WageIndicator

# WAGEINDICATOR REPORT

## The Methodology to Collecting Worldwide Web-shop data to Calculate Living Wages

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## About the WageIndicator Foundation

WageIndicator Foundation (StichtingLoonwijzer) - www.wageindicator.org

The WageIndicator Foundation started in 2001 to contribute to a more transparent labour market for workers and employers. It collects, compares and shares labour market information through (online & face-face) surveys and desk research. It serves as an online library for wage information, Labour Law and career advice.

The WageIndicator Foundation is assisted by world-renowned universities, trade unions and employers' organisations and currently operates in 125 countries, with 60 new countries in the pipeline. Their international staff consists of some 100 specialists spread over the whole world. The foundation has strong relationships with Monster since 2003. The WageIndicator Foundation is a global organisation reaching millions on a monthly basis. For more information please visit: WageIndicator.org. WageIndicator Foundation has offices in Amsterdam (HQ), Ahmedabad, Bratislava, Buenos Aires, Cape Town, Dar es Salaam, Maputo and Venice.

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## Bibliographic Information

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# INTRODUCTION

The unforeseen Covid-19 pandemic severely disrupted economic activity and the typical way of life in ways unimagined. One such disruption was in the usual methods of surveying. With social distancing becoming the new norm, face-to-face methods of surveying have become a distant reality. Therefore, this project arose out of the need for an alternative method of price data collection. A team of 12 undergraduate students from FLAME University researched the cost of living through food prices listed in online stores in 103 countries for the Second Quarter of 2020. In this report, researchers have outlined the process and methodology, and the learnings, outcomes, and guidelines to facilitate further research in living wages and replicate the process on a quarterly or annual basis.

# ABOUT THE STUDY AND DEFINITIONS

WageIndicator's Cost of Living Survey Application[1] is a survey designed to account for necessary items required to calculate the cost of living, such as travel and household expenses, but this study's focus was purely on food items: meats, vegetables and grains. Interns picked the most economical and frequently used web-shops that carried the broadest range of food products from those mentioned in the survey. The Cost of Living Application is a standardized tool that enlists food items consumed typically around the world. The list of 61 food items included in the food expenses section of the application are present in the Appendix (Section 4.2).

These Living Wages[2] are estimates of income that allow a person or a family to afford a decent living standard in a particular region. Living Wages are different from Minimum Wages, which are announced by the government and therefore constitutes both a worker's rights and an employer's obligation. These are prescribed by law and are legally enforceable, unlike Living Wages. Living Wages thus only provide a benchmark for employers who voluntarily commit to paying wages according to the local living standards. The methodology adopted by WageIndicator is recognized by IDH (The Sustainable Trade Initiative) as a benchmark method of calculating Living Wages[3].

WageIndicator calculates Living Wages for individuals, a standard family, and typical families[4].

**Living Wage for an Individual[5]:** It is always calculated as the wage of one adult working according to the full-time standard working week in that country. It thus indicates the money needed to support a household with a single adult without children who is employed full-time, and it is assumed that they rent a one-bedroom apartment.

**Living Wage for a Standard Family[6]:** The standard family consists of two adults and two children. One adult is working according to the full-time standard working week in that country. The second adult is working 80% of the standard full-time working week. It is assumed that a standard family rents a two-bedroom apartment. A nutritional requirement for good health proposed by the World Bank equals 2,100 calories per person per day. The composition of the food basket per country is taken from the national food balance sheets published by the UN Food and Agriculture Organization (FAO). Thus, for a family of 2 + 2, the assumed nutritional requirement is 8400 kcal per day.

