

Report

Living Wage for rural Malawi with Focus on Tea Growing area of Southern Malawi

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**Sustainable
Agriculture
Network**



**Rainforest
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1. BACKGROUND

This report estimates a living wage for rural Malawi for January 2014 with a focus on tea growing region in Southern Malawi (Mulanje District and Thyolo District).¹ It uses a new methodology developed by the authors that builds and improves on their earlier work on living wages published by ILO (see Anker, 2006a, 2006b, 2011). This new methodology has been used so far to estimate a living wage for urban areas in ten countries for a multi-national corporation as well as for rural Western Cape Province South Africa for Fairtrade International with focus on wine grape growing areas and rural Northern Dominican Republic with focus on banana growing areas for Fairtrade International and Social Accountability (SAI).

2. LIVING WAGE ESTIMATE

Our estimate of a living wage for rural Malawi for January 2014 is K35,222 (\$81.9) per month and therefore K1,531 (\$3.6) per workday for permanent workers.² This is before consideration of in-kind benefits that reduce the need for cash income. Our estimate of the cash wage required for a living wage is K1,408 (\$3.3) per workday when permanent workers receive common in-kind benefits of free tea, lunch, health clinic, building for public school, and support for estate football team. Our estimate of the cash wage required for a living wage reduces further to K1,193 (\$2.8) per workday for the relatively few permanent workers who also receive free decent housing for their immediate family and maize at a lower price in high price months before new harvest.^{3, 4} It is important to point out that the living standard we used to estimate our living wage is very basic in recognition of Malawi's low level of development at present while at the same time meeting minimum levels of decency for rural Malawi and international conventions and standards in the 21st century.

The remainder of this report provides a detailed explanation of how our living wage was estimated. This report is detailed, because we feel that transparency is essential. We feel that stakeholders and NGOs should be able to

¹ The present study was supported by Fairtrade International, Rainforest Alliance and UTZ Certified. Oxfam and Ethical Tea Partnership (ETP) provided additional support. This study for Malawi was the third pilot study done as part of the "Shared Approach to Living Wage" memorandum of understanding Fairtrade International, Rainforest Alliance and UTZ Certified have with ISEAL and three other certifying or standard setting organizations (Forestry Stewardship Council (FSC), Goodweave, and Social Accountability International). This memorandum of understanding commits these organizations to "adopt a common definition of living wage and apply a common methodology to estimating living wage levels ... with long term goal and shared mission of these six organizations to see improvements in workers' conditions, including wage levels, in the farms, factories and supply chains ... by seeking support from brands, buyers, and retailers to make wage growth possible at the primary production level possible and ... working together with the relevant stakeholders." A list of key informants and persons met is included at the end of this report.

² It is important to note that calculation of living wage per workday is based on estimate of living cost per month and assumes there are 23 workdays per month on average (i.e. living wage per workday = living wage per month divided by 23). We used 23 workdays (rather than the 26 workdays in a full-time work month), because permanent workers work 5 or fewer days per week in non-peak season. Readers are referred to section 13.2.2 for a detailed discussion on this point.

³ There are no mandatory deductions from pay of workers such as social security or income tax that need to be taken into consideration when estimating take home pay required at the level of our living wage for rural Malawi.

⁴ Tea estates with Rainforest Alliance certification have agreed to improve housing conditions on their estates over time up to the agreed Rainforest Alliance standard.

understand the basis for our living wage estimate, and it is credible and representative of the cost of a basic but decent living standard in rural areas of Malawi, regardless of whether or not employers are able to pay this wage in practice in the near future. Transparency is also important because one tenet of this report is that stakeholders and others should be able to query assumptions and calculations that went into making our living wage estimate for rural Malawi in part to help ensure that our estimate is as reasonable as possible and receives as wide an acceptance as possible. Finally, it is hoped that transparency will help the ongoing process of stakeholder dialogue; dialogue of stakeholders with Fairtrade International, ETP, Oxfam, Rainforest/SAN and UTZ Certified; and dialogue between these organizations, stakeholders and the value chain.

Considerable thought and effort went into estimating our living wage for rural Malawi. We took this very seriously in recognition of the importance of wages to workers and tea estates. This effort included visits to tea estates; visits to houses in rural areas; visits to markets and shops where workers shop in rural areas; discussions with key informants in the area; discussions with key members of civil society such as government, NGOs, trade unions, and researchers; and digesting and using statistics, papers and reports from researchers, NGOs, government and international organizations. It is worth noting that we benefited from existence of earlier reports and studies of conditions on tea estates in Malawi (e.g. Oxfam, 2013a; Chirwa and Mvula, 2012; Ergon, 2012; Pound, 2013), an unusual number of recent surveys on living conditions in Malawi (e.g. Government of Malawi and ICF Macro, 2011; Republic of Malawi 2005 and 2012; Government of Malawi, 2012a), and NGOs that have documented living conditions and living costs in Malawi (e.g. Oxfam, Center for Social Concern, and HABITAT for Humanity). We were also fortunate to have had full cooperation from Tea Association of Malawi (TAML) as this allowed us to freely visit tea estates, speak to tea estate workers and managers, and gain access to information on wages and in-kind benefits for tea workers.

3. MALAWI CONTEXT

3.1 HIGH LEVEL OF POVERTY IN RURAL MALAWI

Malawi is one of the poorest countries in the world. Only 7 out of 227 countries and territories in the world are poorer according to CIA World Factbook (2014), and incomes in rural Malawi are much lower than in urban Malawi. Fifty-three percent of those in rural Malawi live below the national poverty line (2010/11 IHS3), and 62% live below the World Bank's extreme poverty line (World Bank World Development Indicators, 2013).

This high level of poverty is reflected in health statistics. Life expectancy at birth is only 54 years, 13% of children die before reaching age 5, and only 47% of births survive to age 65. Forty-eight percent of rural children below age 5 are stunted and 64% are anemic; and 47% of pregnant women are anemic (World Bank, 2013). Malawi has 8th highest rate of stunting in the world (Black et al, 2013).

This high level of poverty is also reflected in household expenditures. Food expenditures exceed 75% of all expenditure for 42% of households in Malawi (United Nations Special Rapporteur on Right to Food Security,

2013). Only 45% of adults in rural Malawi eat 3 meals a day and 52% experienced food shortage in past 12 months (2010/11 IHS3). Forty-one percent of households in rural Malawi are unable to save or must borrow. Only 28% of households in rural Malawi own a bed, only 34% own a chair and only 27% own a table (2010/11 IHS3).

It is not that people in Malawi are unaware that they are poor. Forty-one percent of rural Malawians feel that they have inadequate food; 43% feel that they have inadequate housing; and 58% feel that they have inadequate clothing (2010/11 IHS3).

These high poverty rates and poor living conditions in rural Malawi have very important implications for a report such as this which is concerned with living wage and decency. First, blind use of available household expenditure data to estimate needs as is typically done to estimate poverty lines and living wages is likely to provide insufficient funds for decency. It is for this reason that we estimate cost of food and housing using minimum decency standards as well as adjust our first estimates of non-food and non-housing living costs to make sure that sufficient resources are available in our living wage estimate for health care, children's education, etc.

Second, this means that the standard of living afforded by a living wage will be low when viewed from an international perspective, because a living wage is based on what people in a particular time and place view as decent. And since rural Malawi is very poor at present, what people in rural Malawi consider decent is necessarily low from an international perspective, especially compared to what people living in high income countries view as decent. At the same time, it is important that minimum 21st century international standards be met for a living wage everywhere in the world, because there are agreed universal rights and standards. As stated in United Nations Declaration of Human Rights, 1948: "Everyone who works has the right to just and favorable remuneration ensuring for himself and his family an existence worthy of human dignity, and ... Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services." In the 21st century, this means that people have a right to healthy nutritious food, healthy housing that protects against disease and the elements, free public school for children, access to affordable health care, and some funds to pursue leisure activities and be part of society.

3.2 DEVALUATION AND HIGH INFLATION

Living costs and economic conditions in Malawi have been greatly affected in the past few years by high inflation and currency devaluation. Annual inflation was more than 20% in both 2012 and 2013 according to government statistics (World Bank, 2013), and many people in Malawi feel that official estimates of inflation underestimate actual inflation. Malawi devalued and floated its currency in May 2012. The Kwacha to USD exchange rate went from K164 to the USD on May 7, 2012 to K251 to the USD on May 9 and K420 at the end of 2013. It was K430 in January 2014 when this report was done. This devaluation greatly affected individuals and companies (especially export-oriented companies such as tea estates). Although devaluation increases living costs for workers, it

reduces labor costs in USD for tea estates. In addition to depreciation of the Kwacha, there have been large fluctuations in exchange rates since 2012. This creates major difficulties for tea estates, since this adds considerable uncertainty as regards sales and revenues. This instability in exchange rate, which is clearly reflected in Figures 6 and 7, has continued in 2014.⁵

3.3 FEW JOB OPPORTUNITIES, EXCESS LABOR SUPPLY, AND IMPORTANCE OF TEA ESTATE EMPLOYMENT

There are not many wage or salary jobs available in rural Malawi. According to 2011 Welfare Monitoring Survey (Government of Malawi, 2012a), only around 6% of workers in rural Malawi are wage or salary workers, 76% of workers in rural Malawi are subsistence farmers, 10% are self-employed or employers, and 4% have a family business.. One recent study found that the need for income in rural Malawi was so great that the willingness of workers to take wage employment was not very sensitive to the wage offered (Goldberg, 2011). This means that there is a surplus of labor willing to work low wages.

Tea estates are a major employer and so important to the rural labor market in Malawi, especially in southern Malawi where they are concentrated. According to Chirwa (2012) and ETP communication there are around 50,000 tea estate workers in Malawi. TAML wages are also higher than the statutory minimum wage, especially when one takes into consideration that tea estate workers receive some in-kind benefits. This means that the survival of tea estates in Malawi is important for rural families especially in the South. It also means that a thriving tea industry that invests and improves quality and productivity so that higher tea prices are possible as this is potentially important for workers, since this increases their ability to pay higher wages.

4. INTRODUCTION TO LIVING WAGE

The idea of a living wage is that workers and their family should not have to live in poverty. But a living wage should do more than simply keep workers and their families out of poverty. It should also allow them to participate in social and cultural life. In other words, wages should be sufficient to ensure that workers and their families are able to afford a basic life style considered decent by society at its current level of development. Workers should receive a living wage in normal work hours without having to work overtime. The following definition of a living wage (which is consistent with findings in the comprehensive review of living wages in Anker, 2011) has been agreed to by Fairtrade International, Rainforest Alliance and UTZ Certified as well as Social Accountability International (SAI) and two other ISEAL members (Forest Stewardship (FSC) and Goodweave):

“Remuneration received for a standard work week by a worker in a particular place sufficient to afford a decent standard of living of the worker and her or his family. Elements of a decent standard of living include food, water, housing, education, healthcare, transport, clothing and other essential needs including provision for unexpected events.”

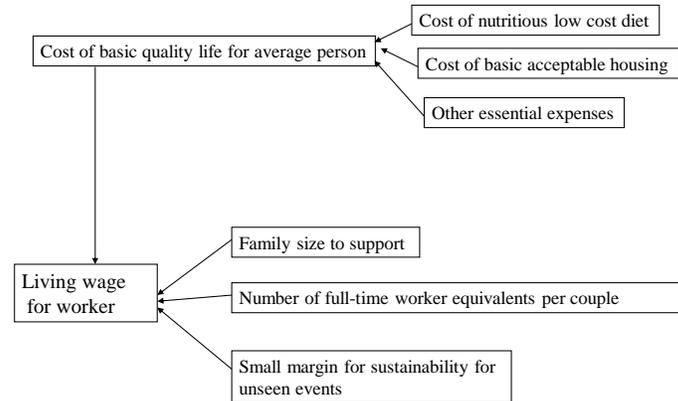
⁵ Kwacha to USD exchange rate in 2014 was: 424, 419, 416, 401, and 398 on January 1, February 1, March 1, April 1, and May 1 respectively.

The idea of a living wage is not new (see Anker 2011 for following quotes). Nor is it a radical idea. Adam Smith (1776) wrote that “No society can surely be flourishing and happy, of which far greater part of the members are poor and miserable. It is equity besides that they who feed, clothe and lodge the whole body of the people should have such a share of the produce of their own labor as to be themselves well fed, clothed and lodged.” Pope Leo XIII (1891) in a Papal encyclical stated that “Remuneration must be enough to support the wage earner in reasonable and frugal comfort. If through necessity, or fear of worse evil, the workman accepts harder conditions because an employer or contractor will give no better, he is the victim of fraud and injustice.” American President Franklin D. Roosevelt (1933) wrote that “Liberty requires opportunity to make a living – a living decent according to the standard of the time, a living which gives men not only enough to live on but something to live for.” International Labor Organization Constitution (1919) states that “Peace and harmony in the world requires an adequate living wage”, and United Nations’ Universal Declaration of Human Rights (1948) states that “Everyone who works has the right to just and favorable remuneration ensuring for himself and his family an existence worthy of human dignity.” See Anker (2011) for how other organizations, international organizations, NGOs, governments and others describe living wage.

5. HOW OUR LIVING WAGE FOR RURAL MALAWI WAS ESTIMATED

The following flow chart indicates how our living wage for rural Malawi was estimated. We started by estimating cost of a basic living standard that would be considered decent for present day rural Malawi (first left hand box). This was done by summing up separate estimates for rural Malawi of the cost for a low cost nutritious diet, basic decent housing, and all other needs at a decent level (first three right hand boxes). Before accepting our preliminary estimate of cost for all non-food and non-housing items, we made sure that sufficient funds are provided for at least health care and education as these are considered human rights around the world. A small margin above this total cost of a basic but decent life style was then added to help provide for unforeseen events such as illnesses and accidents to help ensure that common unplanned events do not easily throw workers into poverty. This new total cost of a basic but decent quality life, that up to now was mostly expressed in per capita terms, was then scaled up to arrive at cost for a typical family size in the area and defrayed over a typical number of full-time equivalent workers per family in the area.

Figure 1: Flow chart on how to estimate a living wage



6. FOOD COSTS

Food cost for a living wage for rural Malawi was estimated using local food prices and a low cost nutritious model diet for an average person in a family of 5 persons (2 adults and 3 children).

6.1 GENERAL PRINCIPLES FOR MODEL DIET USED TO ESTIMATE LIVING WAGE

The following general principles used to establish the model diet we used to estimate food costs for our living wage for rural Malawi. Our model diet needed to be:

1. **Nutritious** (i.e. have sufficient calories as well as acceptable quantities of proteins, fats, carbohydrates, minerals and vitamins) to help ensure that workers and their families have enough to eat and can be healthy. Our model diet has a sufficient number of calories and meets other World Health Organization (WHO/FAO, 2003) nutritional recommendations of: minimum of 10 percent of calories from proteins (with a reasonable proportion of proteins coming from “higher quality” sources such as legumes and animal-origin foods, see WHO/FAO/UNU 2007); 15-30 percent of calories from fats; and 50-75 percent of calories from carbohydrates.⁶
2. **Relatively low in cost for a nutritious diet.** For this reason, our model diet includes less expensive types of cereals, beans, meats/fish, fruits and vegetables, etc. to keep down total food cost and mimic how cost conscious workers shop for food while maintaining nutritional standards.

⁶ Note that our model diet deviates somewhat from WHO/FAO (2003) recommendation of 400 grams of vegetables and fruits per day (including legumes), since WHO/FAO (2003) acknowledges that it is rare for countries to meet this recommendation. We also deviate from usual recommendations on milk consumption (FAO, 2013) because of the high price of milk in Malawi and controversy surrounding the need for milk (FAO, 2013).

3. Consistent with Malawi's low development level. For this reason, our model diet includes relatively little animal-origin foods since these are expensive per calorie.
4. Consistent with local food preferences and local food availability and costs. For this reason, our model diet includes considerable amounts of maize, beans, green leafy vegetables and dried fish.

6.2 MODEL DIET USED TO ESTIMATE LIVING WAGE FOR RURAL MALAWI

The model diet we used to estimate a living wage for rural Malawi is shown below in Table 1. Annex A discusses in detail how our model diet compares with three other diets for Malawi as well as how the distribution of food expenditure in our model diet compares to actual food expenditure of households in Malawi.

Our model diet has 2364 calories. This is similar to the 2400 calories used to estimate the government poverty line (2004/05 IHS3 and World Bank 2007) with the small difference probably due to different assumptions on family composition.⁷ Note that we assume that adults have heavy physical activity level since tea workers and people in rural Malawi walk long distances, carry heavy loads and engage in strenuous farm work and housework. We assume that children have moderate activity level.⁸ Percentages of calories from proteins (10.8% with 6.7% from quality adjusted proteins), fats (19.2%) and carbohydrates (70.0%) meet minimum WHO/FAO standards for a nutritious diet. The 248 edible grams of fruits and vegetables included in our model diet helps to provide a variety of micronutrients and minerals. Vegetables and fruits are especially important when consumption of animal-based foods is low (Ecker and Quaim, 2008).

Our model diet shown in Table 1 includes:

- lots of maize (close to one-half kilo per day)
- 40 grams of beans per day
- 60 grams of cassava per day
- 12 grams dried or smoked small fish (2 fish meals per week)
- 1 cup of milk per day for children 2-5 and pregnant women
- 63 grams of fruit per day (1 banana per day)
- 189 grams of vegetables per day (with 2/3 from green leafy vegetables)
- 24 grams of sugar per day (6 teaspoons)
- 24 grams of cooking oil per day (2 tablespoons)
- 3 cups of tea per day for adults.

⁷ This 2364 was determined based on Schoenfeld equations (WHO/FAO, 2003) that are widely used to estimate calorie needs based on age, sex, height, and activity level.

⁸ Information on average height is drawn from Pelletier et al (1991).

Our model diet is consistent with local food preferences and relative prices in Malawi.

- Maize is central to our model diet. It is an inexpensive source of calories, and it provides around 70% of all calories.
- Dried or smoked small fish from Lake Malawi are included in our model diet. This is important, because they are eaten whole including their bones, since bones and milk are among the few foods with high levels of bioavailable calcium (FAO, 2013). This is especially important when consumption of milk is low as in our model diet.
- Considerable amount of cow peas and pigeon peas are included in the diet. This helps ensure there is a sufficient number of proteins at relatively low cost because beans are relatively inexpensive since they are grown by farmers in the area.
- Cassava is included in the model diet both because it is the lowest cost root and tuber as well as the most commonly eaten in rural Malawi.
- Vegetables are mainly represented by green leafy vegetables such as rape, pumpkin leaves, okra leaves, mustard leaves, etc. They are plentiful and inexpensive in local markets. This helps reduce food costs. It also helps increase calcium and iron as green leafy vegetables, such as rape, are high in these.
- Quantity of milk is low because its price is high as it is mainly imported as there is only a small domestic dairy industry and few cows are kept by families in Malawi.

The small amount of milk in our model diet is questionable as 1 cup of milk is provided only for children ages 2-5 and pregnant women which are the most critical periods for milk and calcium. National recommendations on milk consumption are universal in recommending more milk than we have included in our model diet.⁹ We have not included more milk in our model diet for practical reasons. If we had included 1 cup of milk for only children, cost of milk would have been responsible for 29% of the total cost of our model diet and this would obviously have been impractical. We are not happy with having so little milk in our model diet, but it seemed to us the only practical approach. Note that the Malawi diet is relatively high in nondairy sources of calcium, since it includes small fish that are eaten whole including the bones as well as considerable amounts of green leafy vegetables such as rape and Chinese cabbage.¹⁰ Also note that other Malawi diets include similarly small amounts of milk (see Annex A).

The idea behind using a model diet to estimate food costs for a decent standard of living is that a worker and his or her family should be able to afford a nutritious diet. This does not mean that people are expected to eat

⁹ All 24 developed and European countries cited in a FAO publication on milk and dairy products in human nutrition recommend at least 2 cups of milk per day for children and adults (FAO, 2013). 12 of the 13 developing countries cited in this FAO publication recommend at least 1 cup of milk per day for adults and children (exception being Oman that recommends around 0.5 cup per day).

