Living Wage Report
Dhaka, Bangladesh and Satellite Cities
Context: The Garment Industry

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GLOBAL LIVING WAGE COALITION

Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
ASMO	Asst. Sewing Machine Operator
ADB	*Asian Development Bank*
BGMEA	Bangladesh Garment Manufacturers and Exporters Association
CORT	Centre for Operations Research and Training
CPI	*Consumer Price Index*
DHS	Demographic Health Survey
FAO	Food and Agriculture Organization
FSC	Forest Stewardship Council
GLWC	Global Living Wage Coalition
GSMO	General Sewing Machine Operator
HIES	Household Income and Expenditure Survey
HIV	*Human Immunodeficiency Virus*
ILO	International Labour Organization
LFPR	Labor force participation rate
MICS	Multi Indicator Cluster Survey
NFNH	Non-food non-housing
NGO	Non-Government Organization
RMG	Ready-made Garments
SAI	Social Accountability International
SSMO	Senior Sewing Machine Operator
Tk	Taka
USDA	United States Department of Agriculture
WHO	World Health Organization

Acknowledgments

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Foreword

Over four million people work in the ready-made garment industry in Bangladesh. The sector is now the second-largest in the world and accounts for more than 85 percent of the country's annual exports. If well-managed, with decent working conditions, this could be a key driver of socio-economic development and push the country towards middle-income status, lifting the global economy in the process.

Yet too often, workers do not share in the benefits of economic growth, and their wages and working conditions put them at physical risk and mire them in a vicious cycle of poverty. This report estimates a living wage in Dhaka and surrounding satellite cities. Living wage entails that workers and their families should make enough money – by working a normal work week – to provide for a decent basic lifestyle. The living wage estimates in this report should contribute to a long-term process of helping Bangladeshi workers, across all sectors, escape the cycle of poverty.

The idea of a living wage is enshrined in the Universal Declaration of Human Rights and other international human rights instruments. It has always been a fundamental element in Social Accountability International's SA8000® Standard for decent work. Increasingly, it is highlighted in the public and corporate policy arena and global advocacy campaigns. Few could argue with the idea that workers should be free from exploitation and be able to provide decent food, housing and other basics for themselves and their families. Many see this as critical not just for workers but also for businesses and societies to thrive. Yet, in reality, the actual payment of living wages has been politically fraught and practically challenging. The payment of living wage has long been complicated by macro and microeconomic factors and by the intersection of government and business responsibilities.

One of the complications in living wage debates has been the lack of a universally accepted calculation methodology. In order to address this, SAI has partnered with six other organizations to form the Global Living Wage Coalition. The Coalition endorses a common definition of the living wage and a living wage benchmark calculation methodology developed by Martha and Richard Anker, a former WHO statistician and an ILO economist. The Anker Methodology produces reliable living wage estimates for specific locations, such as the one in this report.

SAI and the Coalition view the living wage definition and benchmarks as first steps of a long-term process. We recognize that a wide range of strategies are necessary to work towards the long term goal of improving wages, with support from governments, unions and worker representatives, brands, buyers, retailers and other stakeholders. These living wage benchmarks do not supplant collective bargaining and negotiation processes, but serve as a transparent, replicable tool to support social dialogue.

Our hope is that these benchmarks move everyone past previous roadblocks and accelerate progress towards practical implementation of living wages. Yes, payment of living wage is challenging. But let's move past the points that we can agree on. We agree that living wage is a worthwhile goal. We agree with the importance of having objective data on actual costs of a decent standard of living in a specific area. We acknowledge that it may not always be possible to pay a living wage overnight, but that we can and must take progressive steps.

This is why SAI, as a member of the Global Living Wage Coalition, requires the highest of quality in carrying forward the Anker Methodology for living wage estimates, and was pleased to support the work of the Ankers and the research team at the Centre for Operations Research and Training in producing this

report. It is clear that the work was carefully researched and analyzed, with local consultation. It provides insights and concrete pictures of both current living conditions and those that would be enabled by payment of a living wage.

Thank you for reading this report, and we look forward to engaging with you and other stakeholders on accelerating the progress towards living wages for Bangladeshi and all workers around the world.

- Jane Hwang, President and CEO, Social Accountability International (SAI)

Table of contents

Living Wage Report
Dhaka, Bangladesh
Inclusive of Satellite Cities
Context: The Garment Industry

Introduction

1. BACKGROUND

This report estimates living wages for areas of Dhaka with large concentrations of garment factories. Two living wages are estimated – one for satellite cities and districts of Dhaka (that have several million persons) located on the outskirts of Dhaka city. These areas are around one and a half to two and half hour drive from the center of Dhaka. This includes four locations with large concentrations of garment factories where we collected information on food prices and housing costs (namely Ghazipur and Ashuliya in Ghazipur Sadar, and two locations in Narayanganj Sadar). We also estimated a separate living wage for Dhaka city where many garment factories are located (Mirpur ward). The reason why we estimated separate living wages for Dhaka City and its surrounding satellite cities and districts is because living costs are different in these two areas and poor public transport makes it very difficult for workers to commute to work by public transport as local transport is costly, unreliable, and unsafe especially for women workers.

Figure 1 indicates the distribution of garment factories in Bangladesh by location. Notice that the biggest concentrations of garment factories are in Ghazipur Sadar (that includes Ashuliya), Narayanganj Sadar, Dhaka, and Chittagong. This report, thus, covers most garment production in Bangladesh and almost all garment production in the Dhaka area.

Figure 1: Number of garment factories in different districts of Bangladesh
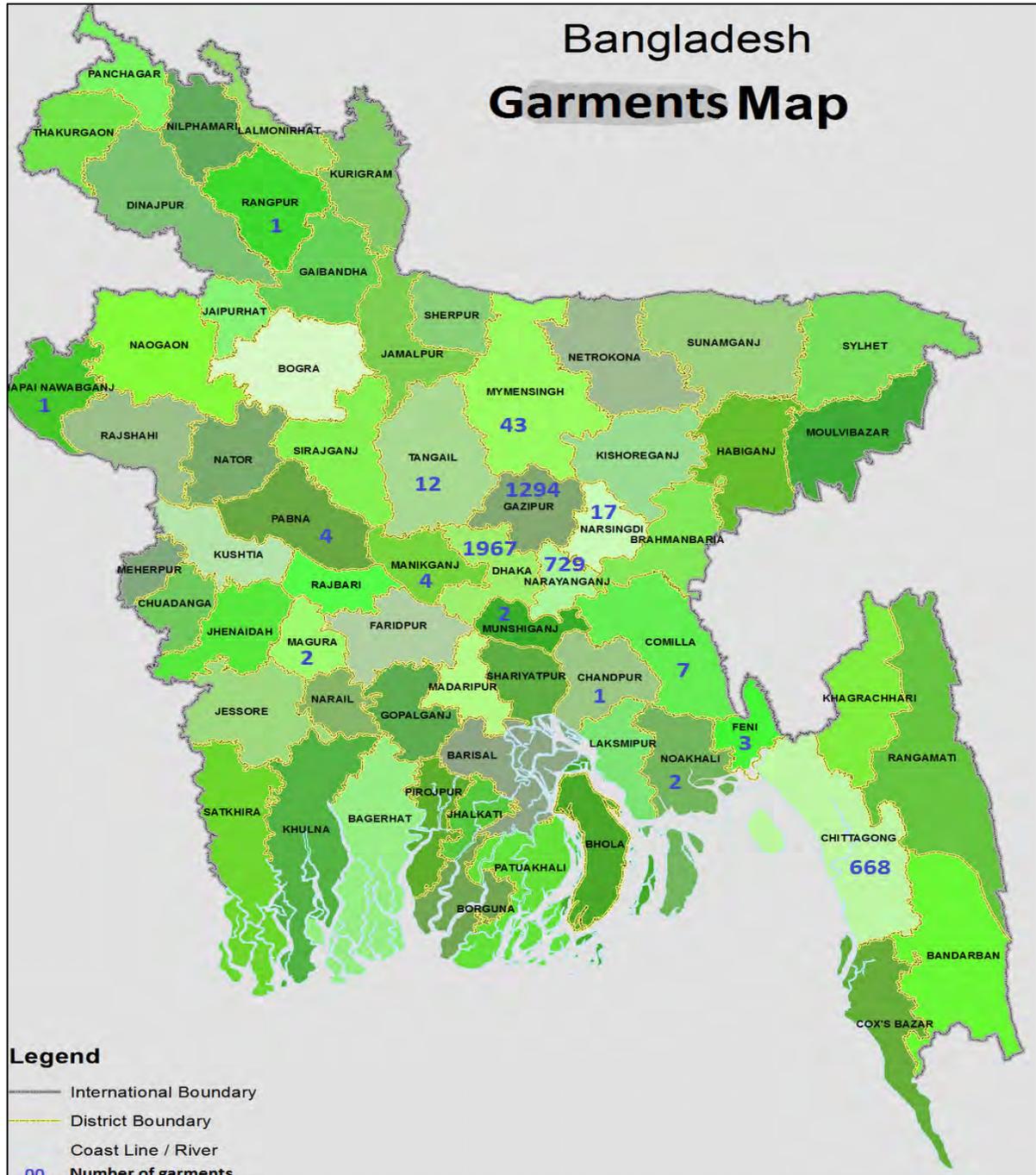
The study uses a new methodology developed by Anker and Anker (2016) that builds and improves on their earlier work on living wages published by ILO (see Anker, 2006a, 2006b, 2011). This new methodology has been used so far to estimate a living wage for urban areas in ten countries for a multi-national corporation, as well as for rural Western Cape Provence South Africa, rural Northern Dominican Republic, rural Southern Malawi, peri-urban fresh flower growing regions of Kenya, the Minas Gerais Region of Brazil, and the Ziway Region of Ethiopia for members of the Global Living Wage Coalition. The Global Living Wage Coalition brings together Fairtrade International, Forest Stewardship Council (FSC),

GoodWeave International, Rainforest Alliance (RA), Social Accountability International (SAI), Sustainable Agriculture Network (SAN), and UTZ, in partnership with the ISEAL Alliance and Richard Anker and Martha Anker, with the shared mission to see continuous improvements in workers' wages, in the farms, factories and supply chains participating in their respective certification systems and beyond, and the long term goal for workers to be paid a living wage. Each living wage benchmark commissioned by the Coalition is made public to further this aim and to increase the opportunity for collaboration toward payment of a living Wage. Nineteen additional living wage studies in 11 other countries are now under way for the GLWC using the Anker methodology. This report was made possible by the generous support of the Ministry of Foreign Affairs of the Netherlands, LIDL Stiftung & Co. KG, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and Social Accountability International.

2. LIVING WAGE ESTIMATE

Our estimate of a living wage for the Dhaka, Bangladesh are Tk13,630 ($177) for its satellite districts like Narayanganj, Ashuliya and Ghazipur and Tk16,460 ($214) for Dhaka City (Mirpur). [1] These estimates are more than twice minimum wages in the garment industry in Bangladesh. This large gap between minimum wages and our living wages is due to the low wages in the garment industry, especially excluding overtime, as indicated by the fact that current wages excluding overtime are lower than the urban poverty line wage for many garment workers and near to or only slightly above the urban poverty line wage for many other garment workers. This large gap is not due to our living wage being too high or overly generous. Our living wage uses conservative assumptions to estimate living costs for a basic but decent living standard. For example, our living wage allows for housing with only 30 square meters for a family of 4 persons.

The remainder of this report provides a detailed explanation of how our living wages were estimated. Attempt has been made to keep a balance between scientific rigor and simplification of the procedure so that all readers and stakeholders can understand the methodology and how the living wage has been estimated.

Though the initial focus of our study was on garment factories in Narayanganj Sadar, subsequently we decided to expand this study to include other satellite districts to get a more robust and generalizable living wage estimate for districts surrounding Dhaka. We also decided to include Dhaka city (Mirpur ward) to learn if a living wage for Dhaka was different since many garment factories remain in Dhaka. These decisions turned out to be good decisions because it allowed us to generalize our results and to feel confident with one living wage for satellite areas (where living costs are similar across areas) and a separate living wage for Dhaka (where living costs are higher than in satellite areas).

