversal of that tendency in the early 1960s.

The welfare ratios for unskilled labor in Benguela exhibit a similar pattern to their counterparts in Luanda, with some minor nuances (Figure 7). After a promising start in the early period, evident in the benchmarks of 1800–09 and 1810–19 (peaking at 2.7 and 2.5), African unskilled real wages began to decline from the 1830s onwards, reaching approximately 1 between 1860 and 1890.

Welfare ratios would grow beyond one since 1890, with periods of temporary decline and two clear peaks in the 1930s and the 1970s. This performance might suggest a higher impact of the abundant enslaved work well patent in Benguela for most of the century, as well as the highly coerced work coming from post-slavery contracts. The slave trade ban (1836) might have had a significant impact on this performance. Also to highlight is the high disparity in wages paid to European unskilled settlers, which increased since 1890 and diminished substantially in the post-war period.

¹⁸ AHU, MU, ISAU, A2.050.02/015.00085, 5.

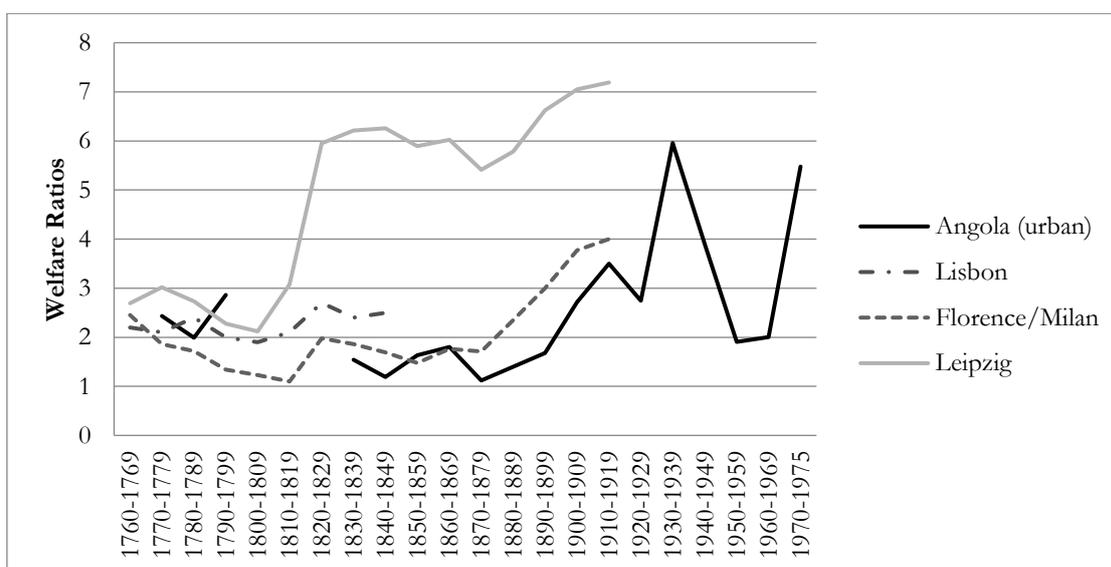
Figure 7: Unskilled welfare ratios in Benguela, 1760–1975



Sources: see Appendix, Section A18.

5.2. Skilled labor

Figure 8: Skilled Angolan welfare ratios in perspective, 1760–1975



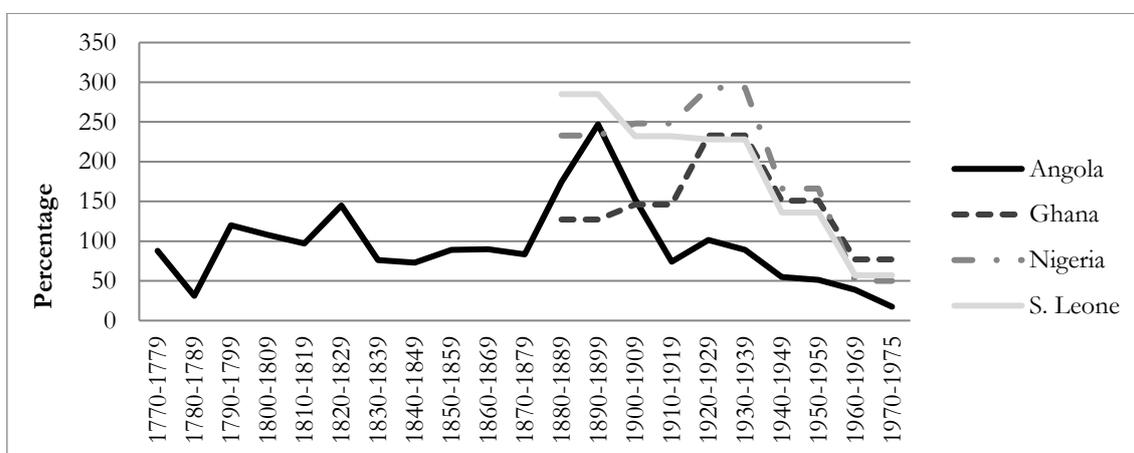
Sources: for Angola, see Appendix, Section A19; for Lisbon, see Palma and Reis (2019); for Florence/Milan and Leipzig, see Allen et al. (2011).

The welfare ratios of urban skilled workers in Angola differ in relevant ways from those in other parts of the world (Figure 8).¹⁹ Particularly, the welfare ratios for skilled labor in Leipzig, chosen as representative for central Europe, are consistently three to four times

¹⁹ As before, skilled workers are here represented by carpenters and masons.

higher than those in Angola throughout the nineteenth century. However, the welfare ratios for Angolan skilled workers are comparable to those in southern Europe, specifically Florence/Milan, suggesting a similar demand for skilled labor in both Luanda and Benguela, especially since the early 1910s. An exception to this trend is Lisbon, where skilled welfare ratios are higher at least until the mid-19th century, indicating potential challenges in recruiting skilled labor from the mainland to Angolan urban settlements until the 1880s–1890s.

Figure 9: Angolan urban skill premium in West African perspective, 1770–1975 (in percentages)



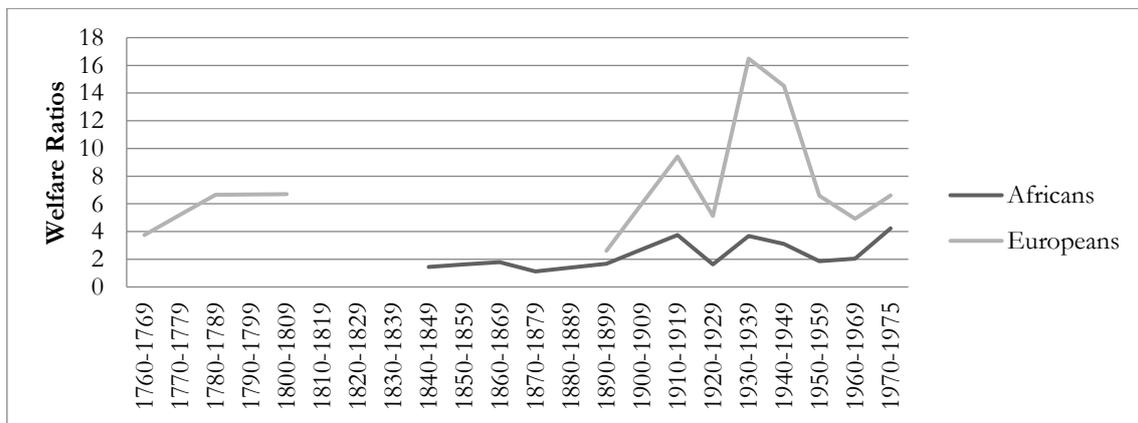
Sources: see Appendix, Section A20.

The recent literature focusing on Asian and African skill premiums since 1870 has highlighted that the latter could be higher throughout the period, even with abrupt declines throughout the 20th century (Frankema and van Waijenburg 2023). As Figure 9 shows, the average Angolan (indigenous) urban skill premium was around 100 percent at least until the 1920s, progressively declining afterwards. Again, the nature of our occupational dataset, mostly concentrated on public jobs, may only be partially accurate on skill premia, particularly since the 1950s. Scholarship on late-colonial Angola stressed that skilled wages, especially within the industrial sector, could be between three and ten times higher than their unskilled counterparts (Carreira 1977).

However, the Angolan skill premium was similar to other West African cases (and even higher than in Ghana) at the turn of the twentieth century. Did the Angolan skill premia decline due to the gradual transformation of colonial labor markets? While the sample of Angolan skilled laborers is certainly minimal, given that most of the population did unskilled

work, we hypothesize that the change in labor markets is a reason for such decline. Our benchmark for skilled occupation (carpenter, H7 in HISCLASS) had a constant demand in the workforce until the end of our period. However, the arrival of skilled European settlers to the labor market, with a particular focus on urban environments, may have propelled the decline of the premiums for the indigenous labor force. The evolution of skill premium vis-à-vis changes and continuities in the colonial labor markets constitutes a line of research that should be explored further in future efforts.

