Social Structures, Standards of Living, and Income Distribution in Colonial Bechuanaland Protectorate

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INTRODUCTION

Counting people by occupations or social classes and computing incomes as well as surplus within classes in pre-industrial societies is an underexploited frontier in research on colonial sub-Saharan Africa. The ambition of this paper is to use this method to find a way of analysing social structures and inequality in Bechuanaland Protectorate. Contemporary Botswana is generally hailed as an African growth miracle and primary explanations offered to the last half century of economic progress are good pre-colonial institutions prevailing during an era of limited colonial influence (Acemoglu et al. 2003, 2010, 2012; Masire 2006). Contrary to these arguments, we aim at highlighting standards of living and the distribution of income during the colonial period. We do so by estimating real wages between 1900 and 1960 for the wage earning share of the population, and by constructing social tables for the 1940s, a decade in the heyday of colonial involvement, using various colonial records. The use of social tables allows us to include a large part of the traditional sector into the discussion of standards of living and enables us to hypothesise about non-wage income and wealth. Concretely, we identify social classes based on occupation; we compute the average costs for subsistence consumption; and we estimate mean income, living and tax expenses and share of population per class. This results in an overview of the average (after tax) standards of living for the wage earning part of the population during the colonial period, and insights into the distribution of income and wealth between various groups in society. The result is a unique approach to analysing Botswana's colonial history.

BECHUANALAND PROTECTORATE'S SOCIO-ECONOMIC STRUCTURES

The British established the Bechuanaland Protectorate in 1885. Significant parts of the territory were held as Crown Lands administrated by the colonial government and there were also smaller areas under company rule. Most of the Crown Land was, however, not suitable for farming and only three per cent of arable land was under European control (Colcough and McCarthy 1980). European migration was modest and the settler community never made up more than one per cent of the total population (Lewis 2006:7). Meanwhile, the different Tswana groups primarily inhabited Native Reserves in the Eastern corridor of the Protectorate (see Map1).

Map 1: Colonial Bechuanaland Protectorate: Crown Lands and Native Reserves.
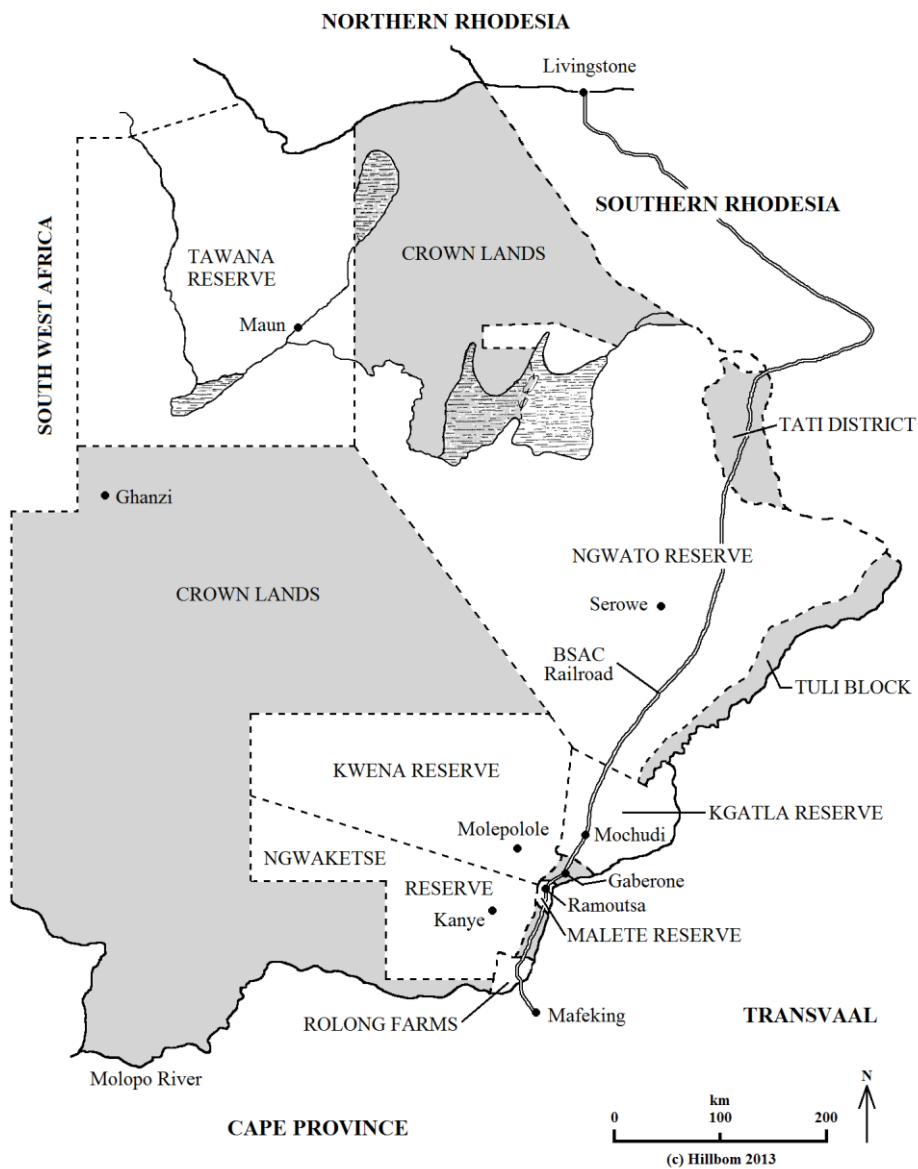
The Tswana were agro-pastoralists, i.e. their agricultural system was based on a combination of crop farming and cattle rearing. While land was abundant, access to water resources was the primary restricting factor for all agricultural activities (Emongor 2006; Thirtle et al. 2003). Both resources were as an overriding principle communal property held by the *morafe[1]* and kept in trust by the *kgosi[2]*. By combining private user rights and communally owned resources with input of privately controlled family labour, the head of household could gain private ownership over structures, such as houses or water points, as well as over agricultural production, including animals (Mgadla 1998; Schapera 1994). Cattle were either held in common by the *morafe* and managed by the *kgosi,* or as private property. Whoever controlled cattle could use them to build patron-client relationships through *mafisa*, a system of lending out animals to cattle-less subjects and relatives on a long-term basis. The recipient gained access to milk and drought power, as well as ownership of potential future off-spring, while the lender could claim both labour and political loyalty in return (Guldbransen 1996: 214-217; Schapera 1994). An individual's ability to control or own cattle became the basis for both economic wealth and social status.