2.1 Fieldwork and data sources

Considerable effort was put into making our living wage estimates. This was done in light of the importance of the garment industry in Bangladesh and possible uses of this report by key stakeholders like Government of Bangladesh, employers, buyers, brands, international certifying agencies, and labor unions to help improve wages of the workers and create a pathway to increased wages so that garment workers could live decently. Using Anker methodology, all essential components of living wage were calculated separately by collecting a variety of data using a mix of quantitative and qualitative approaches and triangulating all of this information to arrive at reasonable estimates. Information

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[1] Exchange rate of 77 taka to USD was used to convert taka to USD as found in March 2106 at the time of data collection for this study

collected included the following. (1) Visits to garment factories and discussions with management including about 15 senior officials such as those in-charge of human resources and finance as well as walks around their floors to understand the stages of activities. (2) Meetings with senior university researchers actively involved in research on labor issues. (3) Discussion with a senior official of the Bangladesh Garment Manufacture Export Association (BGMEA). (4) In-depth interviews with around 35 garment workers in Narayanganj, Ashuliya and Ghazipur Districts. Key issues in discussions with workers revolved around family size, house location, dietary patterns, and living expenses. (5) Visiting over 30 homes of workers to observe their housing and living conditions including measuring room size, number of people living there, latrine, kitchen facilities, material used for constructing the building/structure, and condition of the building. (6) Exploring rent of alternative housing that could be considered decent where garment workers could live if they earned a living wage. (7) Meetings with real estate agents to get better understanding of the house rent market. (8) Survey of market places where the workers purchased their food and other essentials to find local food prices. We collected food prices from 17 different local markets and 50 different shops. In Mirpur Dhaka, we collected food prices from 6 markets and 25 shops, and from 11 markets and 25 different shops in the satellite districts. To generalize these findings food prices collected from Narayanganj, Ashuliya and Ghazipur were averaged to get representative food prices for each food item to estimate a living wage for the satellite districts. The same procedure was used to arrive at representative food prices for Dhaka (Mirpur). (9) An extensive review of available literature and statistics related to the garment industry of Bangladesh was done and used in the analysis in this report.

3. CONTEXT

It is important for readers to understand the context of Bangladesh and role of the garment industry in the social and economic development of the country before getting into the details of estimating a living wage for areas with major concentrations of garment factories. Bangladesh is the eighth largest country of the world by population size. According to the latest United Nations estimates, its population in March 2016 was around 162 million. Population density of Bangladesh is one of the highest (1252 per km^2) in the world.

Bangladesh has been growing rapidly in recent years. Gross Domestic Product (GDP) per capita (taking inflation into account) has been growing around 5% per year for more than a decade, and GDP per capita in purchasing power doubled between 1997 and 2014 (World Bank World Development Indicators). Despite this, around half of the population in Bangladesh lives under the national poverty line. Bangladesh ranks 146th in the UN Human Development Index, and 43% of children below age 5 in Dhaka are stunted according to the 2011 DHS.

3.1 Garment industry and employment growth

The garment industry has contributed significantly to the economic development of Bangladesh. Employment and number of factories have both expanded rapidly in Bangladesh during the last three decades. There were 4,296 garment factories in 2014-15 according to BGMEA with around four million workers employed (Figure 2). Garment employment has risen from only around 120,000 workers in 1983 to around 1 million workers in 1993 and 4 million workers presently.

Figure 2: Number of employees in garment sector in Dhaka and satellite cities, 1984-2015 (in millions)
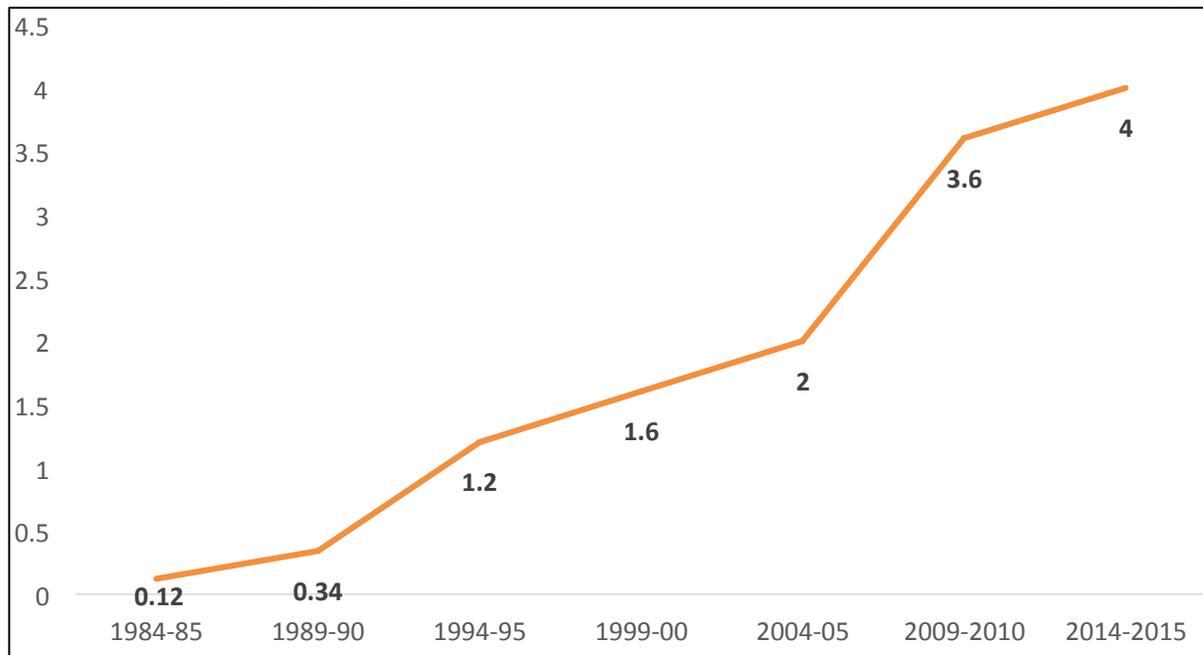
Further evidence of the increasing value and importance of readymade garments (RMGs) is the growth of exports shown in figure 3 as RMGs now contribute 82% of Bangladesh total exports. Until 1992-93, woven apparel was the main export from Bangladesh contributing 86% of the value of garment exports. However, over time, knit garment exports have increased and in 2014-15 woven and knit apparel have almost equal shares in the 26.6 billion dollars of garment exports.

Figure 3: Number of employees in garment sector in Dhaka and satellite cities, 1984-2015 (in millions)
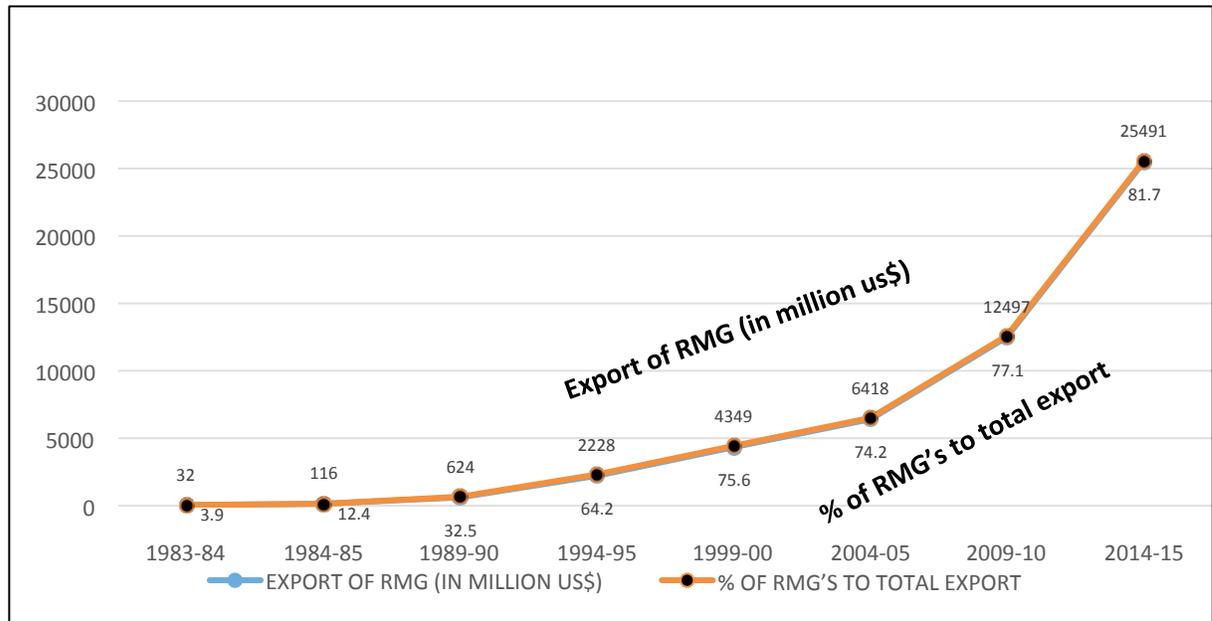
3.2 Relocation of many garment factories from Dhaka city to nearby satellite cities and areas outside Dhaka

During the 1980s, the garment industry was located mainly in Dhaka City. However, for the past two decades, many garment factories have shifted from Dhaka to nearby areas outside of Dhaka such as Ghazipur, Ashuliya, and Narayanganj (see figure 1). New garment factories have been built in the districts around the Dhaka because of lower costs and availability of space. Despite these changes, Dhaka remains a major center of garment production, and around 40 percent of the garment factories in the greater Dhaka area are still in Dhaka city with Mirpur ward in Dhaka having a major concentration of garment factories, which is why we collected food prices and housing costs in Mirpur to represent living costs for garment workers in Dhaka City.

3.3 Rana Plaza disaster and increased concern for working conditions and living conditions of workers

With the growing scarcity and increasing cost of land in Dhaka, garment factories have expanded vertically with some factories now having 10 stories building. Sometimes this has compromised safety requirements of the building and the workers. This has led to many small and large accidents causing deaths and injuries to garment workers. The most serious accident was in April 2103 when an eight-storied building Rana Plaza collapsed due to structural failure and sheer negligence of the factory owners in Savar Upazila of Dhaka. This turned out to be the deadliest garment factory accident in history with 1,130 deaths and approximately 2,500 injured people (Figure 4). More than half of the victims were women. Investigation revealed that the upper four floors had been built without a permit and the building was planned for shops and offices but not factories. Such regulatory violations are not uncommon and safety of workers is indeed an issue. After the Rana Plaza accident, the Bangladesh government and other regulatory bodies are more vigilant and trying to minimize any such unfortunate accidents in the future. In addition, minimum wages were increased soon after the Rana Plaza disaster (see section 3.6 below).

Figure 4 Aerial view of the building following the Rana Plaza disaster

3.4 Importance of garment employment for women

The growth of the garment industry has created major employment opportunities for young women, the majority of whom are migrants from nearby districts. Typically, in garment factories, women comprise 80 percent of the work force. Studies show that a majority of women workers in garment factories are unmarried (60 percent) with around 80 percent of garment factory workers in age group 18-25 years. Most women workers have no formal training; they often start at the helper grade and learn by doing on the job before being given higher responsibility in production. Participation of such a large number of young women, mostly migrants from rural areas and smaller towns, living independently and often supporting family left behind has empowered them in many ways. As earlier studies indicate, these female garment workers have more decision-making power than is typical in Bangladesh for young women. They delay marriage, save money for their marriage, and get a better spouse. In marriage, they are more likely to adopt a small family size (1-2 children), practice contraceptive methods effectively, and enjoy better gender equity within their family. These are all important broader social changes that are influencing the Bangladesh social environment as a whole.

However, there is gender discrimination within garment factories, with women having lower grades and therefore lower pay then men. For example, Rahman et al (2007) found that in the readymade garment industry, "monthly wage of a female worker was 28.04 per cent less than that of a male worker with identical characteristics" and Miller (2012) reports that operating knitting machines, which pays relatively high wages was "an almost exclusively male preserve … even though the effort is probably no different than that expended by a female handloom weaver."

The proportion of men in factories is higher when factories shift towards mechanization. With increasing mechanization, demand for trained/ skilled workers like technical skills, cutters, and embroidery work increases. In the absence of an adequate number of such trained workers. There is a good job market for these types of jobs and workers can get as much as Tk16,000 or more as monthly salary compared to untrained helpers who gets less than Tk7,000 per month. Recently, some garment training institutes have come up to meet the growing demand for skilled workers. According to a key informant and owner of two garment factories to whom we spoke, 15-18 private institutions are now working in Bangladesh

and training young people in garment production techniques and skills that are in demand. However, the demand of such trained workers is far more than could be met from this limited number of training institutes. It is important to keep track of the shift in the garment industry to mechanization and higher skilled and better-paid job requirements and guard against it changing the gender composition of the work force significantly and ensuring that young women also receive training.

Young women migrants in the garment industry face many problems as regards housing, transportation, personal safety and low pay. They are forced to live close to their workplace in slum like housing and commute to the factory by walking because most garment factories are located in crowded market places of district and subdistrict towns where pubic transport system is almost non–existent, expensive and unsafe. This is also true for Dhaka and Chittagong as well as for the satellite cities and districts surrounding Dhaka.

3.5 Poor transportation in and around Dhaka and need to live close to the workplace

Transportation and commuting to work is a major problem for workers in Bangladesh. Cost of transportation is very high relative to garment wages being a minimum Tk20 - Tk50 per day for commuting depending on distance from home (implying Tk500 to Tk1,300 per month which is an enormous amount relative to the minimum wage and so explains why workers share transport when they do not walk to work). Transport is also unreliable which makes it problematic to rely on to get to work on time. There are also personal safety problems (especially for women workers) with the use of auto rickshaws. Furthermore, if working in evening or night shift, safety problems increase exponentially in going alone or in shared transportation. Discussion with some of the workers as well as two real agents also revealed that many home owners do not want to give home/room to garment workers as they are young, often unmarried girls and they fear social problems. That leaves no option to most workers except to live in the vicinity of the factory whatever accommodations are available. Real estate investors understand the situation very well and they build poorly constructed housing with 10-12 small (10 feet by 10 feet, or 10 feet by 12 feet) rooms in two rows, with shared kitchen, bathrooms and latrine. Many times the material used are tin with concrete floor, though more recently slightly better buildings with similar utilities are also being built. Rent of these rooms are affordable and at times the workers reduce cost further by sharing a room with co-workers. This issue is further discussed in subsequent sections. The young women manage their safety problem by moving together in groups of 10-15 workers who either live at the same place or in the same neighborhood.