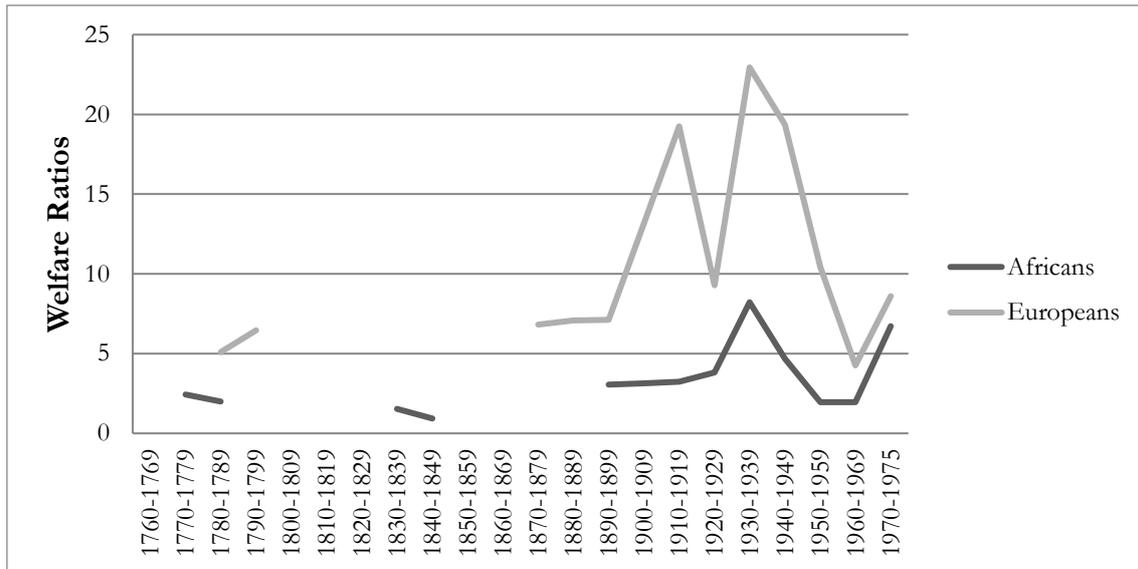
Figure 10: Skilled welfare ratios in Luanda, 1760–1975



Sources: see Appendix, Section A21.

In comparison to unskilled labor, the welfare ratios of skilled African workers in Luanda generally performed better overall (Figure 10). Throughout the 19th century, they were mostly higher than 1, and even experienced substantive increases as the 20th century unfolded. However, African “free” skilled workers constituted a minority within the labor market, so the impact of the improvement in their living standards may not reflect the overall urban worker. Consequently, most of the African population likely experienced lower standards of living. Conversely, the welfare ratios of European skilled labor in Luanda, after a phase of decline in the 1910s, generally rose again since 1920, oscillating between 14 and 16 until the 1940s before experiencing a steep fall until the 1960s. This increase was likely influenced by the creation of incentives for settler labor to immigrate, given the higher demand for skilled occupations. The subsequent decline aligns with the increase in the cost of living.

Figure 11: Skilled welfare ratios in Benguela, 1760–1960



Sources: see Appendix, Section A22.

While evidence of skilled labor in Benguela is limited (Figure 11), the welfare ratios of African workers appear to be generally higher than their counterparts in Luanda. They were notably better in both the late 18th century and the 1830s, reaching an impressive 8.2 in the 1930–1939 period—although it should be noted that the small number of workers in this labor segment may not be representative of the entire labor market, limiting broader assumptions. Moreover, European skilled workers in Benguela seemed to have consistently high welfare ratios, peaking above 15 during the 1910s and the 1930s–1940s, with temporary declines in the 1880s and 1890s and the general downturn of the 1920s.

6. Conclusion

Angolan unskilled free workers experienced a decline in their welfare ratios from the early nineteenth century, with modest growth observed from the 1910s onwards. A significant increase in welfare ratios has been noted since the 1960s. This pattern is consistent in both Luanda and Benguela. In urban settings where waged labor was prevalent, welfare ratios falling below one in the nineteenth century and beyond suggest widespread poverty among workers. Additionally, those under coercion had even lower ratios, indicating extreme poverty. Residents likely resorted to alternative income-generating activities. The declining nineteenth century welfare ratios for unskilled workers align with global trends, such as in Beijing and Mexico City, albeit in varying proportions (Challú and Gómez-Galvarriato 2015).

Comparisons reveal that Angolan unskilled workers were generally poorer than their African counterparts, lagging in achieving relative welfare ratios like those observed in other regions, such as Accra and Lagos, particularly in the early twentieth century.

This raises the question of whether the Portuguese empire had a more detrimental impact on the well-being of its indigenous subjects compared to former British, Dutch, and French colonies. While further research is needed to assess the living standards in other Portuguese colonial territories, our examination suggests that urban workers in former British, Dutch, and French colonies may have had better outcomes than their Angolan counterparts. This analysis also supports the notion that coercion played a role in the decline of real wages for African unskilled labor in former Portuguese colonies. It's important to note that this trend was not exclusive to the Portuguese empire, as the widespread availability of enslaved or coerced labor contributed to low unskilled wages elsewhere (Abad et al. 2012). Regarding differences in income, the ethnical wage gap widened over the twentieth century, potentially indicating the impact of legislation and other colonial policies, such as taxation. We suggest that comparatively lower investment, along with harsher and more prolonged labor policies within the Portuguese empire, translated into worse living standards for its indigenous subjects.

It is worth noting the comparatively high historical welfare ratios of Angolan free skilled labor prior to 1900. While these workers constituted a small portion of the urban proletariat, as most Africans were confined to low-paying jobs – particularly within the administration and public sector -- this segment exhibited welfare ratios comparable to southern Europe until 1900. This observation implies a strong demand for these skilled professionals and supports the existence of higher incentives, as well as a risk premium and compensating differentials for European skilled settlers in later periods.

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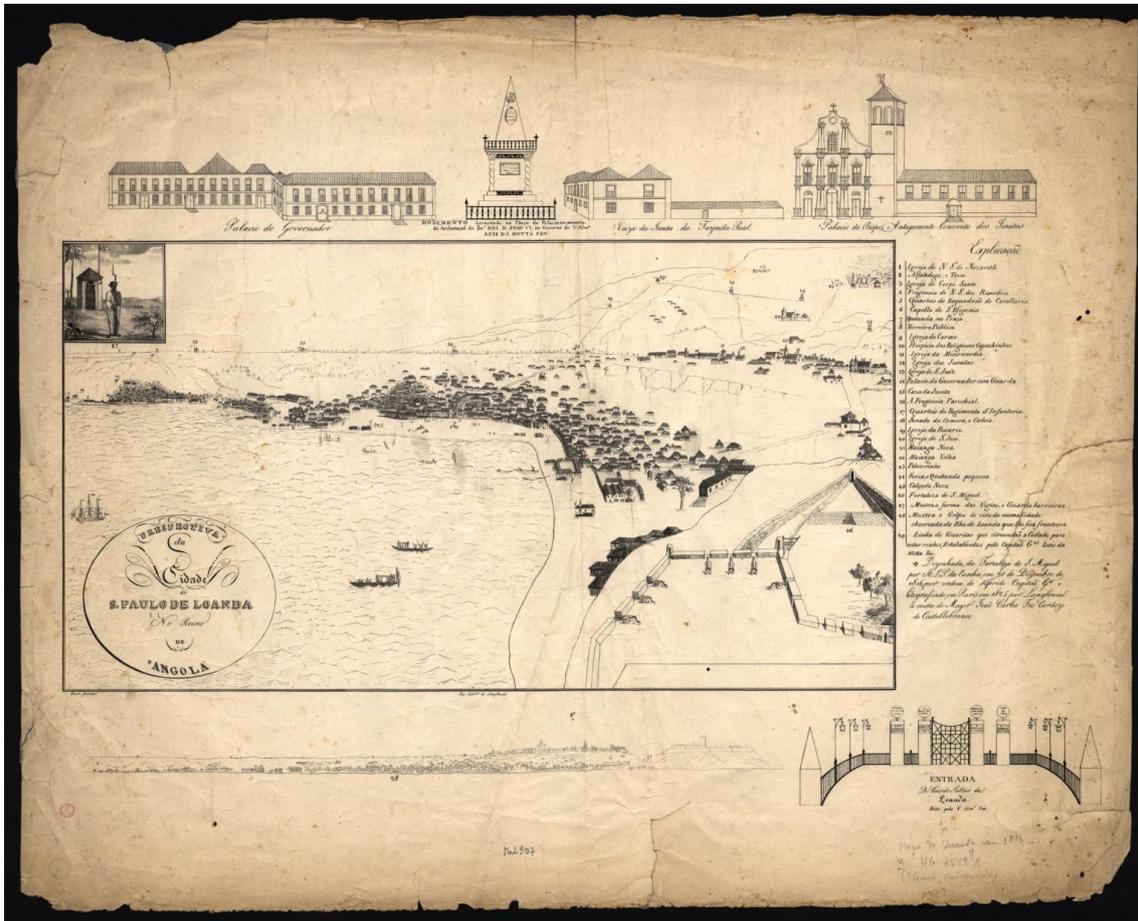
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Online Appendix for:
Carvalho and Palma, Living Standards in Angola, 1760-1975

