



Living Wage

Urban, Zhengzhou, China

By: Hui Xu, School of Business, Beijing Normal University
Shi Li, School of Business, Beijing Normal University
Liang Xiong, School of Business, Beijing Normal University
Peng Zhan, School of Economics, Nanjing University of Finance and Economics



Photo Courtesy of Robert Scoble, CC-BY-NC-2.0

Series 1, Report 12

August 2015

Prepared for: The Global Living Wage Coalition

Under the Aegis of Fairtrade International, Forest Stewardship Council, GoodWeave International, Rainforest Alliance, Social Accountability International, Sustainable Agriculture Network, and UTZ, in partnership with the ISEAL Alliance and Dr. Richard Anker and Ms. Martha Anker.



北京師範大學
经济与工商管理学院
BNU Business School

SECTION I: INTRODUCTION	3
1. Background	3
2. Living wage estimate	3
3. Context	4
4. Concept and definition of a living wage	7
5. How a living wage is estimated	8
SECTION II: COST OF A BASIC BUT DECENT LIFE FOR A WORKER AND THEIR FAMILY	10
6. Food costs	10
6.1 Model diet.....	10
6.2 Food prices.....	14
7. Housing costs	18
7.1 Standard for basic acceptable local housing.....	19
7.2 Rent for basic acceptable housing	20
7.3 Utilities and other housing costs	24
8. Non-food and non-housing costs	27
9. Post checks of non-food and non-housing costs	30
9.1 Health care post check.....	30
9.2 Education post check	31
9.3 Transportation post check	32
9.4 Communication post check.....	33
10. Provision for unexpected events to ensure sustainability	33
SECTION III: LIVING WAGE FOR WORKERS	35
11. Family size needing to be supported by living wage	35
12. Number of full-time equivalent workers in family providing support	36
13. Take home pay required and taking taxes and mandatory deductions from pay into account	37

- SECTION IV: ESTIMATING GAPS BETWEEN LIVING WAGE AND PREVAILING WAGES..... 38**
- 14. In-Kind Benefits as Partial Payment of Living Wage 38**
 - 14.1 Value of free or low-price housing..... 38
 - 14.2 Value of free transportation to commute to the company 39
 - 14.3 Value of free meals 39
- 15. Living wage in context and compared to other wages 40**
 - 15.1 Recent wage trends 40
 - 15.2 Wage Ladder 40
- 16. Conclusions..... 44**
- REFERENCES..... 47**
- ANNEXES..... 48**

Living Wage Report

Zhengzhou, China

Urban

Context provided in the manufacturing industry

SECTION I: INTRODUCTION

1. BACKGROUND

This report estimates a living wage for urban Zhengzhou, China, with a focus on manufacturing. It uses a new methodology (Anker and Anker, 2017) developed by Richard Anker and Martha Anker 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 over 20 countries. Note that there are also five other living wage studies in other Chinese cities using the Anker methodology, as well as numerous living wage studies currently underway in other countries in urban and rural areas.

This report was commissioned and supported by Social Accountability International, a member of The Global Living Wage Coalition.

2. LIVING WAGE ESTIMATE

Our estimate of a living wage was estimated for August 2015 as **RMB 2,497** per month (RMB 115 per work day¹) for areas of Zhengzhou with concentrations of manufacturing factories. This is the net living wage before consideration of in-kind benefits provided to some workers and mandatory deductions from pay for social insurance. Taking all mandatory deductions into account, our estimate of a gross living wage is **RMB 2,806** per month (RMB 129 per day) for permanent workers. This is approximately equal to \$438² per month (\$20.2 per day). It is important to point out that the living standard used to estimate the living wage is basic and represents the minimum level of decency.

¹ Divided by working days, equivalent to 21.75 days per month.

² Consistent with the living wage report for Shenzhen, we also use an exchange rate of 6.4.

3. CONTEXT

Zhengzhou, the provincial capital of Henan province, is located in east-central China (see figure 1). The city is composed of 6 districts, 5 county-level cities and 1 county (see figure 2). The city has seen an increasing development in the past years. For example, its annual GDP growth rate reached 12% in the year 2012. The economic development level of Henan province lies below the average level of China. In 2013, among 31 provinces in China, Henan is listed at 23rd regarding the GDP per capita. As the capital city of Henan province, Zhengzhou has the highest level of economic development in the province³.

Zhengzhou is an important industrial city with electronic information and vehicles as well as vehicle equipment as the main industries⁴. The electronic information industry has developed very rapidly in the past years. The total sales revenue has increased by 1450% in 2013 compared to 2009. In 2014, there were in total 4,355 electronic information companies in the city. The total sales revenue from the three regions, including the Zhengzhou Airport Comprehensive Economic Experimental Zone (ZACEEZ), High and New Technology Zone and Jinshui District, account for 90% of the city's total sales revenue from this industry.

Our fieldwork took place in two main geographical areas. The first area was located in Zhengzhou Airport Comprehensive Economic Experimental Zone (see figure 2), an area that was rural only ten years ago (henceforth referred to as Zone 1). This zone is now populated with manufacturing companies and residential quarters. The second geographical area we visited was the High and New Tech Zone of Zhengzhou where many companies focus on research and development (henceforth referred to as Zone 2). The High and New Tech Zone is located in the northwest of Zhengzhou (see figure 2), which is in the opposite direction of the first area we visited. In this report, we mainly rely on our investigation at Zone 1, nevertheless, interviews with workers, as well as our visits at stores and residential places in the Zone 2 company provided useful information as a reference for living wage estimates for manufacturing workers in Zhengzhou.

³ Henan Statistical Yearbook 2013.

⁴ <http://www.zhengzhou.gov.cn/html/www/view1.html>.

Figure 1



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6



Figure 7



Figure 8



Source: Authors (August 2015).

The above series of images show the typical surroundings in Zone 1: consumption and leisure places (figures 3-5), young workers (figure 6), housing near the commercial center (figure 7), streets and electric bicycle “taxi” (figure 8).

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 decent basic life style considered acceptable by society at its current level of economic development. Workers should receive a living wage in normal work hours without having to work overtime. Living wage is defined as follows by the Global Living Wage Coalition:

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

The idea of a living wage is not new, 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 stated that “Remuneration must be enough to support the wage earner in reasonable and frugal comfort. If through necessity, or fear of worse evil, the workman accepts harder conditions because an employer or contractor will give no better, he is the victim of fraud and injustice.” American President Franklin D. Roosevelt (1933) wrote that “Liberty requires opportunity to make a living – a living decent according to the standard of the time, a living which gives men not only enough to live on but something to live for.” International Labor Organization Constitution (1919) states that “peace and harmony in the world requires an adequate living wage”, and United Nations’ Universal Declaration of Human Rights (1948) states that “everyone who works has the right to just and favorable remuneration ensuring for himself and his family an existence worthy of human dignity.” See Anker (2011) for how other organizations, international organizations, NGOs, governments and others describe living wage.

5. HOW ZHENGZHOU LIVING WAGE WAS ESTIMATED

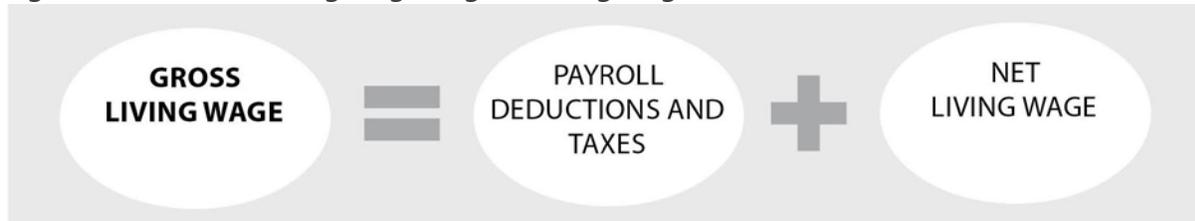
Figure 9: Components of a basic but decent life for a family



Figure 10: From cost of basic but decent life to net living wage



Figure 11: From net living wage to gross living wage



Source: Anker and Anker (2017).

The previous flow charts (Figures 9, 10 and 11) indicate how a living wage in Zhengzhou was estimated. First, the cost of a basic living standard was estimated by calculating what would be considered decent for present day urban Zhengzhou. This was done by summing up separate estimates for urban Zhengzhou of the cost for a low cost nutritious diet, basic decent housing, and all other needs at a decent level. Before accepting our preliminary cost estimate for non-food and non-housing items, we made sure that sufficient funds are provided for education and health care (generally considered human rights around the world) as well as for transportation and communication costs. A small margin was then added to help ensure that common unforeseen events such as illness or accidents do not easily throw workers into poverty and allow for some discretionary spending. The new total cost of a basic quality life

for a typical family size in the area was then defrayed over a typical number of full-time equivalent workers per family.

In order to get this estimation, considerable thought and effort was put into the work, including interviews with workers, visits to workers' houses, talking to the union members, visits to stores where workers shop, and discussions and information from various key informants in the area as well as statistics from the government. The report provides detailed explanations on how this living wage estimate was arrived at.