¹⁰ “The mineral profiles in milk and bones have much in common. With the exception of small fish that are eaten whole, including the bones, few foods naturally contain as much calcium as milk (Weaver, Proulx and Heaney, 1999; Theobald, 2005). Calcium in milk has a high bioavailability, similar to calcium carbonate, which is readily absorbed (Theobald, 2005). Although many green leafy vegetables such as spinach are rich in calcium, they also contain oxalate, which reduces the calcium availability.” (FAO, 2013)

exactly the same foods in exactly the same quantities in the model diet every day – but rather that they should have sufficient income to be able to afford a nutritious diet. It is for this reason that cost of model diet shown in Table 1 is increased by 8 percent to allow for some variety as well as increased by 1 percent for salt, spices, and condiments¹¹ and by 3 percent for minimal spoilage and wastage. Variety is important to ensure that a diet is nutritious. This is reflected in typical recommendations of nutritionists and government departments. Government of Malawi (2013), for example, recommends that people should “eat many different foods daily for good nutrition”, indicating 6 food groups (staples such as maize and cassava; foods from animals such as milk, fish and meat; legumes such as beans and peas; vegetables; fruits; and fats).

TABLE 1. OUR MODEL DIET AND ESTIMATED FOOD COST PER PERSON PER DAY FOR RURAL MALAWI, JANUARY 2014 USING LOCAL FOOD PRICES WHERE WORKERS SHOP

Food items ^c	Grams edible ^{a, b}	Cost per kg ^e	Cost ^f	Comments ^g
Maize	450	160	72	Maize provides 70% of calories. Cost includes grinding charge. No rice or bread as >2 times more per kg than maize. Rice/bread possible sometimes using miscellaneous funds for variety.
Cassava	60	114	8	Cassava least expensive root and tuber.
Beans	40	281	11	Average of cow pea and pigeon pea prices used. Inexpensive beans. Prices low as farmers grow beans. Price in Blantyre almost 2 times higher.
Milk	27	495	13	Powdered used because fresh and UHT not available in rural areas. Also no frig. Milk very expensive per liter as imported. 1 cup pd for children 2-5 and pregnant women. Questionable not including milk for children >5.
Meat, chicken, egg	0	0	0	Egg and meat not included as eaten less frequently than fish and more expensive. Possible sometimes using miscellaneous funds for variety.
Fish	12	2349	27	Dried or smoked small fish. Entire fish eaten including bones, so provides valuable calcium. Price for least expensive fish in each market used (usipa, utaka or matemba).
Vegetable 1	63	73	5.1	250 edible grams vegies & fruits. Least expensive GLV in each market used for vegie 1. 2-3 times more expensive in Blantyre.

¹¹ Rural households actually spend 1.9% of food expenditure for salt, spices and miscellaneous foods according to data from 2010/11 IHS3.

Food items ^c	Grams edible ^{a, b}	Cost per kg ^e	Cost ^f	Comments ^g
Vegetable 2	63	92	6.4	Second least GLV in each market used.
Vegetable 3	63	108	7.4	Least expensive non-GLV (eggplant). 4-5 times more expensive in Blantyre.
Fruit	63	102	10	Least expensive fruit in each market used. Almost always banana. 1 banana equivalent pd.
Cooking oil	24	650	18	Oil sold in local markets used. Probably from Mozambique. Price for 1 liter used and not for more expensive small sachets workers typically buy. Oil sold in town and supermarkets higher quality & 60% more expensive. 2 tbsp pd.
Sugar	24	411	9.9	Brown sugar used as less expensive than white sugar. 6 tsp pd.
Tea	1	1500	2	Price for 125g packet used. 3 cups pd for adults.
Total per person per day			K188 \$0.44	
Total with 12% miscellaneous food costs ^d			K211 \$0.49	

Notes: pd indicates per day. pw indicates per week. GLV indicates green leafy vegetable.

^a Purchased quantity, used to estimate cost, differs from edible (consumed) quantity for foods with inedible parts such as fruits and vegetables with inedible skin or stem; chicken with inedible skin and bones; egg with inedible shell; and fish with inedible bones, head, scales and tail. Percentages inedible of each food are based on discussions with local people. They are much lower than those in United States Department of Agriculture (USDA, 2014) web site (www.ndb.nal.usda.gov/ndb/foods). Note that people in Malawi do not throw away much food and often eat parts of foods that Americans consider inedible and discard. ^b Number of calories, proteins and fats are estimated using USDA reported values per 100 grams for each food item except for dried fish. Values for fish are for small silvery fish from Uganda from FAO INFOODS (2012). In addition to having sufficient number of calories (2364), our model diet meets WHO recommendations for proteins (at least 10% of all calories), fats (15-30% of all calories) and carbohydrates (less than 75% of all calories). Calories in the model diet are 10.8% from proteins (with 6.7% from quality adjusted proteins), 19.2% from fats and oils and 70.0% from carbohydrates. ^c Specific food item(s) used to represent and cost each food group are lowest cost food item(s) per edible gram with acceptable quality found in market survey of local places where workers typically buy food to reduce food cost and mimic how cost conscious workers typically shop. ^d Additional miscellaneous food costs are assumed to increase food cost by 12 percent. This consists of (i) 1% for miscellaneous foods not listed in our model diet such as salt, spices, stock cubes and condiments (with soft drinks cakes and sweets excluded from our model diet); (ii) plus 8% to allow for some variety (e.g. beef or chicken or egg sometimes; larger portion or more expensive fish sometimes; rice or bread sometimes instead of maize; more expensive

vegetables and fruits sometimes; etc.); (iii) plus 3% for minimal waste and spoilage. Assumed 1% for salt, spices and condiments is lower than the 1.9% spent on salt and miscellaneous foods in Malawi according to 2010/11 IHS3. The 8% for variety and 3% for spoilage and waste are conservative values. ^e Cost per kilogram is based on prices observed in local places where workers shop. Almost all foods are sold by bunch or heap in markets. Heaps or bunches of each food were bought and weighed in order to determine cost per kilo. For each market visited, median of prices per kilo from several sellers was established, and mean of these market median prices was calculated. ^f Cost for each food item was calculated by multiplying quantity purchased (based on quantity eaten and percent wastage) by cost per kg. ^g Price comparisons to Blantyre in last column use prices from Center for Social Concern (CfSC) for Blantyre for December 2013.

6.3 Food prices

6.3.1 Collecting food prices

To estimate cost of our model diet, local researchers collected food prices from places where workers typically shop. In this way, we could estimate the cost our model diet using prices that workers actually pay.

The local research team visited 6 large open air markets in Mulanje District and Thyolo District in the tea growing area in the South. We purposely visited markets on the weekly or biweekly market day when a vast number of vendors sell food, clothing and other products. Dozens of sellers sit selling one popular food such as tomato, greens, or fish. People walk long distances to shop in these markets. There is little option but for almost everyone in rural Malawi to walk because roads are in poor condition and a minority of households own a bicycle. In addition women who do most of the food shopping are not able to ride a typical bicycle because of the wrap around skirts that they wear.

We also visited two smaller open air markets and two tuck shops on the road side where workers shop for foods (especially vegetables) that need to be purchased daily because people lack refrigeration and storage facilities (e.g. only 2% of rural households in rural Malawi have electricity according to 2010/11 IHS and we did not meet any non-management person who had a refrigerator).¹² We also visited two small supermarkets in the region to get an idea if prices for staples that store well such as oil, sugar, and powdered milk differ from those in large open air markets even though it is not common for workers to frequent supermarkets. And, we asked about food prices in focus group discussions with workers and villagers.

Several aspects of how food is sold in rural Malawi are worth noting. Very few foods are sold by the kilo or liter. Almost all foods are sold by piece or heap or bunch (and cooking oil is typically sold in a small plastic bag of unknown size). Sellers typically lay out small heaps of fish, greens, tomatoes, eggplant, potatoes, etc. on the

¹² People indicated in focus group discussions that it was possible to keep vegetables for two days (e.g. market day and day after) and dried or smoked fish for possibly up to one week. This means that vegetables have to be bought in smaller local markets almost daily.

ground or a mat. They ask a certain number of kwacha for each heap or bunch. All sellers of a particular food usually ask the same number of kwacha for a heap or bunch. Fish, for example, is sold in K100 heaps, K200 heaps, K300 and K400 heaps with the number of fish in each heap a function of the value and size of the fish being sold. Similarly, sellers of tomatoes or eggplants, etc. lay out heaps that cost say K30 or K50 per heap. This means that the cost per kilo of each food varies by seller and heap even though all are selling at the same price per heap. This is because weight in grams of each heap or bunch is somewhat random. This situation required us to buy several heaps or bunches for each food in each market that we weighed on our own scale in order to determine price per kilo.

Also worth noting are aspects of how we estimated food prices that reduce the cost of our model diet. For example we use:

- two least expensive green leafy vegetables per kilo in each market (e.g. mustard leaf 3 times, Chinese cabbage 3 times, pumpkin leaf 2 times, rape 2 times, amaranth 1 time, and okra leaf one time)
- least expensive non-green leafy vegetable in each market (eggplant or cucumber)
- fruit with lowest cost per kilo in each market (orange in one market and banana in other markets)
- lowest cost small dried or smoked fish in each market (usipa, utaka, or matemba)
- four hundred gram box of powdered milk sold in supermarkets that are less expensive than small packets of powdered milk sold in local markets and small local shops
- one liter quantity of local cooking oil sold in local markets that is less expensive than small plastic sachets of cooking oil sold in local markets or cooking oil sold in supermarkets
- average prices for pigeon peas and cow peas because they are inexpensive beans
- brown sugar because it is less expensive than white sugar
- directly ground maize rather than maize that is milled and then ground

6.3.2 Analysis of food prices

We collected prices for a wide range of foods that workers often buy. We did this for different quantities for most foods from several sellers in each market visited. We entered these data into Excel files to determine the lowest price per kilo for foods in each food group in our model diet for each market.¹³ We then calculated the median of the lowest price observed in each shop or market for each food item. The idea behind these calculations was to try and mimic the way in which cost conscious workers in rural Malawi typically shop as they typically buy foods that are relatively low in cost per kilo, including seasonal foods.¹⁴

¹³ For each major food group (e.g. meats, vegetables, oils, etc.), we identified the lowest cost item per edible gram for inclusion in our model diet. For example, fruits in our model diet are represented by banana; vegetables by least expensive green leafy vegetables and eggplant; meats/fish by least expensive dried or smoked usipa, utaka or matemba; roots and tubers by cassava; oils by soybean oil sold in local markets; and sugar by brown sugar.

¹⁴ This cost consciousness is also found in an econometric analysis of 2004/05 IHS2 data by Ecker and Qaim (2008), “Price elasticities indicate a strong price responsiveness of food demand in Malawi.”

6.3.3 Adjustment of food prices for seasonality

Since we collected food prices in January, it is implicitly assumed that these prices are indicative of prices over the year. To determine if January prices are reasonably representative of prices throughout the year, we put together CfSC monthly food price data for Blantyre (closest location to tea estate area in South) from January 2008 (earliest date) – December 2013 (latest available date). We looked at how prices in this source fluctuated month by month each year and calculated the ratio of January price relative to average price for the July to June period that bracketed January. We found that January prices were reasonably similar to average price throughout the year for fish, sugar, milk, cooking oil, and tea. January prices were on average around 10% higher than average price for the year for maize, beans and cassava and around 30% higher for rape, but these percentages varied greatly year by year. In light of these data on seasonality of food prices from CfSC, we decided to increase our observed January prices of beans and cassava by 10% and leave unchanged all other observed January prices. We did not change the green leafy vegetable prices we observed because we used lowest price for all types of green leafy vegetables to cost our model diet regardless of whether it was pumpkin leaves, okra leaves, mustard leaves, rape, etc. The reason why we did not adjust our observed price for maize is explained below. There is a common belief in Malawi that the price of maize increases in the months before a new harvest and falls during and right after a new harvest. We did indeed find this pattern in CfSC data - but the pattern we found was more complicated than the simple pattern we heard about. Maize prices tended to spike in February and March (although it sometimes dropped in the month, usually March, before a new harvest presumably because old stock needed to be sold). Also, prices tended to fall sharply for 2 or 3 months with a new harvest (starting in April or May depending on the rains). But the pattern just described did not occur every year. For example, a sharp increase in maize price did not occur in 2010, 2011 or 2012 and a sharp drop in maize price did not occur in 2010 or 2012. Also, maize prices are subject to government intervention as Agricultural Development and Marketing Corporation (ADMARC) releases maize on to the market from time to time at a reduced price to reduce the price of maize in local markets. We found ADMARC was doing this in January 2014, selling maize at a subsidized rate of K80 per kilo on a rationed basis of 10 kilos per person. According to FAO (2014a), ADMARC has been releasing approximately 15 tons each week on to the market in southern Malawi. All of this means that it is impossible to know if the January 2014 maize prices we observed are typical for January, and for this reason we decided not to adjust the price of maize we observed.

7. HOUSING COSTS

Housing costs for our living wage were estimated by summing the cost of: (i) rental equivalent value of a basic acceptable dwelling; (ii) utility costs (water, lighting, and cooking fuel),¹⁵ and (iii) routine repairs and maintenance.

We estimated housing costs for rural Malawi as K6500 (\$15.1) per month – based on approximately K4500 (\$10.5) for rental equivalent value of housing, K1200 (\$2.8) for firewood for cooking, K600 (\$1.4) for lighting,

¹⁵ We assume that there is no need for fuel for heating.

and K200 (\$0.50 for minor repairs, and zero for water).¹⁶ How these estimates were determined is explained below.

7.1 STANDARD FOR BASIC ACCEPTABLE HOUSING

In order to estimate the cost for basic acceptable housing, it is necessary to set minimum standards for what is acceptable basic housing for our family size of 5 persons. We mainly relied on the locally adapted Rainforest Alliance standard agreed to by TAML. This standard has the advantage that it is an international standard that takes into consideration local conditions. Note that this locally adapted Rainforest Alliance standard is virtually the same as in Rainforest Alliance's standard code of practice. Since the Rainforest Alliance housing standard does not specify amount of living space for families, we included UN-HABITAT (2006) standard on maximum number of 3 persons per room to avoid being considered overcrowded housing,¹⁷ and minimum of around 30 square meters of living space standard used by Maharashtra Housing Development Association in India for government supported housing for low income families (Government of India, 2009) and South African law for workers' accommodation on large farms (South Africa Ministry of Labour, 1997).¹⁸

Our housing standard is:

- cement floor;
- brick walls;
- durable roof of zinc or cement without leaks;
- ceiling at least 2 meters at lowest point;
- sufficient number of windows for adequate lighting and ventilation (preferably 2 windows per room);
- potable drinking water in relatively close proximity to house;
- pit latrine in good condition in close proximity to house;
- at least 3 rooms (living room, 2 bedrooms);
- at least around 30 square meters of floor space;
- building in reasonable condition.

¹⁶ We assumed that a community borehole is reasonably close to worker homes and consequently we ignore time cost of carrying water to home. This is a somewhat questionable assumption, since nearly half of rural households in Malawi (48.0%) require more than 30 minutes roundtrip to collect drinking water and only 5.7% of rural households in Malawi have drinking water on premises according to 2010 DHS.

¹⁷ Note that UN-HABITAT standard of no more than 3 persons per room is a lower standard than the 1935 United Kingdom government standard which allowed for no more than 2 persons per potential sleeping room (House of Commons' Library, 2011). UN-HABITAT standard is also lower than the standard used by UN-HABITAT itself before it estimated percentages of housing in developing countries that are overcrowded (2006).

¹⁸ Note that 30 square meters of living space may be lower than Rainforest Alliance standard in its code of practice that requires at least "5 square meters of space per person in sleeping areas" for dormitory accommodation.

Data from 2010 Demographic and Health Survey indicate that the above standard is much better than housing conditions currently found in rural Malawi. For example, only 14% of rural houses have a cement floor; only 25% have 3 or more rooms; only 24% have zinc roof and cement or brick walls; and only 7% have an improved toilet (flush, VIP or pit latrine with slab).

Despite being much better than current housing conditions in rural Malawi, our housing standard is very basic indeed. Acceptable houses are small and do little more than protect against the elements and allow for healthy living. Notice that people are expected to cook outside, walk reasonably long distances to get their drinking water, use a pit latrine that may be away from their premises, and do without electricity. We found exclusion of electricity in our housing standard problematic, because so much of modern life runs on electricity. But practicality did not allow us to include electricity in our housing standard. Not only do very few rural houses in Malawi have electricity at present (3% according to 2010 DHS), but it is impossible to see how it will be possible for many rural households to have electricity in the foreseeable future. Malawi has a chronic shortage of electricity and electricity costs are exceptionally high especially relative to wages. For example, ESCOM (Malawi's electricity company) recently asked for rate hikes that would increase connection fee to K6,000 per month (Thom, 2013) which is equal to around 45% of the monthly TAML basic wage.

One possibility for bringing electricity to workers in rural Malawi who earn a living wage might be solar power. For example, one tea estate provided solar panels to workers living on the estate using Fairtrade premium that could power two light bulbs and a radio. This significantly improved life (Fairtrade Foundation, 2014). We inquired in a local market about cost for a small solar panel, used battery and converter that could power 2 light bulbs and a radio and were told that these would cost K28,000 (\$65) in total (K9,000 for small solar panel, K10,500 for battery, and K8,500 for converter). This cost might be affordable to workers earning a living wage if they were provided with the initial capital (which could be paid back monthly), although maintenance and eventual replacement cost for the battery as well as possible theft that several people mentioned to us would need to be considered. It is our feeling that the possibility of tea estates helping workers to obtain solar power should be investigated with of course related costs to tea estates considered as an in-kind benefit as partial payment of living wage.

7.2 RENTAL EQUIVALENT VALUE OF BASIC ACCEPTABLE HOUSE

The usual way we estimate housing cost is to collect information on rent for housing that meets our minimum standard. Unfortunately, it was not possible to use this approach for rural Malawi, because so few people rent in rural Malawi (4% according to 2010/11 IHS3). For this reason, we used a different approach to estimate the monthly value of basic acceptable housing. We looked at cost of building a basic acceptable house and made assumptions on the life expectancy and maintenance costs for this basic house.

We obtained information on cost of building a basic acceptable house from HABITAT for Humanity as well as from tea estates that have recently built new houses that meet the agreed locally adapted Rainforest Alliance standard. One tea estates reported K3,209,000 as the cost for a new two unit building (or K1,605,000 per unit).

Another tea estate reported K2,300,000 as the cost of a new house (which exceeded our housing standard in our opinion). HABITAT for Humanity local office in Mulanje indicated that a basic three room dwelling that just meets our housing standard cost K713,000 in 2010. We increased this by national inflation rate since then to get an approximate cost for 2014 of around K1,200,000. This HABITAT for Humanity house which we visited had three small rooms with 30 square meters of floor space, zinc roof, cement floor, and burnt brick walls. Its windows had wooden frames that did not exactly fit and a tree trunk with multiple curves for the cross beam. This dwelling was in keeping with HABITAT for Humanity principles to build with local materials and to a standard of decency considered appropriate for local conditions.

To estimate an appropriate use value for a HABITAT for Humanity house, we made different assumptions about life expectancy and maintenance costs for this house. We varied life expectancy from 20 to 40 years and maintenance costs from 0 to 2 percent per year – 20 years with no maintenance, 30 years with 1% for maintenance, 35 years with 1.5% for maintenance and 40 years with 2% for maintenance.¹⁹ Results were fairly similar. The monthly “cost” (depreciation plus maintenance) was K5,000 assuming 20 year life expectancy and no maintenance, K4,333 assuming 30 year life expectancy and 1% maintenance, K4357 assuming 35 year life expectancy and 1.5% maintenance, and K4,500 assuming 40 year life expectancy and 2% maintenance. These four scenarios are around K4,500 on average and we used this as the value of decent housing for rural Malawi. This amount seems reasonable to us and perhaps an underestimate. For example, it does not take into consideration the value of land the house is built on. And it is around 9% of our estimate of living costs for decency for our living wage, which is similar to the approximately 9% rural households actually spend for housing according to 2010/11 IHS3.²⁰

7.3 UTILITIES AND OTHER HOUSING COSTS

Utility and other housing costs also need to be estimated. This includes cost of firewood, lighting, and water. This also includes cost of minor repair and maintenance. We do not consider possible costs for electricity, refuse/garbage collection, sewage collection, and property taxes.

¹⁹ As indicated by HABITAT for Humanity and tea estate engineers as well as local persons we spoke to, housing in Malawi does not last very long without maintenance, partly because wood trusses in the roof support are attacked by termites and cracks in walls are common because of how foundation is laid and quality of bricks and mortar. The difference in building cost for a HABITAT for Humanity house compared to a tea estate house is related in part to differences in quality of construction which implies higher maintenance costs for a HABITAT for Humanity house compared to a new tea estate houses.

²⁰ According to 2010/11 IHS3, 13.7% of rural household expenditure is for actual rent, imputed rental value and utilities such as electricity and fuel. There is no indication of the distribution of these housing expenses for rural Malawi. Data are available for Malawi as whole, however, on the distribution of housing expenditure (10.6% for actual and imputed rent and 5.3% for fuel and electricity). If we take the percent of housing costs for rent for Malawi as a whole and multiply this by the 13.7% of household expenditure for rural Malawi, we arrive at an estimate of 9.1% of household expenditure for “rent” for rural Malawi households.