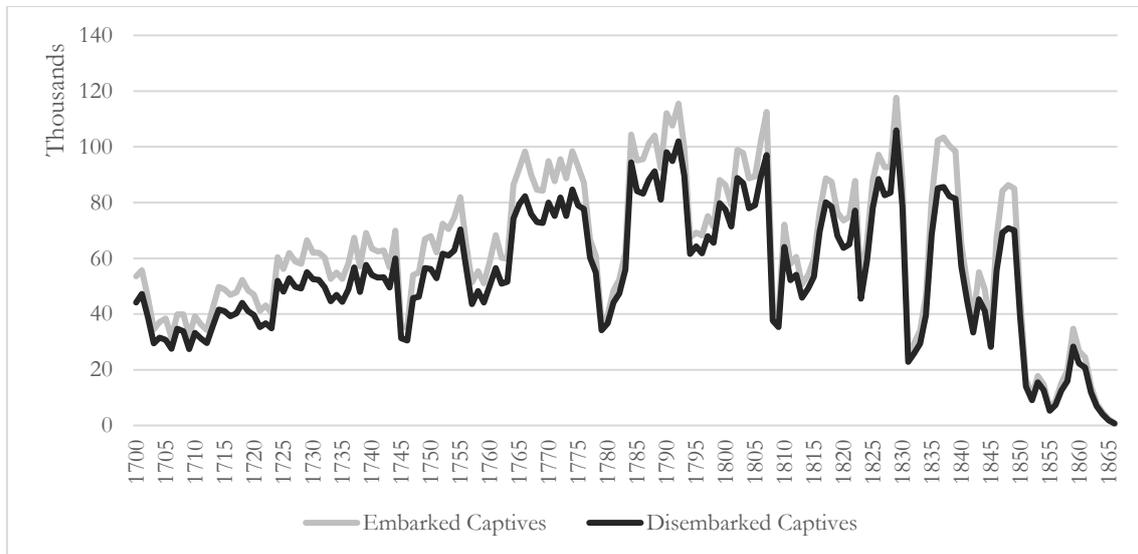
Section A1 – A perspective of the city of Luanda, c.1825



Source: Biblioteca Nacional de Portugal (Lisbon, Portugal), C.C. 1698 A.

Section 2 – Slave trade

Graph 1. Number of captives embarked and disembarked per year (West Central Africa), 1700-1866



Source: Slave Estimates on Trans-Atlantic Slave Trade - Slave Voyages (<https://www.slavevoyages.org/assessment/estimates>; accessed 19/09/2023; 17h00 CET).

Note: West Central African ports include mainly Luanda and Benguela.

Section A3 - Sources for Figure 1. Demographic Estimates for Luanda and Benguela, 1760-1975

Luanda per benchmark year:

1781, 1796, 1829-1832: Curto & Gervais 2001.

1797-1827: Datasets of the Project COLDEMO

[<http://colonialpopulations.fcsh.unl.pt/Angola/PopulacaoEnglish.php>; accessed 26th April 2023; 12h00].

1844: Curto 1999.

1845: Curto & Gervais 2011.

1850: *Almanack Statístico* 1851.

1856: Curto 1999 apud Thomas (1969 [1860]).

1861: Menezes 1867.

1864: Curto 1999 apud Oliveira 1866.

1866: AHU, SEMU_CU, Angola, Correspondência entrada, cx. 36 (637, 1-1L), doc. 38.

1869: *Relatórios das Direcções* 1886.

1876: *Relatórios das Direcções* 1886.

1881: Amaral 1983.

1897: Anuario Estatístico 1897.

1898: Amaral 1983; Censo 1940, p. 16.

1900: Anuário Estatístico 1900; Anuário 1955.

1923: Anuário Estatístico 1934.

1930: Amaral 1978, 1983; Censo 1940.

1940: Amaral 1978; Censo 1940.

1950: Amaral 1983; Anuário Estatístico 1955.

1955: Amaral 1983; Anuário Estatístico 1955.

1960: Amaral 1983.

1970: Amaral 1978.

Benguela per benchmark year:

1797-1827: Datasets of the Project COLDEMO

[<http://colonialpopulations.fcsh.unl.pt/Angola/PopulacaoEnglish.php>; accessed 26th April 2023; 12h00].

1841: Cândido 2013 apud Tams 1850.

1844: Cândido 2000.

1850: Menezes 1867.

1860: Cândido 2020.

1861: *Relatório das Direcções* 1886.

1876: *Relatórios das Direcções* 1886.

1878: Cândido 2020.

1897: Anuario Estatístico 1897.

1898: Censo 1940, p. 16.

1899: Censo 1940, p. 17.

1900: Anuário Estatístico 1900.

1930: Amaral 1978; Censo 1940.

1940: Amaral 1978; Censo 1940.

1950: Anuário Estatístico 1955.

1955: Anuário Estatístico 1955.

1960: Anuário Estatístico 1960.

1970: Amaral 1978.

Reliability and quality of demographic sources: the case of (urban) Angola, 1760-1975

Colonial population statistics were traditionally seen as unreliable and/or of low quality, not to mention precolonial (here referred as early colonial) demographic counts and estimates (Manning 2010; Frankema and Jerven 2014). Demographic evidence often comes as incomplete, uneven, scarce across time and space, and even misleading. Concerning both Angolan case studies explored in this paper – Luanda and Benguela –, a reappraisal of the quality and reliability of demographic evidence for both early colonial and colonial periods should be made.

Luanda is certainly the case study with evidence of better quality and consistency. From 1773 to 1845, no less than thirty counts (censos) were made by the colonial authorities (Curto and Gervais 2001). In turn, Benguela presents a similar case of relatively high concentration of

counts between c.1799 and the 1840s (Cândido 2013). Despite the attempt to count and classify urban colonial populations per sector, especially since early 1800s, these sources had a fair share of issues (De Matos and Vos 2013). Those issues do not lie solely on the fact that the numbers are not exact, but also on how the gradual change of the classification system – dividing population per civilian/military, white/mixed/black, and free/enslaved – might also create an erroneous picture of the population. One of the major problems lie in the fact that many creoles and/or even black individuals with a high socioeconomic level would be frequently classified as “white” – thus creating a phenomenon of “whitening” the population which led to a distortion of the categories of classification (Curto 1999). Counts for the period between 1845-1900 only appear with a five to ten-year gap. These are provided by a plethora of primary evidence (as in the case of the benchmark of 1860s), as well as by travel descriptions and government reports.

Demographic sources for the 20th century are not known by its profusion. Yet, they are richer than past counterparts, as well as more robust and accurate, especially in what concerns age and gender structure of both men and women (Vos 2014). This is certainly the case of the two labor reports made by Ferreira Diniz (Diniz 1914, 1915). In turn, the survey of 1900 is based in guesstimates made by the authors. Despite the existence of a national-wide census in 1940, the most reliable and complete census only appeared by 1960 (Vos 2014). All of the afore mentioned evidence provide relatively sound information about the demography of both case studies – Luanda and Benguela – while the same cannot be said regarding other regions within the Angolan hinterland.

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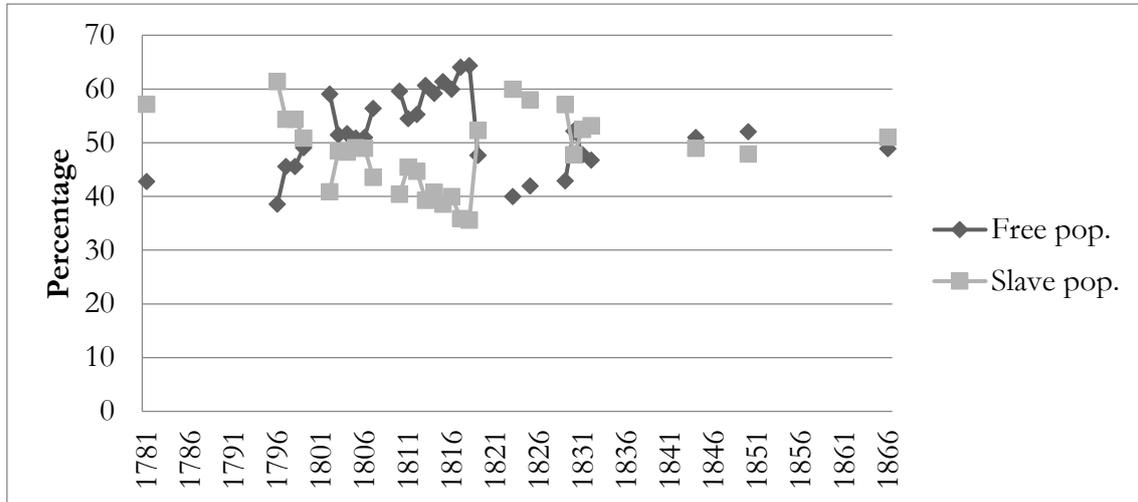
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Section A4- Civilian free and enslaved population in Luanda

Graph 2: Evolution of civilian free and enslaved shares of population in Luanda, 1781-1866



Sources: *Almanack* 1851; AHU, SEMU_CU, Angola, Correspondência entrada, cx. 36 (637, 1-1L), doc. 38; Curto 1999; Curto & Gervais 2001; Mourão 1997; Datasets of the Project Counting Colonial Populations (COLDEMO) [<http://colonialpopulations.fcsh.unl.pt/> accessed 26th April 2023; 12h00].

Section A5 - Sources for Figure 2. Racial pay gap in urban Angola, 1760-1975 (in percentage)

Figure 2 presents an average of the racial pay gap between Luanda and Benguela. The racial gaps are calculated using the nominal wages (skilled/unskilled daily wages) collected in the sources below.