3.6 Low minimum wage

The minimum wage for the garment industry is extremely low and has been extremely low for a long time. The minimum wage in the garment industry varies according to grade set by the government and so the same in each factory. According to the Minimum Wage Board, in 2010 minimum wage per month for trainees was only Tk2,500. It was only Tk3,000 for grade 7 workers (Assistant Sewing Machine Operator, Assistant Dry Washing Man, Line Iron Man), only Tk3,553 for grade 6 workers (Operator of General Sewing/Button Machine), and only Tk3,861 for grade 5 workers (Sewing Machine Operator Inspector, Cutter, Packer, Line Leader). These grades taken together constitute almost 80% of the total of the garment workforce.

After the Rana Plaza tragedy, Government quickly revised the minimum wage of the workers in 2013. Today the minimum wage of grades 4 to 7 varies between Tk5,300 per month (approximately $68) to Tk6,420 per month (approximately $82, with an average around $75). It has remained the same since 2013 except for a 5% annual increment that is mandatory by the government for workers who are employed more than one year with the same employer, against an annual inflation rate of around 6%.

It is obvious that an average wage of $75 per month is too little to expect workers and their families to be able to afford a decent life in a major city such as Dhaka where housing is expensive. This helps explain why so many garment workers in Bangladesh live in slums or poorly constructed room/housing. While this low minimum wage helps provide a competitive advantage for Bangladesh in attracting garment manufacturing, it means that most workers are paid wages that are far from decent. This low minimum wage is important background information to keep in mind when considering the size of the gap between minimum wages and the living wage estimated in this report. The large gap indicated in this report is due more to do an abnormally low minimum wage than it is with our living wage being too high.

Figure 5 indicates how the minimum wage for garment workers has changed in the past 30 years (since 1985) in terms of purchasing power. Figure 5 graphs inflation adjusted minimum wage values for 1985-2016 that represent the purchasing power of the minimum wage in terms of 1985 Taka. There have been in essence two distinct periods. From 1985-2009, the real value of the minimum wage fell substantially despite increases in 1994 and 2006. By 2009, the minimum wage was worth around 35% less than it was worth in 1985 in terms of the goods and services it could buy (and had been worth roughly 50% less in 2005). From 2010-2016, the real value of the minimum wage increased substantially because of very large increases in 2010 in response to the many strikes, lockouts and demonstrations that occurred in 2010 (81% increase) and in 2013 in response to the Rana Plaza disaster that occurred that year (77% increase). The real value of the minimum wage was around 30% higher in 2016 than it was in 1985 – which is very little given that real per capita income in Bangladesh increased by 257% in this period according to World Bank data.

Figure 5. Inflation adjusted minimum wage expressed in 1985 Tk, 1985-2016
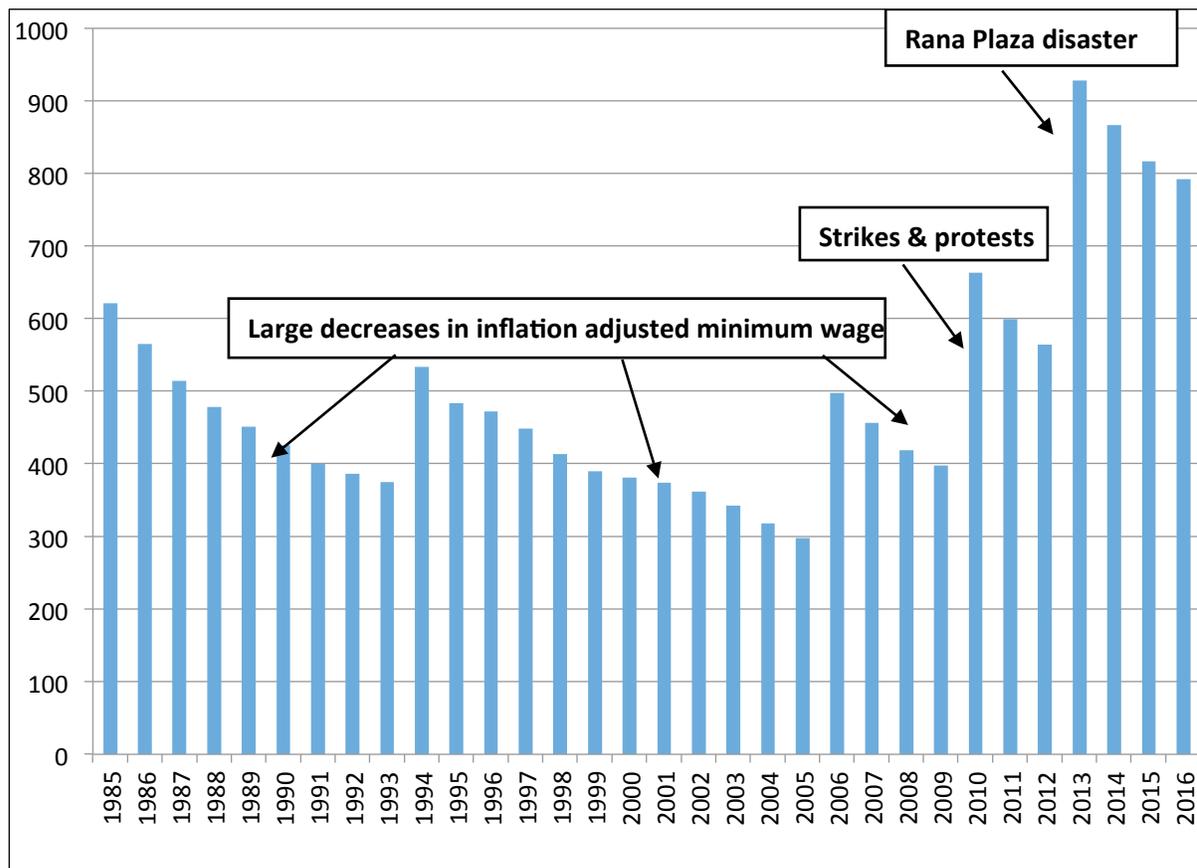
4. CONCEPT AND DEFINITION OF A LIVING WAGE

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 was agreed to by the Global Living Wage Coalition (GLWC) and its members.

> *"Remuneration received for a standard work week by a worker in a particular [time and] place sufficient to afford a decent standard of living for 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."*

The idea of a living wage is not new (see Anker 2011 for following and other quotes). Nor is it a radical idea. Adam Smith (1776) wrote, "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 Rerum Novarum

stated, "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." The International Labor Organization Constitution (1919) states that "Peace and harmony in the world requires provision of 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."[2]

5. HOW OUR LIVING WAGE IS ESTIMATED

The living wage is estimated in the Anker methodology by first estimating the cost of a basic life style for a worker and his or her family. This involves adding up the cost of food (for a low cost nutritious diet), housing (for basic healthy housing), and other essential expenses for a family that includes education of children, decent health care, transportation, recreation, clothing, household goods, communication, personal care, and a small margin for emergencies and unforeseen events. The estimated cost of this basic but decent life style is then defrayed over the number of full-time workers per couple expected to provide support based on secondary data for urban Bangladesh on this. Figure 5 indicates this process in graphical form.

The following flow charts indicate how the living wage was estimated. Conceptually the first step was to identify the key factors that contribute to a decent living as defined globally allowing for certain adjustments based on the local conditions. The basic elements of a living wage are indicated in Figure 6. Living costs are estimated by summing up separate estimates of cost for a low cost nutritious diet, basic decent healthy housing, education of children through secondary school, decent health care, transportation, and all other necessary expenses such as for clothing, furniture, recreation, personal care, etc. A small margin above this total cost of a basic but decent life style is then added to help provide for unforeseen events such as illnesses and accidents or special occasions like marriage or travelling to other places to attend some family ceremony that demand considerable expenditure to help ensure that common unplanned events do not easily throw workers into debt and possibly perpetual poverty. After the total cost of a basic but decent quality life for a typical family in the area is estimated, this cost defrayed over the typical number of full-time equivalent workers per family in the area to arrive at the net living wage. The gross living wage is determined by adding payroll deductions and taxes to the net living wage.

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[2] See Anker (2011) for definitions of living wage of other prominent individuals, international organizations, NGOs, companies, and governments.

Figure 6: Components of a basic but decent life for a family, moving from cost of a basic but decent life to net living wage, and moving from net living wage to gross living wage
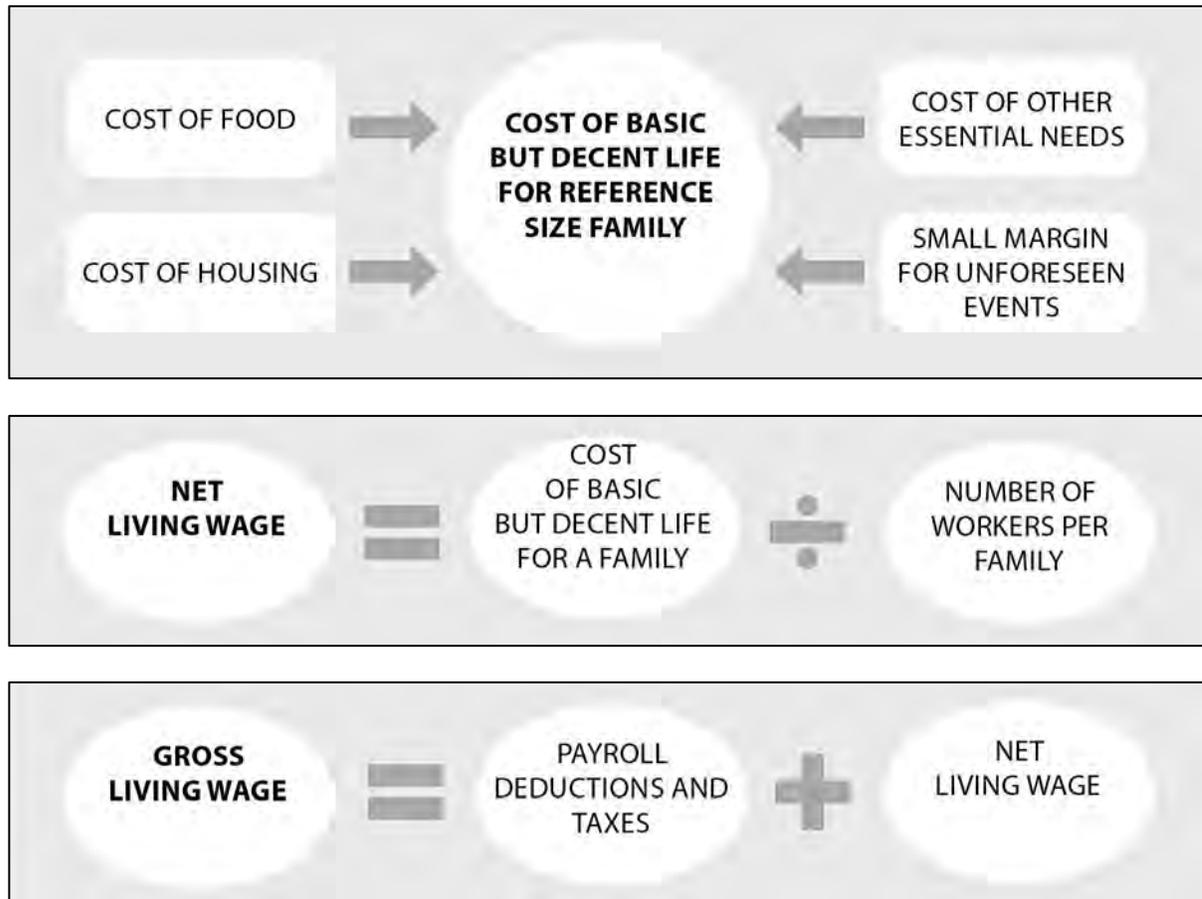
Source: Anker & Anker (2016).

SECTION I.

Cost of a Basic but Decent Life for a Worker and Their Family

6. FOOD COSTS

Food cost for a living wage for Dhaka area was estimated using local food prices and a low cost nutritious model diet for Bangladesh for a family of 4 persons (2 adults and 2 children).

6.1 General principles of model diet

The following general principles were used to establish the model diet that we used to estimate food costs for our living wage for Dhaka area. Our model diet needed to be:

1. <u>Nutritious</u> (i.e. meets WHO recommendations as regards having sufficient calories as well as acceptable quantities of proteins, fats, carbohydrates, and fruits and vegetables) to help ensure that workers and their families have enough to eat and can be healthy.
2. <u>Relatively low in cost for a nutritious diet.</u> This approach means that relatively inexpensive foods are included in the model diet in order to reflect how cost conscious workers shop for food while maintaining nutritional standards.
3. <u>Consistent with Bangladesh's development level.</u> For this reason, our model diet includes relatively low (but nutritionally acceptable) percentage of calories from proteins since proteins are expensive per calorie. At the same time, percent of calories from proteins meets WHO/FAO minimum requirements.
4. <u>Consistent with local food preferences</u>, local food availability and local food costs. This at times means that the choice of specific food items included in the model diet to represent each major food group is not always the least expensive food item. It also means that the diet includes large amounts of rice, fish and potatoes and relatively small amounts of sugar, eggs and milk.