The Tswana established a fairly unique settlement pattern. The population was divided between smaller and larger villages, each one surrounded by arable fields and further away laid the grazing range. Male household heads were granted private user rights to specific land sites, such as the residential plot in the village for their main hut, farm land in the arable fields and a cattle post on the grazing range. Depending on season and productive activities household members moved between the three residents (Mgadla 1998; Schapera 1994; Silitshena and McLeod 1998). The settlement pattern provided pre-conditions for setting up centralised state structures despite the general low population density.

Expansion of the mining sector in Southern Africa from the 1860s onwards attracted Tswana labour, especially as there were few other opportunities for wage labour and salaries could be generous (Parsons 1993). At first migration was modest and mostly motivated by the gun trade, but after the introduction of colonial taxes in 1899 it increased significantly and even more so in the 1930s. Migration took on such magnitude that labour became a scarce factor of production in the Protectorate to the point that it affected agricultural production negatively (Parsons 1993; Ramsey et al. 1996; Schapera 1994).Still, it did not necessarily 'underdevelop' the rural areas as migrants' earnings were invested in the agricultural sector, including in cattle

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[1] Morafe, Setswana word for tribe in singular, merafe in plural.
[2] Kgosi, Setswana word for chief or king in singular, dikgosi in plural.

husbandry (Morapedi 1999). Although mining was the sector attracting most labour, individuals also took up employment as e.g. farm hands and domestic help.

From the 1930s and onwards there was a new-found interest from the colonial government to develop natural resources into revenue earning exports (Colough and McCarthy 1980; Parsons and Crowder 1988). Initiatives were taken, both by the colonial administration and tribal authorities, to develop the cattle sector. To open up new parts of the grazing range permanent water sources were needed and special focus was put on constructing deep-drilling boreholes. For the first time the Tswana could acquire incomes from providing agricultural products for an expanding export sector. These new opportunities were dominated by the large-scale cattle holding elite and provided a basis for increasing inequalities in incomes as well as wealth (Hillbom 2010). By the time of independence in 1966 beef represented 85 per cent of total export earnings (Colcough and McCarthy 1980: 32; Harvey and Lewis 1990: 78-82).

SOCIAL TABLES IN ECONOMIC HISTORY

The idea of constructing social tables can be traced back to the work of William Petty and Gregory King in the late seventeenth century. Petty's theories on economics and his *political arithmetic* method was a first attempt at describing social order and prove claims relying on statistical data rather than qualitative evidence such as narratives and anecdotal evidence. With the aim of reaching a rudimentary estimation of national accounts Petty computed incomes from land, estates and labour, and equated it to expenditures for England and Wales in 1664 (Aspromourgos 1988). King continued in his footsteps, developing the method of describing incomes and expenditures at the household as well as the national levels in statistical terms. However, he took the ideas further by incorporating demographic statistics and information about occupation. By computing numbers and size of households as well as incomes, expenses and surplus for 26 occupations (or social classes) he created the first social tables for England in 1688. His ultimate aim was to find out the contribution made by each social class to the joint wealth of society (Stone 1984).

These early methodologies have been embraced and further elaborated in the field of economic history. Social tables have been used as a way to estimate both national accounts 'from below' and inequality. By reviving and revising King's social tables from 1688, and combining them with Joseph Massie's for 1759 as well as Colquhoun for 1801-1803 and 1812, Peter Lindert and Jeffrey Williamson (1982) presented elaborate social tables for England and Wales. Their claim was that the exercise offered new perspectives on the two region's growth

as well as distribution of their national product for a period covering both the pre-industrial and the industrializing society, 1688-1812. Recently, Lindert and Williamson (2012) have also constructed social tables for British North America in late eighteenth century. In this study they discuss the American growth experience by building up estimates from the income side instead of the output side.

Together with Branko Milanovic, Lindert and Williamson (2010) have also relied on social tables when computing the so called *inequality possibility frontier* in twenty-eight pre-industrial societies. Their ambition was to find a new way of measuring inequality and extraction, thereby offering an alternative to the common Gini. Such an exercise, they argued, improves our knowledge about levels of inequality and elite extraction in historical as well as contemporary pre-industrial societies. Their work partly rests on previous efforts to construct average incomes for different social classes in ancient societies, such as Rome and Byzantium. The main purpose for these exercises has been to establish estimates of the size of the economies and constructing GDPs as well as developing models for income distribution and inequality between classes (Milanovic 2006; Scheidel and Friesen 2009).

The literature further includes a few studies of present day developing countries in a historical perspective. Using constructed GDP and PPPs, van Zanden (2003) has discussed differences in economic structures and distribution of incomes comparing real wages and distribution of wealth in Java and the Netherlands in the 19th century. For the same century, Berry (1990) uses social tables to show how incomes from exports of primary products in Peru increased incomes for the established elite. He argues that as the government was indifferent to developing the agricultural and manufacturing sectors, there was an increased unequal division of incomes between classes.