Table 1: Nominal wages of skilled and unskilled workers in Luanda, 1760-1975 (in *réis* per day)

	Unskilled Male Afr	Unskilled Male Eur	Skilled Male Afr	Skilled Male Eur	Unsk Afr Women	Coerced Male Afr
1760-1769	103.53	192.31		320.51		
1770-1779	130.73	214.51		821.92		
1780-1789	157.93	186.96	192.31	636.31		
1790-1799	129.44	255.01	285.10	766.88		
1800-1809	133.55	323.06	278.08	897.44		
1810-1819	137.66	391.11	271.06	925.93		
1820-1829	141.78	459.16	264.04	954.42		
1830-1839	145.89	527.21	257.02	982.91		
1840-1849	150.00	595.25	250.00	1011.40		
1850-1859	160.26	663.30	287.50	1039.89		
1860-1869	163.33	731.35	325.00	1068.38	80.00	88.29
1870-1879	184.19	799.40	332.71	1096.87	117.69	90.07
1880-1889	288.46	867.45	537.25	1125.36	155.39	118.36
1890-1899	205.00	935.50	741.79	1153.85	193.08	175.48
1900-1909	288.46	1345.16	957.94	2048.08	230.77	207.94
1910-1919	675.48	1754.81	1174.08	2942.31	1995.13	240.39
1920-1929	5291.67	17307.69	9250.00	29326.92	3759.48	2000.00
1930-1939	6370.19	14423.08	14523.24	64883.81	5523.84	4387, 02
1940-1949	9615.38	28125.00	14423.08	67427.88	7211.54	5141.72
1950-1959	10673.08	25673.08	17074.55	60685.10	5769.23	7067.31
1960-1969	26923.08	38461.54	38461.54	92307.69	10358.08	20054.79
1970-1975	84519.23	111538.46	114019.23	177884.62	11846.15	

Sources: Arquivo Nacional/Torre do Tombo [henceforth, ANTT], *Condes de Linhares*, liv. 50, fl. 2; ANTT, *Erário Régio*, Junta da Administração e Arrecadação da Fazenda Real de Angola, livs. 17, 19; ANTT, *Feitos Findos*, Livros dos Feitos Findos, liv. 62; ANTT, *Ministério do Reino*, mç. 605, doc. 33; *Arquivos de Angola*, 2ª série, vol. 2 (9-10); Arquivo Histórico Ultramarino [henceforth, AHU], *CU*, Angola, cx. 56, doc. 5061; cx. 57, docs. 5166, 5208; cx. 83, doc. 6818; cx. 119 [121], docs. 8628, 8663; AHU, *CU*, Livros de Angola, livs. 400, 1960; AHU, *Obras Públicas*, OP16781, 3/2526-1; AHU, *SEMUCU*, Angola_Correspondência, cx.

7B (600-1L), doc. 139; cx. 34 (635, 2-1L) (22), doc. 44; Boletim Oficial do Governo [henceforth, BOA], n° 1 (39-40) [1912]; n° 1-3, 10 (3ª série) [1934]; n° 5 [1903]; n° 6 (1), 49 [1874]; n° 6 (1), n° 6 (35) (supplement) [1875]; n° 7 [1866]; n° 8 (supplement) [1884]; n° 12 [1876]; n° 12 [1877]; n° 17 (3ª série) [1923, 1935]; n° 18 (3ª série) [1924, 1935]; n° 20 [1871]; n° 20 (3ª série) [1924]; n° 24 (3ª série) [1933]; n° 26 [1914]; n° 28 [1867]; n° 28 (3ª série) [1935]; n° 29 (3ª série) [1935]; n° 32 [1885]; n° 35 [1890]; n° 37 (Apenso) [1890]; n° 40 [1865]; n° 40 (3ª série) [1935]; n° 41 (3ª série) [1935]; n° 43 (3ª série) [1935]; n° 50 [1890]; n° 604 [1857]; Monteiro 1973; Nunes 1961; *Orçamento da Colónia de Angola* [1923-1924; 1933-1934; 1938-1939; 1940-1941; 1946; 1952; 1957; 1961; 1965; 1968; 1971; 1975]; *Orçamento da Receita e Tabelas da Despesa* [1896-1897, 1912-1913]; *Relatório das Direcções* 1886.

Criteria: table 1 present both African and European male nominal wages (skilled and unskilled) throughout the whole period. Nominal wages of African female unskilled workers are available since the benchmark of 1760-1975. In turn, nominal wages of African male coerced unskilled workers are available since the 1860s until the end of the *Indigenato* legal system (1962). For the relative occupations of each skilled and unskilled worker, see the HISCLASS distribution in section A8. Given the lack of appropriate wage evidence for some benchmarks, the following interpolations were made:

- for African unskilled male workers, 1770-1779, 1800-1839;
- for European unskilled male workers, 1789-1889;
- for African skilled male workers, 1800-1839, 1850-1859, 1880-1889, 1900-1909;
- for European skilled male workers, 1790-1799, 1810-1889, 1900-1909;
- for African unskilled women workers, 1870-1899, 1910-1929;
- for African unskilled male coerced workers, 1900-1909.

Table 2: Nominal wages of skilled and unskilled workers in Benguela, 1770-1975

	Unskilled Male Afr	Unskilled Male Eur	Skilled Male Afr	Skilled Male Eur
1760-1769				
1770-1779	113.08	232.27	212.82	500.00
1780-1789	149.24	269.23	194.94	500.00
1790-1799	155.32			733.33
1800-1809	350.00			785.89
1810-1819	358.33			838.46
1820-1829	258.01			891.02
1830-1839	157.69		161.64	943.59
1840-1849	115.38		300.00	996.15
1850-1859	147.85		332.19	1048.72

1860-1869	180.31	384.62	364.38	1101.28
1870-1879	175.73	346.15	396.58	1153.85
1880-1889	171.15	346.15	428.77	1153.85
1890-1899	258.46	692.31	493.15	1153.85
1900-1909	289.04	1050.00	597.54	2660.26
1910-1919	319.62	1407.69	701.92	4166.67
1920-1929	2244.14	14551.00	11730.77	28478.83
1930-1939	7211.54	27694.31	18910.26	52791.53
1940-1949	7211.54	38461.54	16826.82	69711.54
1950-1959	7115.36	38461.54	14423.08	76682.69
1960-1969	24615.38	75000.00	42307.69	92307.69
1970-1975	87500.00	111538.46	149038.46	190384.62

Sources: Arquivo Histórico do Tribunal de Contas (henceforth, AHTC), *Erário Régio*, liv. 4198; ANTT, *Erário Régio*, Junta de Administração e Arrecadação da Fazenda Real de Angola, livs. 12, 17, 23; ANTT, *Ministério do Reino*, mç. 605, doc. 20; AHU, *CU, Angola*, cx. 56, doc. 5066; cx. 118 [120], doc. 8526; cx. 119 [121], doc. 8663; cx. 126 [129], doc. 9233; cx. 128 [131], doc. 9345; cx. 175, doc. 26; AHU, *SEMU_CU, Angola, Correspondência*, cx. 4B (594-1L), doc. 60; cx. 7B (600-1L), doc. 139; cx. 34 (635, 2-1L), doc. non-numbered; BOA, n° 1 (39-40) [1912]; n° 6 (35) (supplement) [1875]; n° 8 (supplement) [1884-1885]; n° 32 [1885]; n° 35 [1890]; n° 50 (supplement) [1863]; Esteves, *Caminho de Ferro*, vol. II (tables 132, 134); *Orçamento da Colónia de Angola* [1923-1924, 1927-1928, 1933-1936, 1938-1939, 1940-1941, 1946, 1952, 1957, 1961, 1965, 1968, 1971, 1975]; *Orçamento da Receita e Tabelas da Despesa* [1896-1897, 1912-1914, 1916-1917].

Criteria: table 2 present both African and European male nominal wages (skilled and unskilled) throughout the whole period. For the relative occupations of each skilled and unskilled worker, see the HISCLASS distribution in section A9. Given the lack of appropriate wage evidence for some benchmarks, the following interpolations were made:

- for African unskilled male workers, 1820-1829, 1850-1859, 1870-1879, 1900-1909;
- for European unskilled male workers, 1900-1909, 1920-1929, 1960-1969;
- for African skilled male workers, 1850-1859, 1900-1909;
- for European skilled male workers, 1800-1869, 1900-1909, 1920-1929. Additionally, the nominal wage for the European skilled male worker in the benchmark of 1770-1779 assumed the same value as its counterpart of 1780-1789.

Section A6 – Source coverage

Table 3: Source coverage: percentage of years for which we have data.

	Unskilled wages	Skilled wages	Manioc flour	Meat	Beans	Cotton/Linen	Firewood	Soap	Candles (Wax)
1760-1800	33	20	45	23	38	3	5	3	3
1801-1850	16	10	27	14	23	2	2	6	12
1851-1900	33	25	41	16	31	29	4	12	6
1901-1950	31	23	23	49	41	29	35	33	18
1951-1975	33	33	25	29	29	25	21	29	21

Sources: see Appendix, section A10.