6.2 Model diet

The model diet has 2188 calories. This was determined using WHO (FAO/WHO/UNU, 2004) recommended equations and average height of adults in Bangladesh, size and composition of the reference family (2 adults and 2 children), and assumption that all adults and children have moderate physical activity levels. We started with food consumption of major food groups according to the 2010 Household Income and Expenditure Survey (HIES). In the next step, we adjusted these quantities so that our model diet met WHO recommendations for macro nutrients (proteins, fats, and carbohydrates) and quantities of fruits and vegetables to ensure sufficient micro nutrients and minerals (WHO, 2003). Lastly, we adjusted this nutritious diet so that it was lower in cost for a nutritious model diet by taking into consideration relative food prices and Bangladesh's level of development. Percentages of calories in our model diet were 10.5% from proteins, 19.4% from fats and 70.1% from carbohydrates. The 300 edible grams of pulses, fruits and vegetables included in our model diet helps to provide a variety of micronutrients and minerals. We also checked that the distribution of food costs in our model diet was not very different from the distribution of food expenditures according to the 2010 HIES unless there was a good explanation for this. As expected, percentage of food expenditures for rice and wheat were lower in our model diet compared to those for actual food consumption, while expenditures for pulses, milk, vegetables and fruits were higher in our model diet.

Our model diet, shown in table 1, includes:

- A lot of rice (370 grams per day) since rice is the mainstay of a Bangladeshi diet. Rice provides 58% of all calories.

- 42 edible grams of fish that allows for 4 fish meals per week.

- 24 edible grams of chicken that allows for 2 meat meals per week. Thus there is one meat or fish meal six times per week. This is required nutritionally to have enough high quality proteins because adults in Bangladesh do not consume much dairy. Consumption of meat and fish is also consistent with local food habits as fish and chicken are included in curries.

- 6 edible grams of egg. This allows for two egg omelet for breakfast for the family two times per week which is not too far from current egg consumption in Bangladesh.

- 28 grams of pulses. This is relatively low number of grams because pulses are traditionally prepared in a liquid form (although this quantity is more than the approximately 19 grams consumed on average according to HIES data, in deference to fact that pulses are a relatively inexpensive form of protein).

- 1 small cup of milk per day for children. Milk is needed for growth and calcium despite its expense. A small cup of milk (180ml) rather than a more typical 240ml cup was used so that the percentage of food cost for milk would be reasonable.

- 74 edible grams of potatoes. Potato is commonly included with vegetables in curries because of its lower cost.

- 300 grams of vegetables, fruits and pulses. Four inexpensive vegetables are included in addition to onion. Note that onion is included in the model diet even though it is not among the cheapest vegetables, because onion is used in all cooked meals and indeed is considered as a spice by Bangladeshi people and national statistics.

- Two fruits are included, one inexpensive year round fruit (banana) and one seasonal fruit (jujube that is called bori locally).

- 12 grams of sugar per day (approximately 3 teaspoons). This amount of sugar is low by international standards but is consistent with Bangladeshi food consumption.

- 34 grams of cooking oil.

- 1 cup of tea for adults as there is very little consumption of tea in Bangladesh.

- 5% is added to food cost for spices, salt, condiments and sauces. This percent for this is high for the world but is consistent with how food is prepared in Bangladesh (and India and Sri Lanka) as 6% is spent for this according to 2010 household income and expenditure survey data.

Our model diet costs Tk59.74 ($0.78) per person per day for satellite areas of Dhaka and Tk65.06 ($0.84) for Dhaka (Mirpur). This implies Tk7,270 ($94) and Tk7,916 ($103) per month for the reference size family of 4 persons for these areas respectively. Thus the cost of our model diet is approximately 10% higher in Dhaka (Mirpur) than in the satellite areas of Dhaka.

Table 1. Model diet and food cost (Tk) per person per day using food prices observed in markets where workers shop in satellite cities/areas of Dhaka and Dhaka City (Mirpur), March 2016

Food items [c]	Grams edible [a, b, j]	Cost per kg for satellite areas [e]	Cost per kg for Dhaka (Mirpur) [e]	Cost for satellite areas [f]	Cost for Dhaka (Mirpur) [f]	Comments (Diet is for average person in family of 4. Portions for adults are bigger than for children) [g]
Rice	370	29.9	33.1	11.05	12.23	Rice provides 58% of all calories. Rice is main part of Bangladeshi diet. Less expensive acceptable variety in each market used (mostly paizam and shorna). More expensive varieties of rice possible sometimes using added funds for variety.
Wheat (ata)	37	28.3	29.7	1.06	1.11	Consumed around once a week. Price of loose ata used.
Potato	74	24.5	27.4	2.14	2.40	Potato. Least expensive root and tuber. Often included in curries.
Masoor dhal	28	118.6	117.9	3.32	3.30	Local masoor dhal used. Is strongly preferred and eaten even by poor. Not the least expensive pulse.
Milk	90	62.5	62.5	5.63	5.63	Fresh milk used. Small cup (180ml) pd for children.
Egg	6	119.3	120.5	0.86	0.87	1 egg per week.
Fish	43	124.8	150.8	8.91	10.77	Average of 3 common inexpensive fish (rui, pangas, and tilapia). 4 days per week of a 500 gram size fish for family.
Chicken	24	123.6	145.3	4.41	5.19	2 times per week. Chicken least expensive meat (broiler used).
Vegetable 1 (least expensive GLV)	40	13.5	13.8	0.62	0.63	300 edible grams of vegetables, fruits and pulses. Cabbage least expensive GLV.
Vegetable 2 (2nd least expensive GLV)	40	17.3	19.4	0.98	1.10	Price of least expensive green leafy vegetable (excluding cabbage) from each seller. Many types of GLVs.
Vegetable 3 (least expensive non-GLV)	40	17.6	23.3	0.81	1.08	Bottled gourd least expensive non-GLV.
Vegetable 4 (2nd least expensive	40	33.3	35.8	1.43	1.53	Eggplant second least expensive non-GLV.

Food items [c]	Grams edible [a, b, j]	Cost per kg for satellite areas [e]	Cost per kg for Dhaka (Mirpur) [e]	Cost for satellite areas [f]	Cost for Dhaka (Mirpur) [f]	Comments (Diet is for average person in family of 4. Portions for adults are bigger than for children) [g]
non-GLV)						
Onion (vegetable cum spice in Bangladesh)	31	34.7	41.8	1.22	1.48	Onion is so common in meals that it is considered a spice in Bangladesh statistics.
Fruit 1	40	39.8	25.0	2.16	1.36	Banana. Least expensive fruit available year round.
Fruit 2	40	47.5	57.2	2.25	2.71	Jujube (bori). Least expensive seasonal fruit.
Cooking oil	34	85.3	85.0	2.90	2.89	Soybean oil sold from open container used. Less expensive than soybean oil sold in bottle or other vegetable oils.
Tea	1	365.0	365.0	0.37	0.37	Loose tea used. 1 cup of tea per day for adults.
Sugar	12	41.8	42.5	0.50	0.51	Roughly 3 teaspoons per day. Price of loose sugar used (as less expensive) unless not available in a market.
Total [u]				50.63 ($0.66) [h]	55.14 ($0.72) [h]	
Total (including miscellaneous costs) [d]				59.74 ($0.78) [h]	65.06 ($0.84) [h]	

Notes: pd indicates per day. pw indicates per week. GLV indicates green leafy vegetable. [a] Edible (consumed) quantity differs from purchased quantity for foods with inedible parts such as fruits and vegetables with inedible skin or stem; chicken with bone; fish with head, tail and scales; and egg with shell. Percentage inedible is drawn from Institute of Nutrition and Food Science, University of Dhaka (2013). [b] Number of calories, proteins and fats are estimated using same source as noted in [a] for values per 100 edible grams for each food item. [c] Specific food items used to cost our model diet are foods that are low in cost for each major food group except for pulses. [d] Additional miscellaneous food costs are assumed to be 18 percent. This consists of: (i) 5% for miscellaneous foods not listed in our model diet such as salt, spices, sauces and condiments (with soft drinks, cakes and sweets excluded); (ii) plus 10% to allow for some variety (e.g. beef sometimes; more expensive varieties of rice, vegetables and fruits sometimes; holiday meals sometimes; etc.); (iii) plus 3% for minimal waste and spoilage. Assumed 5% for salt, spices and condiments is similar to 6% for this according to 2010/11 household income and expenditure survey data and 2010 urban CPI weights. Assumed 10% for variety is a conservative assumption. Assumed 3% for spoilage and waste is a conservative assumption. [e] Cost per kilo is based on prices observed in food markets where workers shop. [f] Cost for each food item was calculated by multiplying quantity purchased by cost per kg. [j] In addition to having a sufficient number of calories (2188), our model diet meets WHO recommendations for proteins (10-15% of all calories), fats (15-30% of all calories) and carbohydrates (less than 75% of all calories). 10.5% of calories in the model diet are from proteins, 19.4% are from fats and oils, and 70.1% are from carbohydrates. [g] Calories required by adult males, adult females and children were calculated using Schofield equations recommended by WHO/FAO. Then, average number of calories required per person for our reference family of 4 was calculated which turned out to be 2188. [h] Exchange rate used to convert taka to USD was 77 as found in March 2016.

Markets Where Model Diet Foods are Purchased

Source: The Authors

6.3 Food prices

To estimate the cost of our model diet, the research team collected food prices from places where workers typically shop. We collected food prices from 17 different local markets and 50 different shops. In Mirpur Dhaka, we collected food prices from 6 markets and 25 shops and 11 markets and 25 different shops in the satellite districts. In this way, we were able to get a fairly good idea about variations of food prices between the satellite cities and Dhaka (Mirpur). The price variation was only marginal between satellite districts, hence we took the average price of each food item for Ghazipur, Ashuliya, and Narayanganj. Average cost for each food item was calculated for Dhaka city (Mirpur) and used for estimating cost of model diet of Dhaka city (Mirpur).

To keep the living wage model diet at low cost, less costly items were included taking care to ensure that the model diet provides the required balanced nutrition to the family. However, in certain cases when local food preferences were strong a preferred food variety was taken in place of a lower cost variety. For example among different types of lentils, local *masoor dal* is used by a majority of even poor workers in Bangladesh. Four verities of *masoor dal* were available in the market with price varying from 90 to Tk120. Despite the fact that local masoor dal was relatively costly (Tk120), workers in Bangladeshi strongly prefer local masoor dal, and for this reason it was selected to estimate food costs for the living wage. Similarly, fish is a very important part of Bangladeshi diets. Often fish cooked with some vegetable and rice is the main diet. Fish is also one of the most important sources of protein. In markets, we found more than 40 different kinds of fish and within the same variety (e.g. Pangas or Rui) price varied significantly depending on the size of the fish. Pangas, Rui and Tilapia were included in our living wage model diet because they were widely available and the most commonly eaten and were not very expensive, although Rui is more expensive than Pangas and Tilapia. Lower cost sizes were selected. In this way while food costs were keep to a minimum, local food habits were not neglected and cost of the model diet was estimated by using the prices that workers actually pay for different foods.

View of the Food Markets from Outside

Source: The Authors

6.3.1 Adjustment of food prices for seasonality

Since food prices were collected in the month of March, it is possible that they are not representative of average food prices throughout the year. The way in which food price data were collected and specific foods were selected to include in our model diet (i.e. lowest cost food items of acceptable quality for each food group) takes into consideration seasonality, and so reduces the possible importance of seasonality in food prices and the representativeness of the food prices we used to cost our model diet. Despite this, March prices we collected could overestimate or underestimate average food prices for the year. This is most likely a possibility for fresh fruits and vegetables. To help determine if food prices in March in Dhaka area are reasonably representative of food prices during the year, we analyzed monthly food price data for 35 different food items published by the Bangladesh Bureau of Statistics (2013, 2015). There was data for 3 rice (fine, medium, coarse), 1 wheat (atta), 3 pulses (including masoor dhal), 5 fish, 3 meats (including chicken), 1 egg (chicken egg), 1 dairy (milk), 1 root and tuber (potato), 13 vegetables (including spinach, cabbage, gourd, eggplant, and onion), 2 fruits (including banana), 1 oil (soybean), 1 sugar (white), and 1 tea. These food price data were available for Dhaka and for Narayanganj separately for 16 different months from November 2013 to April 2015 (including March 2014 and March 2015). We compared the average of the two March prices for each of these 35 foods to the average price for all months with data. We did this analysis separately for Dhaka and for Narayanganj. We found that March

prices were similar[3] to the average price during the year for most foods (all rice, atta, all pulses, all meats, egg, milk, oil, all fruits, sugar, and tea). Prices were similar for 4 of the 5 types of fish (soal was more expensive in March). Prices in March were, however, consistently lower than average for potato (by around 20%) as well as for vegetables including the 5 included in our model diet (by around 10% on average). For this reason, we decided to increase the vegetable prices we collected by 10% and the potato prices we collected by 20% so that food prices used to cost our model diet are representative of food prices throughout the year.