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

6. FOOD COSTS

6.1 Model diet

Food cost for a living wage for Zhengzhou was estimated to be **RMB 9.67** (\$1.51) per person per day. This was estimated using a low cost nutritious model diet for an average person and local food prices.

Our model diet contains 2,297 calories based on the assumption that a factory worker engages in moderate physical activity. Percentages of calories from proteins (14.37%), fats (16.45%) and carbohydrates (69.18%) meet World Health Organization standards needs for calories, macro nutrients (10-15% of calories from proteins, 15-30% calories from fats, and 50-75% calories from carbohydrates) and micro nutrients (at least 400 grams of vegetables and fruits per day including legumes help provide micronutrients and minerals). We also take into consideration the country's development level by referring to the standard of the Development Outline for the food and nutrition in China: 2014-2020 launched by the State Council of China⁵. For example, according to the Development Outline, by the year 2020, daily calories per person should be between 2,200 to 2,300 calories. Among it, the calories provided by fat is suggested to be less than 30%. The Development Outline also has detailed suggestions on the consumption quantity of basic foods such as vegetable oil, beans, meat, vegetables, fruits, etc. per year per person. The edible amount per day per person is as follows: 370g for cereals, 33g for vegetable oil, 35.6g for beans, 79g for meats, 44g for eggs, 99g for milk, 49g for aquatic products, 408g for vegetables and 164g for fruits. Our model diet for Zhengzhou is rather consistent with these suggestions in terms of the choice and quantity of food with the only exception for beans which we do not include in our model diet.

Finally, the model diet also reflects local preferences. This could be reflected mainly in two ways. First, unlike other regions in China, noodles and bread are a staple in the daily model diet for local people. For example, people usually take bread with rice soup as the staple food for a simple dinner, while taking the noodles for a big lunch. According to our interviews, noodles could account for almost half of the staple food in the daily meal. Compared to bread, rice is slightly more popular, though we did encounter a worker who never took rice. It is worth noting that the Henan Province, including the capital city of Zhengzhou, is a labor-exporting rather than a labor-absorbing region from other provinces, which could explain to

⁵<http://www.nhfpc.gov.cn/jkj/s5879/201402/52c1dfa009ba48a9aba9a08cf9cf0aa6.shtml>.

some extent why the food preference of local people is not as diversified compared to Shenzhen for example where the residents are from various regions of China. Second, local people have stronger preferences for meat (eg. pork meat) than fish.

Our model diet is shown in Table 1. It includes:

- 378 grams of cereal per day
 - 120 grams of rice
 - 58 grams of bread
 - 200 grams of noodles
- 1 egg per day (50 grams)
- 1 meat meal per day (80 grams)
- 2 fish meals per week (19 grams)
- 98 grams of fruit per day
- 81 grams of potato per day
- 242 grams of vegetables per day
- 100 grams of milk per day (1 cup per day for children)
- 50 grams of tofu (firm) per day
- 35 grams of cooking oil per day
- 10 grams of sugar per day
- 2 grams of tea per day

To allow for some variety for our model diet (as it would not be reasonable to expect that workers are always able to find and eat only the lowest cost foods every day), 15% is added to the cost of our model diet. This 15% allows for some variety and flexibility so that workers can, for example, sometimes eat a larger portion of meat, or occasionally eat more expensive meats or fruits and vegetables. Also, 4% is added for minimal wastage and spoilage, and 3% is added for salt and spices. Note that in keeping with the concept of a nutritious low-cost diet, our model diet does not include soft drinks, candy or cakes.

Table 1: Model diet and food cost per person per day for Zhengzhou city

Food items	Edible grams	Purchased grams	Cost per kg	Cost	Comments (Diet is for average person in family of 5. Portions for adults are bigger than for children)
Rice	120	120	5.00	0.60	
Bread	58	58	4.00	0.23	

Food items	Edible grams	Purchased grams	Cost per kg	Cost	Comments (Diet is for average person in family of 5. Portions for adults are bigger than for children)
Noodles	200	200	5.00	1.00	
Potato	81	81	2.47	0.21	
Tofu (firm)	50	50	3.56	0.18	
Milk	100	100	8.73	0.87	1 cup per day for children
Eggs	50	57	9.42	0.54	One egg per day
Pork	80	80	24.63	1.97	One portion of pork every day
Grass Carp (whole)	19	35	16.00	0.56	Least expensive river fish. Two fish meals per week.
Bok choy	81	100	2.68	0.27	Least expensive vegetable
Tomato	78	80	2.96	0.24	Least expensive non-green, non-leafy vegetable
Chinese cabbage	83	90	1.52	0.14	
Apple	57	75	3.96	0.30	Least expensive fruit
Banana	41	70	5.77	0.40	
Cooking oil	35	35	6.50	0.23	Soy bean oil is the least expensive oil
Sugar	10	10	7.00	0.07	
Tea	2	2	65.00	0.13	Price for packaged green tea; least expensive tea.
Total				7.94	
Total with 22% of				9.67	Following formula was used to calculate the cost of food with a 22% markup $7.94 \times 1.22 = 9.67$

Food items	Edible grams	Purchased grams	Cost per kg	Cost	Comments (Diet is for average person in family of 5. Portions for adults are bigger than for children)
miscellaneous food costs					

Notes for Table 1:

Food items: The listed food items represent workers’ dietary habits in Zhengzhou based on our daily food habit investigation with workers, combined with a thorough consideration of both nutrition sufficiency and cost minimization. Workers from Zone 1 and Zone 2 are from different parts of Henan province sharing rather similar cultures and eating habits. Still, diversity exists, and we leave such minor differences to be mediated by miscellaneous food costs below.

Miscellaneous additional food costs: Additional miscellaneous food costs are assumed to increase food cost by 22 percent. This consists of (i) 3% for miscellaneous foods not listed in our model diet such as salt, spices, chicken stock cubes and condiments (with soft drinks and sweets excluded); (ii) plus 15% to allow for some variety (e.g. beef or more expensive fish sometimes; larger portion of pork sometimes; more expensive rice sometimes; more expensive vegetables and fruits sometimes; etc.); (iii) plus 4% for minimum waste and spoilage.

Edible and purchased grams: Edible quantity differs from purchased quantity for foods with inedible parts such as fruits and vegetables with inedible skin or stem; pork with inedible bones; eggs with inedible shell; and fish with inedible bones, head, scales and tail. Percentages inedible and number of calories, proteins, fats and carbohydrates are drawn from China Food Composition 2014 edited by Institute of Nutrition and Food Safety, China CDC.

Cost per kg: Cost per kilo is based on prices observed in local places where workers shop. Almost all foods are priced per jin (equivalent to 0.5 kg) in markets. We believe that prices in supermarkets are generally a good reference as there are wide choices of foods of different qualities and prices, and these prices are more stable as compared to open air markets where prices depend partly on negotiation. We collected the lowest prices from two big supermarkets for a range of foods in our model diet and we calculated average prices from the two supermarkets.

Cost: Cost for each food item is calculated by multiplying quantity purchased by price per kg.

Comments: In addition to having a sufficient number of calories (2,297), our model diet meets recommendations for proteins (78g per day per person), fats (no more than 30 percent of all calories), and cereals and grain (55-75 percent of all calories) in Development Outline of Food and Nutrition in China: 2014-2020 as well as WHO recommendations for proteins (10-15 percent of all calories), fats (15-30 percent of all calories) and carbohydrates (50-75 percent of all calories). Calories in the model diet are 14.19 percent from proteins, 16.45 percent from fats and oils and 69.18 percent from carbohydrates.

6.2 Food prices

To estimate the cost of our model diet, we collected food prices from places where workers typically shop. In this way, we are able to help ensure that the cost of our model diet would reflect the actual prices that workers pay for different food items. For the area around Zone 1, we visited two local supermarkets (BHG and Jiajiaxin) and one open-air fresh food market. For the area around Zone 2, we visited one supermarket and one open-air fresh food market. All of these sites were places where workers typically shop for food.

There are few differences in general food prices between the two zones. We went to two local big supermarkets near Zone 1, as we learned that workers and their families usually purchase daily goods there.. We went to the open air market at about 17:30 in the afternoon. This is the time that people usually go shopping after work and prepare for supper. Surprisingly, even in the only open-air market, only some fruit and meat sellers were there. The open-air market appeared unpopular, especially compared to the supermarkets which were full of young workers and their family members. After comparing the prices in the open-air market with the prices of the supermarkets, we believe that the prices in supermarket could be a better reference, not only that there are richer choices of food of different qualities and prices, and the prices are more stable as compared to open-air market where the prices depend on the buyers' negotiation. Also, in the supermarkets, even for the lowest price food, the quality meets the basic standard which is consistent with our definition of decent life. Most importantly, we found that the prices in supermarkets are in many cases cheaper than in the open-air market.