The primary reason that has held back similar research for colonial sub-Saharan Africa is the lack of reliable data. Still, if we can be creative enough to deal with these challenges such research could answer questions about levels of inequality. The study potentially most similar to our own is that of Arne Bigsten (1987) computing income distribution and growth in Kenya 1914-1976. Focusing on analysing the dual economy he had to rely on weak data, especially for the early period, and he described his work as constructing crude guesses that at best could give indications of magnitudes. Bigsten constructed a social table made up of six basic income categories: traditional smallholders, self-employed, private modern agriculture, other private employment and public employees. These categories were then further divided according to ethnic belonging: African, Asian and European (Bigsten 1987 Table VI.1). The main intention was to measure increasing differences in incomes between categories over time.

For our own study we are primarily inspired by Petty and Bigsten. Just like Petty in England and Ireland in the late seventeenth century we are struggling with obtaining correct census data for colonial Bechuanaland Protectorate and consequently we will have to rely on various estimations. In order to make these estimations dependable we have to triangulate them with qualitative data, secondary material and theoretical arguments. Meanwhile, Bigsten shows that it is possible to construct social tables for colonial sub-Saharan Africa, especially for the modern formal urban sector. The challenge that remains and that we hope to make some progress with, is to also be able to diversify within the traditional informal rural sector. Because Bechuanaland is a cattle economy it is in this respect a suitable case study as it is easier to estimate wealth and incomes from animals compared to crops.

IDENTIFYING SOCIAL CLASSES

All economic historians working on colonial history know that we need to be innovative and modify earlier models developed for the European context if we are to offer analyses based on quantitative data. Colonial Bechuanaland is no exception to this rule. It will prove to be a challenge and the study will require flexibility if we are to be able to construct social tables. The Tswana themselves would divide the population into three distinct classes: 'nobles' who are the descendants of former chiefs; 'commoners' descendants of groups incorporated into Tswana society a long time ago; and 'immigrants' newly admitted groups (Schapera and Comaroff 1991: 30). This division is, however, unsatisfactory for us as it is not related to income or wealth and it only depicts the traditional, Tswana dominated rural society.

We start out traditionally with ranking the economically and socially most prominent groups and then move our way down the socio-economic hierarchy to those segments of society living at the subsistence level. Due to the limitations of our material the number of social classes will be significantly lower than what has been common in previous studies on pre-industrial, but not ancient, Europe. For example, Lindert and Williamson (1982) study of England and Wales 1688-1812 contains nineteen categories. Instead we will provide seven categories, which is in line with studies of pre-industrial developing countries where van Zanden (2003) has five for Java in early 19th century, Berry (1990) has 9-12 for Peru 1870, and Bigsten (1987) five for Kenya 1914-1976.

The reason for our limitation in the number of social classes is twofold. First, groups that are the easiest to identify are also the smallest ones and sub-dividing them would make them disappear in the analysis, e.g. the European high-ranking officials. Second, for the larger mass

of rural dwellers we do not have enough information to divide them into numerous classes. While crop farming provides the Tswana with their basic staple foods, it is animal husbandry and especially the owning of cattle that is the core of the agricultural sector and the most prominent for individuals to amass wealth. However, due to the system of *mafisa* individual holdings are very difficult to estimate. There is a lack of comprehensive, continuous data following changes in distribution of cattle over time. Instead we have to rely on investigations in single years and general estimates. Still, we are making a crude effort to divide the traditional sector, something that is missing from Bigsten's (1987) estimates for Kenya.

We assume that the strength of social networks among the Tswana will prevent individuals from falling below subsistence levels. Contemporary reports show that all household were involved in an intricate system of offering and receiving reciprocal gifts and tributes to relatives, clients, visitors and chiefs primarily in the form of food, but also clothes and occasionally cash (Schapera and Comaroff 1991:20). Remittances from migrant labour also played the role as one of the most important incomes for paying taxes as well as keeping people at subsistence level (Morapedi 1999). Due to lack of information about female wages we do not break down the groups according to sex. In regard to ethnicity there are groups, e.g. government officials, were wage differences between Africans and Europeans are so great that it warrants a division. We are, however, not focusing on an ethnic divide, it is a result and not a point of departure, and it will not always appear. Some social classes turn out to be dominated by one ethnic group, e.g. small- and medium size cattle holders, while others such as the cattleless represent a mix of ethnic groups.

Once the groups have been identified our next challenge is how to clearly separate them from one another and rank them according to income. Milanovic et al. (2010) state that social tables are especially useful for analysing societies where class structures are easily identified and differences in income are significant. Unfortunately, this is not the case in colonial Bechuanaland. First, income spans overlap and we cannot assume that all individuals within a higher social class are wealthier than the ones in a lower social class. Further, individuals move on a long-term as well as a temporary basis in and out of social groups and economic activities. To truly capture the dynamics of a society we should look at changes over time, but such a study will require even more flexibility when defining the income groups. Taking all of these complexities into account we make an attempt at estimating average incomes as well as shares of the population for each of the social classes. When investigating societies with clear cut class structures focus tend to be on analysing inequalities *between* classes. Due to the broadness and inexactness of our social tables we include into the discussion what we know about inequalities

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both *between* classes and *within* classes. The social classes that we have identified for colonial Bechuanaland are:

Large cattle holders and landed elite: In pre-industrial societies the elite derives its wealth from amassment of agricultural resources. In colonial Bechuanaland this group is primarily made up of the tribal elites receding on communal land in the Native Reserves. Schapera and Comaroff (1991: 17) quotes both a survey made of six tribal areas in 1943 based on 4,047 families and a subsequent investigation into the Barolong Farms. This showed that 5 per cent of rural households had over 100 head of cattle on average per owner. This group of what we have defined as large scale cattle holders consisted of chiefs and a few others and individuals could hold as many as 5,000 cattle each and even more. There is also a limited number, 173 farmers in 1946 (Census 1946), of Europeans with privately owned farms either on Crown Lands or on land falling under company rule. The majority of these also belong to the group of large-scale cattle holders, but in some areas under company rule a small number specialized in commercial crop production. Before the development of the cattle/beef export sector in the 1930s large-scale Tswana cattle holders primarily sold animals to cover expenses such as paying for taxes, schooling etc. Meanwhile, the European farmers were *de facto* rather part of the South African economy. With the growing export sector they were all given new opportunities for acquiring cash incomes by selling off their cattle. The commercial large-scale farms over time became highly profitable enterprises (Guldbransen 1996: 79).