7. HOUSING COSTS

Housing costs for the living wage were estimated by determining rent for an acceptable dwelling plus utility costs (water, electricity, and cooking fuel) when they are not included in rent. It was assumed (and confirmed) that the landlord pays the cost of routine minor maintenance and repairs and for this reason possible housing costs for workers were ignored here.

As mentioned in the earlier context section 3, because of personal safety concerns and high cost of transportation, most garment workers try to live at walking distance from the factory where they work. To get an idea of the cost of basic acceptable housing in satellite districts like Narayanganj and Ghazipur (that includes Ashuliya) as well as in Dhaka (Mirpur), we visited many homes of workers and others - 7 in Ghazipur, 7 in Ashuliya, 8 in Narayanganj, and 5 in Mirpur. Typically, several workers live in one room that measures 10 feet by 10 feet (9.3 square meters) or 10 feet by 12 feet (11.2 square meters) that is part of a long one floor row building that is divided into small one room units. There is also a common kitchen, bathroom and toilet usually shared by 8-12 families/workers. There are gas stoves that are generally kept at the end of the passage and are shared by several households, and are not clean. Vessels for food preparation and cooking have to be carried from some distance. Photos of row houses are shown below. The photo of rooms under construction with a construction worker standing inside an eventual room shows how very small these rooms are.

The materials used for row houses varied depending on when they were constructed. Buildings constructed 10-15 years back have walls that are made of tin for three sides and cement for one side, tin roof, and concrete floor. Buildings built in the last 5-8 years are generally of better quality. They are primarily concrete buildings with tiled bathrooms, toilet and kitchen. All four sides of the walls are concrete. The size of rooms also varies somewhat to suit different abilities to pay off workers. Generally, room size varies between 10x10 feet, 10x12 feet, and 11x12 feet, with some bigger rooms at 12x13 feet. In these buildings, there are also sometimes two-room units occupied by families.

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[33] We used the following rules to determine if prices in March were similar to average prices during the year. We considered prices to be similar when the March price was less than around 5-10% different than the average price for the year (or when the March price was not higher or lower in both Dhaka and Narayanganj). The reason why we used this 5-10% rule is that prices in particular months can vary greatly from year to year and so affect our analysis; for example, extensive rains in August 2015 (which is after our data period) greatly affected food prices through October (The Independent, 2015).

Images of row houses where many garment workers live in Ghazipur

Source: The Authors

Construction of row houses where many garment workers live in Ghazipur

7.1 Local standard for basic acceptable housing

Bangladesh is a very densely populated country with one of the highest population densities in the world (1,252 persons per square kilometer) and an annual urban population growth rate of 4.5 percent. Dhaka city is the largest city in Bangladesh. Greater Dhaka has around 17 million people and is growing rapidly. It is one of the fastest growing major cities in the world. This may help explain in part why housing is relatively expensive in the Dhaka area.

Housing conditions are often poor in urban Bangladesh. According to the 2014 Multiple Indicator Cluster Survey (MICS), approximately 78% of urban houses have a tin roof, 35% have a tin wall, and 70% rely on a tube well for water. Overcrowding and minimal or no infrastructure support services are further problems.

To estimate the cost of decent healthy housing in areas near to factories, we set a basic local healthy housing standard that meets minimum international norms for healthy housing that protects inhabitants against the elements as well as is consistent with current local conditions and norms. Our local housing standard has the following characteristics:

- cement walls
- cement floor
- roof that does not leak (tin or cement)
- toilet that is sanitary, clean and not shared by too many people (either pit or flush toilet is acceptable)
- kitchen that is clean and not shared by too many people
- water source that is safe and not far from the house (tube well or tap is acceptable)
- house cannot be located in a slum or unsafe area physically or environmentally
- electricity (since more than 94% of houses in urban Bangladesh have electricity)
- 30-36 square meters of living space.[4]

7.2 Visiting local housing and estimating rent for acceptable healthy housing

Tables 2 and 3 indicate rents for the 27 rented homes we visited. Rent for rooms varied by location, type of construction, living space, and amenities.

Rent ranged between Tk2,600 ($34) to TK3,200 ($42) per month in Ghazipur District for one 10 feet x 10 feet or 10 feet x 12 feet room (excluding pocket rooms and larger rooms) – with Tk2,600 being the most common rent. This means that around Tk2,100 is typical rent for one room in Ghazipur District excluding utilities if we assume for arguments sake that utilities cost around Tk500 per month for a one room unit (see section 7.4 below on utility costs). If we multiply Tk2,100 by 2.7 (i.e. 323 minimum space required/120 typical space of these rooms) to get an approximation of rent for the minimum required amount of living space of 323 square feet (30 square meters),[5] we would get a rent of around Tk5,700 ($74). It is important to keep in mind, however, that the one room units we visited in Ghazipur District

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[4] This size standard is in keeping with minimum size standards of governments in other countries for low-income families. India, for example, uses a 28-48 square meter standard for the low-income group (LIG); Vietnam uses 30 square meters for lower middle income housing; Kenya uses 32 square meters for low cost urban housing; South Africa uses 30 square meters for worker housing on large farms.

[5] This extrapolation assumes that rent is proportional to amount of living space (e.g. cost for 30 square meters costs twice as much as the cost for 15 square meters). This assumption provides only an approximation, since rent per square meter generally falls with size in part because the cost of amenities/facilities is defrayed over more total space (Anker and Anker, 2016). In the situation where one room units have poor facilities/amenities as here, this relationship is expected to be close to proportional.

were poorly constructed and far from decent or acceptable even if they had been large enough. They generally had tin walls, a leaky roof, unclean kitchen shared by many families, and a toilet and bath shared by many persons. So, Tk5,700 is an underestimate of rent for acceptable housing in Ghazipur District with sufficient living space.

There were two one room units visited in Ghazipur District that were somewhat bigger (10 feet x 15 feet) than the usual 10x10 or 10x12 size rooms. They were close to being acceptable if they had been larger in size. They rented for Tk3,300 and Tk4,000 including utilities and so were in a sense renting for around Tk2,800 and Tk3,500 without utilities. When we extrapolated this rent out to 323 square feet (30 square meters), we got Tk6,000-7,000 ($78-91). It is worth noting that the rooms/structures we visited in Ghazipur District were located in the immediate vicinity of garment factories and hence no money was needed for transportation to and from work.

In Narayanganj District, we purposely attempted to visit newer and better built houses than in Ghazipur District. Because of our experiences in Ghazipur District with the very poor quality of workers' housing, we felt that purposely visiting better housing in Narayanganj would help to get us closer to being able to determine rent for decent housing. For this reason, all of the houses we visited in Narayanganj District had 4 cement walls, a roof that did not leak, and kitchen, toilet and bath that were shared by fewer people. For expositional purposes in the following tables, we divided houses visited in Narayanganj District into two types – (i) units with shared kitchen, toilet, and bath (mostly one room units), and (ii) acceptable two room units that had private kitchen, toilet, and bathroom and met our local healthy housing standard (except that they were a little too small).

Typical rent for one room units measuring around of 10 feet x 12 feet was around Tk3,000 with utilities and so around Tk2,500 ($32) without utilities. Extrapolating out, this implied a rent of around Tk6,700 ($87) without utilities for 323 square feet (30 square meters).

We visited three acceptable two room/one bedroom apartments with shared kitchen and toilet in Narayanganj District. Rent for these 2 room/1 bedroom units ranged from around Tk5,500 to Tk6,500 (around Tk6,000 on average) without utilities although they were on the small size as they were 316, 328, and 315 square feet in size compared to the 323 square feet minimum required. However, it is necessary to take into consideration that these three two room apartments were all located away from the immediate vicinity of factories. We visited these apartments, because we found it so difficult to find well-constructed buildings and small but decent size apartments for rent in the immediate vicinity of garment factories in Narayanganj. Renting such more distant decent apartments adds transportation costs that need to be considered. We estimated that somewhere around an additional Tk550 per month is needed for transportation for commuting.[6] This therefore implies a total housing cost without utilities but including added transport cost for marginally decent housing away from factories of around Tk7,300 per month (i.e. Tk6,500 plus Tk550 for added transport costs).

We found that rent without utilities for decent 1-bedroom housing at our local housing standard (that included a toilet/bath and kitchen) for Dhaka (Mirpur) ranged from Tk10,000 to Tk13,000 per month. Tk10,000 was the most typical rent for such an apartment with the minimum required 323 square feet (30 square meters) of living space. We visited two acceptable one bedroom/two room apartments with approximately 323 square feet of living space that rented for Tk10,000. And, two of the three apartments that rented for more than Tk10,000 (for Tk11,500 to Tk13,000) per month without utilities were larger

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[66] Auto rickshaws typically cost Tk20-30 one way. If we use the lower end of this range to be conservative, this implies somewhere around Tk550 per month for transport for commuting to work assuming 26 workdays per month, sharing of an auto rickshaw with two other workers, and 1.58 workers in the reference family.

than 323 square meters (373 and 402 square meters). We also spoke with real estate agents in Mirpur who indicated to us that apartments that meet our local housing standard could be found for Tk10,000-11,000 per month excluding utilities. So, we feel that it is reasonable to use Tk10,000 per month for rent without utilities for Mirpur.

7.3 Summary of rental cost

In view of the above analysis, we decided to set rent without utilities for a decent but basic house for a living wage at Tk7,000 ($91) per month for the satellite districts where most garment factories are located. We based this value of Tk7,000 on the various estimates of rent for the required 323 square feet (30 square meters) of living space indicated above. We estimated rent of Tk5,700 based on extrapolating out to sufficient number of square feet from rent in Ghazipur and Ashuliya for small one room units with tin walls and leaky roof. This estimate is clearly too low for a living wage, because it is based on rent for very poor quality housing even if with sufficient space. We estimated around Tk6,500 and Tk6,700 for Ghazipur and Narayanganj based on extrapolating out to sufficient living space from rent for small one room units that were better quality but still only marginally acceptable as kitchen, toilet and bath were shared by many. These two estimates we feel are on the low side because the quality of the housing is only marginally acceptable. Finally, we found rent was Tk6,000-7,000 without utilities for acceptable 2 room/1 bedroom apartments that included toilet, bath and kitchen with around 323 square feet of living space in Narayanganj District that were located away from garment factories. But these areas required additional costs for transport to work that we estimated are around Tk550 ($7) per month, which implied an effective rent of around Tk7,300. Considering all of these different estimates of rent for acceptable housing together implies that Tk7,000 per month without utilities is reasonable for the satellite districts surrounding Dhaka with concentrations of garment factories.

We found that Tk10,000 was a reasonable estimate for rent without utilities for Mirpur/Dhaka City based on visits to housing and discussions with real estate agents.

7.4 Utilities and other housing costs

The above discussion on rent for acceptable housing did not consider costs of essential utilities like electricity, gas, and water. According to what seven renters of two room apartments told us (see tables 2 and 3), households spend on average around Tk750 ($10) per month for electricity considering that values for some of these households include gas. To this must be added the cost of cooking gas and water of around Tk200-250 per month for cooking gas and water) which would bring the total cost of utilities to around Tk900 ($12) per month. We also looked at data from the 2010 household income and expenditure survey to see what percent of household expenditure is for utilities in this survey and found that this was around 5.5% for urban households at the 40th percentile of the household income distribution. This percentage implies utility costs of around Tk1,000-1,250 for satellite districts and Dhaka (Mirpur) respectively considering that our estimate of living costs for our living wage is around Tk19,000 to Tk23,000 for these two areas excluding additional funds for emergencies and parents. As both of these two ways of estimating utility costs indicate similar values, we decided to use Tk900 ($12) for satellite districts and Tk1,000 ($13) for Dhaka City for utility costs to be on the conservative side.

Table 2: Rented housing units visited, Ghazipur, Ashuliya and Narayanganj

Current standard of housing of the garment workers at different locations			
Acceptable?	Rent (Tk)	Size & rooms	Comments
Ghazipur			
No	2,200	6 × 8 ft. (pocket room)	Toilet/bathroom located at the end of row houses. 2 gas stoves shared among three houses.