Therefore, in Zone 1, we collected the lowest prices of two big supermarkets for a range of food in our model diet. In principle, we calculated average prices from the two samples. In some cases, when the prices collected from the two markets differ greatly, we use the lowest price as reference price in the model diet. The idea behind these calculations was to mimic the way in which cost conscious workers typically buy brands and quantities of foods that are relatively low in cost per kg, including promotions and seasonal foods.

Also note that since there is a possibility that food prices in August (our data collection month) could be relatively high or relatively low for the year because of seasonality in food prices, and so could possibly overstate or understate typical food prices over the year (and therefore cost of the model diet) - even though food items for the model diet are selected in such a way that encourages choice of seasonal foods in the Anker methodology. Sangui (2017) looked at the seasonality of food prices using food price data for 27 food items for 50 cities from the National Bureau of Statistics for China that are posted three times per month. To observe the extent to which food prices represent average food prices throughout the year, he calculated average food prices in 2015, and compared these to average prices in August. He found that prices for 15 food items were within 1% of the average price for the year. Pork and eggs were around 10% more expensive in August 2015 than their average prices for the year, although

the price of pork in 2015 was fairly similar from August to the end of the year. He also found while some vegetables were less expensive in August (e.g. cucumber and string beans were around 14% lower in August than the average prices for the year), other vegetables were more expensive in August (e.g. rape and Chinese cabbage were both around 12% more expensive than average prices for the year). Seasonality in food prices does not appear to be a problem.

Figure 12: Advertisement of promoti6 in a local supermarket in Zone 1



Source: Authors

Figure 13: Researchers comparing prices from figure 13 to the prices in figure 12



Source: Authors

Figure 14: Local open air market. Picture taken at 17:30 when there are only a few sellers



Source: Authors

Figure 15: Open air market. Picture taken at 17:30 when there are only a few sellers



Source: Authors

7. HOUSING COSTS

Housing costs for our living wage are estimated by summing the cost of:

1. Rent for a basic acceptable dwelling; and
2. Utility costs.

Housing costs were estimated as **RMB 1,200** (\$156) per month

It is worth noting that housing costs account for only 5.4% of the total expenditures of consumption for the urban middle and low-income households with its annual cost of RMB 833.64 per person according to the 2013 Zhengzhou Statistical Yearbook, equivalent to RMB 243 per month for a family of 3.5 members. This number is far from our estimation of housing cost in the local area and what is the actual cost of housing. The main reason behind this large underestimate of housing costs in Zhengzhou in the household expenditure data could be largely due to the fact that many urban households own their housing and Zhengzhou household expenditure statistics ignore costs and value of owner-occupied housing except for utilities. According to Zhengzhou Statistical Yearbook 2013, only 4.45% of urban residents lived in rental housing in the year 2012 (see the table in Annexes). The utility cost data in the

Zhengzhou Statistical Yearbook 2013 is useful for our estimation of utility costs that we will discuss later in this report.

7.1 Standard for basic acceptable local housing

Before trying to ascertain rent for basic acceptable housing, standards were set for minimum basic acceptable housing. We visited housing in Zone 1 with these standards in mind to determine prevailing rents for acceptable housing. We also investigated the rental prices of equivalent housing with workers in Zone 2 for a comparison. In order to set the reasonable standards, we take into consideration international minimum standards, as well as local standards set by national public rental housing project.

The public rental housing project, as national social welfare, initiated from July 2012, aims at providing the middle and low-income level population basic housing with relatively low rent as compared to the market prices. The latest standard for size of floor area for public rental housing for Zhengzhou is about 20 square meters (about 215 square feet) per person in 2014, and the maximum size is no more than 60 square meters (646 square feet) of covered space per household. A household of more than three members could apply for an apartment of two rooms⁶.

We suggest the size of public rental housing at Zhengzhou would be an ideal reference for a decent living standard for the city, as the main target population of this project is the middle and low-income group of the population, which is comparable to the 20% to 40% income level. Besides, the actual living situation in urban Zhengzhou could also be a good reference for setting the decent living standard for Zhengzhou. For example, according to Zhengzhou Statistical Yearbook 2013 (see the table in Annexes), 96.05% of the households use tap water; 88.98% of the households have a toilet with bathroom; 34.19% of households have air conditioners; and 47.3% of households have heating facility. The actual average covered space per person is 30.99 square meters. Together with both the international and national standard, as well as the actual local housing situation, we consider that acceptable housing in Zhengzhou should have the following characteristics:

- Floor area of 60 square meters of covered space (equivalent to around 48 square meters of living space)⁷
- 1 living room, 1 bedroom, 1 kitchen, and 1 bathroom/toilet
- Durable roof that does not leak
- Durable walls such as brick or cement
- Safe water in the house

⁶ <http://www.zhengzhou.gov.cn/html/www/important010406/20140416/776.html>.

⁷ This assumes that living space is 20% less than covered space to account for internal and external walls as well as common shared spaces of a building such as internal stairwells and elevators and halls since these are included when covered space is measured in China.

- Flush toilet in the house
- Kitchen area equipped with basic kitchen facility
- Electricity
- Sufficient windows
- Located in reasonable distance (not too far away from the working place)

With this standard, we estimated that basic acceptable housing is about RMB 1200 per month, including RMB 1000 for rent, RMB 130 for electricity, RMB 10 for minor repairs and maintenance, RMB 35 for water, and RMB 25 for fuel. Tap water is commonly used as drinking water in local area.

To help determine housing cost in Zones 1 and 2, we asked all the interviewed workers their monthly rents and utility costs, and their estimation of rent and basic utility fees for decent housing for 3-4 members in the surrounding area near the companies.

For Zone 1, we interviewed 8 worker's families, and visited 5 apartments and 1 company dormitory. We visited two neighborhoods. In one neighborhood which is 3 km away from the workplace, we visited in the daytime and we were invited to see 5 apartments. For the second neighborhood, the main information of rent comes from advertisements and our confirmation with the landlords and intermediaries who rent out the apartments. We gave them the size and the basic requirements of the apartment and asked them for the price. Some workers from other areas sent us photos of their apartments after the interview as they were living quite a distance from the workplaces and it was not convenient for us to visit. For Zone 2, we got information about rent prices from both talking to the workers that we interviewed and advertisements in residential areas near the workplace. The two areas where we looked at housing costs were located on opposite ends of the zone. We found that the rents in these two areas were similar. Though we did not personally visit many apartments of workers, we are confident about our estimation of rents based on all these various sources of information and confirmation of different people.

Detailed housing information for these households as well as the information provided by private intermediaries are indicated in Table 2.

7.2 Rent for basic acceptable housing

As can be seen from Table 2 for workers and their families in the first area, we visited acceptable apartments that rented for RMB 800, 850 and 900 per month. This was less than the RMB 1,000-1,500 which workers felt a basic acceptable apartment would rent for. Obviously, there was a large difference between the rent of the apartments which we visited and the rent for decent housing according to the interviewed households. One reason for this difference might relate to the living space of our local housing standard which is quite small,

and perhaps different from the standard of a decent housing in the mind of the workers we spoke to.

To get a clearer idea of the market price for housing at our local housing standard, we revisited the residential quarters where the workers commonly live. This time, we tried to get local rental housing prices from housing agencies. We found that formal housing agencies are not common there. Nevertheless, informal dealers were quite popular in this area. We noticed a lot of advertisements on the walls in the residential quarters. In order to get an estimate of market prices for standard decent housing, we called informal dealers ourselves and asked for a rent price for a 60 square meters apartment as if we were searching for an apartment to live in. In total, we contacted more than ten informal private intermediaries. Though we consider that an apartment of 60 square meters would be an ideal size for standard living space, in reality, not so many apartments have such standard size in that area. But still, we can refer to the close ones and estimate the cost for 60 square meters based on the prices of apartments of different sizes. The following are some examples of what we found. For a 60 square meters apartment without furniture, the rent was RMB 1,300 per month. However, another apartment 50% bigger at 90 square meters ready for living, the rental price was not much higher at RMB 1,500 per month. Certainly, there were some variations between different private agencies and the final price could be negotiated. Besides, there was also clearly a market for nice apartments with refined decoration that is well beyond the means of ordinary workers. For example, one apartment of 90 square meters with refined decoration cost RMB 2,200 per month. We also got rental price suggestion of RMB 1,500 per month for a 60 square meter apartment.

Taking into consideration the three pieces of information we have on rental costs for apartments at our local housing standard, we feel that RMB 1,000 is a reasonable estimate for housing costs for a basic but decent apartment in areas near to factories. It is higher than the approximately RMB 850 we observed for a few apartments that we visited and lower than rents according to workers and informal rental agencies of approximately RMB 1,000-1,500.