Section A7 – HISCLASS distribution - Urban Angola

Table 4: HISCLASS distribution in urban Angola, 1760-1975

	H2 (higher professionals)	H3 (lower managers)	H4 (lower professionals)	H5 (lower clericals)	H6 (foremen)	H7 (skilled workers)	H9 (lower skilled workers)	H11 (unskilled workers)	H12 (unskilled farm workers)
1760-1769			1	4		3	4	10	
1770-1779	1	1		4		4		45	
1780-1789		1	1	4		5		21	
1790-1799		1		2		1		1022	
1800-1809	7	3		7				93	
1810-1819								129	
1820-1829									
1830-1839						1		56	
1840-1849						5		81	
1850-1859									
1860-1869					1	467		2395	
1870-1879		4		7	15	478		2019	
1880-1889		1		8	1			66	
1890-1899		2				4		32	
1900-1909					1			6	
1910-1919					7	12		239	2
1920-1929		1			1	13		469	200
1930-1939				7	1	24	1	492	
1940-1949					1	33		587	
1950-1959					1	44		440	
1960-1969						73		1000	
1970-1975				103		240		768	
Totals	8	14	2	146	29	1407	5	9970	202

Sources: see A6 and A7. Most relevant occupations in HISCLASS 7 were carpenters, followed by masons. Most relevant occupations in HISCLASS 11 were day laborers and servants. Exceptions to this rule are detailed in A6 and A7.

Section A8 – HISCLASS distribution - Luanda

Table 5: HISCLASS distribution in Luanda, 1760-1975

	H2 (higher professionals)	H3 (lower managers)	H4 (lower professionals)	H5 (lower clericals)	H6 (foremen)	H7 (skilled workers)	H9 (lower skilled workers)	H11 (unskilled workers)	H12 (unskilled farm workers)
1760-1769				4		1	4	10	
1770-1779		1		2				5	
1780-1789		1	1	2		2		8	
1790-1799						1		1022	
1800-1809	6	3		5					
1810-1819									
1820-1829									
1830-1839									
1840-1849						1		51	
1850-1859								2	
1860-1869						467		2394	
1870-1879		3		7	14	478		1995	
1880-1889				4				51	
1890-1899		1				4		14	
1900-1909					1			6	
1910-1919					6	8		92	1
1920-1929					1	10		361	
1930-1939						18		310	
1940-1949						23		406	
1950-1959						37		398	
1960-1969						65		850	
1970-1975				89		234		700	
Totals	6	9	1	113	22	1349	4	8675	1

Sources: Arquivo Nacional/Torre do Tombo [henceforth, ANTT], *Condes de Linhares*, liv. 50, fl. 2; ANTT, *Erário Régio*, Junta da Administração e Arrecadação da Fazenda Real de Angola, livs. 17, 19; ANTT, *Feitos Findos*, Livros dos Feitos Findos, liv. 62; ANTT, *Ministério do Reino*, mc. 605, doc. 33; *Arquivos de Angola*, 2ª série, vol. 2 (9-10); Arquivo Histórico Ultramarino [henceforth, AHU], CU, Angola, cx. 56, doc. 5061; cx. 57, docs. 5166, 5208; cx. 83, doc. 6818; cx. 119 [121], docs. 8628, 8663; AHU, CU, Livros de Angola, livs. 400, 1960; AHU, *Obras Públicas*, OP16781, 3/2526-1; AHU, SEMU_CU, Angola_Correspondência, cx. 7B (600-1L), doc. 139; cx. 34 (635, 2-1L) (22), doc. 44; Boletim Oficial do Governo [henceforth, BOA], n° 1 (39-40) [1912]; n° 1-3, 10 (3ª série) [1934]; n° 5 [1903]; n° 6 (1), 49 [1874]; n° 6 (1), n° 6 (35) (supplement) [1875]; n° 7 [1866]; n° 8 (supplement) [1884]; n° 12 [1876]; n° 12 [1877]; n° 17 (3ª série) [1923, 1935]; n° 18 (3ª série) [1924, 1935]; n° 20 [1871]; n° 20 (3ª série)

[1924]; nº 24 (3ª série) [1933]; nº 26 [1914]; nº 28 [1867]; nº 28 (3ª série) [1935]; nº 29 (3ª série) [1935]; nº 32 [1885]; nº 35 [1890]; nº 37 (Apenso) [1890]; nº 40 [1865]; nº 40 (3ª série) [1935]; nº 41 (3ª série) [1935]; nº 43 (3ª série) [1935]; nº 50 [1890]; nº 604 [1857]; Monteiro 1973; Nunes 1961; *Orçamento da Colónia de Angola* [1923-1924; 1933-1934; 1938-1939; 1940-1941; 1946; 1952; 1957; 1961; 1965; 1968; 1971; 1975]; *Orçamento da Receita e Tabelas da Despesa* [1896-1897, 1912-1913]; *Relatório das Direcções* 1886.

Section A9- HISCLASS distribution - Benguela

Table 6: HISCLASS distribution in Benguela, 1760-1975

	H2 (higher professionals)	H3 (lower managers)	H4 (lower professionals)	H5 (lower clericals)	H6 (foremen)	H7 (skilled workers)	H9 (lower skilled workers)	H11 (unskilled workers)	H12 (unskilled farm workers)
1760-1769			1			2			
1770-1779	1			2		4		40	
1780-1789				2		3		13	
1790-1799		1		2					
1800-1809	1			2				93	
1810-1819								129	
1820-1829									
1830-1839						1		56	
1840-1849						4		30	
1850-1859									
1860-1869					1			1	
1870-1879		1			1			24	
1880-1889		1		4	1			15	
1890-1899		1						18	
1900-1909									
1910-1919					1	4		147	1
1920-1929		1				3		108	200
1930-1939				7	1	6	1	182	
1940-1949					1	10		181	
1950-1959					1	7		42	
1960-1969						8		150	
1970-1975				14		6		68	
Totals	2	5	1	33	7	58	1	1297	201

Sources: Arquivo Histórico do Tribunal de Contas (henceforth, AHTC), *Erário Régio*, liv. 4198; ANTT, *Erário Régio*, Junta de Administração e Arrecadação da Fazenda Real de Angola, livs. 12, 17, 23; ANTT, *Ministério do Reino*, mç. 605, doc. 20; AHU, *CU, Angola*, ex. 56, doc.

5066; cx. 118 [120], doc. 8526; cx. 119 [121], doc. 8663; cx. 126 [129], doc. 9233; cx. 128 [131], doc. 9345; cx. 175, doc. 26; AHU, *SEMUCU*, Angola, Correspondência, cx. 4B (594-1L), doc. 60; cx. 7B (600-1L), doc. 139; cx. 34 (635, 2-1L), doc. non-numbered; BOA, n° 1 (39-40) [1912]; n° 6 (35) (supplement) [1875]; n° 8 (supplement) [1884-1885]; n° 32 [1885]; n° 35 [1890]; n° 50 (supplement) [1863]; Esteves, *Caminho de Ferro*, vol. II (tables 132, 134); *Orçamento da Colônia de Angola* [1923-1924, 1927-1928, 1933-1936, 1938-1939, 1940-1941, 1946, 1952, 1957, 1961, 1965, 1968, 1971, 1975]; *Orçamento da Receita e Tabelas da Despesa* [1896-1897, 1912-1914, 1916-1917].

Section A10 - Sources for the price entries of Luanda and Benguela, 1760-1975

Luanda

Manioc flour: AHU, *CU*, Angola, cx. 47, doc. 4305; cx. 50, doc. 4599; cx. 100, doc. 1; cx. 128 [131], doc. 9340; cx. 167, doc. 50; AHU, *SEMUCU*, Angola, Correspondência, cx. 8B (602-1L), doc. 167; cx. 19 (619-1L), non-numbered doc.; *Almanack estatístico* 1851; ANTT, *FF*, Livros dos Feitos Findos, liv. 61; ANTT, *ER*, Junta da Administração e Arrecadação da Fazenda Real do Reino de Angola, liv. 2; ANTT, *Ministério do Reino*, mc. 605, doc. 33; *Anuário Estatístico* 1938, 1944-1947, 1955, 1961, 1965, 1971, 1973; *BOA*, n° 1 (7) [1845]; n° 1 (102) [1847]; n° 5 [1863]; n° 6 (1, 22) [1874-5]; n° 7 [1866]; n° 10 [1865]; n° 12 [1876]; n° 12 [1877]; n° 18 [1879]; n° 20 [1871]; n° 24 [1867]; n° 26 [1890]; n° 26 [1903]; n° 47 [1885]; n° 445 [1854]; n° 531 [1855]; n° 644, 563 [1858]; Corrêa 1937, vol. 1; *Estatística das Alfândegas* 1913; Lima 1846, vol. 3; Menezes 1867.

Maize: AHU, *CU*, Angola, cx. 128 [131], doc. 9340; AHU, *SEMUCU*, Angola, Correspondência, cx. 8B (602-1L), doc. 167; cx. 19 (619-1L), non-numbered doc.; ANTT, *FF*, Livros dos Feitos Findos, liv. 61; *Almanack estatístico* 1851; *Anuário Estatístico* 1938, 1955, 1960, 1961, 1965, 1971; *Boletim Mensal* 6 (XXI) [1965]; *BOA*, n° 1 (7) [1845]; n° 1 (20) [1846]; n° 1 (102) [1847]; n° 5 [1863]; n° 6 (1) [1875]; n° 7 [1866]; n° 10 [1865]; n° 11 [1903]; n° 12 [1876]; n° 12 [1877]; n° 18 [1879]; n° 20 [1871]; n° 24 [1867]; n° 26 [1890]; n° 445 [1854] n° 563 [1858]; *Boletim Trimestral de Estatística*, ano IV, n° 3; Lima 1846, vol. 3.