Current standard of housing of the garment workers at different locations			
Acceptable?	**Rent (Tk)**	**Size & rooms**	**Comments**
		=48 sq. ft.	This was so small that it was called a pocket room.
No	2,400	12 × 12 ft. =144 sq. ft.	Both walls and roof of tin. Drinking water outside. Poor ventilation. Toilet/bathroom and gas stove shared.
No	2,500	10 × 12 ft. =120 sq. ft.	Hardly any space in room. He also had a weaving machine in room. Toilet/bathroom at the end of row houses. Gas stoves were in the beginning of row houses, cleanliness was lacking.
No	2,600	10 × 12 ft. =120 sq. ft.	Not congested. Had an open space in the center with tree. Toilet/bathroom was at the end of the row and shared.
No	2,800	10 × 12 ft. =120 sq. ft.	Hardly any space in room. As the tin roof was leaking, a plastic sheet was also tied. Toilet/bathroom at the end of row houses Gas stoves were also near toilet/bathroom.
No (nearly OK if bigger)	3,300	10 × 15 ft. =150 sq. ft.	On account of toilet/bathroom located at the end of row houses. 2 gas stoves were shared among three houses.
No (OK if bigger)	4,000	12 × 13 ft. =156 sq. ft.	Supervisor's house. Better as toilet was shared between two households only. Located just outside the room. Gas stove was also outside adjacent to the door. Too small for a family however.
Ashuliya (note Ashuliya is in Ghazipur District)			
No	2,600	10 × 10 ft. =100 sq. ft.	Ventilation poor. Toilet, cooking sharing facility. Drinking water available outside. Roof top is poor.
No	2,600	10 × 10 ft. =100 sq. ft.	Ventilation, toilet, cooking, drinking water, roof top is poor.
No	2,600	10 × 10 ft. =100 sq. ft.	Ventilation, toilet, cooking, drinking water, roof top is poor.
No	2,600	8 × 10 ft. (pocket room) =80 sq. ft.	Ventilation poor. Low light source. Narrow space. Shared toilet, kitchen and bath.
No	3,000	10 × 12 ft. =100 sq. ft.	Ventilation poor. Toilet, cooking space and drinking water was shared. Roof top is poor.
No	3,200	10 × 12 ft. =120 sq. ft.	Ventilation less. Low light source. Narrow space, shared toilet, kitchen and bath.
No	3,500	12 ×15 ft. =180	Ventilation less. Low light source. Narrow space, shared toilet, kitchen and bath.
Narayanganj			
No	2,100	10 × 8 ft. =80 sq. ft. (pocket room)	Poorly constructed 13 rooms with wall and roof of tin. Floor is concrete. Shared kitchen (four burners) two toilet and four bathrooms for 13 families. Rooms have one window. Wife lives with husband while children are in

Current standard of housing of the garment workers at different locations			
Acceptable?	**Rent (Tk)**	**Size & rooms**	**Comments**
			village with her parents. Both work in garment factory and have total earning Tk15,700.
No	3,000	11 × 8 ft. + .5 × (6 × 4.5) balcony = 102 sq. ft.	Cement floor, brick wall and roof made of tin covered by *Chaetae (thin mats)*. Three related garment workers share the room. Each pays Tk1,000. Woman we spoke to earns Tk8,000 including overtime.
No	3,000	12 × 10 ft. = 120 sq. ft.	Room in a single floor concrete building with one window. Shared bathroom, toilet and kitchen for two families. Husband and wife with no children. Total family income Tk13,000.
No	3,200 + 500 for electricity	8× 10 ft. + .5× (6 × 8) ft. balcony = 104sq ft.	Cement floor, brick walls and roof made of tin covered by *Chaetae (thin mats)*. 8 families share one kitchen and two bathrooms cum toilets. Wife lives with her husband and 3-year-old son. Husband and wife both work in different garment factories and total earning is about Tk20,000.
No	3,000 + 500 for dishes and fridge	10 × 10ft =100 sq. ft.	Congested room with shared kitchen and a toilet cum bathroom for four families. Floor, wall and roof all are of concrete. Each room has one window. Both wife and husband work in garment industry. Total income with over time is Tk19,000.

Table 3: Possible options of decent housing Narayanganj District and Mirpur Dhaka

Acceptable standard?	Rent (Tk)	Size & rooms	Comments
Narayanganj: Examples of decent housing			
Yes	6,500 + 800 for electricity and gas = 7,300	10 × 12 ft. + 10 × 11ft + 86 sq. ft. for bathroom, toilet and kitchen =316 sq. ft.	This is fully concrete building with two windows in one room. She lives with her father and mother along with her 8 year child. Father works in jute mill and earns Tk19,000 while her own salary is Tk9,900 with over time. Total earnings are Tk28,900 per month.
Yes	5,500 + +750 for electricity = 6250	12 × 11 ft.+ 11 × 10 ft. +7 × 5 +6 × 4 + .5 × (9 × 6) balcony = 328 sq. ft.	This house is 4-story building. Each floor has 2 separate apartments. Each apartment has 2 rooms. 12 × 11 ft, 11 × 10 ft., 2 windows and attached kitchen (4×6), bath and toilet (7×5) besides a small balcony (9×6). Three people: husband, wife and 2 years old baby girl. Wife is a housewife while husband works in a private company.
Yes	6,000 + 700 for electricity = 6,700	12 × 11+ 10 ×10 + .5 × (10×7) balcony + 6×4 + 6×4 = 315 sq. ft.	This house is a 5-story building with two apartments on each floor. Each apartment has 2 rooms, 3 windows and attached kitchen (6 × 4), bath and toilet (6 × 4); a balcony of 10× 7 size. Five member family: 3 adults (H, W & sister–in-law) and two children. Husband wife both work and earn about Tk25,000 per month. Children are not presently going to school.
Mirpur, Dhaka : Examples of decent housing			

Yes	10,000 + 900 for electricity = 10,900	11×10ft + 12.5×10 + 9×4.8 + 9×4 + .5×(9×4) balcony = 332 sq. ft.	This is a 5-story concrete building. Flat we visited is on the third floor. No lift in this building. Flat has 2 rooms, 1 kitchen (9 × 4.8), 1 bath + toilet (9 × 4) and 1 small balcony (9 × 4). Four-member family husband, wife, father and 5-year-old child. Both husband and wife work. Husband works in bank and wife is teacher. Grandfather looks after child. Total earning is not clear but it should be in range of Tk35,000.
Yes	11,500 + 900 for electricity = 12,400	11.9×14 ft. + 9.3×15.7 + 4.2×.9 + 6.5×3.5 = 373 sq. ft.	This is a 6-story building. Flat we saw was on ground floor. No lift in this house. The apartment has 2 rooms, 1 kitchen (4.2 × 0.9), 1 bath + toilet (6.5 × 3.5ft). Rent includes cooking gas bill. It is a 6 member family: husband, wife, 3 children and a sister of the wife.
Yes	13,000	14×11.4ft+10×8 +4×5.3 + 5×5+ 4×6.5 + 4×6.5 .5 × (2.3×11) balcony = 325 sq. ft.	This is 4-story building, We saw 2nd floor. Stairs but no lift. It has 2 bed rooms, 1 dining room (4 × 5.3), 1 kitchen (5 × 5), 1 bath, 1 toilet (each 4 × 6.5), and 1 balcony (2.3 × 11). Only one window in one room. It is dark and poorly ventilated flat. One old man and his two unmarried sons live there. Both sons are working and together they earn around Tk32,000 per month
Yes	13,000 + 1,000 for utilities = 14,000	17×12+ 12×12 + 7×3 + .5 × (10×3) balcony + 6×3 = 402 sq. ft.	This is a 6-story building. Each floor has 3 apartments. All are same size with two rooms, one bath + toilet (6 × 3), one kitchen (7 ×3), and one balcony (10 × 3). There are four windows in this apartment. Two unmarried people lives in this house and share all costs.
Yes	10,000 + 900 for electricity = 10,900	11×10 + 12.5×10 + 9×4.8+9×4 + .5 × (9×4) balcony = 332 sq. ft.	This is a 5-story concrete building. Flat we visited is on third floor. No lift in this house. The flat has 2 rooms, 1 kitchen (9×4.8), 1 bath + toilet (9×4) and 1 small balcony (9×4). It is four-member family – husband, wife, father and 5-year child. Both husband and wife work, Husband works in bank and wife is teacher. Grandfather looks after child. Total earning is not clear but it should be in range of Tk35,000.
Yes	10,000 to 11,000	323 to 388 square feet	Rent for apartments at our local housing standard according to several real estate agents we spoke to.

Notes: For living space, balcony counted as ½ in keeping with how balconies are treated by Indian Bureau of Standards.

Shared kitchen in Ghazipur

Source: The Authors

View in Room in Ghazipur

Source: The Authors

Sanitation Facilities Ghazipur

Source: The Authors

8. NON-FOOD AND NON-HOUSING COSTS

Non-food and non-housing (NFNH) costs are estimated in a different way than food costs and housing costs. Whereas food costs and housing costs are estimated based on normative standards - nutritious diet and healthy housing standard – NFNH costs are based to a large extent on secondary data and current household expenditures in urban Bangladesh according to a recent household expenditure survey. This is done because it would be too difficult and time consuming to decide on appropriate standards and prices for the many NFNH needs of families that includes clothing and footwear; furniture and household equipment; health care; education; recreation and culture; telephones; personal care; etc. However since health care and education are considered human rights around the world, separate enquiries and post checks are done and NFNH is increased when necessary to make sure that sufficient funds are included in our estimate of NFNH needs for these human rights.

Non-food non-housing (NFNH) costs for urban Bangladesh were estimated in three steps. In step 1, a preliminary estimate of NFNH costs was made based on current expenditure patterns in urban Bangladesh according to data from the 2010/11 Household Income and Expenditure Survey (HIES). This

approach, which relies on a variant of Engels's law,[7] is simple and provides a preliminary estimate of the cost of all NFNH needs. This approach avoids having to make a long list of NFNH needs and then finding the cost for each of these. It is worth noting that such a simple approach, where cost of all non-food needs are estimated in one go is often used to estimate living wages (Anker, 2011) and poverty lines (Anker, 2006b), including Bangladesh poverty lines (Bangladesh Bureau of Statistics, 2011, Report of the Household Income and Expenditure Survey 2010) [8]. We used these household expenditure data for urban Bangladesh for households at the 40th percentile of the household income distribution for this calculation. Step 2 adjusts for the fact that meals eaten away from home are included within the food expenditure group in Bangladeshi statistics. Step 3 excludes tobacco and betel expenditures, since they are felt to be unnecessary for a decent living standard. (Note that Bangladesh's household expenditure statistics assume that no one in Bangladesh purchases alcohol.) Step 4 looks more carefully at health care and education costs to determine if funds for these from steps 1-3 are sufficient for decency - and then adds additional funds for these if required to ensure adequate funds for these human rights.

All NFNH costs for decency for our living wage were estimated at Tk4,144 ($54) per month for our reference family of 4 persons for satellite cities and areas and Tk4,512 ($59) for Dhaka (Mirpur). This includes funds for 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, and personal care. How we arrived at this estimate of NFNH expenses is further explained below.

According to the 2010/11 HIES, 55.7% of urban household expenditure for households at the 40th percentile of the urban household income distribution in Bangladesh is spent for food and beverages, 16.7% is spent for housing, and 27.6% is spent for all other expenditures. This means that the ratio of NFNH to Food expenditure at this point is 0.50. In steps 2 and 3, we made the same adjustments used in the Anker methodology for NFNH as in other countries before using the NFNH to Food ratio indicated in previous sentence to measure NFNH costs. Thus, we: (i) excluded funds for tobacco and betel because we do not feel tobacco or betel is necessary for decency, and (ii) took into consideration that meals eaten away from home reduce the need to prepare food at home.[9] Taking these adjustments into consideration increased the NFNH to Food ratio for urban area Bangladesh from 0.50 to 0.57. This ratio of 0.57 was used to make a preliminary estimate of non-food non-housing costs for our living wage. This ratio is quite low for an urban area and this is due in part to an unusually low percentage of household

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[7] 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 2011).

[8] For step 1, we deviated from usual approach in other methodologies used to estimate poverty lines and living wages that estimates all non-food costs in one go (Anker, 2006a, 2006b, and 2011). Non-food needs and costs were divided into two components: housing whose cost was based on normative standards for decent healthy housing (see previous section) and all other NFNH needs. The latter is estimated using a variant of Engel's law. Our approach has several advantages over the usual approach. First and most importantly, our approach uses a normative standard for decent housing which is very important because many workers in Bangladesh currently live in substandard housing and this is reflected in household expenditure statistics. Second, since housing cost is the most important determinant of differences in living costs between areas within countries, it becomes easier to estimate separate living wages for different areas.

[9] We assumed that 70% of the cost of meals away from home is for the food in these meals and 30% is for profit and services such as food preparation, cooking, serving and cleaning. This assumption is based on unpublished analysis by the authors of contents and cost of meals in Dominican Republic, Costa Rica, India, China, Vietnam, and United States.

spending for transport as is only around 4% of all expenditures for urban households at the 40th percentile of the income distribution according to the 2010/2011 HIES.[10]

Because blind use of the above approach could potentially replicate the high level of poverty found in Bangladesh in step 4 (the next section) we look in more detail at whether funds for health care and education included in our preliminary estimate of NFNH costs are indeed sufficient, because these are considered rights around the world.

9. POST CHECKS OF NON-FOOD AND NON-HOUSING COSTS

9.1 Health care post check

Bangladesh has very high out of pocket expenses for health care especially for the poor. "Bangladesh has one of the highest rates of reliance on out-of-pocket health expenses in Asia …The poor are largely excluded from the public facilities that do exist due to lack of money (for *baksheesh* or bribes) or connections. … Barriers to public-health facilities force the poor to pay for health care out-of-pocket, often driving the poor further into poverty" [11] Therefore it is important that we ensure that our estimate of a living wage includes enough money for families to afford decent health care.