Table 2: Monthly cost of renting housing visited or interviewed in Zhengzhou

Types	Acceptable standard	# Persons	Rent	Utility	Size & Rooms	Comments	Interviewees' estimate of rent and utility cost for decent housing for family of 3.5 persons	Visited/ Photo
Workers and their families in Zone 1	No	1	350	32	9m ² , 1 room	No living room. Tiny kitchen and toilet; 4-5 km to tenants workplace.	Rent: 1000 Utility: 200	Photo
	No	3	400	No info	<20m ² , 1 room	No living room. Tiny kitchen and toilet.	Rent: 1500 Utility: no info	Surveyed
	Yes	4	800	300	60m ² , 2 rooms	3 km to tenants' workplace. Apartment is both for commerce & living, and is reason for the high electricity and gas costs.	Rent: 1300, Utility: 200	Visited
	Yes	5	800	80	60m ² , 2 rooms	Five people rent the apartment. Relatively small space per person.	Rent: 1500; Utility: 150	Visited
	Yes	4	850	145	60m ² , 2 rooms	Decent condition. 3 km to tenants' workplace.	Rent: 1000-1500 Utility: 300	Visited
	Yes	2	900	200	60m ² , 2 rooms	Decent condition, 3 km to tenants' workplace.	Rent: 1100 Utility: 300-400	Visited
	No	4	300/person	0	30m ² , 1 room	Company dormitory. 4 beds per room.	No info.	Survey
	No	6	150/person	0	30m ² , 1 room	Company dormitory. 6 beds per room.	Rent: >800 Utility: >100	Visited
Private intermediaries in Zone 1			1300		60 m ²	No furniture, 1km distance to factories.		Survey
			1500		90m ²	With furniture. 1km distance to factories.		Survey
			2000		90m ²	Ready for living. 1km distance to factories		Survey
			2200		90m ²	Refined decoration. 1km distance to factories		Survey

Living Wage Report for urban Zhengzhou, China with context in the manufacturing industry

Types	Acceptable standard	# Persons	Rent	Utility	Size & Rooms	Comments	Interviewees' estimate of rent and utility cost for decent housing for family of 3.5 persons	Visited/ Photo
Workers and their families in Zone 2	Yes	3	1300	192	70m ² , 1bedroom	Distance from apartment to tenants' workplace about 30 minutes by motorcycle.	Rent: 1200-1300	Survey
	Yes	4	1900	Not clear	70m ² , 2 bedrooms	Two families living in the same apartment.	Rent: 1400-1500 Utility: not clear	Survey
	Yes	4	Self-owned	Not clear	124m ²	The worker lives with her family in the center of the city and drives to her workplace every day.	No information	Survey
	Yes	1	Self-owned	140	50m ² , 1 bedroom	The worker lives alone by himself in the self-purchased apartment while the rest of the family is in the hometown.	Rent: 1500 Utility: not clear	Survey
	No	Not clear	205/person	15	166m ² , 4 bedrooms	Each bedroom is a dormitory.	Rent: 1900 Utility: 200	Survey

Notes: All costs are measured in *yuan*. ^a "Estimation" means the interviewees' estimation for the rent and utility cost for a 3-4 member family with a decent living condition in Zones 1 and 2.

Source: Field survey near and its surrounding area at Zhengzhou Airport Comprehensive Economic Experimental Zone in Zhengzhou.

7.3 Utilities and other housing costs

In the local area, the utility cost mainly includes the cost of electricity, water, and fuel. The maintenance cost is quite minor and in most cases, it is the landlord's responsibility to maintain the apartment. The heating facility is not common in residential apartments in Zone 1. Among the workers interviewed, no one provided us with the heating cost. As told by the workers, it is not a necessity to use heating in winter in Zhengzhou. In Zone 2, we met one worker and his family who use heating for about four months in winter. Considering that heating is not something necessary in Zhengzhou, we decided not to take it into the calculation of our composition of basic decent housing.

Utility costs are estimated by directly asking workers their actual costs in the households and their estimation for a 3-4 members' household. As can be seen from Table 2, in Zone 1, three cases with 60 square meters space with the actual utility cost ranging from RMB 145 to RMB 300 can be taken as close references for our estimation. One outlier has a high utility cost of RMB 300, but it is in a special situation, as their apartment is also a small shop selling vegetables to local people. According to six workers' estimates of utility cost per month for a decent living of a household of 3-4 members: two suggest RMB 200, one suggests RMB 150, two others suggest RMB 300-400 and one suggests no less than RMB 100. According to the Zhengzhou Statistical Yearbook 2013, for urban households at 20th to 40th percentile of income distribution in Zhengzhou, the yearly utility cost is RMB 690.93 per person (equivalent to RMB 57.6 per person per month). This number suggests a RMB 202 per month for the utility cost for a family of 3.5 members.

The average utility costs per month according to workers we spoke to (around RMB 180) was not far away from utility costs for a three member family (RMB 202) according to secondary data from household expenditure surveys.

Taking the above factors into consideration, we think that RMB 200 is a reasonable estimation of utility cost for a basic living standard of a 3-4 members' household, with RMB 130 for electricity, RMB 10 for minor repairs and maintenance, RMB 35 for water, and RMB 25 for fuel.

Our estimate of housing costs is therefore RMB 1,200 per month (consisting of RMB 1,000 for rent, RMB 130 for electricity, RMB 10 for minor repairs and maintenance, RMB 35 for water, and RMB 25 for fuel). This represents around 30% of our estimated cost for a decent living standard for workers' households at Zhengzhou without taking into consideration the margin for emergencies and sustainability.

Figure 16: Interior of a company dormitory



Source: Authors.

Source: Authors

Figure 17: Advertisements posted by informal housing dealers



Figure 18: Researchers calling informal housing dealers through listings posted on a wall (See Figure 17)



Source: Authors

Figure 19: Typical 60 square meter apartment (1 bedroom, 1 living room (converted into bedroom), 1 kitchen, 1 bathroom/toilet)



Source: Authors.

Figure 20: Tiny apartment where young workers live



Source: Resident of this apartment. Picture was taken and sent to authors. Housing information is the second listing in Table 2.

8. NON-FOOD AND NON-HOUSING COSTS

The total for all non-food and non-housing costs is estimated at **RMB 1,811 per month** for our reference size family. This covers clothing and footwear; household facilities; health care; education; transportation; communications; recreation and culture; eating away from home; and miscellaneous goods and services.

Non-food and non-housing costs were estimated using household expenditure data from Zhengzhou Statistic Yearbook in 2013 and the cost of our model diet. For this, we needed the ratio of non-food and non-housing expenditures to food expenditures. We estimated this based on expenditure pattern of medium-low income households, which represented the group at the second quintile (20%-40%) of the income distribution in Zhengzhou. This is a relevant reference group for a living wage for the households of industrial workers that are more likely to be the medium-low income households among the population.

According to the data, an individual from medium-low income households spends 38.7% of the total cost of consumption for food (including meals away from home). Together with the cost on housing, which accounts for about 5.4%, the total cost on food and housing is 44.1%

of the total cost. When computing the ratio of non-food and non-housing costs to food costs, we adjust slightly the part of meals taken away from home, because part of the cost of a meal away from home is for profits and services such as preparation, cooking, serving and cleaning. For medium-low income family in Zhengzhou, an individual spends on average RMB 1,212 per year for meals taken away, which account for 8.3 % of her or his total living cost. We consider that half of the cost of meals away should be included in food cost of a model diet and half should be considered as the NFNH cost⁸. We also excluded the cost of tobacco. It is worth noting that 17.6% for clothing and footwear reported is unreasonably high. For this reason, we used the 10.6% value reported for urban China as a more reasonable value. As a result, the observed ratio of non-food and non-housing costs to food costs for our reference group of households at the 20th to the 40th percentile was 1.76 (See Table 3). The total of all non-food and non-housing costs is therefore estimated at RMB 1,811 for our reference size family – before any possible post check adjustments (see following four sections).

Note that before calculating this ratio we:

- (i) Excluded funds for tobacco, because these was not felt necessary for decency
- (ii) Took into consideration that meals away from home reduce the need to prepare food at home.

After estimating all non-food and non-housing costs using the above 1.76 ratio, we looked at whether funds included for health care and education are sufficient because these are considered rights in almost all countries. We also looked at transportation costs, because this is a major expense for workers. Unlike the report of the other countries, we also looked at communication costs, as communication has become an important expenditure in daily life in China.

⁸ We assumed that 50% of the cost of meals away from home in household expenditure data is for the food in these meals and 50% is for profit and services such as food preparation, cooking, serving and cleaning. This assumption is based on analysis by Richard Anker and Martha Anker of contents of meals in various countries.