European government administrators and officials: This group consists of higher ranking Europeans in the public sector who either stayed permanently or for a limited time period. In 1905, there were 15 officials employed by the colonial government, ranging from the Resident Commissioner to clerks. There were also 51 European police officers employed. The number of officials (excluding the police force) employed increased with more ambitious colonial strategies, e.g. tax collection and export sector development, to 30 in 1906, to 42 in 1915, to over 80 in 1930, to 120 in 1936, to 224 in 1947 (various Blue Books and Annual Yearbooks).

Tswana government administrators and officials: The lower ranking Tswana officials are also part of the public sector, but they have been separated from the Europeans due to significant differences in incomes. This group is likely to be well connected to the rural areas and the agricultural sector via extended family including being part of social networks of reciprocity and receiving some incomes in kind from agriculture, also when they primarily reside in urban

settlements. In 1946, 1050 Africans were working for the government service, of which 153 for the police. The number of people working for the government increased to 2500 in 1958 (various Blue Books and annual yearbooks).

Traders and shop keepers: This group represents the formal private sector and makes up the closest thing we have of an entrepreneurial class, although their success is varied. It includes very few representatives of the Tswana community, instead it is dominated by Europeans and Asians. Traders ran trading-stores providing imported household goods and there is also a growing number of commercial butchers, bakers and eating-houses in the larger villages in the 1940-50s. Traders also control the export of ostrich feathers, ivory, skins, agricultural products and, most importantly, cattle (Schapera and Comaroff 1991: 23). In 1932, only 15 individuals were recorded to work in trade, increasing to up to around 200 in 1946. In manufacturing and trade combined, 550 people were active in 1946 while the number of traders increased to 2,000 in 1958 (various Blue Books and Annual Yearbooks).

Labourers: Wage labour was considered a good complement to agricultural activities since before colonialism. After the introduction of colonial taxes in 1899 migrant labour was further boosted by the need to find work outside of agriculture in order to gain cash incomes. Especially from the 1930s and onwards diversifying incomes by sending a household member to get employment became a popular household strategy. Very few wage labourers constituted an actual proletariat in the sense of lacking control over any means of production. Rather, the majority retained access to agricultural resources for crop farming and cattle rearing, and they moved temporarily between their home village and the place of employment. Labourers were primarily recruited from rural households with few or no cattle in the rural areas and many used their savings to buy cattle as they returned home (Morapedi 1999). Figures are inconsistent when it comes to defining the size of this group, probably because it is shifting. Data from 1943 show that 28 per cent of all adult men may be working away from home at the same time. The bulk part, 89 per cent, was going to the Union of South Africa, 60 per cent of who were going for work in the mines[3]. The Tswana groups living closest to the South African mining fields were the ones most prone to move. The group also consists of, construction workers, farm

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[3] The numbers given by the Blue Books and the census of 1946 differ a bit from the numbers given by Schapera and Comaroff (1991), especially with respect to the people going to South Africa to work in the mines. We use the Census of 1946 combined with information from the colonial Blue Books to determine the size of each wage earning group, as that is the original material we have.

hands, a few as domestic help, etc. in Bechuanaland itself as well as being temporary migrants to neighbouring South Africa (Schapera and Comaroff 1991: 24). The census in 1946 gives around 28,000 people to be wage earners. This is excluding the approximately 10,000 people registered as being employed in the mines in South Africa. We have consistent wage information for only a limited group: building, agriculture, domestic services and from 1946 onwards also mining.

Medium-scale cattle holding: Members of this group are rural Tswana holding cattle to a lesser degree than the landed elite, 10-100 head. Based on the survey in 1943 and the investigation into the Barolong Farms, this group represent some 30-35 per cent of rural households (Schapera and Comaroff 1991:17). The middle-scale cattle holders are actively using their cattle wealth to generate income as they sell off animals to pay for taxes.

Small-scale cattle holding: The 1943 survey together with the subsequent survey of the Barolong farms showed that 18-18.5 per cent of rural families held less than ten head of cattle each. This number is an important distinction as this is accepted as a minimum size of any herd to yield an annually disposable income (Schapera and Comaroff 1991:17). In terms of wealth that can potentially be turned into income this group is then distinct, but since they generally do not sell cattle, they can also be considered as living on subsistence levels. Still, they do acquire incomes in kind from their animals in the form of milk which is an important nutritional addition (Gulbrandsen 1996: 201).

Cattleless: This group is made up of Tswana rural households and contains 5-10% of the population. The survey from 1943 show that 7.4 per cent of Tswana families held no cattle, while at the Barolong Farms 11 per cent of men held no cattle (Schapera 1991 :17) although they could hold other animals such as goats and sheep. These individuals are the poorest members of society, living on subsistence level, relying primarily on incomes from rain fed crop farming. Differently from the small-scale cattle holders they neither controlled wealth nor received incomes in kind from cattle. With the emphasis in Tswana society on patron/client relationships, extended families and *mafisa* they are kept from falling under subsistence levels as they can rely on some assistance from relatives and other, better off, members of society.