Beans: AHU, *CU*, Angola, cx. 57, doc. 5208; cx. 100, doc. 1; cx. 128 [131], doc. 9340; cx. 167, doc. 50; AHU, *SEMUCU*, Angola, Correspondência, cx. 8B (602-1L), doc. 167; cx. 19

(619-1L), non-numbered doc.; *Almanack estatístico* 1851; ANTT, FF, Livros dos Feitos Findos, livs. 61-62; ANTT, *Ministério do Reino*, mç. 605, doc. 33; *Anuário Estatístico* 1938, 1955, 1960, 1961, 1965, 1971, 1973; *BOA*, nº 1 (7) [1845]; nº 1 (20) [1846]; nº 1 (102) [1847]; nº 5 [1863]; nº 6 (1) [1874-5]; nº 7 [1866]; nº 10 [1865]; nº 12 [1876]; nº 12 [1877]; nº 18 [1879]; nº 20 [1871]; nº 24 [1867]; nº 26 [1903]; nº 531 [1855]; nº 644, 563 [1858]; *Boletim Trimestral de Estatística*, ano IV, nº 3; Lima 1846, vol. 3.

Meat: AHU, CU, Angola, cx. 167, doc. 50; *Almanack estatístico* 1851; ANTT, FF, Livros dos Feitos Findos, liv. 61; *Anuário Estatístico* 1938, 1955, 1961, 1965, 1971, 1973; *BOA*, nº 1 (167) [1848]; nº 26 [1890]; nº 26 [1903]; *Boletim Trimestral de Estatística*, ano IV, nº 3; Corrêa 1937, vol. 1.

Fish: AHU, CU, Angola, cx. 167, doc. 50; AHU, SEMU_CU, Angola, Correspondência, cx. 20 (620-1L), doc. 120; *BOA*, nº 6 (22) [1875]; nº 6 [1891]; nº 10 [1895]; nº 12 [1877]; nº 17 [1885]; *Estatística do Comércio e Navegação* 1903.

Cotton: AHU, SEMU_CU, Angola, Correspondência, cx. 19 (619-1L), non-numbered doc.; cx. 28 (629-1L), non-numbered doc.; cx. 34 (635, 2-1L), non-numbered doc.; *Almanack estatístico* 1851; ANTT, FF, Livros dos Feitos Findos, liv. 61; *Anuário Estatístico* 1938, 1944-1947, 1955, 1965, 1971, 1973; *BOA*, nº 6 (22) [1875]; nº 6 [1891]; nº 10 [1865]; nº 10 [1903]; nº 11 (Apenso) [1914]; nº 12 [1877]; nº 17 [1885]; nº 26 [1890]; *Estatística das Alfândegas* 1913; *Estatística do Comércio e Navegação* 1903.

Palm oil: AHU, CU, Angola, cx. 167, doc. 50; AHU, SEMU_CU, Angola, Correspondência, cx. 19 (619-1L), non-numbered doc.; cx. 22 (622, 1-1L), non-numbered doc.; cx. 28 (629-1L), non-numbered doc.; cx. 36 (637, 1-1L), non-numbered doc.; *Almanack estatístico* 1851; ANTT, FF, Livros dos Feitos Findos, liv. 61; *Anuário Estatístico* 1938, 1944-1947, 1955, 1961, 1965, 1971, 1973; *BOA*, nº 1 (5) [1845]; nº 1 (20, 53) [1846]; nº 1 (102) [1847]; nº 6 (20) [1875]; nº 6 [1891]; nº 6 [1895]; nº 10 [1903]; nº 12 [1877]; nº 17 [1885]; Corrêa 1937, vol. 1; *Estatística das Alfândegas* 1913; *Estatística do Comércio e Navegação* 1903.

Firewood: AHU, CU, Angola, cx. 57, doc. 5208; *Anuário Estatístico* 1938, 1955, 1960, 1961, 1965; *BOA*, nº 10 [1903]; nº 26 [1890]; nº 47 [1885]; *Boletim Trimestral de Estatística*, ano IV, nº 3.

Soap: AHU, CU, Angola, cx. 167, doc. 50; AHU, SEMU_CU, Angola, Correspondência, cx. 19 (619-1L), non-numbered doc.; ANTT, *Ministério do Reino*, mç. 605, doc. 46; *Anuário Estatístico* 1938, 1955, 1960, 1961, 1965, 1971, 1973; BOA, n° 10 [1903]; n° 26 [1890]; n° 47 [1885]; *Boletim Trimestral de Estatística*, ano IV, n° 3; *Estatística do Comércio e Navegação* 1903.

Candles: AHU, CU, Angola, cx. 167, doc. 50; ANTT, FF, Livros dos Feitos Findos, liv. 61; *Anuário Estatístico* 1938, 1944-1947, 1955, 1965; BOA, n° 1 (5) [1845]; n° 1 (20, 53) (supplement) [1846]; n° 1 (102) [1847]; n° 10 [1895]; n° 17 [1885]; *Estatística do Comércio e Navegação* 1903.

Benguela

Manioc flour: AHTC, ER, liv. 4918; AHU, CU, Angola, cx. 119 [121], doc. 8613; cx. 126 [129], doc. 9233; cx. 128 [131], doc. 9345; cx. 175, doc. 26; AHU, SEMU_CU, Angola, Correspondência, cx. 8B (602-1L), doc. 167; cx. 22 (622, 1-1L), non-numbered doc.; cx. 36 (637, 1-1L), non-numbered doc.; ANTT, ER, Junta da Administração e Arrecadação da Fazenda Real do Reino de Angola, livs. 1, 13, 21, 23; ANTT, *Ministério do Reino*, mç. 605, doc. 20; *Anuário Estatístico* 1938, 1944-1947, 1955, 1965, 1971, 1973; *Boletim da Associação Comercial de Benguela*, 1 (1, 7), 3 (5); BOA, n° 1 (102) [1947]; n° 17 [1885]; n° 674 [1858]; *Estatística das Alfândegas* 1912; *Estatística do Comércio e Navegação* 1903.

Maize: AHU, CU, Angola, cx. 74, doc. 6281; cx. 105, doc. 7735; cx. 126 [129], doc. 9233; cx. 128 [131], doc. 9345; AHU, SEMU_CU, Angola, Correspondência, cx. 22 (622, 1-1L), doc. 590; *Anuário Estatístico* 1934, 1938, 1944-1947, 1955, 1960, 1961, 1971, 1973; *Boletim da Associação Comercial de Benguela*, 1 (1, 7), 3 (5); *Boletim Mensal* 6 (XXI) [1965]; BOA, n° 17 [1885]; *Boletim Trimestral de Estatística*, ano IV, n° 3.

Beans: AHTC, ER, liv. 4918; AHU, CU, Angola, cx. 56, doc. 5064; cx. 126 [129], doc. 9233; cx. 128 [131], doc. 9345; AHU, SEMU_CU, Angola, Correspondência, cx. 8B (602-1L), doc. 167; cx. 22 (622, 1-1L), non-numbered doc.; ANTT, ER, Junta da Administração e Arrecadação da Fazenda Real do Reino de Angola, liv. 22; ANTT, *Ministério do Reino*, mç. 605, doc. 20; *Anuário Estatístico* 1934, 1938, 1944-1947, 1955, 1960, 1961, 1965, 1971, 1973;

Boletim da Associação Comercial de Benguela, 1 (1, 7), 3 (5); *BOA*, nº 1 (102) [1847]; nº 17 [1885]; *Boletim Trimestral de Estatística*, ano IV, nº 3; *Estatística das Alfândegas* 1913.

Meat: AHU, *CU*, Angola, cx. 56, doc. 5064; cx. 128 [131], doc. 9345; cx. 168, doc. 12; AHU, *SEMUCU*, Angola, Correspondência, cx. 8B (602-1L), doc. 167; ANTT, *ER*, Junta da Administração e Arrecadação da Fazenda Real do Reino de Angola, liv. 22; ANTT, *Ministério do Reino*, mç. 605, doc. 20; *Anuário Estatístico* 1934, 1938, 1944-1947, 1955, 1960, 1961, 1965, 1971, 1973; *Boletim da Associação Comercial de Benguela*, 1 (1, 7); *Boletim Mensal – Rep. Est. Angola*, 6 (XXI) [June 1965]

Fish: AHU, *SEMUCU*, Angola, Correspondência, cx. 20 (620-1L), doc. 120; *BOA*, nº 4 [1891]; nº 9 [1890]; nº 10 [1895]; *Boletim da Associação Comercial de Benguela*, 1 (1).

Cotton: AHU, *CU*, Angola, cx. 126 [129], doc. 9233; AHU, *SEMUCU*, Angola, Correspondência, cx. 22-A (622, 2-1L), doc. 590; cx. 34 (635, 2-1L), non-numbered doc.; cx. 36 (637, 1-1L), non-numbered doc.; *Anuário Estatístico* 1938, 1944-1947, 1955, 1971; *BOA*, nº 6 (22) [1875]; nº 9 [1890]; nº 10 [1895]; nº 25 [1885]; nº 29 (apenso) [1890]; *Boletim da Associação Comercial de Benguela*, 1 (1, 7), 3 (5); *Estatística das Alfândegas* 1912; *Estatística do Comércio e Navegação* 1903.

Palm oil: AHTC, *ER*, liv. 4918; *Anuário Estatístico* 1938, 1944-1947, 1955, 1965, 1971, 1973; *BOA*, nº 1 (102) [1847]; nº 4 [1891]; nº 9 [1890]; nº 10 [1895]; nº 10 [1903]; nº 25 [1885]; *Boletim da Associação Comercial de Benguela*, 1 (1, 7), 3 (5);

Firewood: AHU, *CU*, Angola, cx. 119 [121], doc. 8613; *Anuário Estatístico* 1934, 1938, 1944-1947, 1955, 1960, 1961; *Boletim da Associação Comercial de Benguela*, 1 (1, 7); *Boletim Trimestral de Estatística*, ano IV, nº 3.