Table 3: Food, housing, and non-food and non-housing costs: Percentage distribution of actual expenditure for Zhengzhou at 20th - 40th percentile of income distribution and implied funds included in our living wage for Zhengzhou

Major or Sub-Major Expenditure Group	% Expenditure according to Government Statistics	% After Adjustments. Used for estimating NFNH	Implied Funds Provided by our Living Wage	Comments
Food and non-alcoholic beverages	38.7%	31.15% ^a		Food included alcohol, tobacco, and meals away from home in government statistics.
Housing	5.4%			
NFNH				
Alcohol	0%	2.3% ^a	76	Not excessive. Was included with food in government statistics.
Tobacco	0%	0%		Not considered essential. Was included with food in government statistics.
“Restaurants” (Meals away from home)	0%	4.15% ^a	137	50% of cost of meals away from home is assumed to be for food in these meals and 50% for services, profits, etc.
Clothing and Footwear	17.8%	10.6% ^b	350	17.6% for clothing and footwear indicated in government statistics too high to be believable. For this reason, we used the 10.6% for urban China in government statistics as more reasonable value.
Household Facilities, Articles and Services	7.8%	7.8%	258	

Recreational Durable Consumer Goods	2.1%	2.1%	69
Recreation Service	4.9%	4.9%	162
Miscellaneous Goods and Services	4.0%	4.0%	132
Health	6.2%	6.2%	205
Education	4.4%	4.4%	145
Transportation	3.8%	3.8%	125
Communication	4.6%	4.6%	152
TOTAL NFNH		54.85%	1,811
NFNH/Food ratio		1.76 (=54.85/31.15)	

Notes: ^a 38.7% of household expenditure was for food according to government statistics. But expenditure for alcohol and tobacco was included in the food group in government statistics while in our calculation of NFNH costs, these items are treated as NFNH expenditure. We therefore excluded alcohol and tobacco from the food group. We also took half of meals away home from the food group, because part of the cost of a meal away from home is for profits and services such as preparation, cooking, serving and cleaning. The new percentage for food expenditure turned out to be 31.15% after adjustment. Funds of tobacco are excluded in our living wage, and funds for alcohol (2.3%) and half of cost of meals away home (4.15%) are regarded as NFNH expenditure in our estimation of NFNH costs.

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

9.1 Health care post check

At the end of 2012, 93.3% of population in Henan Province has been covered by health insurance⁹. Employee health insurance and residents health insurance are the two types of insurance that commonly cover urban residents¹⁰ with equivalent proportion of coverage in Henan Province. The Employee health insurance covers those who are currently employed, and the rest of the residents belong to Residents health insurance plan, such as the minors less than 18 years old, the retired (over 60 years old for the male and 55 years old for the

⁹<http://www.hncz.gov.cn/sitegroup/root/html/ff80808138b8ee81013b8d1502ed64b7/20140529185732147.html>.

¹⁰As for rural residents, new rural cooperative medical system is the main choice.

female urban residents) as well as the unemployed adults. Among the workers that we interviewed, almost all of them have health insurance.

Therefore, those workers covered go to public hospitals for health services because that is the prime choice for the workers, where the cost could be reimbursed partly through the health insurance system. Private clinics seem to be rather a second choice. One worker told us that the private clinic could not be trusted. Nevertheless, for minor illness such as common cold, headache etc., purchasing medicine directly in nearby pharmacies is also a common and convenient choice for workers.

According to Anker and Anker (2017), a comparison should be made between the amount implicitly included for health care in the preliminary estimate of non-food non-housing costs and the amount estimated to be needed for adequate health care. According to the 2013 Zhengzhou Statistical Yearbook, 6.1% of all spending of medium-low income level households is for health care, suggesting approximately RMB 205 per month in the preliminary NFNH estimate.

We tried to understand the actual need of health cost for the workers. However, it was not easy to get an average cost for health care spending from the interview we did with workers, as many of them could not really give us an accurate estimation of their expenditure, and this cost has high variability for different families. For example, a worker with four family members told us that one of her children has asthma and it costs the family RMB 10,000 per year for the child's health in addition to the reimbursement from health insurance. However, for the rest of the family, the total health cost is only about RMB 500 per year. A general impression is that the average monthly cost of RMB 205 per household included in the preliminary estimate of NFNH costs is a reasonable estimation conditional on the fact that family members are covered by health insurance. As such, we decide not to adjust the health cost in our estimation of NFNH costs.

9.2 Education post check

According to the 2013 Zhengzhou Statistical Yearbook, education costs for medium-low income households accounts for 4.4% of total household expenditures. This implies approximately a monthly cost of RMB 145 is included in the preliminary NFNH estimate.

The national requirement that all children need to be enrolled in school for a 9-year compulsory education means that education is nearly free for primary school and junior middle school in China for public school. In our report, we consider that a decent life should ensure not only the 9-year compulsory education, but 3-year upper secondary education as well. According to the Education Department of Henan Province, it is the aim of the government to achieve a 92% admission rate for upper secondary school by the year 2020 in

Henan¹¹. The tuition fee for upper secondary education is quite low. Since 1998, the tuition fee has been set between RMB 150 to RMB 200 per semester for urban students, and between RMB 100 and RMB 150 per semester for students in the counties and rural regions in Henan¹². Recently, more and more regions in Henan have even applied the free education policy for upper high school. And there is a tendency that the tuition fee will be finally waived for all public high school in the near future.

Therefore, the expenditure that a household needs to pay for children's education in primary and junior middle school concerns mainly the books, learning materials, stationery and other miscellaneous fees. And for upper high school, as we discussed above, the tuition fee is quite minor. In China, it is common that besides the basic study at school, parents are also used to sending children to various training institutions for additional learning in different fields of interest, such as piano, chess, even learning strengthening courses, etc. If this is the case, the education cost would be much higher than the above figure. For example, it costs a family of one worker we interviewed on average RMB 10,000 per year (RMB 833 on a prorated monthly basis) for a child at junior middle school for additional training. We do not consider these additional training fees into our basic living wage estimation. It is also worth noting that our decent living assumes a basic education up to the level of upper secondary school. In other words, we do not take into consideration cost of college or above level.

Taking into consideration all of the above factors, we consider that for a family with 1.5 children enrolled in public school, the RMB 145 for education included in our NFNH estimate is reasonable for maintaining basic education service; as such, we decided not to increase funds include in our living wage for education.

9.3 Transportation post check

Households at the 20th to 40th percentile of the household expenditure distribution in Zhengzhou spend 3.8% of all their expenditures for transportation according to the expenditure data of 2013 Zhengzhou Statistical Yearbook. This means that RMB 125 is implicitly included in the preliminary NFNH estimate for a family of 3.5.

To help estimate a decent transportation cost for workers, we asked for detailed information on worker's and their family's transportation costs. We learned that the main cost for the workers in Zone 1 is the cost to go to downtown Zhengzhou on average once a month and the travelling cost to their hometown to visit parents or friends, which is more likely to be another city within the province, as many workers are within province internal migrants. The average cost to the downtown area is about RMB 10 per round trip per person. If we consider the frequency for decency of going downtown for each person is about twice per month, then the total cost per month for a family of reference size is about $3.5 \times 10 \times 2 = \text{RMB } 70$ is

¹¹ <http://www.haedu.gov.cn/2016/02/16/1455607260546.html>.

¹² http://caijing.chinadaily.com.cn/2015-11/05/content_22378764.htm.

reasonable as the markets, shops and entertainment facilities are quite developed near workers workplaces as well as their living area; the workers could find daily consumption goods quite easily near their workplace and the transportation fees of daily commercial activities could be ignored.

In China, there are three main breaks during the year, one is the lunar New Year holiday, the second is Labor's holiday, and the last one is the National holiday. Besides, there are also small breaks such as Dragon Boat Festival (“端午节”), All Souls' Day (“清明节”), etc. Usually, visits to parents and friends that involve traveling a relatively long distance usually happens during these three traditional holidays. We think that a reasonable number of trips could be around 1 time per person per year. According to our interviews, the average transportation cost per person for such visits could be around RMB 150, and so the total cost per month for a family of reference size is about RMB 44 per month. Together with the above transportation fees to go to downtown Zhengzhou of RMB 70, the average transportation cost per month for a household of 3.5 family members is about RMB 114, which is close to the value of RMB 125 in the preliminary NFNH estimate. We consider that an adjustment is not necessary.

9.4 Communication post check

Households at 20th to 40th percentile of the income distribution in Zhengzhou spend 4.6% of all their expenditures for communication according to the expenditure data in 2013 Zhengzhou Statistical Yearbook, which was RMB 522 per person per year. This implies communication cost of RMB 152 per month is included in our preliminary NFNH estimate for our reference size family of 3.5 members.

We checked this with the workers that we interviewed. We assume that a decent life includes that both adults in our reference family have a mobile phone, internet and a TV at home. A typical estimation of communication fees for mobile phone for a worker could be around RMB 50 per month. And according to our survey, the lowest price for a basic internet service cost in local area (and the television service cost) per year is about RMB 630, which implies RMB 52.5 per month. We assume that children do not use mobile phones. Summing up all these, we would find the average monthly cost for a family of 3.5 on communication is about RMB 152.5. This is close to the above amount included in our preliminary NFNH estimate. As such, we do not adjust this number for our living wage computation.

10. PROVISION FOR UNEXPECTED EVENTS TO ENSURE SUSTAINABILITY

Since unforeseen events and expenses can easily and quickly throw workers living at a basic life style into poverty and debt from which they may not be able to recover, such as accidents, illness, death/funerals, and gifts, etc., it is common when estimating a living wage to add a small margin above the cost of a basic quality life to allow for unexpected events. It is also

typical to include some additional funds to allow for some discretionary spending. Without some margin and additional funds, a living wage is not sustainable.