An important sub-section within this income group is bonded labour. Numerous individuals, although it is impossible to say exactly how many, of the indigenous people, the Kgalagadi and Sarwa, inhabiting the area before the arrival of the Tswana, were kept in slave

like labour control systems. It was most common in the Western tribes where chiefs held individuals as serfs, or *malate*. These people were not free to move away, but their 'master' could lend them out to work for someone else. *Malata* could be used for crop farming as well as hunting and herding livestock. Although this type of compulsory servitude was *de jure* abolished by the colonial administration, it *de facto* remained (Schapera and Comaroff 1991: 22, 31). *Malata* generally worked for only food and housing and they did not control any resources, i.e. they live at but not below subsistence and had no wealth.

SUBSISTENCE CONSUMPTION BASKET

To be able to say something about how much income was earned per social class, and how much of that was left for non-subsistence spending, we need to first of all know how much the basic necessities in life cost in colonial Bechuanaland Protectorate. To measure living expenses we closely follow Allen (2009) and Frankema and van Waijenburg (2012) in calculating a basket of goods one minimally needed to consume to live at subsistence level.

The basket includes food, fuel for cooking and heating, candles for lightning, cotton or linen and soap. Allen (2009) constructs two such baskets. A 'Respectability Basket', inspired by a budget reported for 'respectable labour' in Britain and the Low Countries. This basket includes more nutritional intake (2500 calories and 112 grams of protein per day), and higher expenditure on lightning and fuel than the cheaper Bare Bones basket. The Bare Bones basket is considered the absolute minimum someone needs to consume to stay alive. It offers a little over 1900 calories and 44 grams of protein per person per day and includes minimal amounts of fuel, lightning, soap and cotton/linen.

To calculate the cost of the Bare Bones basket we have collected retail prices for the 'chief staple articles of use or consumption' from the colonial Blue Books and the Annual Reports for Bechuanaland Protectorate between early 1900 and 1960. We include in our basket the cheapest food products which still offer the minimum required level of calories and protein. Although we know from Schapera and Comaroff (1991: 15, 19) that the actual staple crop most grown and consumed was Kafir-corn (sorghum), the cheapest cereal one could buy on the market was often maize. In order to calculate the minimum costs one would have to incur to stay alive if not growing any food themselves, we include maize whenever that is cheaper than sorghum even though there is evidence that it wasn't the most consumed cereal. The cheapest meat was often beef, incidentally substituted for pork or mutton if that was sold for a lower price. Sugar

and butter complete the list of food items. For fuel we include kerosene, for lightning some candles and finally some soap and cotton are included.

Important items of the daily diet for large areas in Sub-Saharan Africa were beans and peas. These are cheap sources of protein, and in combination with high caloric cereal important components for a balanced diet. Including peas and beans in the basket increases the protein intake which means the amount of other products in the basket can be reduced and still arrive at the minimum required level of calories and protein. However, Schapera and Comaroff (1991: 15) write that beans and peas, while cultivated in Bechuanaland Protectorate, never in great quantities. Nevertheless we have experimented with including peas and beans in the subsistence basket.

Prices for beans and peas are scarce. We were able to obtain only wholesale export prices for these items from 1946 onwards. Getting proxies for retail prices for the whole period involved two steps. First we had to increase the wholesale prices to account for transportation costs and additional taxes, and we had to find a way to extrapolate the prices back from 1946 to 1900. The mark-up we adopted to transform the wholesale prices to retail prices is 20 per cent following Frankema and van Waijenburg (2012). To extrapolate the prices for peas and beans back to 1900 we have used the average development of prices of the other food items over this period. When comparing the basket including peas and beans to a basket without peas and beans, and compensating the latter with higher quantity of staple crop (following again Frankema and van Waijenburg), we find that the price of the consumption basket including peas and beans is on average 4.5% lower than the basket without peas and beans. This confirms the general cheapness of the beans and peas as a source of protein. However, since this basket depends to a large extend on extrapolated prices, and we do not have compelling evidence that they were consumed in large quantities in the Bechuanaland Protectorate, we have opted to work with the basket without peas and beans, hence with compensating a higher staple crop consumption.

Table 1: Subsistence Consumption Basket

	Basket including Peas			Basket excluding Peas		
	Quantities per person per year	Nutritients/day Calories	Protein	Quantities per person per year	Nutritients/day Calories	Protein
Maize	162.2	1600	36	182.5	1800	40
Beans/Peas	20	199	11			
Meat	3	21	2	3	21	2
Butter	3	60	0.1	3	60	
Sugar	2	21	0	2	21	
Soap	1.3			1.3		
Cotton	3			3		
Candles	1.3			1.3		
Kerosene	1.3			1.3		
Total		**1901**	**49.1**		**1902**	**42**

The basket provides daily nutrition for a single adult male. To analyse subsistence expenditure for a family, one needs to take into account the family size. Allen (2009) and Frankema and van Waijenburg (2012) multiply the basket by three to account for a man, a wife and some (three) children. To assert the usefulness of three children per family to calculate the family consumption basket is very difficult for colonial Africa. Population censuses, if they were held, are not always reliable and often very limited and did not contain information on family size. The most extensive population census during the colonial times, held in 1946, gives information on number of children born that stay alive per married female. This indicates that the majority of families have between 2 and 4 children. Moreover, Schapera and Comaroff (1991: 33) note that families consisted of usually 5 to 7 individuals. Therefore, we will multiply the basket by three to account for a man, a wife and three children.

Allen (2001; 2009) and Frankema and van Waijenburg (2012) increase the total expenditure for the Bare Bones basket with 5 per cent to include rental payments. Since various Blue Books explicitly state that it was nearly impossible to rent a house, and that this practice was uncommon for Africans, we exclude rental payments in the subsistence basket.