7.3.1 Firewood for cooking

People in Malawi use firewood for cooking (94% of rural households use firewood for cooking with 99% of such households using an open fire or stove without a chimney according to 2010 DHS).

Firewood is expensive in Malawi relative to incomes in part because natural forests have been denuded. As a result, people in Malawi have difficulty finding firewood and so do whatever it takes to collect fuel for cooking. Buying firewood seems to be out of the question for those in rural areas because of its cost. According to a number of villagers and tea estate workers we spoke to in focus group discussions, one day's supply of firewood costs around K300-500. One large estate indicated that it cost them K7 per worker for firewood for preparing tea and lunch each day which implies somewhere around K100 for a family of 5 persons per day (i.e. K7 x 5 persons x 3 meals) or K3,000 per month. Although it is difficult to know which, if any, of these estimates of cost for firewood is "correct" (around K9,000, K4,500, and K3,000 respectively for one month for a family of 5 persons),²¹ all of these estimates indicate that purchasing firewood is beyond the means of rural workers, even those earning a living wage.

Families in rural Malawi cope with this situation of needing firewood to cook meals and inability to afford to purchase firewood by using various coping methods. Some told us that they use whatever they can find including plastic bottles, plastic bags and refuse which are bad for health. Others indicated that they steal firewood on a regular basis. And others indicated that they were allowed to gather firewood found on tea estates for free. People indicated that they (women) spend considerable time finding firewood with around 5-6 hours per week typical. This is reasonably similar to the average of 3.9 hours per week per family found in 2004/05 IHS2 (Wodon and Beegle, 2006) given that more than one person in a family would collect firewood and that finding firewood in Southern Malawi is relatively difficult since tea estates take up large land areas and it has become more difficult over time to collect firewood as forests have been denuded. Therefore, 5-6 hours per week for firewood collection in tea estate area today is believable.

We valued the time required to collect firewood as K300 per week which implied K1,200 per month value for firewood for a family. Note that K300 is approximately equal to 5/9 of minimum wage (i.e. 5 hours for firewood collection per week divided by 9 hour workday times K551 minimum wage).

7.3.2 Lighting

Since electricity is unavailable and/or unaffordable in rural Malawi, families rely on other sources for lighting. According to 2010/11 IHS3, 54% of rural households use paraffin, 31% use battery, 9% use firewood, 3% use electricity, and 3% use candles. In our focus group discussions with tea estate workers and people living in villages where Oxfam is active, respondents indicated that they relied on either dry cell batteries or paraffin for

²¹ According Programme for Basic Energy and Conservation in Southern Africa (ProBEC), households in Malawi that purchase firewood spend \$11.30 per month for firewood which would be around K5000 at current exchange rate (ProBEC, 2014).

lighting, although reliance on batteries was more common. We also found many more vendors selling batteries than paraffin in the markets we visited. Indeed in one large market where we spoke with the only vendor we found selling paraffin, this vendor indicated that he sold more batteries than paraffin and that he spent K800 per month for batteries for his own home. Perhaps things have changed as regards popularity of batteries compared to paraffin since 2010/11 IHS3 along with increased availability of cheap Chinese batteries and torches.

Workers and villagers indicated, in focus group discussions, that they spend K400-600 for lighting several rooms using batteries. To verify this reported cost of battery usage per month, we purchased an inexpensive Chinese torch with 13 small LED lights (that are similar in light intensity to night lights in United States) in a local market for K650 as well as two sets of inexpensive Chinese AA batteries for K120 per set and ran this torch until it drained these batteries. We found that each set of batteries lasted well over 100 hours that is equivalent to more than 4 hours per day for a month. This experiment verified the K400-600 figure reported by workers and villagers. This implies lighting cost of around K600 per month given that the cheap Chinese torches available in local markets are flimsy and so not likely to last more than one or two years. This is a conservative estimate of lighting costs, given that the light produced in this way is hardly adequate for reading.

7.4 SUMMARY OF HOUSING COSTS

Our estimate of housing costs is K6,500 (\$15.1) per month (consisting of K4,500 for house, K600 for lighting, K1,200 for firewood, and nominal K200 for minor repairs and maintenance). Rental equivalent for a decent house represents around 9% of our estimated cost for a decent living standard for rural Malawi while lighting and firewood costs represent around 3% of the cost of decent living standard for rural Malawi. These percentages are similar to the approximately 9% and 5% respectively for rural Malawi according to 2010/11 IHS3.

8. NON-FOOD AND NON-HOUSING COSTS

Non-food and non-housing costs were estimated in three steps. First, non-food and non-housing costs were estimated based on current expenditure patterns (using household income and expenditure data from 2010/11 IHS3). This approach, which relies on Engels's law,²² is simple and it provides a first ballpark estimate of non-food and non-housing needs. It avoids having to make a long list of needs and then finding the cost for each of these. It is worth noting that this simple approach is often used to estimate living wages (see Anker 2011 review) and poverty lines (Anker, 2006b) including Malawi's (World Bank, 2007). Also note that there is no attempt in step 1 to ensure that decency is achievable on this estimate of non-food and non-housing costs. Step 2 eliminates expenditures that we feel are unnecessary for a decent standard of living (e.g. tobacco and private motor vehicle). Step 3 looks more carefully at important expenditure groups such as health care, education and other

²² Engel's law is from 1857 and states that the percentage of total expenditure that households spend for food decreases as household income increases (see Anker 2011a).

major expenses to evaluate whether available funds estimated in step 2 are sufficient for decency, and adds additional funds when required to ensure adequate funds for decency.

All non-food and non-housing costs for decency for living wage were estimated at K13,365 (\$31.1) per month for our family of 5 persons. This covers clothing and footwear; household furniture, contents and appliances; health care; education; transportation; communications; recreation and culture; eating away from home; and miscellaneous goods and services such as insurance, bank services, funeral burials and personal care. How we arrived at this estimate of non-food and non-housing costs for our living wage is explained below.

For step 1, we deviate from typical approach used to estimate poverty lines and living wages that estimates all non-food costs in one go (Anker, 2006a, 2006b, and 2011). We divide non-food needs and costs into two components: housing whose cost is based on normative standards for decent housing (see previous section) and all other non-food and non-housing needs. It is only the latter that is estimated using a variant of Engel's law. This is done using household expenditure data for rural areas from 2010/11 IHS3.²³

According to 2010/11 IHS3, 62.3% of rural household expenditure in Malawi is for food, 13.7% is for housing, and 24.0% is for all other expenditures (compared to 43.9%, 20.6% and 35.5% respectively for urban Malawi). Therefore, the ratio of non-food and non-housing expenditure to food expenditure is .385 for rural Malawi (compared to .809 for urban Malawi).

For step 2, we made the same three small adjustments we have used in other countries before using the ratio indicated in previous paragraph. We excluded: (i) funds for tobacco because we do not feel tobacco is necessary for decency, (ii) additional costs associated with owning and operating a private vehicle compared to using "public" transport because we feel that it is reasonable to expect workers to use "public" transportation, bicycle, or walk for a living wage; and (iii) took into consideration that meals away from home reduce the need to prepare food at home.²⁴ Taking these three adjustments into consideration, reduced the ratio of non-food and non-housing expenditure to food expenditure from .385 to .350. We used this ratio of .350 to make a preliminary estimate of non-food and non-housing costs for our living wage.

It is important to point out that this ratio of .350 is very low and much lower than what we have used in other countries to estimate a living wage. For example, we used a ratio of .863 for rural Dominican Republic and 1.03 for rural South Africa. Also note that this .350 ratio for rural Malawi is much lower than the .708 ratio we estimated for urban Malawi. This low ratio of .350 means that funds provided for non-food and non-housing

²³ Our approach has several advantages over the typical approach. First and most importantly, our approach uses a normative standard for decent housing which is very important because many workers in rural Malawi live today in substandard housing and this is reflected in household expenditure statistics. Second, use of Engel's law to estimate all non-food costs including housing in one go means that this estimate becomes something akin to a large black box. Our methodology substantially reduces the size of this black box.

²⁴ We assumed that one-half of the cost of meals away from home in household expenditure data is for the food in these meals and one-half is for services such as food preparation, cooking, serving and cleaning. This assumption is based on unpublished analysis by the authors of contents of meals in Dominican Republic, India, China and United States.

expenditures in our living wage for rural Malawi is low, in keeping with Malawi's low development level. Even if rural workers earned our living wage, they would still need to walk long distances, use bicycle taxi infrequently and other transportation rarely as only around K1,600 (\$4) per month is provided for transportation for our family of 5 persons. Only around K1,600 (\$4) per month is provided for clothing and footwear for our family of 5; only around K300 (\$1) per month is provided for recreation and culture; and only around K1,500 (\$4) per month would be provided for communications/phones.

Because blind use of the typical extrapolation method in steps 1 and 2 (even after separately estimating housing costs using a normative standard) has the possibility of replicating poverty found in rural Malawi, we introduce a step 3 where below we look specifically at whether funds included for health care and education are sufficient because these are considered rights in almost all countries.²⁵ We also look specifically at whether funds provided for household furnishings and equipment are sufficient, because we feel that for decency that families should be able to afford to have chairs, beds and mattresses, bike and radio.²⁶ Note that we implicitly assume that other non-food and non-housing expenditures are not critical to decency and so funds indicated by extrapolation method are sufficient (or that families could use part of the 5% provided for emergencies for minor discretionary spending if this is felt to be necessary). Based on following in-depth examinations of health care, education and household furnishings and equipment, we increased funds for non-food and non-housing needs (see following sections).

8.1 WHETHER FUNDS INCLUDED IN NON-FOOD AND NON-HOUSING COSTS ARE SUFFICIENT

8.1.1 Health care

Malawi is facing a number of health care challenges, which include a high burden of diseases with high rates of tuberculosis, malaria, HIV/AIDS and other tropical diseases, and high mortality rates for children and adults. In addition, there is a shortage of skilled health staff, and inadequate funding for health care.²⁷ According to 2010 DHS, 82% of women ages of 15-49 reported a serious problem in accessing health care for themselves when they are sick. "The leading barrier to health care for women in Malawi is concern that there will be no drugs available at the health facility (61 percent). Fifty-six percent of women said that distance to a health facility was a concern. Fifty-four percent of women said having to take transport to a health facility was a concern. Getting money for treatment was a concern of 52 percent. Forty-seven percent of women were concerned that there would be no health provider available to attend to them." All the people we spoke to felt that public health care

²⁵ For example, living wage laws in the United States often set one living wage when medical insurance is provided by an employer and a second higher living wage when medical insurance is not provided by an employer (Anker, 2011).

²⁶ Note that Rainforest Alliance's code of practices for accommodation requires beds/sleeping to be "at least 20 centimeters above ground".

²⁷ World Health Organization, http://www.who.int/countryfocus/cooperation_strategy/ccsbrief_mwi_en.pdf accessed Feb 8, 2014.

is poor and inadequate and focus group discussions with village people and tea estate workers indicated that medicine was often unavailable in public clinics and hospitals.²⁸

Therefore although health care in Malawi is theoretically free, government facilities are relatively poor, and it is not possible to obtain adequate health care by relying solely on government services. For this reason, we include funds for workers to access private health services part of the time.²⁹

Our preliminary estimate of funds for health care included in our estimate of non-food and non-housing costs from step 2 was approximately K800 per family per month. To get an idea if K800 for health care is sufficient, we looked at 2010 DHS and 2010/11 IHS3 data on number of illnesses people in Malawi have and collected information from visits to private clinics and pharmacies on cost of medicines and private consultancy. 18.4% of rural respondents in IHS3 reported being ill in the past 2 weeks. This implies approximately 4.8 episodes of illness per person per year, or 24 illness episodes per year for a family of 5. Of persons who were ill, 41.9% reported having fever and malaria, 11.0% diarrhea, 7.6% respiratory infection, 12.6% sore throat and flu, 6.6% headache, and 20.4% other. Of those who reported being ill, the vast majority sought treatment, and only 6.9% did nothing because the illness was not important; 54.4 % sought treatment at a government health facility, while 30.5% used a local pharmacy or private facilities despite the fact that government facilities were free.

Given the serious problems in accessing public health care reported by the vast majority of respondents in the 2010 DHS and all of the people we spoke to in Malawi, we feel that it is necessary for decency to provide funds for families to be able to use private clinics and pharmacies most of the time.

Visits to private clinics and pharmacies in the Mulanje area and information from key informants indicated that consultations in private clinics cost K100-200 per visit, most common medicine for a bout of malaria cost around K1,200, and most common medicine for dysentery cost around K700. These costs imply that each episode of illness costs approximately K1,000. This would imply a total cost of around K24,000 (\$55.8) per year for family of 5 persons (i.e. 24 illnesses x K1,000 per illness) and so around K2,000 per month.³⁰ This is probably an underestimate of costs for exclusive use of private clinics since it does not include cost of lab test that are common for malaria and ignores that there are sometimes more serious illnesses and injuries. On the other hand, our K2,000 per month estimate, reasonably assumes that serious illnesses and injuries are treated in government hospitals and that some visits during the year are made to government clinics and hospitals. In light of the above estimates of health care costs, we added K1,200 per month to our preliminary estimate of non-

²⁸ It was heart wrenching to hear people say in focus group discussions that they walked home without medication from visits to government clinics or hospitals when medicines were not available, because they could not afford to fill the prescription they were given in a private pharmacy or clinic.

²⁹ Note that health clinics run by tea estates that provide free care to workers and their families are considered as an in-kind benefit that tea estates are given “credit” for as partial payment of our living wage.

³⁰ This estimate is consistent with data from World Bank World Development Indicators indicating that 53.6% of health expenditure in Malawi are private-out-of-pocket expenses and health expenditure per capita in Malawi is \$25 per person per year.

food and non-housing costs (i.e. K2,000 needed – K800 provided in preliminary estimate using extrapolation method).

8.1.2 Education

Malawi's educational system has 8 years of primary school (beginning at age 6) and 4 years of secondary school. User fees were abolished for primary school education in Malawi in 1994 in order to enhance opportunity and reduce barriers to education amongst the poor (World Bank and UNICEF, 2009, p174). Although abolition of school fees helped increase enrollment rates and gender equality, these gains have contributed to deterioration in the quality of education in Malawi (World Bank and UNICEF, 2009).

Almost all children attend government primary school in rural Malawi. According to 2010/11 IHS3, net attendance rate for primary school is 84.6% for rural Malawi, and 89% of primary school students in rural Malawi attend a government school. However, classes are often extremely large. The student teacher ratio in primary school is 83 according to IHS3, and "there is an alarmingly high rate of teacher absenteeism" (World Bank, 2007). Not surprisingly, there are high repeater rates and dropout rates, so that only 75.7% of children who begin primary school complete grade 5 (Government of Malawi, 2010a). Secondary school attendance rates are low in rural Malawi. The proportion of 14-17 year olds attending secondary school in rural Malawi is only 8.8% according to 2010 DHS. The vast majority (88%) of rural high school students attend a government school (2010/11 IHS3).

Despite low secondary school attendance rates, we feel that children of workers earning a living wage should be able to afford to send their children to a government secondary school. For this reason, we collected information on school costs. We assume that workers earning a living wage would need funds for one child to attend a government primary school and another child to attend a government secondary school (with a third child below age 6).

Despite the fact that government primary schools are theoretically free, families are expected to contribute modest amounts towards running the school. A focus group discussion with workers on one tea estate indicated a total cost of K740 per term for primary school (K200 for a general purpose fund, K20 for a lock, K50 for porridge, K20 for pens and miscellaneous supplies, and K450 for exercise books). This modest cost for primary school of K2,220 (\$5) per year does not include cost of shoes or school uniforms, which while not obligatory are considered desirable by World Bank and UNICEF (2009). School costs are much higher for secondary school (which has school fees), and 26% of dropouts from secondary school indicated that lack of money was the reason in 2010/11 IHS3. We found fees for government secondary school varied from K3,500 to K4,500 per term (or from K10,500-K13,500 per year). This does not include other costs, such as for pens, exercise books, exams, etc., which are undoubtedly greater than the miscellaneous costs mentioned above for primary school of K2,220 per year. Average secondary school fees plus miscellaneous costs per student, therefore, is at a minimum somewhere around K14,000 per year as a conservative estimate as this does not include cost of school uniforms, shoes, or transportation costs.

Based on above cost figures, we estimate that school expenses for a family with one child in secondary school and one child in primary school are around K16,500 per year. This is approximately K6,800 more than the K9,700 is implicitly included for education in our preliminary unadjusted estimate of non-food and non-housing costs. This difference is not surprising given that only 1.5% of rural household expenditure is for education according to 2010/11 IHS3. In light of above, we added K6,800 per year to non-food and non-housing expenses. This is equal to K567 per month that we rounded down to K550 (\$1.3) per month and added this to our preliminary estimate of non-food and non-housing costs to ensure that sufficient funds are available to workers to cover educational expenses through secondary school at government schools for their children.

8.1.3 Consumer durables

People in rural Malawi have very few possessions. According to 2010/11 IHS3, a minority of rural households own a bed (28%), chair (34%), bicycle (41%) or radio (43%).³¹ This reflects the high level of poverty found in rural Malawi at present. These types of consumer durables are prized possessions that villagers we spoke to in focus group discussions aspire for. It is our feeling that it is not too much to expect workers to be able to afford these items on a living wage. With this in mind, we found out around how much these items cost and calculated what this means in terms of monthly cost using assumptions on how long these items last. A chair costs around K3,000, bed around K8,000, mattress around K10,000, used bicycle around K15,000, and radio around K6,000. Assuming that all items last 30 years except for mattress (15 years), and that a family of 5 needs 5 chairs, 4 beds, 4 mattresses, 1 bicycle and 1 radio, yields a monthly use value/cost of around K400 (\$0.93) for these consumer durables. We added this amount to funds for non-food and non-housing expenses.

9. MARGIN ABOVE COST OF A BASIC QUALITY LIFE TO HELP ENABLE SUSTAINABILITY

Since large unforeseen expenses can quickly throw workers living at a basic life style into poverty and debt from which they may not be able to recover, such as illnesses, HIV/AIDS, accidents, funerals, etc., it is common when estimating a living wage to add a small margin above the cost of a basic quality life to allow for unexpected events. It is also typical to include some additional funds to allow for some discretionary spending. Margins of 5 and 10 percent are common.

We decided to add a 5 percent margin to allow for unforeseen emergencies and some discretionary spending. This works out to be K2,595 (\$6.0) per month. Note that interest and debt payments are ignored in our calculations. We assume that a living wage would enable workers to stay out of crippling debt.

³¹ Also only 27% of rural households own a table according to 2010/11 IHS3. We did not consider a table as essential for decency in rural Malawi.

10. FAMILY SIZE NEEDING TO BE SUPPORTED BY LIVING WAGE

Living wage is a family concept. This is clearly shown by the comprehensive ILO review of living wages (Anker, 2011). The need for a living wage to support a family is also included in the living wage definition agreed to by Fairtrade International, Rainforest Alliance and UTZ Certified (see beginning of this report). For this reason, it is necessary to determine an appropriate family size for a living wage for rural Malawi.

We use a family size of 5 persons (two adults and 3 children) to estimate our living wage for rural Malawi. This family size is a conservative assumption that is consistent with: (i) number of children rural women typically have and (ii) average household size in rural areas. It is worth noting that almost all women in Malawi have children as only 3.8% of women ages 25-29 and 1.6% of women ages 45-49 have never given birth according to 2010 DHS. See Annex B for a detailed discussion of how we arrived at our family size of 5 persons.

Note that we include an additional K1,500 (\$3.5) per month (around 1 workday at a living wage) to allow workers to help less fortunate relatives. This is felt to be necessary, because of the admirable African tradition of sharing resources, as workers with wage income (especially those earning a living wage) have little choice but to help relatives and these additional funds enable them to do this without impoverishing themselves. Including these funds helps to justify our decision to use a family size of 5 persons rather than a larger family size of 5.5 or 6.