**Living Wage for a Typical Family[7] :** A typical family accounts for the variation in the household composition and employment conditions in a given country. In this definition, a typical family includes two adults, whereas the number of children is derived from the national fertility rate sourced from the World Bank database (the average value of the last five years available). In a typical family, one adult is assumed to work according to the full-time standard working week and the work intensity

1 https://costofliving.wageindicator.org/
2 https://www.idhsustainabletrade.com/idh-living-wage-identifier/
4 The definitions below have been taken from the WageIndicator website
5 https://wageindicator.org/salary/living-wage/faq-living-wage#2-8--people-live-in-households-of-varying-size-and-composition--how-do-you-deal-with-this-fact-of-life-
6 https://wageindicator.org/salary/living-wage/faq-living-wage#2-10--what-is-a-standard-family-living-wage-
7 https://wageindicator.org/salary/living-wage/faq-living-wage#2-11--what-is-a-typical-family-living-wage-

of other adult derived from the national employment rate sourced from the World Bank database (the average value of the last five years available). The Living Wage is set at the level that both adults' total income is equal to the calculated living costs.

When each adult is paid a Living Wage, or in case of part-time work a corresponding proportion of that Living Wage, the total income earned by both adults must be sufficient to meet a decent standard of living. This implies that the individual Living Wage is lower per working adult when the family income is earned by both adults working full-time, relative to the other alternatives. For a single-parent household, the Living Wage equivalent of the full time working parent from a standard family or typical family is taken[8].

Living Wages are also typically calculated using price data collected via face-to-face surveys and published quarterly by WageIndicator. However, in light of the pandemic, our work as a part of the Living Wage team dealt with food price data collection from web-shops.

Through this novel line of inquiry, we can understand if there has been increased digitization during the pandemic period, if the living wage - especially regarding food, is higher due to COVID-19, and to compare web-shop prices to on-ground grocery stores.

Our process as a self-steering team was to work in groups of two or three while simultaneously maintaining contact and receiving inputs from the WageIndicator Living Wage team to eliminate errors and ensure the quality of information collected. We initially began in bigger teams of 5, and as we solidified our process, we phased off into the smaller groups. As we worked from home during the pandemic, our location of work was across India. Therefore, tools like Google Meet, WhatsApp, and Zoom were crucial in facilitating communication. Further, tools like Google Sheets supported the process of consolidating data.

8 https://wageindicator.org/salary/living-wage/faq-living-wage#2-8--people-live-in-households-of-varying-size-and-composition--how-do-you-deal-with-this-fact-of-life-

# RESEARCH METHODOLOGY

## 1. Objective

- To collect of actual price data for 61 food items in 103 countries.
- To calculate the cost of living of the sample countries for individuals, standard and typical families.

The grocery items taken for the study were following the list of mentioned in the Cost of Living Survey App[8].

## 2. Technique Used

The technique followed to collect actual price data was **Electronic data capture**. The price data for a specified list of grocery items and their respective quantities were fed into the WageIndicator's Cost-of-Living Survey App.

## 3. Scope of Study

Duration of study for the first quarter was from 11th May 2020 to 9th July 2020.

The Cost-of-Living Surveys were filled for a sample of 103 countries based on the availability of data. The availability of data was decided on the following parameters:

1. Presence of Web-shops in the country/region
2. Product range and availability
3. Web-shop coverage throughout the country
4. Cost-effectiveness of web-shop

A sample of 140 countries was decided upon, based on the number of countries present in the Cost-of-Living Survey Application. However, countries for which inadequate or no data was available, have been left out for the quarter 2 study, resulting in the final list of 103 countries. The complete list of these countries is given in Appendix 4.2.

## 4. Data Collection

Smaller countries  such as Botswana, Cayman Islands, and Ghana were a good starting point, as they minimized the vast regional disparities and language barriers many other countries had. There was a consensus that it was more advisable to acquaint ourselves with finding and choosing webshops before diving into more complex countries like China, India, USA, and Russia. Some of the other countries we covered initially were Azerbaijan, France, Oman, Philippines and Tunisia.

Data collected to suit the objective of the study was quantitative. For collecting the data, existing prices of products were retrieved from websites of grocery delivery stores.