The two commodities we have no price information for are candles and cotton. For candles we follow Frankema and van Waijenburg (2012) and add 2.5per cent to the total budget. For cotton we've raised our total expenditure by the share of the budget spend on cotton given by Allen (2009: 37).

The 1900 calories per day for a male performing hard labour we include in the subsistence basket is very low (Allen 2009). However, Schapera and Comaroff (1991: 19) wrote that during the 1950s, malnutrition was common among the people of Bechuanaland Protectorate. Many people lacked green vegetables or milk, and their food consisted almost entirely of Kafir-corn porridge. Meat was also scarce owing to the diminution of game; and although it could be bought from butchers in most of the big villages, it was so rarely eaten by some that they considered it a luxury. Moreover, if we compare the nutritional intake from the basket to a prison diet, we find that prisoners (both African and European) doing hard labour received (much) less than the 1900 calories we include in the basket[4]. This is in contrast to what Frankema and van Waijenburg (2012: 908) find, as they argue that diets in hospitals and prisons usually offered somewhat higher nutritional intake.

Table 2: Prison Diet for 1920 Compared to the Bare Bones Basket

| | Prison Diet | | | | | | Bare Bones Basket | | |
| | Native Hard Labour | | | European Hard Labour | | | | | |
	Quantity per day kg	calories per day	protein per day	Quantity per day kg	calories per day	protein per day	Quantity per day kg	calories per day	protein per day
Maize	0.13	467	10	0.03	117	3	0.5	1800	40
Bread				0.45	1112	45			
Rice				0.01	29	1			
Meat	0.13	325	26	0.06	233	13	0.01	21	2
Salt	0.004	0	0	0.004	0	0			
Fat[a]	0.14	30	0				0.01	60	0.1
Sugar	0.01	30	0	0.01	30	0	0.01	21	0
Total		**852**	**36**		**1522.28**	**61.55**		**1902**	**42**

[a] assuming nutritional value of butter

REAL INCOMES PER SOCIAL CLASS

For most of the colonial period, there is no estimate of total income, let alone the distribution of income, for Bechuanaland Protectorate. In order to ascertain the standards of living of the various groups of the population we therefore use wage information, the size of social groups, the cost of living and the level of taxation. Knowing the level of wage income after tax, and how much this wage can buy allows us to say something about the standards of living. However,

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[4] Native labour only receives 850 calories a day. As this is not enough to survive they probably received extra from relatives outside the prison, but we were unable to obtain information on this.

given that the wage earning population of the Bechuanaland Protectorate was fairly small during most of the colonial period, the question is how well their standard of living compares to the wellbeing of the rest of society during that period. We therefore take a next step by constructing social tables. This allows us to include non-wage income and wealth, and to determine the *distribution* of income and wealth between various groups. Because the Bechuanaland Protectorate economy was mainly a cattle economy, an individual's ability to control or own cattle became the basis for both economic wealth and social status. By counting the cattle, knowing the distribution of cattle over the population, and by using the price information of cattle from the Blue Books, we are actually able to include (part of) the traditional sector, the cattle holders, into our social tables and say something about wealth distribution between the various social classes. We aim to eventually construct social tables for various benchmark years during the colonial period 1900 to 1960. However, this paper will start with a social table for 1946.

To estimate the standard of living for the wage earning share of the population, we have calculated how much the nominal wage earned by various categories of people employed could buy in terms of subsistence consumption (real wages). From colonial Blue Books and Annual Reports we have collected wages between 1900 and 1960 for Africans working in agriculture (as farm hands), construction workers, domestic help and those working in trade and manufacturing as well as for Europeans who were mainly employed by the colonial government.

For Africans mainly daily wages were recorded. From this we have calculated yearly wages assuming 6 working days a week and 312 working days a year following Frankema and van Waijenburg (2012). This assumption is confirmed by the fact that Annual Reports generally state that the average working week is 45 hours, but that these hours tend to vary especially for people working in agriculture and domestic services. However, for years that we have both annual and daily wages, the annual wage usually implies more than 312 working days. The 312 days thus might be a lower bound estimate.

For European government officials, only yearly wages were given. Income varies, with the District Commissioner earning for example 1,000 pounds per annum in 1920, and a matron (a woman in charge of the domestic affairs of a prison or a hospital) earning 20 pounds per annum. To obtain the average wage rate for European government officials, we have calculated a population weighted average.

Next we deduct from the wages earned by natives the yearly hut tax, and from the European wages the poll taxes. As we are aiming at determining income distribution and surplus

allocation, it is insightful if we are able to determine after tax income (Milanovic et al. 2007). The hut tax in Bechuanaland Protectorate was introduced in 1899, and the nominal level was relatively stable after a sharp increase from 10 shilling per hut per year for the initial years of colonization to 20 shilling in 1909. For most of the years after 1910 the level of taxations was around 25 to 28 shilling. Only for the years 1933-1936 the tax was reduced to 15 shilling because according to the colonial government, the capacity of natives to pay tax was reduced due to the embargo on exports of animals due to the foot and mouth disease.

The poll tax for Europeans was 2 pounds per year, payable by every male who was 21 years of age or older, and did not pay hut tax. The rate was increase in the early 1940s to 3 pounds per annum. As we are averaging all government wages recorded into one, we implicitly also deduct the poll tax from the wages paid to European women working for the government.

To ascertain the standards of living, we want to know how much income relative to the cost of living at the subsistence was left after paying hut and poll taxes. This gives an indication of how well off people of different groups were. Therefore we divide the yearly nominal wage minus taxes by the cost of three times the subsistence basket. If this ratio is one, this means that people live exactly at subsistence.