11. NUMBER OF FULL-TIME WORKERS PER COUPLE PROVING SUPPORT

As living wage is a family concept, it is appropriate to expect more than one adult in a family to provide support through work in typical families that include two adults. The most common assumptions used for this in previous living wage studies are 1 worker or 2 workers per family (see Anker, 2011 review). In other words, it is usually assumed that either both spouses/partners work full-time or that only one spouse/partner works full-time. The assumption of 1 full-time worker is based on the male breadwinner model of the household that was the accepted norm 50 to 100 years ago in Western countries as well as in some parts of the world today. The 2 full-time workers assumption is based on the idea that all adults work full-time year round. Neither assumption is realistic for Malawi. The 1 worker assumption is not realistic for Malawi, because almost all adult men and women work in rural Malawi. Nor is the assumption that both all adults work full-time realistic for rural Malawi. Many adults cannot find work around the year, particularly in non-peak seasons; many families with small rain fed farms typically work only part of the day most of the year; and some adults are full-time care givers for children or parents.³²

³² In addition when both parents/partners work full-time year round, expenses for child care, transportation, and clothing typically increase and these additional expenses are not considered in our living wage calculation (although this may not be too important in rural Malawi).

We use 1.59 full-time equivalent workers per couple to estimate our living wage. How we arrived at this figure is explained in the remainder of this section.

To help determine a reasonable estimate for the number of full-time equivalent workers per couple to use to estimate a living wage for rural Malawi, we gathered available data on: (i) age and sex specific labor force participation rates, (ii) unemployment rates, and (iii) typical number of hours of work. This information is indicated in Table 2.

Labor force participation rate in rural areas of Malawi for ages 25-59 is around 96% (between 95% and 98% according to 2010/11 IHS3, 2004/05 IHS2, 1998 Population Census, and ILO 2013).^{33, 34} These are very high rates for the world, and they indicate that almost all adults in rural Malawi engage in some form of work. Most work is on small subsistence type farms (76%) with another 13% engaged in self-employment or own business activities according to 2008 Population Census. Only around 6% have wage or salary employment according to 2010/11 IHS3.

Open unemployment is not common in rural Malawi. It was only 1.9% for rural persons ages 25-59 according to 2008 Population Census and around 4% according to 2004/05 IHS2. We decided to split the difference and use 3%. One would expect a low open unemployment rate for rural Malawi because the ILO definition of unemployment requires people who worked less than one hour in the past week to actively look for work in the past week. There is little reason for people in rural Malawi who did not work in the past week to actively look for work given that there are so few jobs available.

Underemployment and less than full-time work is common in rural Malawi. Many are unable to find full-time income generating work around the year. Work even on own farm is far less than full-time most of the year partly because agriculture is rain fed and so there is one growing season per crop and partly because there is a shortage of affordable inputs such as fertilizer, pesticides and seeds (Tango International, 2003 cited in Wodon and Beegle, 2006). Fact of the matter is that people in rural Malawi do not have income generating work anywhere near full-time when viewed on an annual basis. This needs to be taken into consideration when estimating typical number of full-time equivalent workers per couple. Persons 25-59 engage in income generating activities for 27.5 hours per week on average according to 2004/05 IHS2 and for 24.6 hours per week on average according to 2010/11 IHS2.^{35, 36} Adults in rural Malawi also spend 1.5 hour per week collecting

³³ Ages 25-59 was used because those younger than age 25 may still be in school and in any case are less likely to have families of their own; and many persons over age 59 are retired.

³⁴ We ignored reported labor force participation rates from 2008 Population Census (85%) and 2010 DHS (79%). First, it is possible that these sources collected their data in months when labor force participation rates are relatively low (June for 2008 Population Census and June-September for 2010 DHS). Second, results from 2008 Population Census are not consistent with results from 1998 Population Census which is in keeping with other sources. Third, 2010 DHS found that roughly one-half of persons 25-49 who did not work at the time of the survey did work at another time during the year; in addition, DHS data are for all-Malawi and urban areas may have lower participation rates than rural areas.

³⁵ Average number of working hours differs by type of work. According to 2004/05 IHS2, it is 16 hours per week for agriculture and fishing (67% of all workers); 20 hours per week for non-agriculture and non-fishing business (6.8% of

firewood on average according to IHS2 and 1.8 hours per week according to IHS3. This means that adults in rural Malawi work around 29.3 hours per week in income generating activities according to IHS2 and 26.4 hours per week according to IHS3 (including time spent collecting firewood since we consider firewood collection as a form of in-kind income that helps families avoid the need to purchase firewood). The average of these two estimates is 27.9 hours per week. This is 63% of a 44 hour full-time work week and 58% of a 48 hour full-time workweek.

Using the figures noted above, we estimated that there are .59 full-time equivalent workers per adult in rural Malawi assuming 44 hours as full-time work (i.e. .96 labor force participation rate x 1.0 -.03 unemployment rate x .63 full-time work hours). This in turn implies 1.59 full-time equivalent workers per couple for rural Malawi when one adult is a permanent tea estate worker who works year around.

TABLE 2. INFORMATION USED TO ESTIMATE NUMBER OF FULL-TIME EQUIVALENT WORKERS PER COUPLE FOR LIVING WAGE FOR RURAL MALAWI

Source	Labor force participation rate (ages 25-59) ^a	Rural unemployment rate
2010/11 IHS3	94.8% (rural)	
2004/05 IHS2	96.3% (national)	4% ^d
ILO 2013	97.7% (national)	
1998 Population Census	94.7% (national)	
2010 DHS	79.1% ^b (national)	
2008 Population Census	83.0% ^c (rural)	1.9% ^b
Average hours worked per week (including firewood collection)		
2004/05 IHS2	29.3 (national)	
2010/11 IHS3	26.4 (rural)	

Notes: ^a Ages 25-59 is preferred age group for estimating living wage because it excludes younger persons who may be in school and/or not yet joined the labor force. ^b DHS data are for ages 25-49 and all-Malawi. Note that approximately one-half of persons 25-49 who were not in the labor force in past week worked in another part of the year. ^c 2008 Census was conducted in June. ^d Unemployment rate was 5% for all-Malawi that we reduced to 4% as unemployment rate is lower in rural areas than in urban areas (e.g. 6.4% for rural and 7.8% for all-Malawi for ages 15+).

Sources: For labor force participation rates: 2008 Census table 3.6 and 3.7; 2010 DHS tables 3.5.1 and 3.5.2; 2010/11 IHS3 table 6.10 and 6.11; 2004/05 IHS2 table 5.1 and 5.4; ILO (2013). For unemployment rates: 2008 Census table 5.1; 2004/05 IHS2 table 5.1.

workers); 13.2 hours per week for casual, part-time or ganyu (12.7% of workers); and 35.5 hours per week for salary and salary employment (5.7% of workers).

³⁶ "On annual basis, 15.6% of adult men work less than 10 hours per week. This proportion is greater than 20% in some months. ... For women the proportion working less than 10 hours per week is much smaller." (World Bank 2007)

12. IN-KIND BENEFITS AS PARTIAL PAYMENT OF LIVING WAGE

In-kind benefits provided by employers can reduce the amount of cash income that workers require to ensure they receive a living wage. For this reason, it is reasonable to take it into consideration the value of free in-kind benefits when determining if workers receive a living wage. At the same time, it is necessary to be careful in valuing in-kind benefits as partial payment of a living wage to ensure that this is not abused or result in a dependency wage.

It is common for tea estates to provide workers with a number of free in-kind benefits. It is common to provide workers with tea in the morning, lunch at midday, and funeral (burial) expenses for workers and direct dependents that die. It is also common for tea estates to provide housing and water to some workers. Some estates provide a medical clinic with ambulance service when necessary to government hospital, school facilities for government provided education, crèche for preschool children, and recreational support. Some in-kind benefits are specific to particular companies such as: additional paid maternity leave above legal requirement and provision of maize at reduced price in months before new harvest when maize prices typically increase. In this section, we discuss which in-kind benefits are appropriate to consider as partial payment of living wage and how to establish an appropriate monetary value to them that is fair and reasonable to both workers and tea estates. We first discuss the principles and guidelines on which our estimates are based and then apply these principles and guidelines to in-kind benefits provided by tea estates in Malawi.

12.1 ILO WAGES CONVENTIONS AND NATIONAL PRACTICES ON ACCEPTABILITY AND VALUE OF IN-KIND BENEFITS AS PARTIAL PAYMENT OF WAGES

We use ILO conventions and national practices for guidance on whether and how to value in-kind benefits as partial payment of living wage for Malawi. ILO Conventions 95 and 99 allow for in-kind benefits to be considered partial payment of wages if they are “authorized by national laws or collective agreements or arbitration”, and if they “are either customary or desirable because of the nature of the work”, and if they are “appropriate for the personal use and benefit of the worker and his family”. There is also considerable national law and practice on acceptability and value of in-kind benefits as partial payment of wages, especially minimum wage. Particularly relevant for Malawi in our opinion is South Africa’s minimum wage law for farm sector as this is for farm sector in a nearby African country. This law requires that minimum standards for housing and housing amenities need to be met before free accommodation can be considered as partial payment of minimum wage. When valuing in-kind benefits as partial payment of minimum wage, no more than 10% can be deducted from a worker’s pay for free housing and no more than 10% for free food. Amount deducted from wages cannot exceed cost to the employer of supplying accommodation or food.

12.2 DIFFERENCE BETWEEN LIVING WAGE AND MINIMUM WAGE AS REGARDS CONSIDERING IN-KIND BENEFITS AS PARTIAL PAYMENTS OF WAGE

Malawi minimum wage law requires that the minimum wage be paid in cash. It cannot be reduced by the value of in-kind benefits as partial payment of the minimum wage.

There are reasons why it is reasonable to allow in-kind benefits to be considered as partial payment of a living wage even when they are not allowed as partial payment of a minimum wage as in Malawi. First, minimum wage is rarely high enough to support a decent living standard whereas living wage provides for a decent living standard. This means that there is necessarily great concern about lowering the cash wage received as regards minimum wage whereas in contrast there should be less concern as regards allowing in-kind benefits to be considered as partial of a living wage. Second, paying a living wage is voluntary. This means that there are no legal restrictions for living wage such as there are for minimum wage.

12.3 HOW TO VALUE IN-KIND BENEFITS

According to ILO Conventions 95 and 99 (ILO NORMLEX 2013), the value of in-kind benefits as partial payment of wages should be “fair and reasonable”. Unfortunately, the phrase “fair and reasonable” included in ILO conventions and national law is vague. Not surprisingly, how in-kind payments are valued as partial payment of wages varies across countries. None-the-less, a number of general principles can be extracted from ILO conventions and national laws and practices. We use these to value in-kind benefits as partial payment of our living wage for rural Malawi.

12.3.1 Criteria for in-kind benefit to be considered as partial payment of living wage:³⁷

To be considered as partial payment of a living wage, in-kind benefits need to be: (i) **regular** so that worker can count on receiving the benefit; (ii) considered to be of **benefit and value to worker** for their of their family’s personal use; (iii) **customary** in that a reasonable number and percentage of estates provide the benefit; (iv) **meet minimum standard** because of the decency concept of a living wage;³⁸ and (v) **paid within 12 months** because sufficient current income is required to live.

³⁷ Note that some governments require that workers agree to in-kind benefits before they can be considered as partial payment of wages (e.g. Swaziland, Guiana, California, United Kingdom). We follow the majority interpretation of the American Fair Labor Standards Act that considers acceptance of employment as constituting agreement to in-kind benefits provided by employer (Luers, 1998).

³⁸ Some countries (including South Africa) specify that minimum conditions for free accommodations have to be met (e.g. for sanitation, lighting, cooking facilities and water supply) before this benefit can be considered as partial payment of minimum wage (South Africa Ministry of Labour, 1997). Connecticut law specifies that free meals need to be nutritionally balanced (and include adequate portions from four major food groups: egg, meat or fish; cereals, bread or potato; fruits or vegetables; and coffee, tea or milk) before free meals can be counted as partial payment of wages (ILO, 2003). It is worth noting that the need for in-kind benefits to meet minimum acceptable standards before they can be considered as partial payment of wages included in national laws is consistent with the use of normative standards to estimate a living wage.

In-kind benefits that are not considered as partial payment of living wage are benefits that: (i) do not increase disposable income such as paid leave; (ii) protective clothing and equipment required for work that are universally considered an obligation of employers to provide; and (iii) mandatory payments by employer to government such as for social security.

12.3.2 General guidelines used to value in-kind benefits as partial payment of living wage

The following guidelines were used to estimate the value of in-kind benefits as partial payment of living wage provided by tea estates in Malawi based on the above principles. They balance the interests and views of workers and employers so that the values we estimate and assign are fair and reasonable to both stakeholders.

- **Value of an in-kind benefit should not exceed cost to employer.** This prevents employers from “profiting” on providing in-kind benefits. This is a common principle in national law.³⁹
- **Value of an in-kind benefit should not exceed replacement cost to worker if s/he had to purchase it.** This is a common principle in national laws⁴⁰ and helps ensure that the value used is felt to be “fair and reasonable” to workers.
- **Values for in-kind benefits should not exceed certain preset percentages.** The reason for setting limits when valuing in-kind benefits as partial payment of living wage is to ensure that cash payment of living wage remains high and so workers are able to choose how to spend most of their wage. The principles of choice and self-determination are important. Note that it is common for national minimum wage laws to set such limits.⁴¹
 - **Value for free accommodation should not exceed 15 percent of living wage.** This percentage is relatively low for housing around the world especially for urban areas.
 - **Value for any other in-kind benefit should not exceed 10 percent of living wage.**
 - **Total value of all in-kind benefits in total should not exceed 30 percent of living wage.**⁴²
 - **Value for in-kind benefit cannot be very small value** (set for rural Malawi at less than around K4000, about \$10 per year) to avoid being petty as well as for practical purposes as regards both estimating and auditing living wage.

³⁹ For example, value cannot exceed cost to employer in Guatemala, Uganda, and Ukraine (ILO, 2003).

⁴⁰ For example, Oregon uses fair market value; India uses retail prices at nearest markets; Mozambique uses current prices in the region; Czech Republic, Israel, and Slovakia specify that value cannot exceed ordinary market value (ILO, 2003).

⁴¹ This is common in many countries including South Africa.

⁴² Examples include: 30% of minimum wage in Colombia; 30% of wage in Brazil; 30% of wage of rural workers in Guatemala; 50% of wage of domestic workers in Mexico; 15-20% of wage of agricultural workers in Greece and 50% in Chile (ILO 2003).

12.4 VALUE OF SPECIFIC IN-KIND BENEFITS AS PARTIAL PAYMENT OF LIVING WAGE FOR TEA ESTATES IN MALAWI

Tea estates in Malawi commonly provide a number of in-kind benefits that meet the criteria indicated above to be considered as partial payment of living wage. These include free meals at work, housing on estate property, health care clinic, recreational services, crèche, and educational facilities. There are also a number of other common acceptable in-kind benefits for living wage that do not meet the criteria of being worth at least K4,000 (about \$10) per worker per year. Note that other common benefits provided by tea estates such as holiday leave,⁴³ gratuity,⁴⁴ security for housing compounds,⁴⁵ and protective clothing⁴⁶ do not meet our above criteria and so were not considered as possible in-kind benefits for partial payment of living wage.

The following sections discuss how we valued the in-kind benefits commonly provided by tea estates. Note that some in-kind benefits such as housing are only provided to some workers, while other in-kind benefits such as meals at work are provided to all workers. Also note that we had limited time available to look into provision and cost of in-kind benefits and so needed to rely heavily on information on costs indicated by TAML and the four estates that we were able to visit personally when we could find out in detail how benefits are provided as well as how estates/TAML estimated costs. Our feeling is that TAML and the tea estates we visited were fully forthcoming and honest in the estimates of costs they provided to us, but that there was at the same time considerable confusion and variation in their calculation of costs. In the end, we feel that we were able to obtain a good picture of in-kind benefits and indicate below where we feel less secure in our calculations.

12.4.1 Meals provided to workers

All tea estates provide workers with exactly the same breakfast and lunch as this is a TAML prescribed standard. Tea with sugar (30 grams) is provided in the morning. Lunch consists of 100 grams of beans and 200 grams of maize. Vegetables are sometimes provided by some estates but not often. Meat, fish or fruit are not provided. Breakfast and lunch are of significant value to workers and therefore we include free meals as partial payment of living wage. The issue is rather how to set a value for meals as partial payment of living wage. How we do this is discussed below.

⁴³ Paid annual leave, although a cost to employer, does not reduce the necessary expenditures of workers or their disposable income.

⁴⁴ Gratuity was excluded because it is not received within a 12 month period, and so cannot be used for current living expenses.

⁴⁵ TAML considers security for housing compounds on tea estates as an in-kind benefit that should be considered as partial payment of living wage. Our feeling is that this benefit should not be considered as partial payment of living wage for two reasons. First, estates have their own benefit and reason for maintaining security on the estate that has nothing to do with protecting worker belongings. One person told us that estates were mainly concerned with protecting against theft of estate property. Secondly, it is not the norm for workers who live do not live on an estate to engage security guards to safe-guard their belongings.

⁴⁶ Although TAML listed protective clothing as an in-kind benefit, we do not feel that it should be considered as partial payment of living wage because it is not for the personal use of the worker and family – but for use at work. Provision of clothing and equipment around the world is considered to be an obligation of the employer.

The two main ways of estimating value of free meals for partial payment of living wage is cost to employer and replacement cost to workers.

Cost of meals to tea estates

TAML provided us with information on cost of meals to tea estates at the end of 2012. Independently, we obtained this same information from 4 large estates in January 2014. There was a surprisingly wide range of values reported for the cost of identical TAML meals (K34 – K80 per workday at end of 2012 in January 2014 kwacha; and K49 – K96 in January 2014).⁴⁷ Estimates were K71 on average (adjusted for inflation) from TAML and K76 from the four estates we visited. Therefore, we estimated that the average reported cost of meals to tea estates is somewhere around K75 per day.

Replacement cost of meals to workers

We estimated cost of the food in TAML meals if workers had to purchase this food at K76 (K12.3 for sugar in morning tea, K32 for maize for lunch, and K31.2 for beans for lunch). This estimated cost is similar to the reported cost of the meal to the tea estates. Note that although this estimate of K76 for food in TAML meals excludes labor costs and fuel costs, labor cost are assumed to be zero for meals prepared at home and fuel costs are included elsewhere in our estimate of living costs.

Summary for meals

Given the above estimates of the value of free tea estate meals, we decided to use K75 per day as partial payment of living wage for meals. This translates into approximately K1,625 (\$3.8) per month for permanent workers assuming that they have 3 weeks of leave or sickness per year and have 23 workdays per month on average as indicated in section 13.2.2 (i.e. K75 per workday x 23 workdays per month x 49/52 weeks per year of work).

Note that the above approach and estimate differ from our usual approach of valuing a free lunch at the cost of lunch in our model diet. We deviated from our usual approach, partly because tea estate meals are identical and their ingredients are known and so it was easy to determine their cost, and partly because a replacement meal from on our model diet is of better quality and higher cost (whereas in other countries we often find free meals to be of higher cost).

⁴⁷ The large range in reported cost of identical meals probably reflects differences in: (i) which costs each estate included (e.g. food only, firewood, time of cooks and washers, dishes and silverware, pots and pans, etc.), and (ii) when each estate purchased maize and beans as these are typically purchased in large quantities when they are relatively inexpensive. To get a complete picture of the cost of meals to estates, one would need to take into consideration cost of: food in meals, cooking fuel, dishes, pots and pans, labor, etc. We do not feel that it would be worth the effort to estimate complete cost of tea estate meals because the value to workers of free meals should not exceed the food content of these meals to be fair and reasonable to workers in our opinion, especially given that tea estates have their own reasons and benefits for providing free lunch and tea.

Before moving to the next section, we feel the need to comment on the poor nutritional quality of TAML prescribed meals. Breakfast (tea and sugar) provides empty calories with no nutritional value. Lunch (200 grams of maize and 100 grams of beans) includes only two food groups. Since these “meals” only include two food groups, they do not meet minimum nutritional standards and for this reason we thought about not allowing the value of free tea and lunch as partial payment of living wage.⁴⁸ Despite this, we decided to consider free meals as partial payment of living wage in light of the poor nutritional situation in Malawi. In our opinion, both workers and estates would benefit in future if inexpensive vegetables such as green leafy vegetables were regularly added to lunch and dried fish was added at least once per week. It would also help if breakfast included something more substantial and nutritious than only tea and sugar. This would improve nutrition and the productivity of workers given the poor nutritional level of people in Malawi at present. Such changes would not be too expensive.

12.4.2 Housing

Tea estates provide housing to workers and their families. However, only a minority of workers live on a tea estate. According to Chirwa (2012), 27% of workers on three estates he studied lived in estate housing. One large company we spoke to indicated that 45% of its workers lived on its estates and another large company indicated that 21% of its workers lived on its estates.