There is no agreed margin for unexpected events to use for a living wage to help ensure sustainability. To be conservative, Anker and Anker (2017) suggests using 5% above the cost of the basic living style afforded by a living wage to allow for unforeseen events to help ensure sustainability of the living wage. We decide to also include a 5% provision for financial assistance to parents, since this is a very important social and cultural obligation in China. These margins work out to be RMB 202 per month for sustainability and emergencies and RMB 202 per month for financial assistance to parents. Note that interest and debt payments are ignored in our calculations. We assume that a living wage would enable workers to stay out of crippling debt.

Section III: Living Wage for Workers

11. FAMILY SIZE NEEDING TO BE SUPPORTED BY LIVING WAGE

Living wage is a family concept. This is clearly shown by the comprehensive ILO review of living wages (Anker, 2011). It is, therefore, necessary to determine an appropriate family size for urban Zhengzhou that workers would typically need to support on their wage.

We used 3.5 persons (two adults with 1.5 children) as our family size for Zhengzhou city. China has experienced a series of reforms on fertility policy. Starting from 1978, it had been required that each family should only have one child. This one child policy was strictly applied, particularly in urban areas. At the beginning of the 21st century, the policy was relaxed that couples with each being a single child could have two children. In 2013, the policy was further relaxed so couples where one of the parent is single child, could have two children. Very recently, in October 2015, the one child policy has been totally removed and all couples are now eligible to have two children. Also, according the Chair of Chinese Population Association Zhenwu Zhai, the total fertility rate (TFR) in China is estimated to be 1.47 at the beginning of the year 2015¹³. As such, we consider that the reference family size should be between 3 and 4 in China, and we think that 3.5 is a reasonable assumption.

In reality, according to the dynamic monitoring survey of migrant population in urban China conducted by National Population and Family Planning Commission in 2011, the average number of children less than 16 years old for a household is 1.3, which is not far away from our assumption of 1.5. This sample is representative in the sense that it covers 31 provinces of 326 cities of 5850 communities with a total of 128,000 migrant households ages 16-59. There are 29% of rural migrants having two children. It is worth noting that the proportion would be higher if we consider only the married migrants having at least one child.

According to 2013 Zhengzhou Statistical Yearbook, the population size of the city was 9,031,090 with total 2,715,974 households at the end of 2012. The average household size was therefore 3.3 in Zhengzhou for the year 2012. Since as mentioned above, a less restricted family policy has been applied from the year of 2013; we believe that this average household size grew since then and so close to 3.5.

¹³ This TFR is reported officially by Zhenwu Zhai, a famous demographic scholar in Rennin University of China. “2015将迎人口出生小高峰”《人民日报海外版》(2015年02月10日第04版)
http://paper.people.com.cn/rmrbhwb/html/2015-02/10/content_1532783.htm.

12. NUMBER OF FULL-TIME EQUIVALENT WORKERS IN FAMILY PROVIDING SUPPORT

The estimate of a living wage is sensitive to the number of full-time workers in a family who provide financial support. This is because expenses for a decent life-style for the family are defrayed over the number of full-time workers in the family. According to Anker and Anker (2017), this estimate should be based on three different statistics namely:

- Labor force participation rate (LFPR)
- Unemployment rate (U)
- Part-time employment rate and/or hours of work (PT)

Taking all this information into account, we estimated 1.78 full-time workers per family is appropriate for Zhengzhou city (see equation at the end of this section).

Due to data limitation, there was no available data for labor participation rates and unemployment rates, specifically for Zhengzhou city. For the labor force participation rate (LFPR), we used national level data from the ILO LABORSTAT database. It showed that the LFRP for 25-59 age group in 2015 is 89.2%. Regarding the unemployment rate, we started with the urban unemployment rate provided by the National Bureau of Statistic of China. The data showed that in 2013, the urban unemployment rate in China was 4.1%. But it is known that registration systems understate actual unemployment by a lot. According to Feng et al. (2015), the average unemployment rate reached 10.9% in 2002-2009 using a more reliable, nationally representative household survey in China¹⁴. We decided to use 10.9% as our unemployment rate in this report. Part-time employment rate is not available for China. Data from OECD shows that the part-time employment rates vary widely among countries. In many developing countries, this rate is between 0 to 10%. Some countries such as Russia, Hungary, etc. have a rate below 5%. A part-time employment rate over 10% is not common for developing countries. Since no particular data on part time employment are available for China but part-time employment rates are widely known to be low in China, we assume here that the part-time employment rate is 5%.

With the above information, we estimated that the average likelihood of full-time work per adult as $0.78 = 89.2\% \text{ LFPR} \times (1 - 10.9\% \text{ U}) \times (1 - 0.5 \times 5\% \text{ PT})$, and therefore the number of full-time equivalent workers per reference family is estimated to be 1.78 (1+.78) on the assumption that one person in the family is a full-time worker such as in a factory.

¹⁴ See more in the NBER paper by Shuaizhang Feng, Yingyao Hu, Robert Moffitt, “Long Run Trends in Unemployment and Labor Force Participation in China”.

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

The living wage estimate up to this point refers to the amount of disposable income needed by a worker and her/his family to be able to afford a decent living standard. The final estimate of the living wage adjusts this by taking into consideration statutory deductions. To take statutory deductions from pay into account, it is necessary to list all statutory payroll deductions and how they are calculated. The living wage gross pay needed = disposable income needed for decency (take-home pay) + statutory deductions from pay.

In China, mandatory deductions include mainly three compositions:

- Social insurance for pension (8%)
- Unemployment insurance (2%)
- Medical insurance (1%)

Therefore, in total, 11% of wage as mandatory deductions should be taken into consideration to make sure that workers would have sufficient take home pay.

Section IV: Estimating Gaps between Living Wage and Prevailing Wages

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

It is reasonable to take into consideration the value of in-kind benefits when determining if workers receive a living wage, as in-kind benefits provided by employers can reduce the amount of cash income that workers require to maintain a basic but decent life equivalent to the standards under a living wage without in-kind benefits.

The most important in-kind benefits that workers in factories typically receive are food, housing and transport. In reality, the in-kind benefits that companies provide vary. And even within the same company, the system could also differ for different types of workers. Therefore, it is important to check what companies actually do in reality.

14.1 Value of free or low-price housing

Taking a company in Zone 1 as an example, this company provides cheap or free housing with sufficient space for manager level employees and their families. For ordinary workers, free housing is not given to them. The benefit of housing for ordinary workers is that they could choose to stay in the dormitory provided by the company with low rent. The dormitory is usually equipped with four or six beds per room with a monthly rent of RMB 150-300 per person. The range of rent varies according the number of beds in the room. The dormitory is usually a convenient choice for single and young workers who do not care much about privacy, but not suitable for married workers with families. If we compare the rent charged by the company to the market equivalent rent, it is not really a benefit, as it is not free and not even cheaper than the market rent if we compare the rent per square meter. Furthermore, private space is restricted. Similar arrangements were found in Zone 2, where workers can choose to stay in a dormitory-style apartment provided by the company with low rent. One worker we interviewed was in fact living in a dormitory-style apartment near their workplace and paying RMB 205 per month. As in the dormitory in Zone 1, more than one person shared the same room, and the dormitory-style apartment lacks privacy.

The only reason that employees choose to stay in such dormitory-style apartments is that it is relatively cheaper compared to the cost of renting a whole apartment. These employees are usually unmarried or married but with no family members living in the same city. For all the other five employees we talked to, including manager level staffs, they either choose to live in their own apartment with their family members or rent apartments near the their workplace. It appears that renting costs are not commonly subsidized by the manufacturing companies. In all, we do not consider housing as an in-kind benefit in our living wage estimation for workers in Zhengzhou.

14.2 Value of free transportation to commute to the workplace

As mentioned above, Zone 1 is quite far from downtown Zhengzhou, and commonly, the workers in this zone prefer to live near to their workplaces. Walking to the workplace or driving electronic bicycles are common ways for commuting between home and company. As far as we know, the company we spoke with does not provide a free bus to take the ordinary workers to work every day since most workers live just nearby. In Zone 2 it is common for employees to rent apartments near the company, and a few of them who live relatively far from their workplace drive either their own private car or motorcycle or find other ways to get to work. As such, we do not take into consideration this type of in-kind benefit in this report.

14.3 Value of free meals

In Zone 1, we were informed that workers take their own prepared meals to the workplace or eat in the canteens of the company, paying for the meals. The prices that workers pay for meals are at least as expensive as similar meals outside the factory, so that no subsidy is involved. After work, they usually cook by themselves or dine out. Therefore, workers do not enjoy free or cheaper meals in the company. In Zone 2, the workers usually choose to eat out for lunch, or ask for the lunch delivery service. After work, the employees usually return home for dinner.

In summary, based on our investigation on the workers' actual situation in Zones 1 and 2, we concluded that in-kind benefits did not have any value for the purpose of estimating our living wage.