Soap: AHU, *CU*, Angola, cx. 128 [131], doc. 9345; AHU, *SEMUCU*, Angola, Correspondência, cx. 22 (622, 1-1L), non-numbered doc.; cx. 34 (635, 2-1L), non-numbered doc.; cx. 36 (637, 1-1L), non-numbered doc.; ANTT, *Ministério do Reino*, mç. 605, doc. 20; *Anuário Estatístico* 1934, 1938, 1944-1947, 1955, 1960, 1961, 1965, 1971, 1973; *BOA*, nº 29 (apenso) [1890]; *Boletim Trimestral de Estatística*, ano IV, nº 3; *Estatística do Comércio e Navegação* 1903.

Candles: AHU, CU, Angola, cx. 126 [129], doc. 9233; *Anuário Estatístico* 1938, 1944-1947, 1955, 1971; BOA, nº 10 [1895]; *Estatística do Comércio e Navegação* 1903.

Criteria: most prices of food staples obtained are retail prices, namely for goods such as manioc flour, beans, meat (either chicken or pork), and palm oil. When available, utilities such as cotton, firewood, and soap were also collected accordingly. When retail prices lacked, evidence from import and export records were used as indicated in A9. Candles were inferred from the cost of wax. Given the relative few prices available of utilities as firewood, soap, and candles, within the 200-year period, we decided to estimate the average cost of this pack using the cost of benchmark years where evidence was fully available. For Luanda, the average cost of these utilities was 5.19% of the total of the basket. This average was calculated from the decadal benchmarks of 1880-1889, 1890-1899, 1900-1909, 1920-1929, 1930-1939, 1940-1949, 1950-1959, 1960-1969, and 1970-1975. For Benguela, the average cost of these utilities was 7.11% of the total of the basket. This average was calculated from the decadal benchmarks of 1800-1809, 1900-1909, 1930-1939, 1940-1949, 1950-1959, 1960-1969, and 1970-1975. Conversions from early modern and modern capacity measures to liter and/or kilogram were made having in account the state-of-art literature. These include the following conversions:

- 1 almude = 16.95 liter (Lisanti 1973).
- 1 alqueire (Lisbon, 18th century) = 13.1 liter.
- 1 arrátel = 459 grams (c.0.5 kilogram).
- 1 canada = 1.4 liter.
- 1 cazunguel = 12.5 kilograms.
- 1 exeque (*nseke*, c.1760) = 50 kilograms.
- 1 feixe (of wood) = 102.8 to 176.3 kilograms (Lisanti 1973).

All prices are in reais. We are aware of the depreciation of the currency in colonial contexts vis-à-vis its metropolitan counterpart (*reais* or *réis*), as highlighted by works such as Clarence-Smith (1985, pp. 226-227), Santos (1998, p. 72), and recently by Cândido (2022, pp. xiii-xiv). Given that such depreciation led to the existence of *réis fortes* (strong currency) and *réis fracos* (weak currency), we have opted whenever possible to collect the latter, as they are representative of the local reality. In turn, the fact that we are measuring nominal wages against consumption baskets minimizes the risk of possible distortions.

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Section A11 - Sources and prices obtained from import and export records

Criteria: if evidence was to be collected from an import or export price, the latter prevailed. The dataset to be published highlights all the prices that came from either import or export records.

Section A12 - Angolan subsistence basket, 1760-1975: methodology and criteria

The literature has already provided several insights about African patterns of everyday consumption. Miller (1988), based in works such Clark & Haswell (1970) and Curtin (1975), as well as in a set of primary sources, indicates that the mid-18th century adult male laborer received *c.*1.03 kg of carbohydrates in a daily basis. This ration around one kilo seemed to be routine in early colonial and colonial West Africa, with a higher portion in manioc flour/millet, while the remaining was provided in beans. Thus, we opted by using, respectively, 160 and 60 kg of the latter in an annual basis. Manioc (cassava) and maize were the staple grain in West coastal Africa (McCann 2005). Both were available at the public granary in Luanda since the earlier period of analysis. We opted for manioc given the above-mentioned daily laborer consumption rations. In order to assess whether maize could have been a more effective solution as the staple grain, we have assembled an alternative subsistence basket (see table 7). We find that for, both Luanda and Benguela, outcomes in terms of welfare ratios are mostly similar regardless the use of manioc or maize as the staple grain (see figures 3A and 3B). While there might be sporadic moments where it could

compensate to purchase maize instead of cassava, the general trend presents no significant difference and welfare ratios are reasonably similar.

Concerning meat, the yearly 10 kg - chicken to Benguela, and pork to Luanda -, seem consistent with the relative low consumption level by Angolans. Costs of meat at the city markets were prohibitive to indigenous populations (Parreira 1990, Venâncio 1996). An alternative path for the inclusion of protein would be to use fish instead of meat. The literature suggests that fish was part of the consumption habits of the inhabitants in coastal Angola, especially given the existence of a substantial fishing industry in the south (Clarence-Smith 1979). It could be purchased fresh or, alternatively, acquired dried or salted, given the preservation purposes. Dried fish could then be consumed with palm oil and some form of cereal or tuberculous, as potatoes (Nascimento 1892 apud Clarence-Smith 1979). A robustness test having fish instead of meat ensured slightly more favorable outcomes in what concerns the African unskilled real wages (see figures 3A and 3B). Yet, differences are of little or no significance. Palm oil was also used to prepare meals, especially by families of the lower strata. The remaining commodities are adapted from the Sub-Saharan subsistence basket adopted by Frankema & Van Waijenburg (2012). While we collected price evidence for soap, candles, and firewood, the absence of complete series impelled us to estimate a percentage from the years where retail prices are available. Thus, the three items are worth from 5.19 to 7.11% of the average whole basket, respectively, for Luanda and Benguela. On the top of that, housing expenses were added on the value of 5% of the total cost of the basket, as it is standard practice of the literature.

While the long run period here in analysis could have provoked changes in diet and household consumption, it is notorious the persistence of most of the components that are part of the basket throughout the 200-year period (Miller 1988; Dias 2011; Nunes 1961; Monteiro 1973). The literature has noted some changes in food staples for the last decades of our period (early 1960s and early 1970s), although they did not keep manioc or palm oil from being used by Africans. Within the slum neighborhoods (*musseques*) in Luanda around 1961, wheat bread, olive oil, and butter are used simultaneously with palm oil, even if these non-African foodstuffs were acquired only irregularly due to its higher cost (Monteiro 1973 apud Nunes 1961). Households with higher purchasing power within 1960s and 1970s slums would acquire such foodstuffs more regularly, depending on availability. Yet, it is safe to

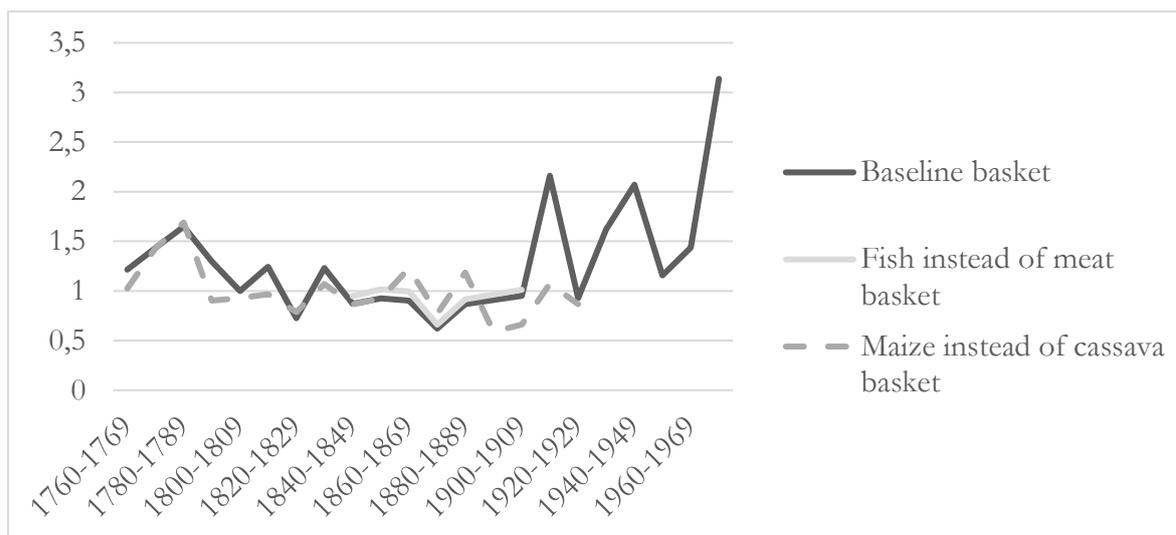
assume that, on an everyday basis, non-European foodstuffs would make ends meet for most of the population.