Free housing is obviously of value to workers who receive this benefit. However before free housing can be considered as partial payment of living wage for these workers, it needs to meet minimum decency standards which we set based mainly on the locally adapted Rainforest Alliance/TAML standard for acceptable housing (see section on housing costs). This standard requires cement floor, zinc roof, and brick walls. According to managers from several large tea estates we spoke to, relatively few houses for workers on tea estates presently meet this agreed standard. However, there is a plan in place to move toward achieving this minimum standard over time for all housing on Rainforest Alliance certified estates.

For the relatively few tea estate workers at present who live on-farm and receive free decent housing for themselves and their immediate family year round,⁴⁹ we use the replacement value of acceptable housing indicated above in the section on housing costs. This is K4,500 per month. This is much higher than the K2,000 per month cost of maintaining estate housing per worker indicated to us by TAML.⁵⁰ Although we were not able to fully understand how tea estates estimated housing costs, we suspect that the TAML reported estimate is an

⁴⁸ State of Connecticut in United States, for example, does not allow free meals to be considered as partial payment of a wage unless it is a balanced meal with food from four major food groups and so includes egg, meat or fish; cereal, bread or potato; fruits or vegetables; and coffee, tea or milk (ILO, 2003).

⁴⁹ Housing that is only provided on a seasonal basis is not counted, because it does not reduce housing costs of workers, since workers would still need to maintain a house to live for their family throughout the year and for themselves during non-peak season.

⁵⁰ Note that when a husband and wife are both permanent workers on a tea estate and they are provided an acceptable house, value of this house should be only counted as partial payment for one worker (not both).

underestimate for two reasons. First, it appears that the TAML estimate is based on cost per worker (including seasonal workers) and not per housing unit; and second, this estimate appears to be mainly for maintenance costs.

12.4.3 Water to houses on plantations

Water is provided to workers living in estate housing. Having water available relatively near to one's home is of value to workers as this reduces the time required to collect water, which is often substantial in rural Malawi. Therefore, it is possible to consider free water for estate housing as partial payment of living wage.

There are costs associated with providing water such as for operation and maintenance of boreholes. According to information from TAML, cost of providing water to workers living in estate housing was K6.5 per workday on average at end of 2012 which we increased to K8.1 to take into account inflation since then. This works out to be approximately K2,400 per year per worker or K200 (\$0.5) per month. Although we were unable to fully understand how estates estimated the cost of providing water to estate housing, the TAML reported cost is well below the minimum amount we set for consideration as partial payment of living wage (i.e. well below approximately K4,000 per year per year). Also, this in-kind benefit is only provided to the minority of workers who live in estate housing. Therefore, we do not include cost of providing water as partial payment of our living wage.

12.4.4 Health care

Many tea estates have a medical clinic for workers and immediate family members when a worker is employed. Transportation by ambulance to a local hospital is also often provided when it is needed. Estate run clinics are of significant value to workers despite the fact that government clinics and hospitals are free. This is because government clinics and hospitals often run out of medicines and their services are widely considered to be of poor quality. In addition given the poor condition of roads in rural Malawi and high cost of transportation, free ambulance service can be of critical importance. At the same time, it is worth noting that seasonal workers and their dependents can only access estate medical services when they are employed.

According to information provided by TAML, medical clinics cost estates K12.8 per worker per workday on average at the end of 2012, which we increased to K16.1 to take into consideration inflation since 2012. This works out to be K419 per month and K5,023 (\$11.7) per year. This is similar to the K5,436 per full-time equivalent worker per year included in the 2013/14 budget of one large estate according to the print out provided to us by this estate (assuming that seasonal workers have access to medical services for half the year). Clinic costs for this estate were around one-third for labor, medicines, and transport/ambulance. These estimates of clinic costs to tea estates are around 1/5 of the K2,000 cost per month for private medical care we estimated in section 8.1.1 is necessary for a family of 5 persons. The most important reason for this difference is that family members of workers often do not use the estate clinic when they need treatment, since only a

minority of workers live on a tea estate, it is often more convenient to go to a pharmacy or health facility closer to home than to travel from home to a clinic on a tea estate.⁵¹

Our feeling is that the K419 tea estate average estimate of clinic costs is an underestimate (as is K453 detailed cost estimate from one large estate). These estimates do not appear to include for example management time or cost, or building maintenance or electricity costs. Estimating clinic costs is complicated and there was considerable variation in how TAML tea estates estimated this. Based on the information we had available to us, we decided to increase the TAML estimate somewhat to K700 per month as the cost/value of medical clinic as partial payment of living wage. However we feel that this is only a very approximate estimate.

12.4.5 Burial expenses

When a worker or immediate family member passes away, estates typically pay for the coffin and transport the body to the home area for burial. This can be expensive, especially for transport. This benefit is of value to workers as burial costs are high relative to worker pay. This benefit is similar to insurance that has a low premium and high value when required.

Burial expenses for estates are relatively small per worker (with exception of one small estate whose workers we were told typically come from an area far away from the estate). With the exception of that one estate, average cost was reported to be K5.7 per workday at the end of 2012 according to information provided by TAML. We increased this to K7.2 per workday to take into consideration inflation since the end of 2012. This works out to be approximately K2,200 (\$5) per permanent worker per year. This amount is well below the lower limit of K4,000 per year we set as worth considering as partial payment of living wage.

12.4.6 Recreation support

Most estates reported expenses for sports equipment, football league, and transport costs for sports teams. Although this benefit appears to only go to team members, we decided to consider this as of value to all workers because everyone gets the chance to watch and root for their estate team when they play against another estate team. This seems to be important to workers, because there is so little recreational activity available for them.

Supporting a football team cost estates on average around K10.7 per workday at end of the 2012 according to information provided by TAML, which we increased to K13.4 per worker per workday taking into consideration inflation since 2012. This works out to be approximately K4,200 (\$9.8) per worker per year or K350 (\$0.8) per month. We use this value for partial payment of living wage.

⁵¹ This lower cost is also consistent with the approximately 1 visit per worker per month average (including visits of family members) to the estate clinic that the medical officer on one large estate indicated to us, as this is half of the number of visits to health facilities expected from a family of 5 persons estimated in section 8.1.1.

Note that we feel that estates could do a better job of providing recreational facilities for workers. It would not be expensive to erect covered sheds where workers could meet and where videos and/TV could be shown. We have found it common in Economic Processing Zones around the world that have housing do this.

12.4.7 School building and crèche

Some tea estates provide a crèche for children of workers. Some tea estates also maintain a school building on the estate for government provided education. This reduces time required to walk to school as well improves quality of facilities. Note that tea estates do not assist teaching in schools as they are not allowed to do so as this is the sole responsibility of government. This in-kind benefit is of value to workers and therefore worth considering as partial payment of living wage.

With the exception of one small estate, education costs reported by TAML for both the crèche and school maintenance was around K5 per workday at end of 2012, which we increased to K6.3 to account for inflation. This implies around K2,000 (\$4.6) per year or K167 (\$0.4) per month which is below minimum value we set for consideration as partial payment of living wage. However, as we do not think that the above TAML cost estimate fully takes into account all costs as well as because this is an important benefit, we feel this in-kind benefit should be considered as partial payment of a living wage despite its apparently low cost and so we use K167 per month for this as partial payment of living wage (i.e. K2,000/12).

In the future, it would a good idea for tea estates and TAML to separate school maintenance costs and costs for crèche. Since not all workers have children in the crèche, it would be appropriate to count the cost per child as an in-kind benefit to workers with children who use the crèche, and not to other workers (just as housing should only count as an in-kind benefit to those who have housing on an estate). Also when children are provided with nutritious food in a crèche, the value of this food could count as an in-kind benefit. While we did not inquire deeply as to the content of meals in crèches, one estate did report providing children in its crèche with fresh milk from its own dairy herd, which is critically important for the health and development of young children, and very expensive in Malawi to purchase.

12.4.8 Selling maize to workers at reduced price in high price months before new harvest

Some large tea estates sells maize to workers in the months before a new harvest at a lower than market price. Other large estates did this in the past but discontinued doing this because they lost money doing this in some years. This service is often of substantial value to workers, because price of maize often increases sharply before a new harvest. It is, therefore, worth considering as partial payment of living wage. The issue to us is not whether this should be considered as partial payment of living wage but what the cost of this is to an estate, because one principle for valuing in-kind benefits as partial payment of living wage is that its value cannot exceed cost to the employer to ensure that the employer does not make a profit on this.

Some tea estate buy a large quantity of maize at the time of a new harvest when prices are low and store this maize until the period before the next harvest when prices typically increase, sometimes sharply. These estates then sell the maize they have stored to their workers at the cost they paid earlier. This is of clear benefit to workers. There are, however, costs to the estate. There are storage costs, fumigation costs, possible damage and lose, and tied up working capital with its associated opportunity cost. It is also possible for an estate to lose money in years when the price of maize falls between harvests which sometimes occurs when government releases stock to reduce maize price in the market. We estimated the opportunity cost to an estate presently is roughly K4,300 per worker per year for workers with a family of 5 persons based on the following assumptions: maize is stored for around 9 months, opportunity cost of working capital is 29% percent (current inflation rate plus 5%),⁵² cost of maize is K144 per kilo (current price one estate is selling maize to workers), and each worker buys 2 month supply of maize for his or her family. We increased the K4,300 estimated cost per worker per year to estates to K5,300 to take into consideration other costs such as fumigation, storage, possible lose due to damages, and possible loss incurred in years when maize price falls between harvests. We use this K5,300 per year value or K442 (\$1.0) per month as partial payment of living wage for the estates that provide this service.

13. COMPARING OUR LIVING WAGE ESTIMATES TO MINIMUM WAGES, PREVAILING WAGES IN TEA SECTOR AND OTHER WAGE INDICATORS: WAGE LADDER

It is useful to compare our living wage to other wage indicators (including prevailing wages on tea estates) to get an idea of the extent to which our living wage is relatively high or low.

13.1 PREVAILING WAGES ON TEA ESTATES

Before making comparisons, it is necessary to know prevailing wages on tea estates. Despite the fact that there is a basic minimum daily wage of K560 per day for all tea workers set by TAML (Tea Association of Malawi), income of tea estate workers is quite variable. It depends on amount of work available and possibilities for bonuses or overtime. Income of workers varies by: (i) season, (ii) year, (iii) tea company, (iv) estate within tea company, (v) type of worker (pluckers, factory worker, field worker), and (vi) whether worker is a seasonal or permanent worker.

13.1.1 Bonus and overtime pay

Tea pluckers receive bonus pay when they pluck more than the minimum prescribed rate of 44 kilos of green leaf tea per day. This is relatively easy to achieve during peak season. The bonus is paid on a proportional basis (e.g. if someone plucks 66 kilos in a day, they receive 1.5 times K560). Factory workers earn 1.5 times pay when they work overtime (more than 48 hours per week) which is common during peak season when large volumes of green tea need to be processed. There are also productivity bonuses for tasks done by field workers.

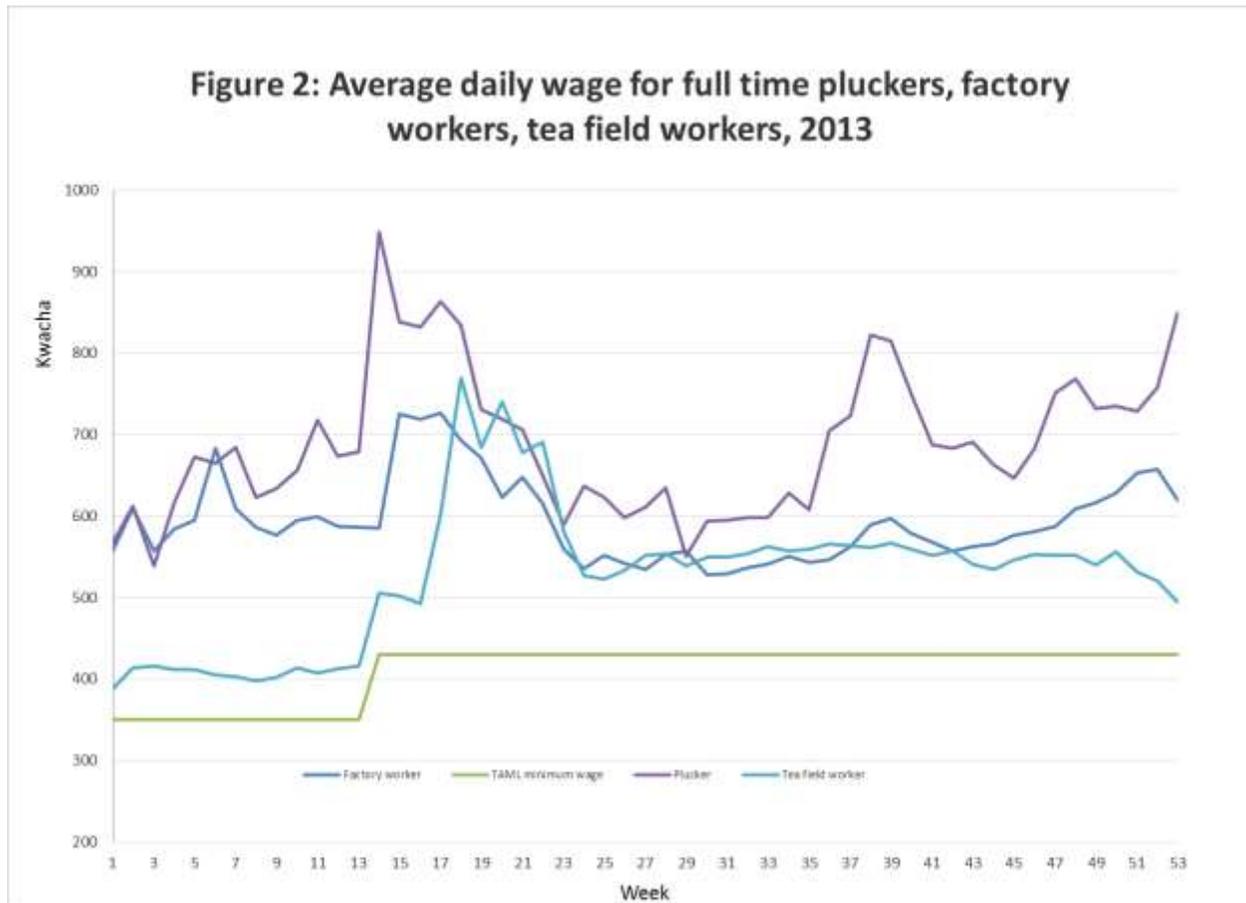
⁵² We do not know borrowing costs for tea estates. The 29% we used is intended to proxy for this, Note that since inflation rate is a major determinant of borrowing costs, the value of this in-kind benefit will change every year along with changes in inflation and borrowing cost to tea estates.

It is important to acknowledge that bonuses and overtime are an important part of wages for tea estate workers. In peak season, factory workers and field workers often work overtime and receive 1.5 times pay for this. Tea pluckers also often work long hours, because they receive additional pay when they pluck more than the 44 kilo of green tea leaf daily requirement. This means that a sizable proportion of pay in peak season is earned because of long hours. This would seem to violate one principle of living wage (see definition in beginning of report) that living wage should be earned in standard work week without overtime. We decided to be flexible as regards working time, because long working hours is the norm in agriculture during peak season and workers are properly compensated for this. For this reason, our estimates of prevailing wages of tea workers include production bonuses and overtime pay. Although this is a debatable decision, we feel that it reflects reality in the tea industry.

13.1.2 Daily wages over the year by type of worker and how wages differ by estate productivity

Although the proportion of workers who are pluckers, factory workers and field workers varies from estate to estate, roughly 50% of workers on tea estates are pluckers, 10% are factory workers in tea processing plants, and 40% are field workers according to data provided to us by large estates.

To get an idea of how much daily wages vary over the year, we plotted average daily wage for tea pluckers, factory workers and field workers for 2013 for three tea estates belonging to one large company that provided data (Figure 2 below). Pluckers received K689 per day on days worked on average over the year (which was 68% more than TAML minimum wage at the time). Factory workers received K526 on average (which was 46% more than TAML minimum wage); and field workers receive K598 on average (which was 28% more than TAML minimum wage). On the other hand, factory workers at another large company received higher daily wages than pluckers or fieldworkers based on information provided to us for July 2012 to June 2013, with average daily wages ranging from 55-97% above TAML minimum wage.



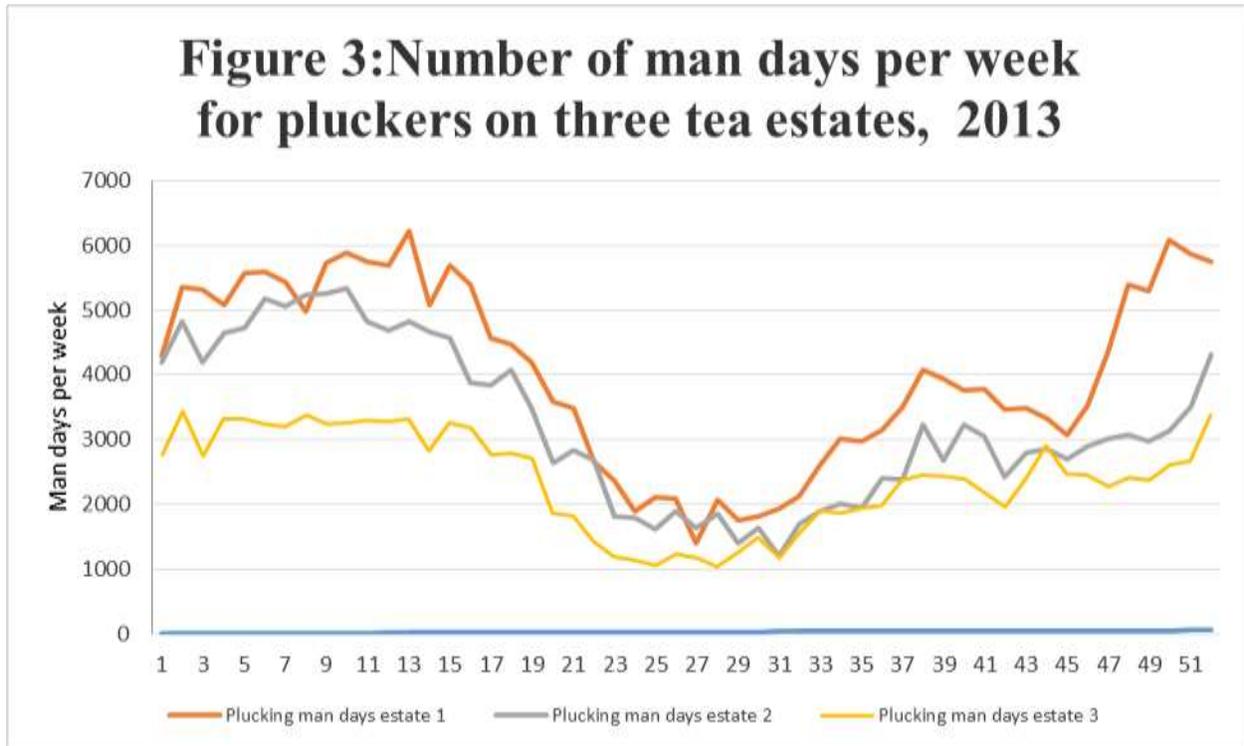
13.1.3 Number of days worked per week over the year

Seasonal variability in number of work days per week

Average daily pay for days worked, however, tells only part of the full story on pay, because the number of workdays varies over the year. Number of workdays per month is high in peak season (which is typically 5 months long, lasting from December through April) and low in non-peak season (7 months long). This is shown in Figure 3 where the number of man-days per week for tea pluckers is plotted over the year for the same three tea estates. It shows the considerable seasonal variation in the number of man-days of plucking that is typical on tea estates.