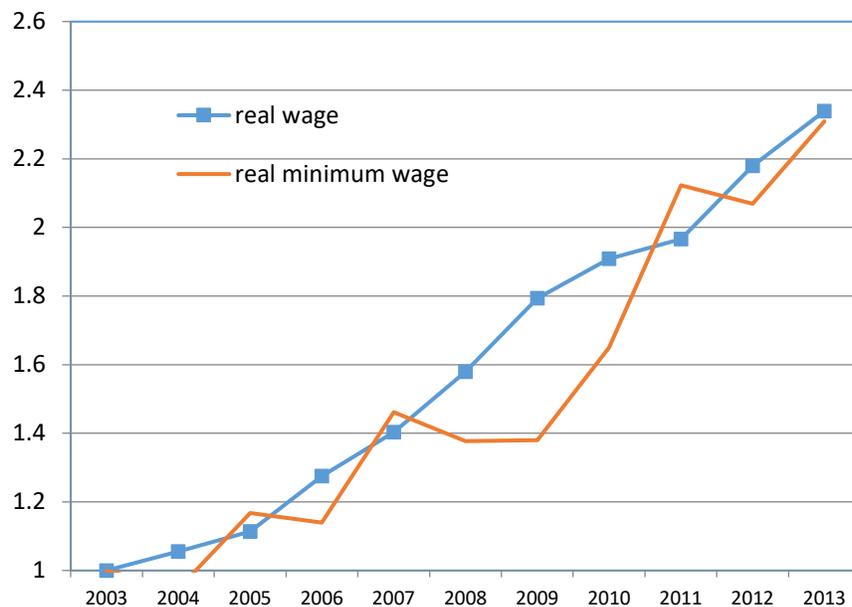
15. LIVING WAGE IN CONTEXT AND COMPARED TO OTHER WAGES

It is important to put living wage estimates into context by comparing them to other wages and economic indicators. In order to do so, we use two approaches to provide a contextual backdrop for a living wage. One approach uses graphs to illustrate recent trends in real wages of workers and wage costs to employers. A second approach uses a “wage ladder” which graphically illustrates the size of gaps between a living wage estimate, prevailing wages, and economic benchmarks.

15.1 Recent wage trends

Figure 21 shows how real wages (i.e. wages adjusted for inflation) in urban Zhengzhou have increased dramatically between 2003 and 2013. The minimum wage in Zhengzhou has been adjusted six times since 2003 up to the year 2013. Both the real minimum wage and the real average wage have both more than doubled between 2003 and 2013.

Figure 21: Real urban monthly average wage and real statutory minimum wage, Zhengzhou, indexed to 2003 prices, 2003-2013



Source: China City Statistical Yearbook, 2003-2013; Minimum Wage Project of Beijing Normal University

Notes: Inflation was taken into consideration by adjusting with CPI in Zhengzhou indexed to the initial year of 2003.

15.2 Wage Ladder

In this report, the following reference points are included for constructing a wage ladder.

- (i) World Bank international poverty line wages with \$3.1 and \$6.2 per person per day as standards.
- (ii) Zhengzhou urban minimum-security line wage¹⁵ in 2015
- (iii) Minimum wages of Zhengzhou in 2015
- (iv) An estimated prevailing wage of a typical ordinary worker at a manufacturing company in 2015
- (v) Average wage of employed persons in urban units in Zhengzhou in 2014
- (vi) Average wage of employed persons in urban manufacturing sector in Zhengzhou in 2014
- (vii) Asia Floor Wage of RMB 3,847 in 2015

Wages implied by \$3.1 a day of World Bank International Poverty Lines were estimated using latest PPP (for 2011 PPP from World Bank Indicators database) as well as same assumptions for family size (3.5) and number of full-time equivalent workers per couple (1.78) used to estimate our living wage. In 2015, the monthly minimum wage of Zhengzhou city is RMB 1,600, and the adjusted urban minimum-security line wage in 2015 is RMB 1022 ¹⁶.

As indicated by union members, the turnover rate at large manufacturing factories is very high, even as high as around 50% each year. Indeed, we noticed many employment agencies for unskilled jobs near large factories. One of our researchers went to one agency to learn more about the salaries being offered. This is what we got as prevailing salary. The basic salary for regular working time for an unskilled job is about RMB 2,100 per month. Once you work overtime, you could get 1.5 times of the basic salary per hour for over time hourly wage. The usual salary that an unskilled worker could get by working overtime that the employment agency indicated and probably exaggerated was RMB 4,000, which is almost twice the basic salary provided by the company.¹⁷ A more realistic estimate would be somewhere around RMB 3,150.¹⁸ We believe that this prevailing wage estimation is close to the true prevailing wage for many manufacturing workers. The wage in this case for unskilled workers is quite transparent and consistent for different types of unskilled jobs. We also confirmed this basic

¹⁵ The minimum-security system is a national social relief system with the purpose to provide the basic financial support of living for the poor residents. The “minimum-security line”, which can be further distinguished into urban and rural lines, is the level of subsidy that is determined by the local government by taking into consideration the basic expenditure for maintaining a basic living in the local area, the price index, as well as the average living standard of the society and the government financial constraints.

¹⁶ The original urban minimum-security line in Zhengzhou is RMB 520 per month. We adjusted it by multiplying it by the family size of 3.5 and dividing by number of full-time workers per family of 1.78.

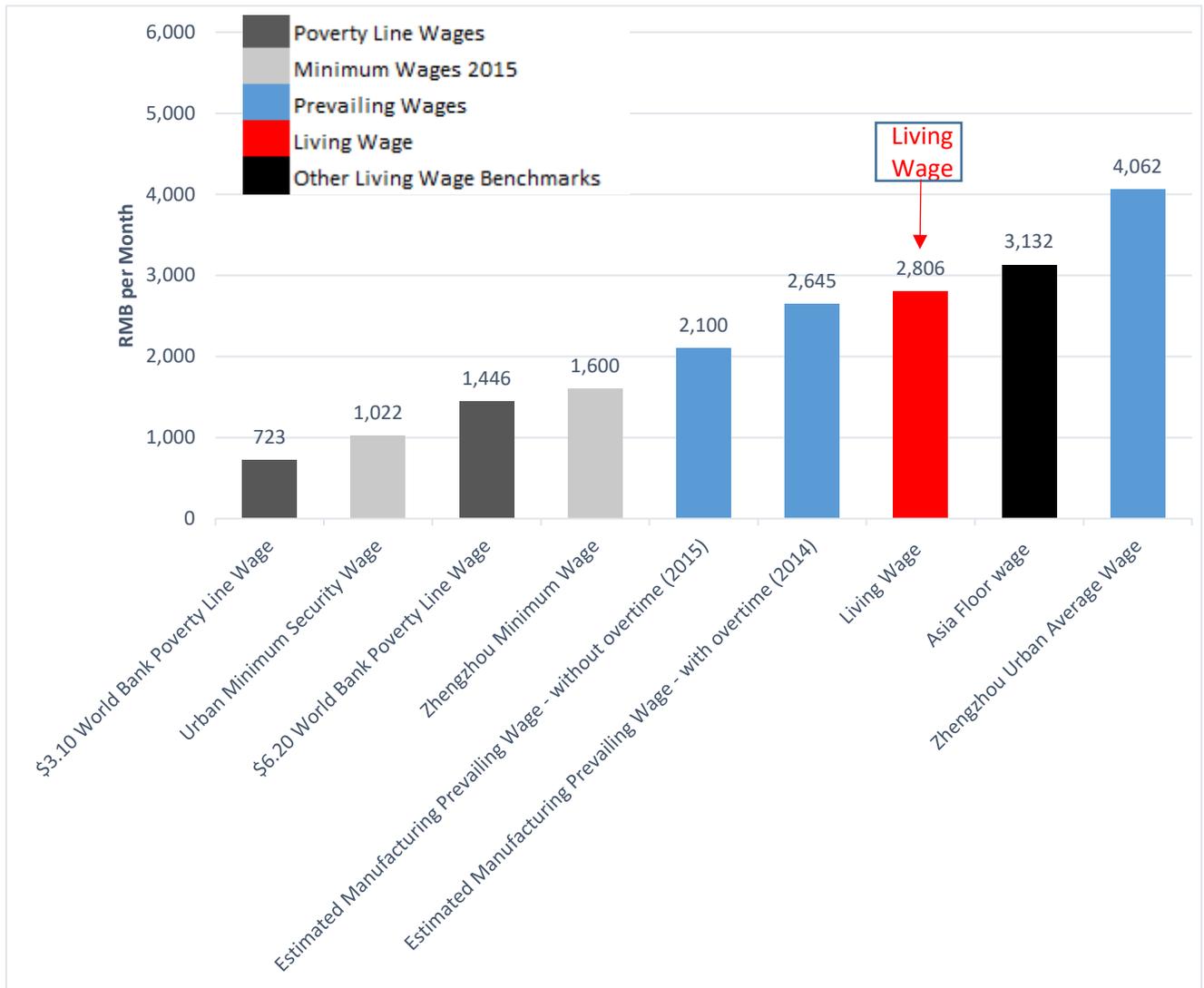
¹⁷ RMB 4,000 per month pay with a RMB 2,100 base pay implies a 64 hour workweek every week of the year (assuming 40 hour standard workweek and 1.5 premium for overtime). While this long of a workweek might occur during some peak demand periods, it is unlikely to occur on a regular on-going basis.