The data collection process was divided into, but not restricted to two segments primarily:

1. Searching for web-shops
2. The decision behind choosing web-shops

8 https://costofliving.wageindicator.org/

### 4.1. Searching for Web-shops:

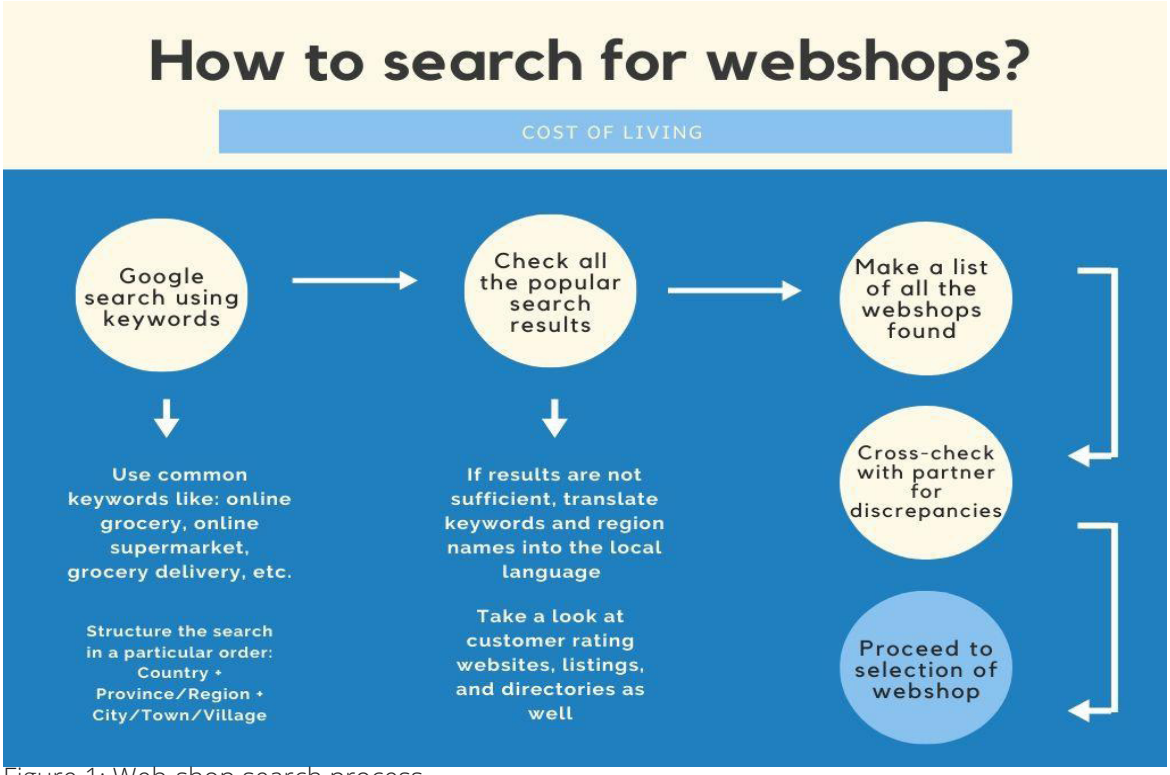


Figure 1: Web-shop search process
Source: Authors

Steps followed for data collection:

1. **Search with relevant terms for web-shops on the browser using keywords** such as "*online grocery*" followed by the region or country. Other common keywords that were used were: online grocery, online supermarket, grocery delivery, supermarket delivery, buy groceries, buy food. Examples used: Online Groceries Ukraine, Supermarket Delivery Ukraine, Buy Groceries Online Ukraine.

Tips:

- Keep a record of key search words used to help in repeating the process for other countries
- If multiple people are working on the same country, divide the keywords to avoid duplication
- Optimize search region-wise (Figure 2)

2. **Check all the likely results that appear.** If results do not appear sufficient, consider translating the keywords and the region name to the local language using Google Translate and searching accordingly.

3. **Search additionally on which web-shops are the cheapest and are popular among customers in the region**, as it best to narrow down the decision-making process here itself. For example: Search for: "*Cheapest online grocery stores in the United Kingdom*". You may refer to additional internet pieces/ news pieces that rank them: Aldi, Sainsbury's, Costco, etc. It may also be a good idea to refer to customer rating websites, such as Yelp[10], or where local facilities are often discussed, such as TripAdvisor[11].