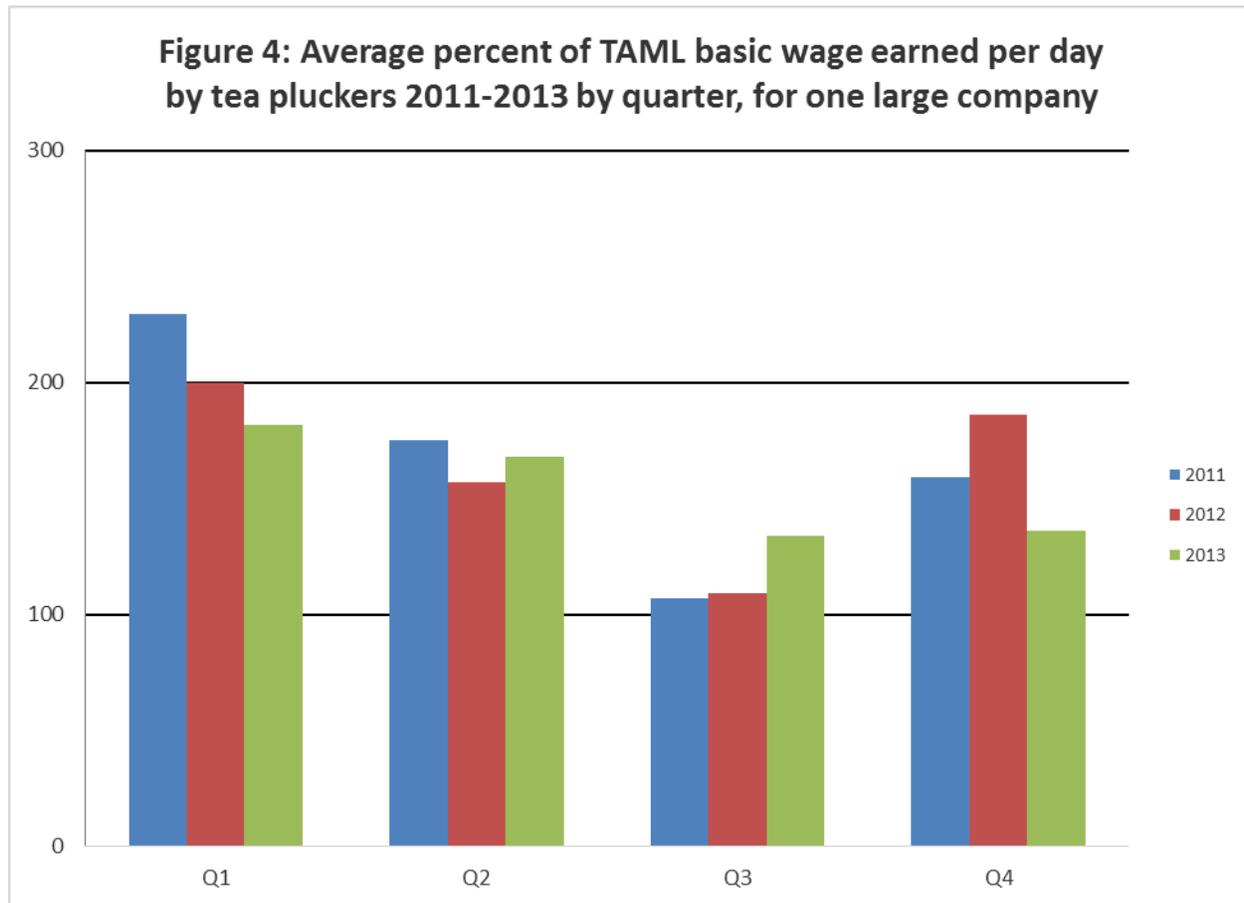
For this reason, many tea pluckers work only during peak season. Employment of seasonal workers is one way in which estates deal with the variation over the year in their need for labor.

Tea estates also offer permanent workers less work during the non-peak season. On some estates they work 5 days per week on average during the low season (compared to 6 days per week in peak season). On other estates they work even fewer days. See section 13.2.2 for greater detail on number of days worked per week.



Annual variability in productivity and effect on daily wages

There is also annual variability in available work associated with the weather and therefore variability in tea production and consequently wages. This is shown in Figure 4 that indicates how daily wage varied by quarter (Q1-Q4) for 2011, 2012 and 2013 for one large company with multiple estates. Figure 4 shows the percentage of the TAML daily wage earned over the year, rather than the actual wage earned to illustrate variation in productivity and its consequent effect on wages. Some years are better for growing tea than other years and this affects opportunities for work as well as bonuses for workers. For example, 2013 was a relatively poor year and 2014 is a relatively good year.



13.1.4 Differences between tea estates that affect income of workers

Amount of tea picked per day differs greatly by estate and this affects workers. For example, pluckers working for one company made on average 23% more per day on one of its estates compared to another of its estates. Productivity of workers on different estates depends on factors such as availability of irrigation (that also reduces seasonal variation in plucking), situation and quality of land (that may allow more plucking especially in non-peak season), and investments/improvements such as planting of newer tea bush varieties and upkeep of tea bushes. Some estates have also introduced other crops with different seasonal patterns from tea such as coffee and macadamia nuts.

13.1.5 High variability in tea estate and worker income

The above discussion and figures tell a story of considerable variability in tea production and wages. Everyone in the tea industry in Malawi is subject to considerable variability in income. Tea estate income varies from year to year depending on the weather and rainfall, changes in exchange rate as tea sales are set in USD, world production and USD price for tea that is to a good extent externally determined, and inflation in Malawi and

local cost of production. Tea estate productivity also differs depending on the situation of the land with regard to topography, soil, availability of water, etc. as well as investments such as in new clonal bushes, irrigation, and bush maintenance.

Incomes of workers are also highly variable. While workers do not have to deal with fluctuations in exchange rates or buyers or internationally determined prices (except to extent these affect local prices for goods and services), workers are subject to considerable variability in income. Their income varies over the year and they have an especially difficult time in the non-peak season when their income is lower. They also share in the vagrancies of weather, since in poor growing years their pay is reduced because of lower tea leaf yields.

13.2 PREVAILING WAGE ESTIMATES

With this complexity in mind, we made some rough estimates of wages for different types of workers. For this exercise, we focused on permanent workers with work throughout the year.

To estimate prevailing wages for early 2014, we estimated wages of tea pluckers and tea field workers in 2013 using data provided to us by tea estates, and multiplied these estimates by the ratio of the January 2014 TAML (K560) basic wage to the average TAML basic wage in 2013 (which was K410). Although 2013 was not a great year for tea production, it is a reasonable year to use for comparison to a living wage because workers need to earn enough for decency in poorer production years. Unlike estates that are able to go into the red temporarily and borrow if necessary to ride out a relatively bad year or two, tea estate workers have to get by every day without access to affordable credit.

13.2.1 Estimate of daily wage on days worked

We start by estimating 2013 daily wages. We have information on wages of tea pluckers for two large companies with multiple estates. The average daily wage from 2013 for these two companies was K882 per workday for January 2014 adjusting for the increase in the TAML basic wage. We also estimated what the tea plucker wage would be for another large company with multiple estates whose manager indicated that average number of kilos plucked per workday over the year was 62-65 kilos. This implied an average daily wage of K808 for days worked for permanent tea pluckers in January 2014. Taken together these estimates implied an average daily wage of around K841 for days worked for permanent tea pluckers for January 2014.

Based on the information provided to us by tea estates, wages for tea field workers are 85% of the wages of tea pluckers. This implies an average daily wage of K715 for days worked for tea field workers. We do not have good enough information to estimate what a typical factory worker makes but they are only around 10% of workers on tea estates.

13.2.2 Average number of days of work per month for permanent workers

Tea estates indicated to us that permanent workers are not offered 6 days of work per week in non-peak season. One large company with multiple estates indicated that it provides 5 days of work to permanent workers in non-peak period. Another large company with multiple estates indicated that it provides a minimum of 16 days of work per month to permanent workers (that is 3.7 minimum workdays per week) in non-peak period but more than this on average. A third large company with multiple estates indicated that it provides 5 days of work per week on average in non-peak period and that this can go down to 2-3 days of work per week in marginal areas. It is clear the number of workdays per week for permanent workers in non-peak season varies by company and estate and is less than 5 days per week on average. It appears to be somewhere between 4-5 workdays per week in non-peak period on average across these large companies and estates, which implies somewhere around 23 workdays per month on average over the year, ranging from around 21 days of work per month on average (if 4 days of work per week in non-peak) to an around of 23.5 days per month on average (if 5 days of work per week in non-peak) given that workers have 6 days of work during peak season and peak season lasts around 5 months.

13.2.3 Estimated prevailing monthly wage

To estimate the prevailing monthly wage for permanent workers, we multiplied our estimate of the average daily wage for days worked by 23 (our estimate of the average number of workdays in a month). For permanent tea pluckers, our estimated average daily wage was K841 on days worked, which implied an estimated average monthly wage of K19,343 (i.e. K841 x 23). Similarly, our estimated daily wage of K715 on days worked for permanent tea field workers implied an estimated monthly wage of K16,445.

13.3 TAML BASIC WAGE AND STATUTORY MINIMUM WAGE OVER TIME

This section looks at the relationship between the TAML basic wage and government minimum wage for agriculture over time. We also look at how TAML basic wage has changed over time when expressed in USD which is important for tea estates since they sell their tea in USD. And we look at how the TAML basic wage has changed relative to inflation in Malawi and so extent to which wages of workers has changed in real terms over time.

Figure 5 indicates that the TAML basic wage tracks the government minimum wage. At the end of February 2014, the Government of Malawi announced a new minimum wage of K551 per workday effective from 1 January 2014 (Helma, 2014). Notice that although the TAML basic wage and the government minimum wage move together, the TAML basic wage has been significantly above the minimum wage for long periods of time. This is because the TAML wage is adjusted more frequently. This is important for tea estate workers as it helps ensure that their wage retains its purchasing power. It is especially noteworthy that TAML raised wages repeatedly in 2010-2014 when the annual inflation rate in Malawi was very high, at approximately 7% in 2010, 8% in 2011, 20% in 2012 and 24% in 2013 (World Bank, 2013). It is hoped that tea estates will continue their

policy of frequently increasing wages, especially as long as inflation remains high. Our feeling is that wages should be adjusted upward whenever prices increase by at least 5% according to CPI. It must never be forgotten that workers in Malawi live on the margin at best and any deterioration in real income has major implications for their health and wellbeing.

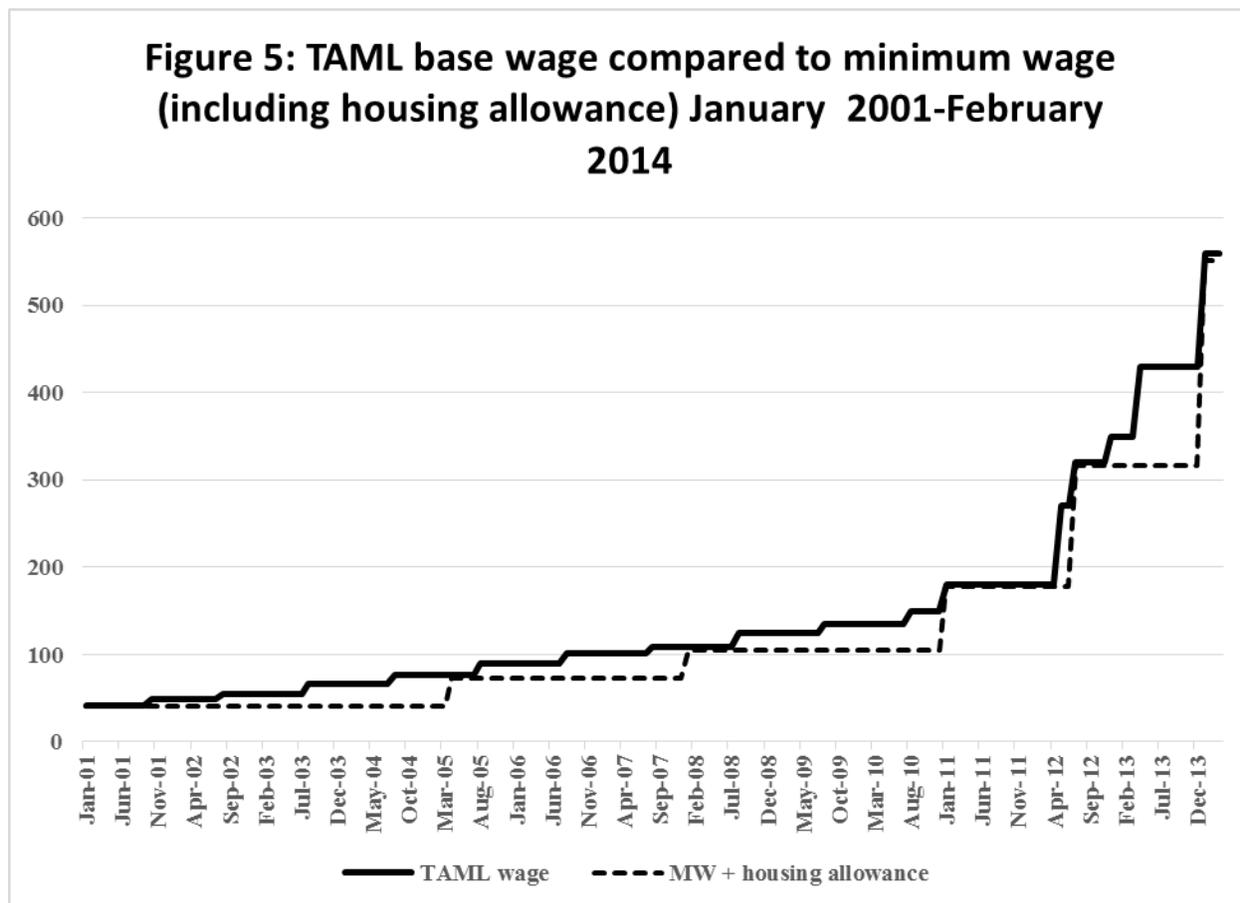


Figure 6 indicates how the real value of the TAML basic wage in Kwacha has changed over time.⁵³ There are two distinct periods. Real value of the TAML basic wage remained more or less the same between January 2004 and May 2012. Since then, there was a very large increase in real wage. Note, however, that without any further increase in the TAML basic wage in 2014, this increase in real wage would erode by around 20% by the end of 2014.

⁵³ Real wage was calculated in January 2004 kwacha (first date). To calculate real wage for a month, we reduced January 2004 TAML basic wage by inflation rate in the month and increased this when TAML basic wage was increased.

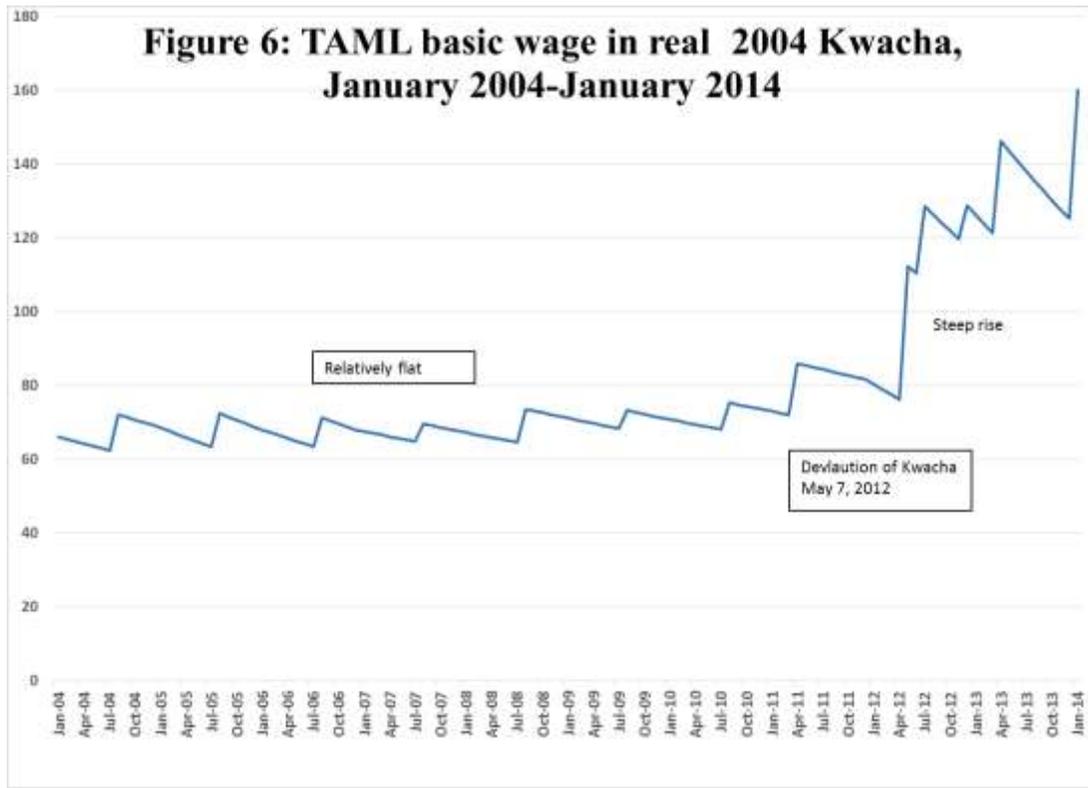
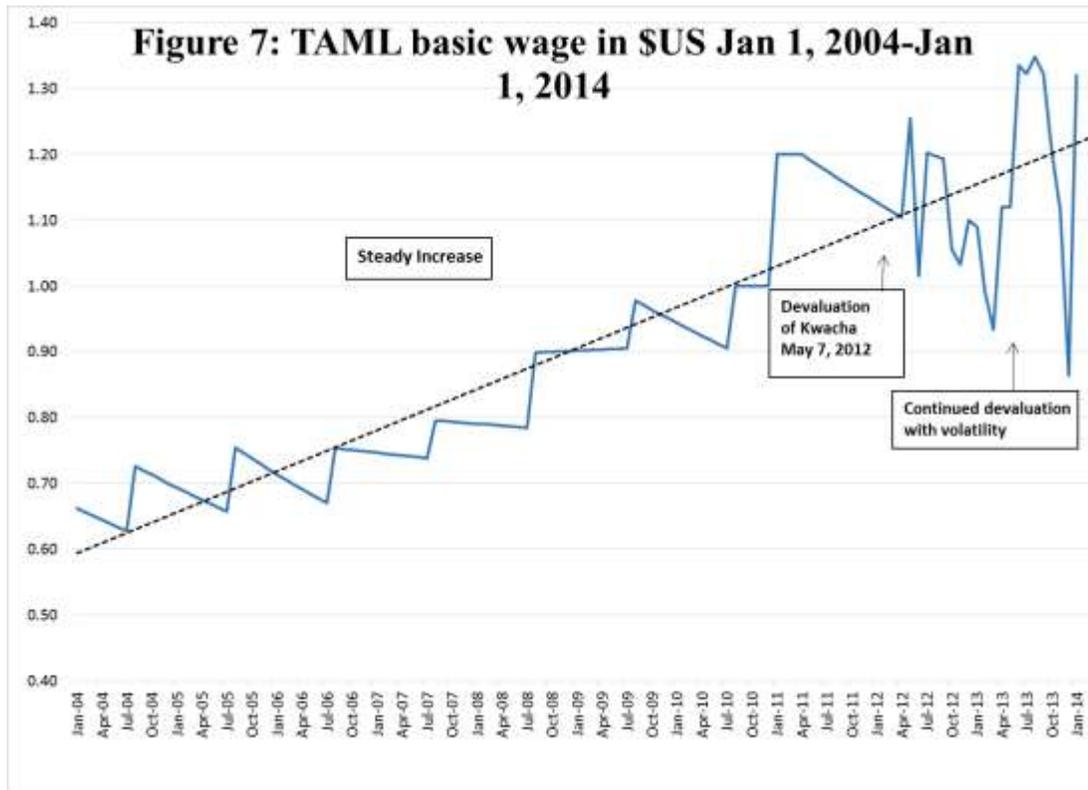


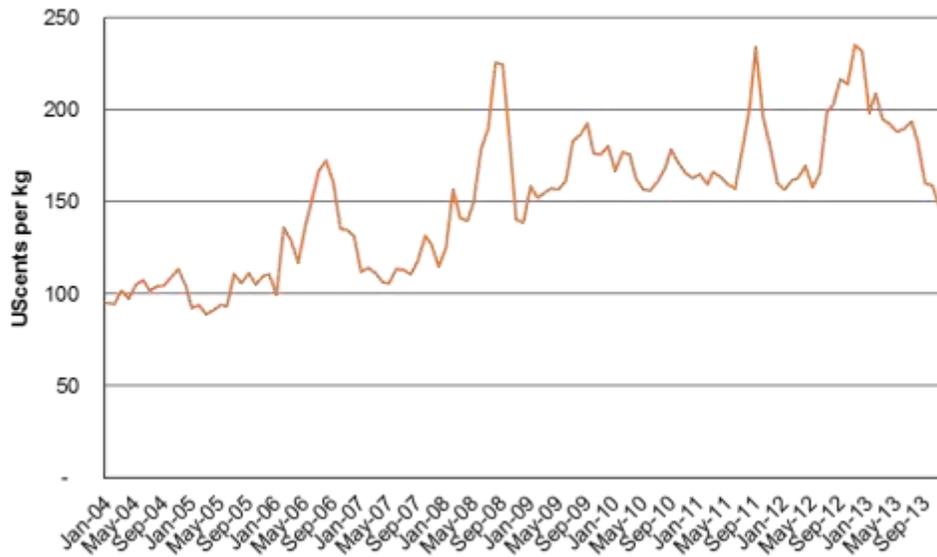
Figure 7 indicates how the TAML basic wage in USD has changed over the past 10 years. It also indicates how volatile the Kwacha to USD exchange rate has been since devaluation in 2012.⁵⁴ This is an important metric for tea estates because tea prices are set in USD. There has been a steady increase over the past 10 years in the TAML basic wage when expressed in USD. The increase in USD wage before the May 2012 devaluation of the kwacha appears to have been mainly driven by increases in government minimum wage which in turn was undoubtedly driven by a desire by government to ensure that the purchasing power of the minimum wage is maintained. Although we do not know why the TAML basic wage in USD increased so much since the May 2012 devaluation, it is probably related to the ability of tea estates to increase pay (since tea estate profits must have increased as their revenues are in USD and much of their labor and other costs are in kwacha). Regardless of the reasons, recent increases in wages in USD are commendable.