Bangladesh is a county experiencing high levels of both chronic and infectious disease. This is reflected in results of the 2010/2011 HIES survey which found that 59.8% of urban residence reported having a fever in the last 30 days, while 8.3% reported diarrhea or dysentery, and 8.6% reported pain.

Tk449 and Tk489 per month are included in the preliminary estimates of NFNH expenses for health care for Dhaka satellite areas and Dhaka city (Mirpur) respectively. To see if these amounts are sufficient, we used the following very conservative assumptions to make a rough estimate of required health care costs: (i) treatment for illness is required 4.5 times per year in light of the high levels of both infectious and chronic illnesses in Bangladesh,[12] and 35% of visits to health care providers are to private qualified doctors, 45% of visits are to a local practitioners or pharmacies, and 20% of visits are to a government facility as found in the 2010/2011 HIES. Note that this mix of treatment options was also found in our interviews with garment workers who indicated that their most frequent sources of treatment were pharmacy, local practitioners and qualified private doctors. Interestingly public clinics were not motioned by any of the workers we spoke to.[13]

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[10] We have found higher ratios for rural Dominican Republic (0.86), urban nonmetropolitan Kenya (0.87), and rural South Africa (0.87) in earlier living wage studies, and still higher ratios were found for different Chinese cities from around 1.3 to 2.0 in unpublished living wage studies done using the Anker methodology. On the other hand, an unpublished living wage study for Sialkot, Pakistan using the Anker methodology found a more similarly low ratio of around 0.65 (Asad, 2016 forthcoming).

[11] Werner W. 2014. Micro-insurance in Bangladesh?: Risk protection for all. *Journal of Health Population and Nutrition.*

[12] According to a 2013 study by Rahman et. al. (Self reported illness and household strategies for coping with health care payment in *Bulletin of the World Health Organization*, April 2013), 44.9% of respondents reported an illness in the past 30 days. This implies 5.4 illnesses a year. The 2010/2011 household income and expenditure survey (HIES) found close to 60% of respondents reporting fever during the last 30 days which implied over 7 episodes of fever per year. Therefore 4.5 visits per year to medical facilities, pharmacies and local practitioners was felt to be a conservative estimate.

[13] This might be because government services are similar in cost to a private doctor and more expensive than pharmacies or traditional providers. See "The impact of out of pocket expenditures and inequalities in use of

Our interviews with workers indicated that visits to private doctors cost around Tk700 taking medicine into consideration, and visits to local practitioners and pharmacies cost around Tk150 including medicine.[14] Thus the typical average cost of a routine health care visit was estimated to be Tk453 using the above frequency of health care visits and the distribution of visits to health care providers from the 2010/2011 HIES. This implies an average cost to a family of 4 persons of Tk679 per month (i.e. 4 persons × 453 per visit per person × 4.5 visits per year / 12 months). This is around Tk250 more than the amount for health care in our preliminary NFNH estimate for satellite cities and around Tk200 more for Dhaka (Mirpur). For this reason, we added Tk250 ($3.2) to our preliminary estimate of NFNH for satellite cities to ensure sufficient funds for health care in our living wage and Tk200 ($2.6) for Dhaka city. These are conservative adjustments in part because we did not consider lab tests or major illnesses.

Another reasons that this rapid assessment of health care cost estimate is conservative is that it does not include all costs associated with illness nor does it consider the cost of major accidents or illnesses. For example, among the 21 workers interviewed about expenses for health care in the last month, there were two cases where families lost earnings. In one case, a child was sick. The mother of the child was a garment worker and the father was a rickshaw puller. The mother continued with her job but her husband remained at home to look after the sick child. On average, husband's daily earning was Tk300. By taking care of the sick child, he had to forgo three days of earning. This implied that the family lost Tk900 of earnings because of the child's sickness. Similarly, a husband of a garment worker met with an accident and remained immobile for 15 days. He owned a tea stall near his home and was earning around Tk350 per day. For 15 days the shop remained closed and the family lost around Tk5,250 in earnings due to the accident. These two cases are good examples of financial loss because of accidents and illness in the family. These losses were not included in our calculation of health care costs. Our calculation of health care costs also did not include expenditure for serious illness such as the Tk20,000 which was spent on a mother of a garment worker we interviewed who had suffered a heart attack. These types of health care costs are one reason why we include funds in our living wage for unexpected events and emergencies.

9.2 Education post check

Education is one of the key indicators of development and quality of human resources. Literacy, especially among women has improved remarkably in Bangladesh. None of the garment workers that we interviewed were illiterate and the general level of education was primary and above. According to the 2011 census, the literacy level of population aged 7 and above was 56% at national level – 59% for males and 53% for females indicating narrowing of educational gap between genders. The narrowing of the gap between men and women is found all over Bangladesh including in rural areas. According to 2011 census, rural literacy level was around 55% percent among men and 50% among women.

Article 17 of the Bangladesh Constitution provides that all children between the ages of six and eighteen years receive education free of charge. However, there are often expenses for the family associated with educating children and therefore we did a rapid assessment check to see whether the amount included for education in the preliminary estimate of non-food non-housing expenses (NFNH) is sufficient for the education of children through secondary school, which we assume is required for decency.

Our preliminary estimate for non-food non-housing included Tk818 and Tk891 for education of children in Dhaka satellite cities and Dhaka (Mirpur) respectively.

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maternal and child health services in Bangladesh: Evidence from the household income and expenditure surveys 2000-2010, country brief". Published by Australian Aid and ADB.

[14] These prices were not very different from average costs reported in the 2010/2011 HIES for health care services. See Australian Aid and Asian Development Bank. 2012.

To assess how much garment workers, require to educate their children through secondary school, garment workers we interviewed were asked a series of questions on education of their children including whether or not they are going to school, which type school they attend (public, private or madrassa) and how much they spend for admission fees, uniforms, tuition fees, and books and how they manage transport to and from school when they are working.

We interviewed 13 garment workers with children going to school. Six children attended public school, six attended private school, and one attended madrassa. Generally, children were taken to school by mother, brought back by father or some other support available in the family like grandmother or grandfather. In case of one garment workers whose child was not of school age, there was no one to look after the child when she was on the job. So she had enrolled the child in a madrassa that not only gave education but also worked as a day care center until the women came back from her job and took her child home. In another case, a female garment worker left her preschool child with a neighbor to take care of the child and she paid Tk1,000 per month for this service.

Despite the fact that the government of Bangladesh provides free education, half of the workers we spoke to preferred to send their children to private school. Our probing on this issue revealed that it is a general perception that teaching in private schools is better than in public schools. In some cases, the private school was much closer to home than public school and as matter of convenience they preferred private school. Discussion with workers also revealed that there is an element of pride also that motivates them to send their children to private school. As one of the garment workers had commented:

"I studied in a village public school. *Now I am giving my child education in private school."*

Despite this stated preference for private school or madrassa among garment workers we spoke to, we decided that it is acceptable for decency to send children to the government school in light of the current situation where 84% of children in Dhaka attend government school according to the 2010/2011 HIES.

To estimate the monthly cost of sending a child to public school, we added up the typical costs over the year we found for uniforms, stationary, and books and prorated this to a monthly cost.[15] This came to be around Tk488 per month per child. It is worth noting that the cost of sending a child to private school and madrassa was higher because of higher fees.

Thus, the average monthly cost of sending two children to public school that we found from our rapid assessment was Tk651 (i.e. Tk488 per child per month × 12/18 years × 2 children). This was similar to the amounts included for education in our preliminary NFNH estimates of Tk818 and Tk891 considering that we interviewed only a small number of garment workers with children in school. Therefore, we decided not to make any post check adjustment for education to our preliminary estimate of NFNH costs. Part of the reason that no adjustment was needed is because we assume that it is acceptable for children to attend public schools that are less expensive than private schools and madrassas.

10. PROVISION FOR UNEXPECTED EVENTS TO ENSURE SUSTAINABILITY

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[15] Bangladesh classification of statistics on household expenditures includes tuitions, private tuitions, books, hostels, and other. These are respectively around 16%, 45%, 19%, 1% and 18% of household expenditures on education for households at around 40th percentile of the household income distribution.

Since large unforeseen expenses and events can quickly throw workers living at a basic life style into poverty and debt from which they may not be able to recover, 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. Margins of 5 and 10 percent are the most common in living wage methodologies (Anker, 2011). There are many events of this type faced by workers and their families in Bangladesh such as illnesses, accidents, funerals, etc.

We use a 5% margin for sustainability for Bangladesh to allow for unforeseen emergencies. This percentage is recommended in the Anker methodology and has been used in living wage studies in other countries. Note that interest and debt payments are ignored in our calculations. It is assumed that a living wage would be sufficient to enable workers to stay out of crippling debt.

11. PROVISION FOR SOME ASSISTANCE TO PARENTS

Family ties are strong in Bangladesh, and adult children who work are expected to help their parents financially. They are also expected to help siblings when they are in need. These obligations are required for workers to remain part of Bangladesh society. This means that it is appropriate to include a provision in a living wage for some assistance to parents and possibly siblings. Without such a provision, insufficient funds would be available for on-going living expenses of the worker and her/his immediate family. With this in mind, we decided to include 5% for this, which is slightly more than pay for one workday per month at a living wage.

SECTION II

Living Wage for Workers

12. FAMILY SIZE NEEDING TO BE SUPPORTED BY LIVING WAGE

Living wage is a family concept. This is clearly shown by the ILO comprehensive review of living wages (Anker, 2011). The need for a living wage to support a family is also included in the living wage definition of the Global Living Wage Coalition (see section 4 above). It is, therefore, necessary to determine an appropriate family size for urban Bangladesh for estimating a living wage.

We use a family size of 4 persons (two adults and 2 children) to estimate our living wage for urban Bangladesh. This family size is based on information on: (i) fertility rate and child mortality rate and the number of children women in urban Bangladesh are now typically having, and (ii) average household size in urban Bangladesh.

The total fertility rate for urban Bangladesh is around 2 (2.2 for Dhaka according to 2011 Demographic and Health Survey (DHS), 2.0 for urban Bangladesh according to 2012/13 MICS, and 1.9 for non-slum urban areas of Bangladesh according to 2013 Urban Health Survey). Fertility has been falling over time with the total fertility rate going from 6.3 in 1975 to 3.3 in 1999/2000, and 2.3 in 2011. When under-five child mortality of around 50 per 1000 births (50 according to 2011 DHS for urban Bangladesh and 49 for Bangladesh according to World Bank World Development Indicators) is taken into account (loss of about 0.1 birth), it is clear that the number of children born and surviving to age 5 is around 2 and probably slightly below 2 for urban Bangladesh including for Dhaka. This adjusted fertility rate implies an average family size around 4 (2 adults and 2 children).

Average household size in urban Bangladesh is around 4.5. It is 4.4 according to the 2010/11 Housing Income and Expenditure Survey (HIES), 4.4 according to 2011 DHS, 4.6 according to the 2012/13 Multi Indicator Cluster Survey (MICS), and 4.3 according to 2013 Urban Health Survey. When average household size is recalculated after excluding one person households (that definitely do not include children) and very large households (that almost assuredly are extended families often with more than 2 working age adults), adjusted average household size is found to be slightly above 4. It is 4.2 according to 2010/11 HIES, 4.2 according to 2013 MICS, and 4.3 according to 2011 DHS.

We decided that a reference family size of 4 (2 adults and 2 children) was reasonable for Dhaka and urban Bangladesh. It is consistent with the mortality adjusted total fertility rate of slightly less than 2 and the adjusted average household size of slightly more than 4.

13. NUMBER OF FULL-TIME EQUIVALENT WORKERS IN FAMILY PROVIDING 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. [16] How we determine the number of full-time working adults per couple in our reference family providing financial support is explained in this section.

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[16] One assumption of the Anker living wage methodology is that children do not work and provide support for the family. This assumption is consistent with the decency concept of a living wage.

We use 1.58 full-time equivalent workers per couple to estimate our living wage for Dhaka area. This means that the cost of a decent but basic living standard for a family of 4 persons is divided by 1.58 to determine our living wage for Dhaka area. To determine this number of full-time equivalent workers per couple to use to estimate a living wage for Dhaka, we gathered age and sex specific data for urban Bangladesh on: (i) labor force participation rates (LFPR), (ii) unemployment rates, and (iii) number of hours worked to determine the extent of part-time employment. This information from the Bangladesh Statistical Yearbook is indicated in the following table.

Likelihood of full-time employment = LFPR × (1-unemployment rate) × (1 – part-time employment rate/2)

Labor force participation rates for men in urban Bangladesh are high (93.4%), just as in the rest of the world. Labor force participation rates for women in Bangladesh, however, are low from a world perspective at 34.8% for women ages 25-59 in urban Bangladesh.[17] Open unemployment in urban Bangladesh for ages 25-59 is 4.7% with a higher unemployment rate for women (5.3%) than for men (4.4%). Part-time employment rate (less than 30 hours per week) in urban Bangladesh is 18.2% being low for men (3.1%) and high for women (30.9%).