4. **Look for information regarding which stores deliver to the house/undertake delivery services**. Access news pieces and

10 https://www.yelp.com/
11 https://www.tripadvisor.com

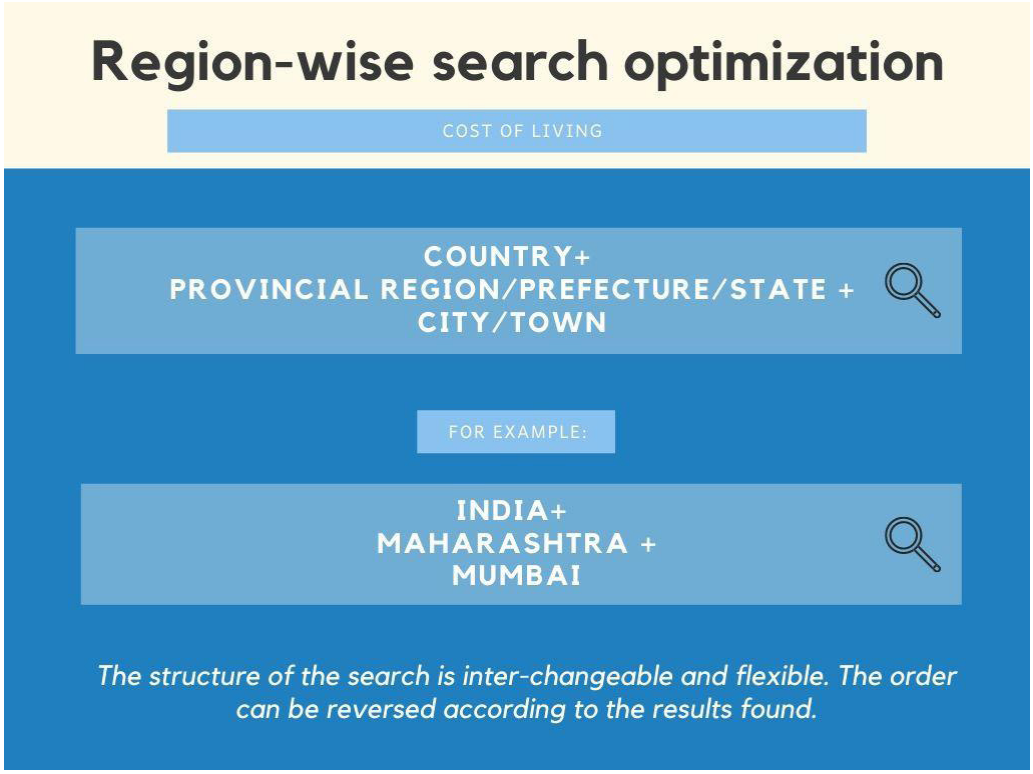

Figure 2: Region-wise search optimization
Source: Authors

websites that may have a '*bird's eye view*' of the cheapest delivery available in web-shops in the country as specified in Step 3.

5. **Step 5: Cross-check with your team member for all results gathered**, check for discrepancies or unmatched results.

### 4.2. Selection of Web-shops:

The Decision-Making Process can be based on but not restricted to the following parameters (in no particular order:

1. **Prevalence and popularity of use** (a parameter that is usually met in Step 3 of the data collection)- The user interface of a website provides an insight into how widely used it is. It also provides us with an idea of how widespread online grocery shopping in a country is.

2. **Product range and availability**- The interns set a minimum requirement of at least 20 items to be available on a webshop out of the 53 listed on the Cost-of-Living Survey. This further narrows down the most suitable grocery store to gather enough data for the calculation of living wages.

3. **Prices of products**- If there exist more than two webshops for a particular region in a country, two websites with the lowest prices would be selected to fill the survey. A sample of a few items from the survey would be selected to compare and determine which website is best suited.

4. **Regions covered**- The number of regions a webshop delivered to was yet another criterion based on which the interns could classify the type of grocery stores. The stores were classified into National, Multi-regional, Hybrid, and Local.