¹⁸ This estimate of RMB 3,150 assumes a base pay of RMB 2,100, 48 hour workweek (8 hours overtime) half of the year and 60 hour workweek (20 hours overtime) for half of the year.

salary with some of the workers we interviewed. Though the source of information is not from the formal human resources department of a company, such estimation should not be too far away from the actual situation.

The average wage of employed persons in urban units in Zhengzhou for the year 2014 is RMB 4,062; the average wage for urban manufacturing sector employees for the year 2014 is RMB 2,645. Note that all of these average wage statistics include overtime but are somewhat old given the rapid growth of wages in China in recent years.

Figure 22: Wage Ladder, Zhengzhou, China, 2015



Source: The Authors

Notes: MW of Zhengzhou 2015 refers to the minimum wage of the year 2015 in Zhengzhou. Estimated PW 2015 refers to an estimated prevailing wage of a typical ordinary worker at a manufacturing company in 2015 excluding overtime. AW (average wage) includes overtime.

16. CONCLUSIONS

Our net take home pay living wage estimate for areas of Zhengzhou where manufacturing workers typically live is **RMB 2,497 per month**. This is before considering possible in-kind benefits provided to some workers. This is also before the consideration of social insurance fund mandatory deductions from pay. Taking all mandatory deductions into account, our estimate of a gross living wage is **RMB 2,806 per month** for permanent workers.

These living wage estimates are much higher than the statutory minimum wage in Zhengzhou (RMB 1,600), and the World Bank international poverty line wage of \$6.2 per day (RMB 1,446). It is also higher than the estimated prevailing wage (RMB 2,100) of a typical ordinary manufacturing worker without overtime work. However, the living wage is lower than the usual wage of urban employees when overtime is included (RMB 2,806 vs. around RMB 4,000). The living wage is also much lower than the average wage of employed persons in urban units in Zhengzhou in 2014 which was RMB 4,062 that included overtime. This large gap is partly due to the fact that the later includes earnings from overtime work, and our living wage estimation is based on regular working days and hours without taking into the consideration overtime pay. As mentioned above, in general, workers work overtime in manufacturing factories, and the wage could be increased by even up to 100% from overtime work although around a 50% increase in pay from overtime is more common (i.e. with one-third of total pay often from overtime). Also, manufacturing does not pay as well as many other sectors. On the other hand, it is worth noting that our living wage is higher than the average wage of urban manufacturing sector workers which is RMB 2,645 including earnings from overtime work. This suggests that manufacturing workers in Zhengzhou, are indeed earning less than a living wage. However, we need to be careful to interpret this gap only by comparing one year's wage differences, as the average wage fluctuated for manufacturing workers between the year 2013 and 2014. In 2013, the nominal average wage of urban manufacturing sector workers was RMB 3,454, which was RMB 809 higher than in 2014, although this was not the case for all urban sectors as the average wage for all urban workers increased by 10% between 2013 and 2014.

Considerable thought and effort was put into making our living wage estimates. They are based on a solid methodology; numerous national and international data sources; visits to workers' homes and places where workers typically shop for food; discussions with workers and their family members; discussions with housing agents; various key informants such as municipal officials, trade union members and others. This also included reviews of many papers, reports and statistics from researchers, government and international agencies.

As indicated in this report, conservative assumptions were used to estimate our living wage. This means that our living wage is a conservative estimate and not overly generous. It is difficult to see where we have overestimated living costs required to ensure decency for workers. Our low cost nutritious model diet used to estimate food cost is conservative. The

standard we used to estimate the cost of housing is basic but acceptable for decency in urban Zhengzhou with only 60 square meters of floor space (48 square meters of living space) for a family of 3.5 members. This means that the average floor space for each person is only 17 square meters, which is far below the actual average floor space of 30.99 square meters per person in Zhengzhou in 2012 according to the 2013 Zhengzhou Statistical Yearbook. Thirdly, we estimate non-food and non-housing (NFNH) costs using the ratio of NFNH costs to food costs according to the consumption structure of the medium-low income population (20%-40% of household expenditure distribution) group in Zhengzhou. Meanwhile, we assume that families take only basic transportation, public medical service and communication. We also assume that the children go to public schools.

The end result of this effort is we believe a solid and credible living wage estimate for manufacturing workers in Zhengzhou. It is hoped that this report will contribute to stakeholder dialogue as well as dialogue between standard setting/certification organizations and others in the value chain to find ways to increase wages to support a decent life for workers and their families while maintaining a vibrant industry in Zhengzhou.

Table 4: Summary table for calculating Zhengzhou living wage, August 2015

Expenses and Calculations	Cost in RMB	Cost in USD
<u>PART I: FAMILY EXPENSES</u>		
Food cost per month for reference family	1,029	161
Food cost per person per day	9.67	1.51
Housing costs per month	1,200	188
Rent per month for acceptable housing	1,000	156
Utilities and minor repairs per month	200	31
Non-food non-housing costs per month taking into consideration post checks	1,811	283
Preliminary estimate of non-food non-housing costs	1,811	283
Health care post check adjustment	0	0
Education post check adjustment	0	0
Other post check adjustment (if any)	0	0
Additional 5% for sustainability and emergencies	202	32

Expenses and Calculations	Cost in RMB	Cost in USD
Additional 5% for assistance to parents	202	32
Total household costs per month for basic but decent living standard for reference family	4,444	694
<u>PART II: LIVING WAGE PER MONTH</u>		
Living wage per month, net take home pay	2,497	390
Mandatory deductions from pay	309	48
Gross wage required per month for Living Wage	2,806	438

Table 5: Key values and assumptions for living wage estimate

KEY VALUES AND ASSUMPTIONS	Comments
Location & Industry	Zhengzhou, manufacturing
Exchange rate of local currency to USD	6.4 = \$1
Number of full-time workdays per month	21.75
Number of hours in normal workweek	40
Number of workers per couple	1.78
Reference family size	3.5
Number of children in reference family	1.5
Preliminary NFNH to Food ratio	1.76

REFERENCES

- Anker, R. 2006a. Living wages around the world: A new methodology and internationally comparable estimates. *International Labour Review*. Vol. 145 No. 4. ILO. Geneva.
- Anker, R. 2006b. Poverty lines around the world: A new methodology and internationally comparable estimates. *International Labour Review*. Vol. 145 No. 4. ILO. Geneva.
- Anker, R. 2011. Estimating a living wage: A methodological review. *Conditions of Work and Employment Series No. 29*. ILO. Geneva. Available at www.ilo.org/travail.
- Anker R. and Anker M. 2017. *Living wages around the world: Manual for measurement*. Edward Elgar, London and Northampton.
- China Food Composition 2014, Institute of Nutrition and Food Safety, China CDC.
- China City Statistical Yearbook, 2003-2013.
- China Statistical Yearbook 2014.
- Dynamic monitoring survey of migrant population in urban China: National Population and Family Planning Commission in 2011.
- Henan Statistical Yearbook 2014.
- State Council of China (国务院办公厅). 2014. Development Outline of Food and Nutrition in China: 2014-2020 (《中国食物与营养发展纲要(2014—2020年)》, 国办发〔2014〕3号), http://www.gov.cn/zwggk/2014-02/10/content_2581766.htm.
- Sangui Wang, Yu Wang, Fengfeng Gu, and Danyan Lu. Living wage for Shenzhen with focus on manufacturing industry parks. 2017.
- Zhengzhou Statistical Yearbook 2013.

ANNEXES

Annex 1: Housing conditions of urban households in Zhengzhou, 2012

Items	Measurements	City
Family size	# of members	2.87
Total covered space	Sq meters/ person	30.99
<i>Housing Property Rights</i>		
Rental public housing	%	1.48
Rental private housing	%	2.97
Originally self-owned private housing	%	5.43
Private housing through housing reform	%	60.89
Commercial housing	%	28.12
Other	%	0.04
<i>Residential Style</i>		
Independent residential building	%	0.13
Four Bedroom	%	5.25
Three Bedroom	%	39.78
Two Bedroom	%	44.91
One Bedroom	%	3.02
Ordinary Building	%	5.91
<i>Decoration</i>		
Decorated	%	59.85
Non-Decorated	%	40.15
<i>Sanitary installation</i>		

Items	Measurements	City
Toilet with bathroom	%	88.98
Toilet without bathroom	%	9.32
Public Use	%	1.7
Heating Installation		
No heating installation	%	0.64
Air conditioner	%	34.19
Heating installation	%	47.3
Other	%	17.87
Cooking Fuels		
<i>Coal</i>	%	0.279
Canned liquefied petroleum gas	%	17.19
Pipelined gas	%	2.1
Pipelined natural gas	%	77.85
Other fuels	%	0.49

Source: Zhengzhou Statistical Yearbook, 2013.