Using the rates noted above and indicated in table 4, we estimated that the proportion of males and females 25-59 who have full-time equivalent work in urban Bangladesh is 0.58. This implied 1.58 full-time equivalent workers per couple for urban Bangladesh when one adult in a family is a full-time year around worker such as in a garment factory.

Table 4. Estimate of percentage of adults who are full-time equivalent workers for urban Bangladesh

Variable	Age group	Males	Females	Total
Labor force participation rate	25-59	93.4%	34.8%	
Unemployment rate	25-59	4.4%	5.3%	
Part-time employment rate (% of employed working less than 30 hours per week)	15+	3.1%	30.9%	
Estimated percentage of persons working full-time = LFPR × (1-Unemployment rate/100) × (1- (Part-time employment rate/100/2))		87.9%	27.8%	57.9%

Source: Bangladesh Statistical Yearbook.

14. TAKE HOME PAY REQUIRED AND TAKING MANDATORY DEDUCTIONS FROM PAY AND INCOME TAXES INTO ACCOUNT

Mandatory deductions from pay and taxes workers must pay have to be taken into consideration when estimating a living wage because they reduce the disposable income available to workers and therefore their ability to afford a decent basic life for themselves and their immediate family. Estimated living costs up to this point have indicated how much income is needed for a decent but decent life for a worker and his/her family. Bangladesh is a little unusual in that there are no statutory payroll deductions or income taxes for the types of production type workers we are concerned with (except for a Tk10 revenue stamp deduction per month).

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[17] Ages 25-59 are used because many of those younger than age 25 are still be in school and are less likely to have families of their own; and many persons over age 59 are retired and/or have adult age children.

SECTION III

Prevailing Wages and Gaps to a Living Wage

15. WAGE LADDER AND COMPARISON OF PREVAILING WAGES TO A LIVING WAGE

Figure 7 provides a wage ladder that compares our living wages to minimum wages and other wage and economic indicators. Our living wages are more than twice the minimum wage for garment workers grades 4-7 which includes the bulk of the production workers in garment factories. Note that current prevailing wages of garment workers are slightly higher than the minimum wage partly because workers with more than one year of continuous employment with the same employer are entitled to a 5% annual increase in their basic minimum wage. In addition, it is common for workers to receive an EID bonus which increases annual basic wage by around 8%. There are also some other small bonuses such as attendance allowance and some in-kind benefits in some factories. Overtime is common although it is not relevant for comparison of prevailing wages to living wages as a living wage should be earned during normal working hours. Despite these various bonuses and benefits, our living wages are probably around twice the average prevailing wage of typical production workers in the garment industry.

An indication that garment minimum wages are much too low for decency is that they are lower than the urban poverty line wage for Bangladesh and the World Bank poverty line wage as well as the wage of the lowest paid government worker and the average wage for manufacturing, construction, agriculture and fishery workers in major cities and metropolitan areas. It is striking that minimum wages for garment workers are below these poverty and low wage indicators. It is for this reason that most garment factory workers live in a small 10 x 10 ft. or 10 x 12 ft. room with a kitchen, toilet and bath shared by many others.

The large gap between minimum wages and our living wages clearly reflects the very low wages of garment workers rather than extravagant living wages, as our living wages are based on conservative assumptions of a basic but decent living standard. Another indication that our living wages are reasonable is that they are much less than the Asian Floor Wage for Bangladesh which is a widely referred to estimate of a living wage. Our living wages are somewhat less than a living wage estimated by CDP and Berenschot (2013) that we increased by inflation to reflect equivalent value for 2016.[18]

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[18] The two other living wages in the wage ladder are provided for comparison purposes only. Both use a typical methodology for estimating a living wage. Asian Floor Wage estimates food costs using a model diet with sufficient calories; assumption that 50% of household expenditure is for food; a family size of 4; and 1 worker per family. It does this for a number of Asian countries and takes the average living wage in purchasing power for all Asian countries. Their living wage for Bangladesh is high because Bangladesh is relatively poor for these Asian countries and so is assigned a relatively high a living wage; also the assumption of only 1 worker per family increases their living wage. The CDP and Berenschot living wage estimate is specific to Bangladesh but they used a number of questionable assumptions - that fortunately - are often counter-balancing in their affect. They used (i) a model diet (with an assumption that both of the two children in the family were ages 1-3 which reduced greatly calorie needs); (ii) food prices for Dhaka from a government publication (that are much higher what we found in our local market survey, perhaps because of the government's use of superior quality food); (iii) food expenditure was assumed to be 50% for all household expenditures (which is too high for Dhaka according to household expenditure statistics); (iv) an assumption of 1.44 workers per family.

Figure 7: Wage ladder

Wage Ladder for Bangladesh

Legend:
- Minimum Wages (Garments) — blue
- Poverty Line Wages — black
- Other Industry Wages — light grey
- Living Wages — red
- Other Living Wage Benchmarks — grey

Y-axis: Tk Per Month

Category	Value
Wage for Garment Workers Grade 7	5,300
Wage for Garment Workers Grade 6	5,670
Wage for Garment Workers Grade 5	6,064
Wage for Garment Workers Grade 4	6,420
Dhaka City Poverty Line Wage	7,172
World Bank Poverty Line Wage	7,418
Average Wage, Manufacturing, Construction, Agriculture, Fishery	8,846
Wage of Lowest Paid Government Worker	10,000
Living Wage Satellite Cities to Dhaka	13,630
Living Wage Dhaka City	16,460
Living Wage CPD and Berenschot	17,786
Asian Floor Wage	2,9442

Notes: Dhaka city poverty line wage and CPD/Berenschot living wage updated to March 2016 by inflation.
Sources: Dhaka city poverty line from 2010/2011 HIES. Lowest paid government worker from bdnews24.dom dated Dec 15, 2015 [accessed May 30, 2016]. Minimum wages has remained the same since 2013. Average wage in manufacturing, construction, agriculture and fishery from the ILO wages database; this was updated by inflation to March 2016. CPD and Berenschot Living wage from Moazzam et al (2013, updated to 2016).

16. CONCLUSIONS

Table 5 provides details of our living wage estimates for (i) satellite cities and areas surrounding Dhaka where most garment workers live (Ghazipur District and Narayanganj District), and (ii) Dhaka City (Mirpur) where a large number of garment factories are still functioning. Table 6 provides some of the key assumptions used to make these living wage estimates. It is important to note that these areas include 80% of the garment factories in Bangladesh. The remaining about 20 per cent that are not represented by these estimates are in Chittagong and its surrounding areas. Thus, this study covers the main areas where most of the garment industry in Bangladesh are located.

Our living wage estimates for garment workers in the satellite cities and districts of Dhaka is Tk13,630 ($177) per month. Our living wage estimate for Dhaka City (Mirpur) is Tk16,460 ($214) which is around 20% higher than for the satellite cities and districts. We estimated two living wages for the Dhaka area because of large differences in living costs in these two areas in particular for housing, whereas living costs were found to be similar in the satellite districts of Ghazipur and Narayanganj. Different living wages were also needed because transport in and around Dhaka is expensive and unreliable and considered unsafe especially for women. In any case, Ghazipur District and Narayanganj District are 2 hours or so away from Dhaka by car and are themselves major cities as each has well over 1 million persons.

Our living wages are more than twice the statutory minimum wage for garment workers (Tk5,300 to Tk6,400 per month depending on grade and length of service for the main grades 4-7 of garment workers).[19] Our living wages are also around twice current wages in the garment industry without overtime - typically around Tk6,000 to Tk7,000 per month (remember a living wage should be earned in normal working hours according to its definition). There is clearly a very large gap between prevailing wages for garment factory workers and our estimates of living wages for Dhaka area whether it is the satellite districts/cities of Dhaka where most garment factories are concentrated or it is Dhaka City itself where a number of garment factories are also concentrated. This large gap between prevailing wages and our living wage reflects the very low wages received by garment workers and not an extravagantly high living wage. This is evidenced by the fact that most garment workers earn during normal working hours less than the World Bank poverty line wage and the Bangladesh urban poverty line wage. In any case, it does not take rocket science to realize that a minimum wage of Tk5,300 ($69) per month is too low for a family to be able to afford a decent life in a major city or urban area. The fact of the matter is that garment workers in the Dhaka area at present have little choice given their wages and relatively high cost of housing but to live in substandard housing and forgo many activities such as recreation and travel. Most garment workers have no choice but currently to live in one 10 feet by 10 feet or 10 feet by 12 feet room with the kitchen, toilet, and bath shared by perhaps 6-8 other one room units. These one room units are typically in one story row houses often with iron sheet walls, leaky roof, and unclean kitchen and toilet.

As has been clearly indicated in this report, we used conservative assumptions to estimate our living wages. Food items included in our model diet were lower cost rice, fruits, vegetables, meats, fish, etc. with 370 grams of rice per day providing 58% of all calories. The housing standard used to determine housing costs was quite basic considering that it allowed for tin roof, shared outside toilet, shared outside water tap, and only 323 square feet (30 square meters) of living space for a family with four

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[19] Note that the minimum wage law requires that workers who continue working with the same employer receive a 5% annual increment on their basic wage since 2013.

persons. Further evidence that our living wages are not extravagant and so not the reason for the large gap from prevailing wages is that they are around half of the widely referred to Asian Floor Wage (Tk29,442, $382 per month).

The need for higher base wages is in a real sense a women's issue. Women comprise the vast majority of garment workers in Bangladesh and they are in lower grades compared to men. Indeed, the need for higher wages for women workers transcends marital status as even single women have major family responsibilities to help support parents and siblings as well as needing to save for their dowry.

Appropriate mechanisms need to be worked out to narrow the gap between living wages and prevailing wages in the garment industry in Bangladesh if garment workers are to be able to afford a better living standard and eventually a decent living standard. Some effort could be made in collaboration with the Government of Bangladesh in a Public–Private Partnership (PPP) to encourage construction of basic inexpensive and decent housing for garment workers near concentrations of garment industries since housing is so poor and relatively expensive for garment workers at present. It would also be useful if free transportation to work by company bus (such as the scheme provided by some factories already) is replicated by more large garment companies as it would help garment workers to stay in their homes or rent less expensive homes and commute from a more distant workplace without paying anything from their pocket for transport. Other possibilities that could reduce some of the financial burden on garment workers could include establishing more day care centres for preschool children and expanding the role of mandatory health clinics at factory sites beyond work-related health problems.

Efforts are definitely needed to increase cash wages. These will need to involve the entire value chain and cannot only be the responsibility of factory owners, since factory owners are under intense pressure from international buyers to keep costs low. That it is possible to bridge much of the gap to a living wage is evident from Bangladesh's experience with increasing minimum wages for garment workers. Under intense national and international pressure, minimum wages increased by 81% in 2010 after many strikes and protests and by a further 77% in 2013 after the Rana Plaza disaster. It is clear that minimum wages have increased only after considerable pressure and then by a big amount each time in part to make up for years of inaction. Employment has not suffered. As three years has passed since the Rana Plaza disaster, it is time for another large increase in garment wages. This can be done by increasing minimum wage since garment wages in Bangladesh are set in practice based on minimum wage – or by multinational companies who take the lead in raising wages in advance of the eventual large increase in minimum wage.

Table 5. Summary table for calculating living wage for satellite cities and surrounding areas of Dhaka and Dhaka City (Mirpur), March 2016

PART I. FAMILY EXPENSES	Satellite cities and surrounding areas		Dhaka City (Mirpur)	
	Tk	USD	Tk	USD
Food cost per month for reference family (1)	7,270	94	7,916	103
Food cost per person per day	59.74	0.78	65.06	0.84
Housing costs per month (2)	7,900	103	11,000	143

Rent	7,000	91	10,000	130
Utilities (electricity, LPG, water)	900	12	1,000	12
Non-food non-housing costs (NFNH) per month taking into consideration post checks (3)	4,394	57	4,712	61
Preliminary estimate of NFNH costs	4,144	54	4,512	59
Health care post check adjustment	250	3	200	3
Education post check adjustment	0	0	0	0
Additional 5% for sustainability and emergencies (4A)	978	13	1,181	15
Additional 5% for some assistance to parents (4B)	978	13	1,181	15
Total household costs per month for basic but decent living standard for reference family (5) [5=1+2+3+4]	21,520	279	25,990	338
PART II. LIVING WAGE PER MONTH [c]				
Living wage per month, net take home pay (6) [6=5/# workers]	13,620	177	16,450	214
Mandatory deductions from pay (7) [b]	10	0.13	10	0.13
Gross wage required per month for Living Wage (8) [8=6+7]	13,630	177	16,460	214

Notes: [b] The only mandatory deduction from pay was a Tk10 revenue stamp. [c] There were no common in-kind benefits.

Table 6: Key values and assumptions for living wage estimates

KEY VALUES AND ASSUMPTIONS	
Location	Dhaka surrounding areas of Dhaka (Ghazipur District and Narayanganj District) and Dhaka City (Mirpur)
Exchange rate of taka to US$	77
Number of full-time workers per family	1.58
Number of full-time workdays per month	26
Number of hours in normal work week	48

Reference family size	4
Number of children in reference family	2
Preliminary NFNF to Food ratio	0.57

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