WageIndicator has a global network of contacts. If we had access to contacts belonging


Figure 3: Web-shop selection process
Source: Authors

to countries we were finding webshops for, we approached them through e-mail for their guidance on choosing local webshops. This is done, so we have a better understanding of the local population's preferences and choices. For this, we create a list of shops we find according to the regions to send and the person contacted gives us advice on which shops are cheaper and reliable. Sometimes, they provide us with details about shops we may have missed out. Rarely, we have used personal contacts, such as in the USA, but this is best done with discretion. If no contact is available, the following steps can be taken:

1. After identifying the relevant web-shops based on web research and network consulting, start searching for products and compare the prices of the options available for each item.

2. The Cost-of-Living Survey allows the option to choose to fill the price of an item for whichever quantity is most suitable. Search for items mentioned in the Cost-of-Living survey of WageIndicator and compare the prices of the same quantity.

An intern can create a sample of a few quantities listed in the Cost-of-Living Survey. In this case, assume the list to be Milk, Chicken Breast, Beef, and Pork. Next, choose the standard quantity of comparison. The options are available on the survey. Here we can choose 1 litre to be the quantity for milk and 1 Kilogram to be the other three items. The intern can then go through these goods' prices on different websites to determine which of the shops has cheaper items and narrow down the selection process.

3. After ascertaining which web-shops have products at a lower rate at a specified quantity, the web-shop can be conside-

red an option. The web-shops with lowest prices are considered to get a more accurate representation of what it would cost to afford a decent living standard. At the same time, it is preferred to choose the cheapest alternative to paint a realistic picture of prices. Higher prices might increase the overall living wage estimate, making it relatively less accurate.

4. The regions where the web-shops deliver needs to be assessed thoroughly. The web-shop could be classified as an international/national/multi-regional or local web-shop based on research. An example of the classification is as follows. Walmart delivers to almost every state in the country. Additionally, it also operates in other countries, making it an international web-shop. Simultaneously, Wegmans serves in most states in the country but does not serve internationally, making it a national web-shop. Web-shops that serve more than one state or region in a country are considered to be multi-regional. Furthermore, lastly, a web-shop operating within only one region is classified as a local web-shop.

Note that:

- There are cases where certain stores operate in multiple regions, for which the researchers refered to the cluster number, assigned by WageIndicator Foundation, to the regions. The cluster number signifies the population of the region. If the stores operate in multiple regions, but the cluster number remains the same, the survey is filled in for only one of the regions; however, the survey is filled in for one region of each cluster number if they vary.

- Further, if a webshop is available nationally, or in most regions, and its prices are consistent throughout, it is typically entered into the country's capital region on the survey. The research is considered complete if two such webshops are entered in the capital region, and no further research is required.

5. After checking for all product availability, price, and all regions for delivery, choose a given web-shop based on the considerations mentioned in point 4.

6. Cross-check with your team member for discrepancies and results.

**What about countries for which we did not find web-shops?**

In cases where one cannot find webshops for a particular country, they can turn to one of the several points of contact that WageIndicator has in different parts of the world and get in touch with one based in the country at hand via email. If this too, does not work (or if WageIndicator does not have a Point of Contact (PoC) in its network for the particular country), it is better to inform the rest of the team and skip the given country until further developments can be made.