⁵⁴ Volatility in Kwacha to USD exchange rate has continued in 2014.



It is interesting that tea estates were able to steadily increase wages in USD over the January 2004 – May 2012 period (before the May 2012 devaluation which reduced local costs in USD) even though this may have reduced profits. Although tea estates had to increase wages in USD to keep wages in kwacha at least at the statutory minimum wage (which was itself undoubtedly increasing to maintain its real value in kwacha as explained above), it begs the question how this was possible without putting tea estates out of business since they sell tea in USD. Part of the reason why tea estates were able to steadily raise wages in USD over the past 10 years is that tea prices increased over this period even if irregularly as shown in Figure 8. Limbe auction price for tea went from roughly \$1.00 per kilo in 2004 to well over \$1.50 in 2013 (Lujeri, personal communication, 2014). This increase in tea prices cannot be the full story.

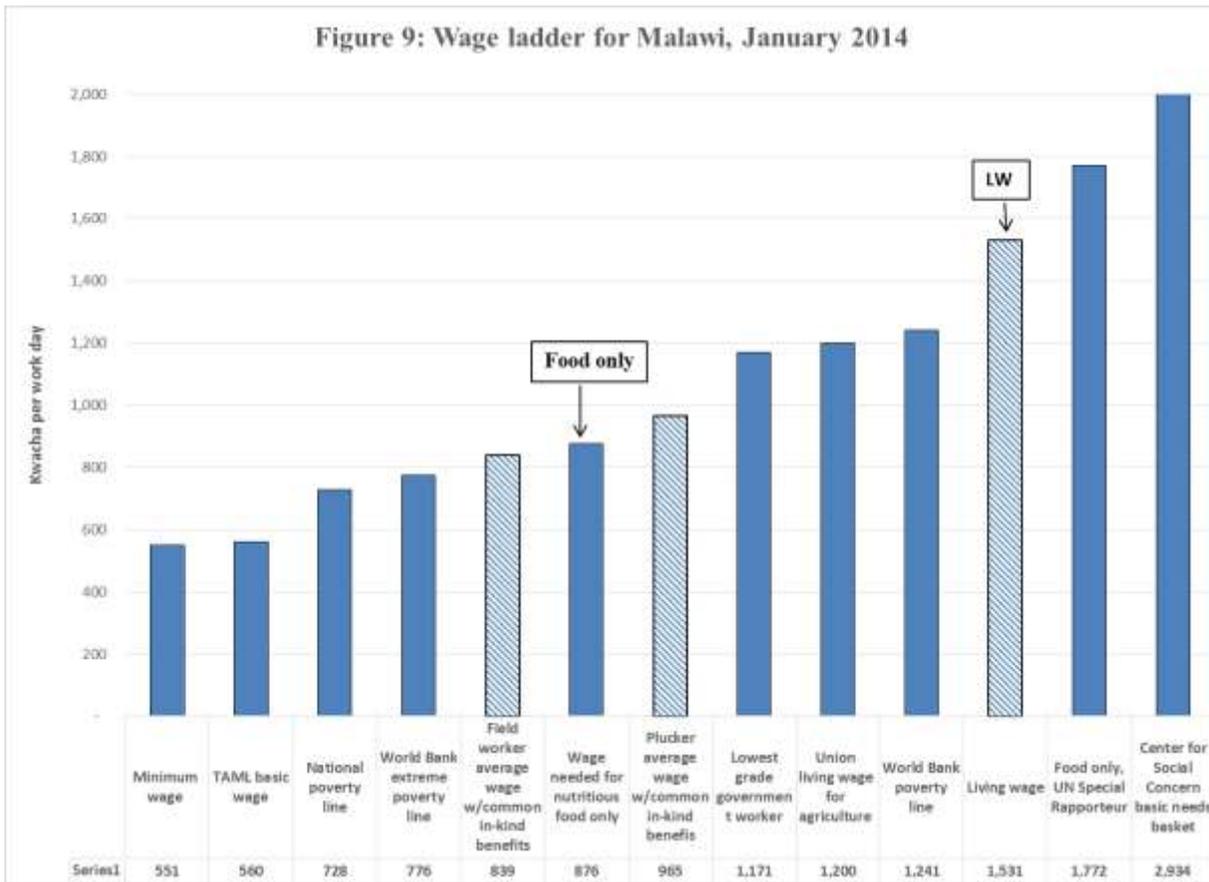
Figure 8: Limbe monthly auction averages in us cents per kg from 2004 onwards



13.4 WAGE LADDER

Figure 9 provides a wage ladder. It includes our living wage along with other wage benchmarks for comparison such as: minimum wage, TAML basic wage, tea estate prevailing wages for permanent tea pluckers and permanent tea field workers that includes value of common in-kind benefits, lowest paid government worker, and poverty line wages.

Figure 9: Wage ladder for Malawi, January 2014



Notes: To estimate wage rate implied by World Bank poverty lines, it was necessary to make a rough estimate of parity purchasing power (PPP) of kwacha to USD for January 2014 because World Bank (2014) did not indicate PPP for Malawi for 2013 or 2104 undoubtedly because of the devaluation of the kwacha in 2012. We did this in the following way. We multiplied PPP value reported for 2011 (i.e. before devaluation) by ratio of kwacha to USD exchange rate in January 2014 to kwacha to USD exchange rate in 2011 and divided this by inflation between 2011 and January 2014. The logic of this calculation is that PPP should decrease with inflation and increase with devaluation. This provides only a very rough estimate for expositional purposes, because PPP is based on an unknown basket of goods and services and how cost of this basket changed with Malawi’s devaluation and high inflation is unknown.

To calculate implied wages indicated in above figure for national poverty line, World Bank poverty lines, and food only wage, we multiplied each per day value by 30.42 days in a month and family size of 5 and divided this by 1.59 full-time equivalent workers per couple and 23 workdays per month.

For UN Special Rapporteur value, we increased reported amount by inflation since July 2013 and divided this by 1.59 workers and 23 workdays per month. For CfSC value, we divided reported amount per month for Blantyre

by 1.59 workers and 23 workdays per month; as CfSC basic needs basket is for family of 6, we adjusted this by 5/6.

Prevailing wages on days worked assume 23 days per month on average throughout the year and not 26 days per month; prevailing wages also include fair and reasonable values for common in-kind benefits provided by tea estates (K124).

Our living wage (K1,531) is much higher than statutory agricultural minimum wage (K551), TAML basic wage (K560) and TAML prevailing wages including in-kind benefits for permanent workers (K715-K841 and K839-K965 including value of common in-kind benefits). Our living wage is also much higher than wages implied by the national poverty line and the World Bank's extreme poverty line (K728 and K776 respectively). Pay of lowest government grade (K1,171), MCTU's estimate of a living wage for plantations based on views of its members (K1,200) and World Bank's poverty line (K1,241) are not much lower than our living wage. Our living wage is less than the amount the United Nations Special Rapporteur on Right to Food indicated as necessary to be able to afford only food (K1,772) and much lower than the Center for Social Concern's basic needs basket for Blantyre (K2,934). It is not surprising that our living wage is so much higher than poverty lines and prevailing wages, since Malawi is a poor country with strikingly poor health and living conditions. Indeed according to our estimates, the current wage of many permanent tea estate workers is less than the wage needed by workers to afford to purchase only a basic low cost nutritious diet (K876). In short, prevailing wages on tea estates are much too low at present to support a decent life style.

Before completing this section on wage comparisons, it is important again to note that tea estate wages in Malawi have increased over the past 10 years. Wages in USDs (that is important to tea estates because tea is exported and priced in USD) have increased steadily in the past 10 years and have doubled in USD. Real wages in kwacha (i.e. wages adjusted for reported inflation) have also doubled in the past 10 years (no change from 2004 to 2012 and big increase since then). Thus although there is still far to go before workers on tea estates receive a living wage, it needs to be acknowledged that tea estates have been making significant progress in recent years to improve wages.

14. CONCLUSIONS

Our living wage for rural Malawi is K35,222 (\$81.9) per month or K1,531 (\$3.6) per workday. This is before considering in-kind benefits. Our cash living wage for rural Malawi is K32,380 per month or K1,408 (\$3.3) per workday for tea estates that provide the following common in-kind benefits: meals on workdays, health clinic, school building and crèche, and recreational services.⁵⁵

⁵⁵ Our cash living wage is K1,193 (\$2.8) per workday for the relatively few tea estate workers who are fortunate enough to live in a decent estate house with their family and are offered maize at a lower price in the months before a new maize harvest when price typically increases.

These living wage estimates are much higher than the Tea Association of Malawi (TAML) basic wage of K560 per day and the statutory agricultural minimum wage of K551 per day. Our living wage is also much higher than national poverty line (K728) and World Bank extreme poverty line (around K776) as well as prevailing wages of permanent tea estate workers that includes value of common in-kind benefits (K839-965).⁵⁶ Our living wage is also higher than the wage that the Malawi Confederation of Trade Unions feels is required for decency (K1,200), lowest paid government worker (K1,171), and the World Bank poverty line (K1,241). At same time, our living wage is much lower than what is felt to be necessary by the United Nations Special Rapporteur on Right to Food (K1,772 for only food) and Center for Social Concern (K2,934 for Blantyre).

As indicated throughout this report, conservative assumptions were used to estimate our living wage. This means that our living wage is a conservative estimate of what is needed for decency. It is difficult to see where we have overestimated living costs required to ensure a modicum of decency for workers in rural Malawi. The low cost nutritious model diet we used to estimate food cost is basic. For example, it includes only 84 grams of fish per week and no meat or egg and only includes milk for pregnant women and children ages 2-5. We include only less expensive food items (e.g. maize rather than rice or bread; brown sugar rather than white sugar; small dried fish rather than chicken or beef or larger fish; less expensive oil sold in local markets; and least expensive vegetables and fruits available), and assume that workers shop in local markets where food is often 2 to 5 times less expensive than in the nearby major city. Even so, prevailing wages are not sufficient to afford this diet. The fact of the matter is that most people in rural Malawi can only afford to eat an unhealthy diet at present. We estimate that workers need to earn K876 per workday just to be able to afford a nutritious basic diet, which is more than the TAML basic wage (K560) and above average prevailing wages for permanent tea estate workers that includes value of common in-kind benefits (around K839-K965). The standard we used to estimate the cost of housing is basic but acceptable for decency in rural Malawi, as it is only 30 square meters in size for 5 persons; and it does not have electricity or indoor water or indoor toilet. We use a family size of 5 persons even though women in rural Malawi have 6 births on average. Workers who earned our living wage would still need to walk long distances to shop and work, have only around \$3.8 per month to pay for clothing and footwear for their entire family and only \$0.80 per month for recreation and culture for their family.

Even though our living wage is a conservative estimate of what workers need to earn to be able to afford a basic but decent living standard, our living wage is much higher than current wages reflecting that Malawi is the 8th poorest country in the world. And at present, 53% of people in Malawi live below the national poverty line and 62% live below the World Bank's extreme poverty line; 48% of children are stunted and 47% of pregnant women are anemic. Most people in rural Malawi at present are not even able to afford basics that are taken for granted almost everywhere of the world. For example, only 34% of households in rural Malawi own a chair, only 28% own a bed, and only 2% have electricity.

⁵⁶ It is important to keep in mind that there is considerable variability in incomes of estate workers as this varies by year, season, company, estate, type of contract and type of worker.

This current situation in rural Malawi means that it is important that tea estate wages are viewed in context. Tea estate jobs are relatively good jobs for rural Malawi. Not only are they among the few jobs available, they pay more than the statutory agricultural minimum wage. In addition, tea estate wages have increased in the past 10 years both in real terms taking inflation into account as well as in USD.

How quickly and by how much wages can be increased by tea estates in future needs to be carefully considered. On the one hand, one would not want too rapid wage increases which might threaten the viability of the tea industry and the jobs it provides as these jobs are essential for workers. On the other hand, tea is an internationally traded good bought by people in high income countries who expect minimum standards such as those in codes of practice of standard setting/certification organizations -- which means that wages on tea estates need to increase.

Tea estates can help by further increasing wages in our opinion given that production costs have fallen since the large devaluation of the kwacha beginning in 2012. It would help if the TAML policy that does not allow tea estates to pay more than the basic wage was relaxed, as some tea estates would find it easier to increase wages than other tea estates. In our opinion, it would be advisable to develop a plan of action whereby TAML continues to increase its basic wage at a gradual and sustainable pace determined in consultation with workers, standard setting/certification organizations, NGOs and others - which would be easier to negotiate if the value chain also contributes. It would also help if tea estates were provided with assistance to make the major investments required to substantially improve productivity such as planting new clonal tea bushes.

At the same time since it is clear that it is not possible for tea estates in Malawi to pay a living wage at present, others in the value chain need to be part of the solution. Retailers and brand names have sufficient profit margins for this in our opinion. For example, we estimate that a very small premium on a box of tea bags would be sufficient to see to it that tea estate workers in Malawi could receive a living wage.⁵⁷

⁵⁷ We estimate that only a 5 pence (1 cent) premium per typical box of 80 (25) teabags in UK (USA) would be necessary to generate sufficient funds so that workers in Malawi could receive a living wage. We used the following set of reasonable but simplifying assumptions since we realize that tea bags typically include a blend of 22 or so different teas. (1) Tea pluckers receive K560 for 44 kilos of green tea leaf picked as per TAML basic wage. (2) 5 kilos of green tea are required to produce 1 kilo of black tea as indicated on Tetley Tea website. (3) Typical box of tea in UK contains 80 tea bags with total of 250 grams of tea (typical box of tea in United States contains 25 tea bags with total of 50 grams of tea). (4) Wages of tea plucker represents approximately 50% of wage costs in Malawi (as indicated by data from two large tea companies in Malawi). (5) Prevailing wage with common in-kind benefits is around K900 on average for all workers given point (4) above, as estimated in section 13. (6) Exchange rate is K7 per British pence (K4.3 per United States cent) as indicated by Oanda website. The above assumptions mean that one day of work of one plucker and another worker at TAML basic wage produces 8.8 kilos of black tea (i.e. 44 kilos of green leaf/5:1 ratio of green tea leaf to black tea). This amount of black tea is equivalent to 35.2 typical boxes of tea in UK (i.e. 8.8 kilos/.25 kilos per box) and 176 typical boxes of tea in United States (i.e. 8.8 kilos/.05 kilos per box). Since living wage is K1,531 per day and prevailing wage is around K900 on average per workday with common in-kind benefits, workers need approximately K631 additional per day to receive a living wage. To reach this additional K631 per day required for one tea plucker and one other worker implies around a 5 pence premium per typical box of 80 teabags in UK (i.e. K631 required per worker x 2 workers / 35.2 tea boxes / K7 per pence), and around a 1 cent premium per typical box of 25 tea bags in United States (i.e. K631 required per worker x 2 workers/179 tea boxes / K4.3 per cent).

As pointed out above, considerable thought and effort was put into making our living wage estimate. This included visits to local houses; visits to markets and stores where workers shop for food; discussions with tea workers and rural villagers; discussions with TAML and tea estate managers; discussions with key informants such as government officials, trade union officials, university professors, architects and others. This also included many papers, reports and statistics from researchers, government and international agencies. The end result of this effort is we believe a solid and credible living wage estimate for rural Malawi. It is hoped that this report will contribute to stakeholder dialogue as well as dialogue between standard setting/certification organizations and others such as Oxfam and ETP with the value chain to find ways to increase wages while maintaining a vibrant tea industry in Malawi.

15. ABOUT THE AUTHORS

Richard Anker is an economist retired from International Labour Organization (ILO) and an expert on labour, poverty and development. He has worked extensively on measurement of living wages and decent work and written a comprehensive review of living wages published by ILO (2011). He is currently a visiting scholar at the Political Economy Research Institute, University of Massachusetts.

Martha Anker is a statistician, retired from World Health Organization (WHO), who has extensive experience rapid assessment methodologies, and health and gender issues. She is currently adjunct faculty at the School of Public Health and Health Sciences, University of Massachusetts.

TABLE 3. CALCULATIONS FOR LIVING WAGE ESTIMATES FOR RURAL MALAWI, JANUARY 2014

Expenses and calculations	Cost ^a	
	Kwacha	USD
Food cost per person per day ^b	210.69	0.49
1. Food cost per month for family of 5	32,043	74.5
Rental equivalent cost per month	4,500	10.5
Utilities and minor repairs per month ^c	2,000	4.7
2. Housing cost per month	6,500	15.1
3. Non-food & Non-housing cost per month ^d	13,365	31.1
TOTAL COST per month for decent living standard for family of 5	51,908	120.7
Emergencies and unforeseen events (5%)	2,595	6.0
Minimal funds for African culture need for sharing & helping relatives ^e	1,500	3.5
TOTAL COST per month for decent living for family of 5	56,004	130.2
LW per month (1.59 full-time workers in family)	35,222	81.9
LW per day (1.59 full-time workers in family)	1,531 ^h	3.6
Value per month of free tea and lunch for workers	1,625	3.8
Value per month of free clinic, school building, recreational services ^f	1,217	2.8
LW per month with above in-kind benefits	32,380	75.3
LW per day with above in-kind benefits	1,408 ^h	3.3
Value of free decent housing (not common benefit) ^g	4,500	10.5
Value of maize at lower price before new harvest (not common benefit)	442	1.0
LW per day with above in-kind benefits	1,193 ^h	2.8
Wage per month for only nutritious food	20,153	46.9
Wage per day for nutritious food only	876 ^h	2.0

Notes: ^a Exchange rate K430 to USD used to calculate USD values. This was approximately average January 2014 exchange rate. Kwachas have been rounded to nearest kwacha and USDs have been rounded to nearest decimal for presentational purposes. ^b Model diet used to estimate food cost basic but nutritious. Inexpensive foods used to estimate model diet cost. Food prices were based on survey of local markets. ^c Utility costs included K1200 for firewood, K600 for lighting, and K200 for minor repairs. ^d Non-food and non-housing costs were estimated in 3 steps (see text). Preliminary value was estimated using a variant of Engel's law. This value was adjusted upward

to ensure decency for health care, education and consumer durables. ^e K1500 is included to allow for participation in social and cultural life of Malawi where people are required to share and help relatives. ^f Other common in-kind benefits not considered as partial payment of living wage were: water to estate housing (very low value), security for estate housing (not appropriate), protective clothing and equipment (not appropriate), annual leave (not appropriate), and employer contribution to government gratuity/pension (not appropriate). ^g While provision of housing is common, decent housing that meets our minimum standards is not common. There is an agreed plan to improve estate housing over time. ^h Living wage per workday was calculated using 23 workdays per month, since while 26 workdays per month is provided in peak season to permanent workers less than 5 days of work per week in non-peak season is provided to permanent workers.

ANNEX A. COMPARISON OF OUR MODEL DIET TO OTHER DIETS FOR MALAWI AND COMPARISON OF PERCENTAGE DISTRIBUTION OF FOOD EXPENDITURE BY FOOD GROUP IN OUR MODEL DIET TO PERCENTAGE DISTRIBUTION OF ACTUAL FOOD EXPENDITURE IN RURAL MALAWI

A1. COMPARISON OF OUR MODEL DIET TO OTHER DIETS FOR MALAWI

Table A1 provides examples of other diets for Malawi that we were able to find. These other diets were used to help set the model diet we used to estimate our living wage (see main text).

One diet in Table A1 is based in part on inputs from nutritionists (Center for Social Concern in column 1). This diet is more expensive than our model diet mainly because it includes egg and meat which are relatively expensive per calorie. This also explains why CfSC diet has higher percent of proteins. Otherwise, CfSC diet and our model diet are quite similar except that: our diet includes fruits which is important for nutrition; our diet includes more beans that are an inexpensive source of proteins; our diet includes fewer grams of sugar that provides empty calories as well as being relatively expensive; and our diet includes more oil, which is necessary, although quantity in our diet might be a little high. Overall then, our model diet and CfSC diet are similar although CfSC diet is more expensive, which is reasonable as it was designed for urban areas where incomes are higher.