Table 3: After tax wage income relative to the cost of living for Africans

	Building	Agriculture	Domestic Services	Trade Manufacturing	Mining	Government Services
1900s		0.97	1.70			
1910s		0.88	1.78			
1920s		1.58	1.86	3.05		
1930s		1.24	2.19	4.64	2.03	
1940s	3.26	1.79	1.91	3.54	3.72	9.60
1950s	3.74	1.67	1.49	3.74		18.49

Ratios below one indicate that the wage earned was not enough to pay for taxes *and* for three subsistence baskets. During the first decades of colonial rule, this was the case for people working as labourers in agriculture (see table 3). However, we haven't made adjustment for the in kind payments in terms of food that especially the people in agriculture (and to a lesser extend

people in domestic services) received, so these ratios are probably a lower bound estimate. Moreover, the ratio below one doesn't mean that people working in agriculture were all starving, but it suggests that these people needed other means of income next to the wage income in order to survive. These low living standards are in line with of Schapera and Comaroff (1991: 19-20) who find malnutrition common amongst people who were not living at their own fields or cattle posts.

The ratio for labourers in the building sector is relatively high in the 1940s at least partly due to the inclusion of both skilled and unskilled wages during these years[5]. The wages recorded in the Blue Books for the trade and manufacturing sector are extremely high between 1900 and 1920 in comparison to the other sectors. Only a few people worked in trade during the early colonial years. Comparing the welfare ratios of people in building, agriculture and domestic services to the welfare ratios presented by Frankema and van Waijenburg (2012) is of course difficult as we deduct taxes paid from the wages, and our subsistence level in terms of daily nutritional value is lower. Moreover, we do not only include wages for unskilled labour, as our sources do not provide such a distinction, and we do not include in kind payments. Still, despite these differences, our results suggest that on average the real wages for the people in Bechuanaland protectorate seem to be on par or a little higher than in East Africa.

For the richer groups, such as people working in trade or for the government, it is not likely that they consume at subsistence level. Allen (2009) shows how much food consumption varied with income in 19th century England. And Frankema and van Waijenburg for Sub Saharan Africa, indicate that in areas where the welfare ratios were well above subsistence, the cheapest staple crop did no longer dominate the budget. Instead, a fair amount of fruits and vegetables appeared on the menu, as well as higher amounts of meat. We argue that especially the large-scale cattle holders and the urban population earning more than subsistence wage, by living close to a more varied supply of food stuff, were the most able and likely to change their food pattern. To take this into account, we plan to calculate a respectability basket to accommodate for this change in consumption in a next version of the paper.

Our real wages indicate no clear trend. For people working in agriculture, we see a small increase over the decades, but people employed as domestic help experienced no improvement. The people in trade are clearly better off than the other two groups, but also do not see their income increase over time. Did that mean that the total economy was stagnant and no one experienced an improvement in living standards during colonial rule? It is difficult to conclude

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[5] The blue books provide only an average wage with a note stating that also skilled wages are included.

on this information, as it only captures the wage earning population, whereas the vast majority of the population was engaged in the traditional agricultural sector.

In an attempt to capture (part of) the traditional sector, we construct a social table. To do so, we use, next to information on wages and taxes, also information about the size of the population and the size of each social group. As colonial censuses generally substantially underestimated population during colonial times, (Jerven 2012) this proved to be a challenge. The starting point of this paper is the 1946 census, as that was the most extensive population census held during the colonial time (United Nations 2009).

The size of the wage earning social classes was obtained from the population census. We have cross checked the numbers with information from the colonial Blue Books and the Annual Yearbooks to verify that the numbers from different sources are similar so we can use information from the latter two sources for other years for which we do not have censuses. In total there were 38,000 people registered as wage employed, including around 10,000 men working mainly in the mines in South Africa. From this group, we have wages for a little over 20,000 for people working as labourers on farms, in domestic services, in mining, in trade and manufacturing and government services.

The majority of the Bechuanaland Protectorate did not earn wage income, but were cattle holders. To earn cash income to pay for example taxes, cattle was sold mostly for export, but also to the domestic market. To divide between the various groups of cattle holders and the cattleless, we use information from Schapera and Comaroff (1991) who rely on a 1943 survey.

Table 4: Social Table Bechuanaland Protectorate 1946

	Number in class	Share of population	income per head pence per year	Wealth pence	income after tax relative to subsistence	Percentage income above subsistence
Large scale cattle holders	10928	3.7%	14382	252000	6.6	21.1%
Medium scale cattle holders	75286	25.7%	6472	80640	3.1	50.7%
Small-scale cattle holders	39794	13.6%	1960	12600	1.0	0.0%
Cattle less & bonded labour	35904	12.3%	1960		1.0	0.0%
Labourers						
- Agriculture	2010	0.7%	4680		1.3	0.9%
- Domestic Services	1018	0.3%	5616		1.6	0.6%
- Mining	4727	1.6%	10080		2.9	6.6%
- Mines South Africa	9300	3.2%	10080		2.9	12.9%
- Building	285	0.1%	14400		4.2	0.6%
Trade and Manufacturing	550	0.2%	7488		2.1	0.5%
Government Africans	1050	0.4%	13104		3.8	2.0%
European government officials	224	0.1%	106404		31.5	4.1%
Others	111678	38.1%				

Total Population	**292755**	

Others include amongst others priests, scholars, teachers, and importantly children.
For the people going to SA to work in the mines, we have used the wage paid to domestic miners.
The percentage income above subsistence is calculated by multiplying the size of each group by the average income per head less subsistence costs less tax payable. Summing this over all groups gives the total income. The percentage is calculated accordingly.