Table 7: Angolan subsistence baskets in perspective, 1760-1975

Commodities (person/year)	Angola (Baseline)	Angola (Fish instead of meat)	Angola (Maize instead of cassava)	British Africa	Calories (per kg)	Protein (per kg)
Cassava flour (kg)	160	160	-	-	3610	160
Meat (kg)	10	-	10	3	2500	200
Fish (kg)		10	-	-	1150	190
Beans (kg)	60	60	60	-	1455	71
Maize (kg)	-	-	160	185	3370	70
Sugar (kg)	-	-	-	2	3750	-
Palm oil/Ghee (kg)	3	3	3	3	8840	-
Soap (kg)	1.3	1.3	1.3	1.3	-	-
Linen/cotton (m)	3	3	3	3	-	-
Candles (kg)	1.3	1.3	1.3	1.3	-	-
Lamp oil (kg)	-	-	-	1.3	-	-
Firewood (M BTU)	2	2	2	2	-	-
Fuel (M BTU)	-	-	-	1.3	-	-
Total daily calories	1945	1940	1940	1939		
Total daily protein	86	87	50	43		

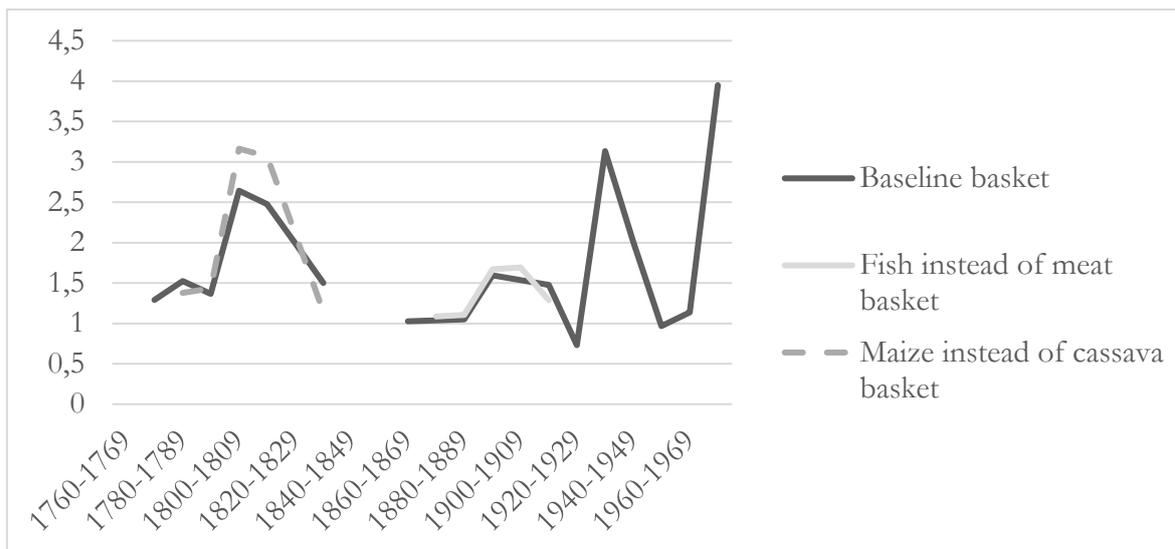
Sources: for Angola, see section A10 with adaptations inspired in the literature; for British Africa, see Frankema and Van Waijenburg 2012.

Figure 3A: Unskilled African Welfare Ratios in Luanda, 1760-1975



Sources: see sections A5 and A7-A9

Figure 3B: Unskilled African Welfare Ratios in Benguela, 1770-1975



Sources: see sections A5 and A7-A9

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Section A13 – Representativeness of public versus private salaries (premium jobs). Most of our evidence on wage payments comes from the public sector. This is consistent throughout the entire period of about 200 years of analysis. However, we have compared a small set of evidence about public jobs and their private counterparts to assess to what extent is our dataset representative of a larger universe of the total employment. The limited amount of evidence is justified by the fact that the occupations studied within this work rarely have a counterpart on the private sector.

Table 8: Daily wage premium of the public sector, Luanda, 1959-1961

Occupation (Gender)	Private wage	N	Public wage	N	Premium (in percentage)
Carpenter (M)	37884.62	8	38461.54	1	2
Servant (M)	21113.46	76	26923.08	118	28
Washerwoman (F)	10358.08	58	26923.08	18	159

Sources: Orçamento Geral da Província de Angola 1961; Nunes 1961. Wages paid in the private sector date from 1959-1960, while their public sector counterparts are from 1961. Wages are in converted to reais (sing. real).

Table 7 compares the wages of the public and private sector, paid to the same occupation. Our benchmark occupation for skilled male labor, the carpenter, observes practically no change between the daily wages paid in both public and private, resulting in an insignificant ‘public’ premium of 2%. Unskilled male labor, using servant as an occupation, presents a more significant ‘public’ wage premium of 28%. Despite these estimates do solely refer to the later period of vigence of the Angolan legal coercive framework, and thus it cannot be representative of the whole period of analysis, an important point must be made. The vast majority of the population engaged in unskilled labor would make less money working for the private sector. While this evidence means that unskilled wages paid on the public sector are not representative of a wider population, it bears to say that the lower wages from the private sector confirm our previous assumptions about Angolan real wages and living standards: its general low performance throughout the period where the coercive legal framework was imposed when compared with other case studies both in the West African coast and elsewhere around the globe.

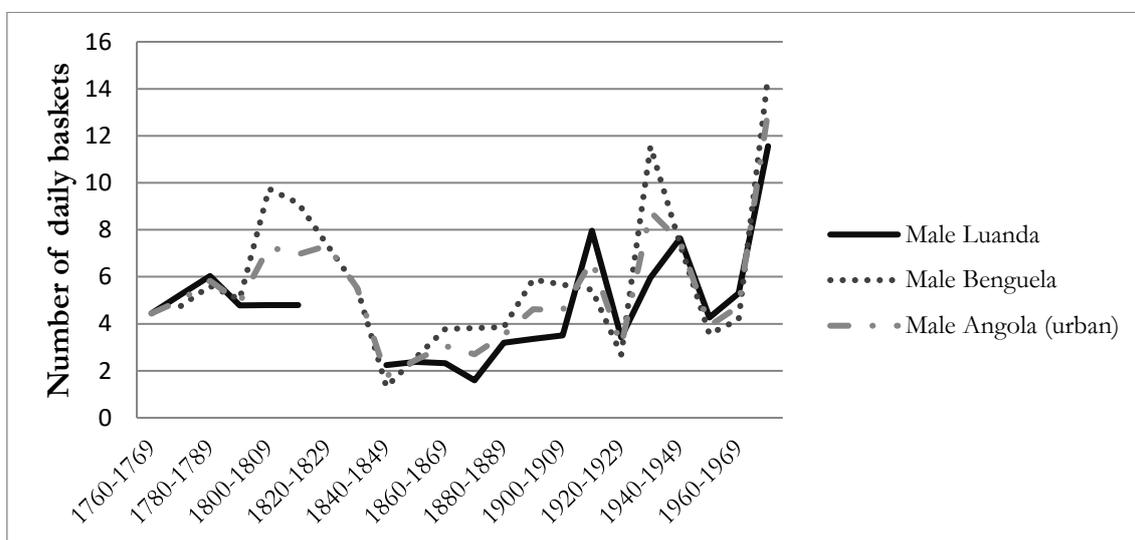
Lastly, unskilled female labor observes a high ‘public’ premium of 159% using the occupation of washerwomen as benchmark. While again these are only relative to c.1960, where coercion

was still imposed, a comparison with the premium of ten years later – of 322% around 1970/71 – suggests that female unskilled wages in the private sector were close to stagnation (Monteiro 1973; Orçamento 1971). Even knowing beforehand that women’s work during the benchmark of early 1970s only represented 8.6% of the household income, such tendency also corroborates the main argument of the article.

Section A14 - Sources for Figure 3: Number of subsistence baskets an Angolan unskilled daily wage can buy, 1760-1975

For the sources concerning Angolan male unskilled daily subsistence ratios, see Graph 3 below. For the sources concerning Luandan women unskilled daily subsistence ratios, see sections A4 (table 1) and A8. For the sources concerning Luandan coerced male unskilled daily subsistence ratios, see sections A4 (table 1) and A8.

Figure 3. Number of subsistence baskets an Angolan male unskilled daily wage can buy (Luanda, Angola, and average), 1760-1975



Sources: see sections A4 (tables 1-2) and A8.

Section A15 - Sources for Figure 4: Number of subsistence baskets and unskilled wage can buy in Angola and Java, 1860-1969

For Angola, see sections A4 (table 1) and A8. For Java, see De Zwart and Van Zanden 2015, with respective supplementary materials.

Section A16 - Sources for Figure 5: Unskilled Angolan urban welfare ratios in perspective, 1760-1975

For Angola, see sections A4 (tables 1-2) and A8.

Section A17 - Sources for Figure 6: Unskilled welfare ratios in Luanda, 1760-1975

For Luanda, see sections A4 (table 1) and A8.

Section A18 - Sources for the Figure 7: Unskilled welfare ratios in Benguela, 1760-1975

For Benguela, see sections A4 (table 2) and A8.

Section A19- Sources for Figure 8: skilled Angolan welfare ratios in perspective, 1760-1975

For Angola, see sections A4 (tables 1-2) and A8.

Section A20 - Sources for Figure 9: Angolan urban skill premium in West African perspective, 1770-1975

For Angola, see section A4 (tables 1-2).

Section A21 - Sources for Figure 10: Skilled welfare ratios in Luanda, 1760-1975

For Luanda, see sections A4 (table 1) and A8.

Section A22 - Sources for Figure 11: Skilled welfare ratios in Benguela, 1760-1960

For Benguela, see sections A4 (table 2) and A8.