Column 2 indicates typical food consumption in Malawi according to data from 2004/05 IHS2. This diet is generally similar to our model diet. Notable differences include: higher quantity of milk in our diet (due to our attention to nutritional considerations); fewer grams of eggs, meats and fish in our diet (due to our desire to keep food costs down while maintaining nutritional standards and being consistent with local food habits); greater quantities of vegetables and fruits in our model diet (which are required for nutrition); and inclusion of more oil in our diet to ensure sufficient fat in our diet (which in any case does not greatly affect overall cost of our diet). IHS2 diet is more expensive than our model diet. This is due to the much higher quantities of animal-origin foods in IHS2 diet that also explain much higher percentage of calories from proteins that is much higher than usual for a low income country such as Malawi (see Anker, 2006).

Column 3 in Table A1 indicates food availability in Malawi (FAO in column 3). FAO data are problematic in some respects and it is clear that the approach FAO uses to estimate food availability sometimes encounters problems when applied to Malawi. Notice that quantity of roots and tubers is implausibly high while quantity of vegetables is implausibly low for Malawi. Otherwise, our model diet is fairly similar to the general pattern of FAO data. Relatively small differences are: higher quantity of milk in our diet (due to our attention to nutritional considerations); exclusion of meats and eggs from our model diet (due to our desire to keep food costs down while maintaining nutritional standards and being consistent with local food habits); and our inclusion of more oil to ensure sufficient fat in our diet (which does not greatly affect overall cost of our diet). Notice that FAO “diet” is more expensive than our model diet despite FAO diet having a low percentage of calories from proteins.

In summary, our model diet is consistent with these three other diets for Malawi.

TABLE A1. EXAMPLES OF OTHER MALAWI DIETS (COLUMNS 1-3) AND OUR MODEL DIET USED TO ESTIMATE LIVING WAGE FOR COMPARISON (LAST COLUMN)

Food ^a	Center for Social Concern. 2014. Basic Needs Basket ^b (1)	IHS2 2004/05. Average food consumption ^b (2)	FAO. Food availability 2007-2009 ^c , ^d (3)	FOR COMPARISON. Our model diet used to estimate living wage (4)
Maize ⁱ	441	417	344	450
Bread	53	0	0	0
Cassava	60	96	355	60
Beans	28	67	50	40
Milk	33	7	10	27
Eggs	9	3	2	0
Meat ^e	14	12	13	0
Fish ^j	11	32	12	12
Vegetables ^f	165	113	42	189
Fruits ^g	0	49	94	63
Oil ^h	13	14	8	24
Sugar	35	24	30	24
Tea	4	1	1	1
Calories total	2364	2364	2364	2364
% proteins ^k	11.4	12.8	9.9	10.8
Cost per day ^l	K230	K224	K218	K188

Notes: ^a All diets are expressed in edible grams per day as consumed. Quantities in columns 1-3 were proportionately scaled to ensure total of 2364 calories per day to allow for better comparison across diets. For example if a diet had 2700 calories, all quantities in this diet were decreased by 2364/2700. If a diet had 2200 calories, all quantities were increased by 2364/2200. All diets used USDA NAL (2014) online database values for calories, proteins, fats and carbohydrates per 100 edible grams for each food except for fish that used values for silvery dried fish for Uganda from FAO (2012). To estimate number of purchased grams and therefore cost of each diet, information from USDA's NAL online nutrition database on proportion of foods that are refuse/inedible was used for egg, banana and cassava. For vegetables and fish, we assumed the following in keeping with local food habits since Malawians are not as wasteful as American when cooking and eating food: vegetables (9%), fish (0%).

^b We assumed that quantities indicated in source was for food as eaten. ^c FAO data indicates food availability. To get food as eaten, we took into consideration wastage/refuse of each food. FAO suggests that its data be

averaged over three years because of variability in annual values. 2007-2009 are three latest years with data from FAO online food supply database. ^d FAO data were aggregated to food groups included in this table: cereals, roots and tubers, pulses/legumes, vegetables, fruits, oils and fats, nonalcoholic beverages. ^e Beef was used for meats/poultry. ^f Least expensive green leafy vegetable, second least expensive green leafy vegetable and least expensive other vegetable (eggplant) were used for vegetables in all diets. ^g Banana was used for fruits in all diets. ^h Vegetable oil was used for oils and fats for all diets. ⁱ Maize was used for cereals in all diets. Cost per kilo of maize included grinding cost. ^j Fish assumed to be small dried fish that is eaten whole, including bones. ^k Percentages for quality adjusted proteins are 6.7%, 8.7%, 6.4% and 6.7% respectively. ^l Cost of our model diet is actually increased by 12% to account for cost of salt, spices and condiments (1%) and some waste (3%), and to allow for some variety (8%). Cost of other diets is also actually higher as they have additional variety that is ignored in this table. For example, CfSC includes 3 types of fish and more expensive oil and vegetables as well as milling of maize. IHS2 diet includes considerable variety. It includes for example: rice, other cereals and maize; potato and cassava; peas, beans and groundnuts; 4 vegetables; 2 fruits; red meat and white meat; spices; and beverages.

Sources: Center for Social Concern (2013) is CfSC basic food basket for family of 6 persons. Ecker and Qaim (2008) is average food consumption for Malawi drawn from 2004/05 IHS2. FAO (2013) is estimate of food availability.

A2. Comparison of percentage distribution of costs by food group in our model diet to percentage distribution of actual food expenditure in rural Malawi

To further check reasonableness of our model diet for rural Malawi, we compared the distribution of food costs by food group for our model diet to distribution of average actual household expenditure in rural Malawi according to 2010/11 Integrated Household Survey (IHS3). This comparison is shown in Table A2.

Distribution of expenditure by food group is reasonably similar. And larger differences are explainable. Higher percentage for milk in our model diet derives from the need for some milk to provide calcium for young children and pregnant women. Greater reliance on fish for animal-origin proteins in our model diet helps to help keep down food costs as well as to provide calcium for adults and children since people eat small dried or smoked fish from Malawi whole including the bones. Our model diet excludes soft drinks, which helps explain low percentage for beverages in our model diet. Higher percentage for cereals in our model diet is surprising. This may be due to rapid increase in price of maize per kilo in recent years as government reduced its support of low maize prices. Lower percentage for beans in our model diet may be due to very low price per kilo for beans in local rural markets.

TABLE A2. COMPARISON OF PERCENTAGE DISTRIBUTION OF FOOD EXPENDITURE BY FOOD GROUP IN MODEL DIET USED TO ESTIMATE LIVING WAGE AND ACTUAL DISTRIBUTION FOR HOUSEHOLDS IN RURAL MALAWI IN 2010/11^B

Food ^a	Our model diet (%)	Actual expenditure (%)	Comments
Cereals and grains	37.5%	31.4%	Cereals inexpensive source of calories. Model diet uses maize as it is least expensive cereal and mainstay of Malawi diet.
Roots, tubers & plantains	4.3	5.8	Model diet uses least expensive root and tuber (cassava)
Animal-origin	21.4	21.4	Similar %s. Distribution different.
(Dairy, milk)	(7.0)	(1.4)	Workers not able to afford much milk at present as very expensive. Model diet includes 1 cup milk for children 2-5 and pregnant women.
(Eggs)	(0)	(3.3)	Model diet does not include egg to reduce cost.
(Poultry/meats)	(0)	(8.9)	Model diet does not include poultry or beef to reduce cost.
(Fish)	(14.4)	(7.8)	Model diet includes small dried fish as common in rural Malawi. Eaten whole including bones; provides calcium. Relatively low cost in rural areas.
Beans/pulses/nuts	5.9	10.9	Beans very inexpensive because grown by many farmers including subsistence farmers.
Vegetables	10.0	11.1	Large variety of green leafy vegetables available & inexpensive in rural areas.
Fruits	5.3	3.4	Actual fruit consumption probably too low for good nutrition.
Oils and fats	8.2	7.8 with sugar	Model diet uses vegetable oil available in local markets. Much less expensive than oil sold in supermarkets.
Sugar	5.2	included above	Malawians have sweet tooth (e.g. like to add 3 teaspoons per cup of tea). Sugar price at international level as almost \$1 per kilo. ^c
Beverages nonalcoholic	0.9	6.3	Tea used in model diet. 3 cups per day per adult in model diet. Actual expenditure higher because includes soft drinks and juices.
Salt, spices, sauces and condiments	1.0	1.9	1.9% for actual expenditure overstates % for spices, etc. as this includes "miscellaneous foods" such as possibly cakes, chips or sweets. Malawi diet does not use much spices.

Notes: ^a Specific food item(s) used to represent each food group in our model diet are lowest cost food items per edible gram in the food group in order to reduce food cost and mimic how cost conscious workers typically shop. Food prices used to cost our model diet were based on market survey of local sellers where workers typically shop. For each food item, average of lowest cost item in each market was used. ^b 8% is added to estimated cost of our model diet to allow for some variety which is important for good nutrition. ^c For example, 5 pound bag of white sugar was \$1.18 per kilo on Walmart USA website on February 8, 2014.

Sources for actual expenditure: 2010/11 IHS3 used for actual expenditure. 2004/05 IHS2 used for distribution between meat, fish and eggs.

ANNEX B: FAMILY SIZE NEEDING TO BE SUPPORTED BY LIVING WAGE

Annex B discusses in detail why we decided to use a family size of 5. We based our decision on information on average household size in rural areas and number of children women in rural Malawi typically have.

B1. Number of children women have

Total fertility rate (TFR)⁵⁸ in rural Malawi is around 6 births per woman according to 2010 DHS and 2008 Housing Census although it has fallen in recent years.^{59, 60} This implies a family size needing to be supported of around 8 persons if there were no mortality (i.e. 2 parents + 6 children).

Since mortality rates are high in Malawi,⁶¹ net reproduction rate (NRR) is more appropriate than TFR for estimating living wage, since NRR takes mortality of children into consideration.⁶² NRR is 2.4 in rural areas (compared to 1.9 in urban areas) according to 2008 Housing Census. This implies that around 5 children per woman survive to age 49 on average in rural Malawi. This is similar to the average number of surviving children that rural women indeed actually have at the end of reproductive period according to according to 2010 DHS - - 5.0 children for women ages 40-44 and 5.3 children for women ages 45-49. Thus, NRR and number of surviving children for women at the end of their reproductive period both imply a family size of around 7 persons for rural Malawi (2 parents + 5 children).

However, women in rural Malawi have births over a long period of time as average birth interval is approximately 3 years (2010 DHS). This means that women have far fewer than 6 surviving minor children most of the time. The number of surviving children below age 18 that women have increases over time as children are born reaching a maximum of a little over 5 on average, and then decreases as children reach majority and move away to start their own life. To get an idea of the number of surviving children under age 18 at different points in a woman's reproductive life she would have over the approximately 33 year period she has children below age 18 (starting from around age 19 which is median age at first birth for women in Malawi), we used information from 2008 Housing Census and 2010 DHS for rural Malawi on total fertility rate (6.0), infant and child 1-4 mortality rates (7.3% and 6.1%), and average birth interval (36 months). We found from this exercise that the maximum number of surviving children less than age 18 that a typical woman has is a little more than 5 children with around 3 children on average less than age 18 over this 33 year time period. This exercise implies an average family size of 5 (2 parents and 3 children). At the same time, however, this exercise also indicates

⁵⁸ Total fertility rate is "a basic indicator of the level of fertility, calculated by summing age-specific birth rates over all reproductive ages. It may be interpreted as the expected number of children a woman who survives to the end of the reproductive age span will have during her lifetime if she experiences the given age-specific rates." (UNdata Glossary, 2014)

⁵⁹ TFR is much higher in rural areas (6.1) than in urban areas (4.0) according to 2010 DHS.

⁶⁰ Despite such a high fertility rate, TFR has been falling in recent years - - from 7.0 in 1990, to 6.3 in 2000 and 5.6 in 2012 for Malawi as a whole (World Bank World Development Indicators, 2013).

⁶¹ Infant mortality rate is 7.3% and mortality rate for ages 1-4 is 6.1% in rural Malawi according to 2010 DHS.

⁶² Net reproduction rate is "The average number of daughters a hypothetical cohort of women would have at the end of their reproductive period if they were subject during their whole lives to the fertility rates and the mortality rates of a given period. It is expressed as number of daughters per woman." (UNdata Glossary, 2014)

that family size is greater than 5 for a long period of time as the number of surviving children less than age 18 exceeds 3 children for 15 years. Thus while intact couples would tend to have 3 children below age 18 on average over their reproductive life, there are many years when they have to care for more than 3 of their own children below age 18.

B2. Average household size

Average household size in rural Malawi that is relevant for a living wage is slightly below 5 persons. When single person households (that are not relevant for the family-based living wage concept) are ignored, average household size in rural Malawi is 4.8 persons according to 2010/11 IHS3 and 4.9 persons according to 2010 DHS.⁶³

It is important to point out that although “household” and “family” are generally used interchangeably, they are not exactly the same.⁶⁴ According to 2010 DHS, household “consists of a person or a group of related or unrelated persons, who live together in the same dwelling unit”.⁶⁵ They do not have to be related. For estimating a living wage, we are interested in a family that includes parents with children (and possibly other related adults). This means that differences between family and household have implications for estimating a living wage. First, single-person households are not relevant for looking at living wage which is a family concept, because these households do not include children. It is for this reason that we exclude single-person households when we calculate average household size using available statistics on household size. Second, average household size and number of workers per household are affected differently by certain family structures (some of which are common in Malawi). For example, migration of a husband to the city to work reduces average household size in both urban and rural areas but does not affect average family size of the family economic unit. Separation or divorce reduces average household size while increasing the dependency ratio (and we do not take this into consideration when we estimate number of workers per couple as we assume an intact couple). Polygamy (which is common in rural Malawi with 16.9% of currently married women in rural Malawi in polygamous marriage according to 2010 DHS), lowers average household size and partially reduces number of potential workers per family. High adult mortality (13.5% of rural women 45-49 are widowed in Malawi according to 2010 DHS) reduces average household size and number of workers per household.

⁶³ Note that overall average household size is 4.6 persons according to 2010/11 IHS3 and 4.7 persons according to 2010 DHS.

⁶⁴ Indian census provides an example of how these two concepts have been used interchangeably. Indian census used “household” in 1872, 1881 and 1951 to present, and “family” from 1891-1941. http://censusindia.gov.in/Data_Products/Library/Indian_perceptive_link/Census_Terms_link/censusterm.html

⁶⁵ According to Indian Plantations Act 1951: “‘Family’, when used in relation to a worker means- (i) His or her spouse, and (ii) The legitimate and adopted children of the worker dependent upon him or, who have not completed their eighteenth year And includes, where the worker is a male, his parents dependent upon him.”

B3. Support for extended families and parents

Workers in Malawi often have responsibilities for others such as parents and relatives because of the strong cultural norm in Africa regarding sharing of resources. Anyone with money is expected to share with relatives, and requests for money from relatives cannot be rejected. This means that workers with employment and cash income in Malawi (such as tea estate workers) are required to help relatives. And there are many less fortunate relatives in Malawi where employment opportunities are few and incomes are low. This includes parents, brothers and sisters, nieces and nephews, uncles and aunts, and cousins. In addition, it must not be forgotten that there are many foster children and orphan children in Malawi partly because of AIDS. According to 2010 DHS data, 33% of rural households in Malawi include a foster child and/or orphan child (28% foster child, and 19% orphan child).

Because of this very strong social norm of helping others, we decided to include a separate expense category so that workers would have some funds available to help relatives such as parents, siblings, uncles/aunts, nieces/nephews. Our reason for including some funds for assisting relatives is that participation in social and cultural life in Malawi requires such assistance when someone has a job. We felt that including funds for this is preferable to increasing the family size needing to be supported by a living wage because the extended family is amorphous, and it is neither reasonable nor realistic in our opinion to expect Companies to support an open ended number of extended family members. Our feeling is that K1,500 (\$3.5) per month, which is around our living wage for one workday, is a conservative and reasonable amount for this. Note that this amount is much less than the tithe given to religious organizations for many years by many people in around the world. And including a modest sum for assistance to relatives helps justify our decision to use a family size of 5 and not 5.5 or 6 as well as our decision not to include parents or other relatives in family size needing to be supported by our living wage.

B4. Summary for family size for living wage

To help determine an appropriate family size needing to be supported by a living wage for rural Malawi, we looked at average household size in rural Malawi as well as number of children women in rural Malawi are having at present. This information is reproduced in Table B1. Results from these two ways of measuring appropriate family size for living wage are similar. Net reproduction rate and so number of surviving children women have at the end of the reproductive period (around 5 children) implies a family size of around 7 persons for rural Malawi (2 adults and 5 surviving children). However analysis of the number of children below age 18 women in rural Malawi have at each point in their reproductive life indicates that they have 3 children below 18 on average, which implies a family size of 5 persons (2 adults and 3 children), although they have more than three children for a considerable number of years. Average household size implies that slightly less than 5 persons is appropriate for estimating a living wage for rural Malawi.

As discussed above, average household size understates the family size that workers need to support because of migration of one spouse to town, polygamy, and adult mortality. Also as discussed above, net reproduction rates

overstate the family size that workers need to support. These considerations imply that a family size of 5 to 6 persons is appropriate for estimating a living wage. We decided to be conservative and use a family size of 5 while including a small amount to enable workers to provide some assistance to parents and extended family members. Our feeling is that participation in social and cultural life in Malawi requires such assistance when someone has a job.

TABLE B1. FAMILY SIZE FOR LIVING WAGE IMPLIED BY FERTILITY RATES AND AVERAGE HOUSEHOLD SIZE FOR RURAL MALAWI

	2010 DHS	2010/11 IHS3	2008 Housing and Housing Conditions Census
Fertility and implied family size			
Total fertility rate	6.1 (implies FS of 8.1: 2 adults + 6.1 children)		6.0 (implies FS of 8 if no infant or child mortality)
Net reproduction rate			2.4 (implies 4.8 children and FS of 6.8)
Surviving children to women ages 45-49	5.3 (implies FS of 7.3) ^a		
Estimated number surviving children less than age 18 given current total fertility rate, mortality rates, and average birth interval			
Maximum	5.2 (implies FS of 7.2)		
Average	3.0 (implies FS of 5)		
Average household size			
Average overall	4.7	4.6	4.6 (national)
Average excluding 1 person HHs	4.9	4.8	

Notes: HH indicates household. FS indicates family size.^a Since fertility has fallen over time in Malawi, implied family size is somewhat lower.

Sources: 2010 DHS. 2010/11 IHS3. 2008 Housing Census.

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PERSONS MET

S/N	Name of Person	Position	Institution
1	John Makina	Country Director	Oxfam
2	Carol Kayira	Advocacy Manager	Oxfam
3	Linda Mtegha	Labour Principal Officer	Ministry of Labour
4	Harry Mwamlima	Director	Ministry of Economic Planning & Development
5	Alex Nkosi	Policy Analyst	Centre for Social Concern (CfSC)
6	Pontious Kalichero	General Secretary	Malawi Congress of Trade Union (MCTU)
7	Dennis Banda	General Secretary	Plantation Agriculture Workers Union (PAWU)
8	Babu Msiska	Building Supervisor	HABITAT for Humanity
9	Sangwani Nyasulu	Community Mobilizer	HABITAT for Humanity
11	Richard Tilly	Managing Director	Eastern Produce Malawi
12	Ken Rice	Finance Director	Eastern Produce Malawi
13	Jim Melrose	Managing Director	Lujeri Tea Estate
14	Claig King	Finance Director	Lujeri Tea Estate
15	Davies Mathanda	Human Resources Manager	Lujeri Tea Estate
17	Witness Chikondi	Human Resources Manager	Makandi Tea & Coffee Estte
18	Alexander Kay	Finance Director	Satemwa Tea Estate
19	Rob Emmot	General Manager	Satemwa Tea Estate
20	Fadson Mandala	Human Resources Manager	Satemwa Tea Estate
21	Atu Kalinga	General Manager	Conforzi Tea Estate
22	Graham McLean	Regional Director	Eastern Produce Malawi
23	Sangwani Hara	Group Financial Controller	Makandi Tea & Coffee Estate
24	Clement Thindwa	Chief Executive	Tea Association of Malawi (TAML)
25	Flemings Mwenibabu	Industrial Relations Secretary	Tea Association of Malawi (TAML)
26	Dr. Albert Changaya	TRFCA Director	Tea Research Foundation of Central Africa