For the income of the wage earning social classes we calculated the wage earned per year using the recorded daily wages and assuming 312 working days per year. For the non-wage earning part of the population we both determined the wealth embodied in their herd and the income this generated. We based our assumptions about the cattle holdings per social class on Schapera and Comaroff (1991) and Hillbom (2010). The large cattle holders are assumed to have owned on average 100 heads of cattle[6], the medium scale cattle holders we assume held on average a stock of 34 heads of cattle, and the small sized cattle owners had a herd of 5 heads of cattle. To

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[6] The actual average herd size was larger, as the herd size fort this group starts at 100 head and go up to maybe even 5000. But since it proved difficult to calculate a realistic average we assumed the very conservative 100 head herd size.

calculate the wealth per social class, we have multiplied the stock of cattle with the retail price for horned cattle.

Cattle generated actual money income only for the large and medium scale cattle holders, as they often sold heads of cattle to pay taxes or to provide income for other purposes (Schapera and Comaroff 1991). To approximate how much these cattle owners sold, we divided the total cattle exports by total stock taken from Mitchell (1982) and the colonial Blue Book (1946/1947)[7]. We apply the export ratio to the average herd size of both social groups to determine how much was exported and multiply the number of cattle exported by the export price for cattle. The export ratio is probably an underestimation of total cattle sold, as some of the cattle were sold domestically. But domestic sale was limited as Schapera and Comaroff (1991) argue that although meat could be bought in the larger villages during the 1950s, it was rarely bought and eaten.

The small-scale cattle holders do not sell their herd to generate cash income (Schapera and Comaroff 1991). But as they do own cattle, they possess wealth. This wealth is calculated in the same way we have calculated wealth for the larger cattle owners, i.e. by multiplying the herd size by the domestic retail price for cattle. For their income they, like the cattleless and the bonded labour, depend on subsistence activities. But since they do own some cattle, they are mostly able to stay on or above subsistence. They for example acquire incomes in kind from their animals in the form of milk which is an important nutritional addition (Gulbrandsen 1996: 201). As we assign them subsistence level of income, we probably underestimate their income, but it is difficult to say by how much.

In contrast, the cattleless and the bonded labour depend on patron/client relationships, extended families and *mafisa* to keep them from falling below subsistence levels. So for these two groups we are also assuming that they live on subsistence level. As both the small-scale cattle holders, and the cattleless and bonded labour counts include both women and men but no children, this means that each individual in these social classes has to be able to provide for 1.5 children. So the minimum of (in kind) income that is generated we assume equal to 1.75 times the bare bones basket for these three groups[8] [9].

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[7] As people have incentive to understate their herd since their tax payable depended on the herd size, the official censuses may understate the herd size. Comparing the herd size and number of cattle exported between Mitchel and the BB, we indeed find very similar export figures from both sources but a lower herd size of about 30% in the colonial Blue Books.

[8] When calculating the 'after tax income relative to subsistence', we have made the same assumption, i.e. that each individual has to provide for 1.5 children, for all groups in the traditional sector.

[9] We assume that to pay taxes, even the poorest of the population still had small-stock or crops that they could sell and potentially they were helped by family members who had wage labour, e.g. in the mines as stated by

The final column of our table shows the distribution of income. It indicates how much potential for non-subsistence income each group possessed by stating the percentage of the above subsistence income each group generated. In an equal society, that percentage should be roughly equal to the percentage size of the social group that generates this surplus. In Bechuanaland Protectorate, we can clearly see an unequal income distribution already in the 1940s. The large cattle holders only consisted of 3.7 per cent of the population while they possessed more than 20 per cent of the surplus income. Bearing in mind that our assumption that the large scale cattle holders on average held a herd size of 100 heads is probably a substantial understatement, they most likely possessed an even larger part of surplus income.

The other two groups that stand out are first of all the miners going to South Africa. They received a relatively high wage, which allowed them to live well above subsistence. As they were a relatively large share of the wage earning population they contributed substantially to the surplus income generated in the 1940s. The biggest difference between the miners and the large-scale cattle holders, is that the latter group also possessed wealth in terms of their large cattle stock. And finally, the European officials received, not surprisingly, the highest salaries. While they only represented 0.1 per cent of the population, these high European wage incomes generated 4 per cent of the surplus income earned during the 1940s.

CONCLUDING REMARKS

Focus in writing Botswana's history has very much been on the pre-colonial and the post-independence while the colonial period is described as a time of limited influence and almost no institutional change that could be of importance.

In this paper we have focussed on the colonial period, and how welfare developed and was distributed among the population. For this we have calculated real wages for the wage earning share of the population. The results indicate that wage labourers earned low wages and that their incomes hardly increased over the colonial period 1900-1960. Furthermore, we have constructed a social table for the 1940s to also include (part of) the traditional sector in the discussion about standards of living, wealth and the distribution of income. We find that also for most people in the traditional sector income was low and stable during the colonial period.

Morapedi (1999). Also according to Guldbransen (1996), labour migration is imperative for keeping those in the village at subsistence levels. This means that after tax income relative to subsistence is zero.

However, three groups stand out. First of all, the large scale cattle holders, who consisted of only a small part of the population, earned significantly above subsistence and amassed substantial wealth in terms of cattle. Second, the European elite, employed by the government, not surprisingly earned the highest income on average, and generate a relatively large share of the surplus income while only making up 0.1 percent of the population. And finally the people being employed in the mines earn relatively high wages, which allow them to live well above subsistence and contribute substantially to the surplus income.

By showing these commencing inequalities between groups that are the creations of colonial policies (large scale cattle holders getting incomes from the export strategies, labour migrants who move increasingly after the 1930s to pay taxes and the colonial white elite) this could potentially show that the colonial period was where the profound inequality in present day Botswana started. An hypothesis still to be proven further.

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