# 5.Cost of Living Survey

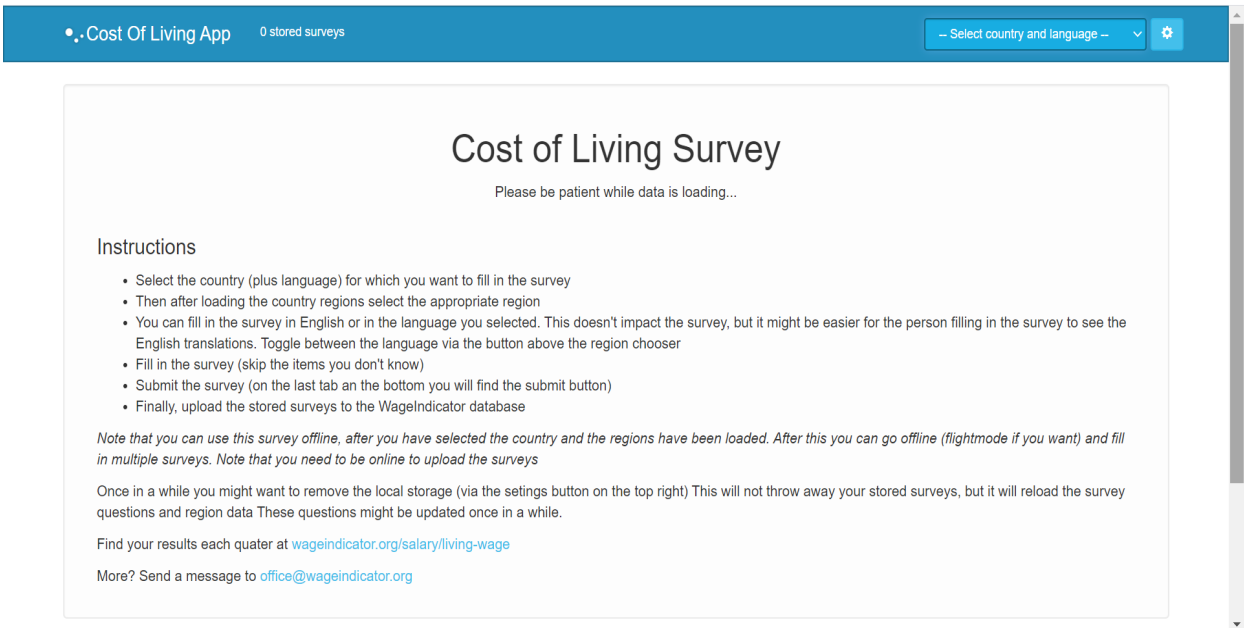


Figure 4: Cost of Living App

The Cost-of-Living Survey can be filled on the Cost-of-Living Application available on WageIndicator's website.

**Points to be noted when filling in the survey:**

**-Check for currency**:

This requires no more than a quick online inquiry on the country's official active currency in question. This information should then be cross-referenced against the currency in which the prices are displayed on the web-shop. The first step to making sure the data filled in the survey is accurate, is to make sure the prices are keyed in using the correct currencies, and in the correct format. To ensure that the price information on the web-shops you are viewing is right, make sure to note what the currency's note and coin units are typically like, as well as whether at all, and where they place their decimals. This is important because some countries use commas in place of decimals and vice-versa.

**-How do we choose a specific item amogst others?**

For example, If we are to enter the price for rice, we can only do so for either 1 pound, 1 kilogram, or 5 kilograms of rice. It is preferred to choose the largest quantity that can be entered for the product i.e, 5 kilograms, as quantities sold in bulk tend to be cheaper than those sold as individual units. Here, it is important to keep in mind that products sold in wholesale quantities are not selected. Among different variations of the product, for example: minced, ground, and cut chicken, the standard procedure would be to opt for the cheapest type.

**-What if the quantities on the web-shop do not match that on the App?**

The quantities of different products being sold will not always match those mentioned in the WageIndicator Cost of Living App, especially since most countries have different product unitary practices. It is acceptable to consider a leeway of +/- 10% of the required quantity in such cases. If Milk is available in 450ml or 550ml packages, but it is available only as

500ml and 1L on the app, it is acceptable to add it within the 500ml category. When the quantity of a particular product is not available in the +/- 10% range, it becomes necessary to calculate the product's price in the required quantity using simple ratios and proportions.

**-While using websites which are not in English or need to be translated**

There will be websites used which you have to translate to English using the Google Translate option. In this case, once you translate, although the products will be listed in English, they may not show up once the search is done. For example, if you have translated a website to English from German and want to search for the product milk, you might find a limited range or no products at all. This is because, a lot of times, the site does not recognize the product name in English. The best practice would be to use the German website, translate after the search is made to select the cheapest product, and switch back to German to do the next search.

There may be cases where the currency notation will also be translated, so to ensure the currency of the country you want is present, check the currency mentioned before translating the site.

## 6. Data Management

A log is maintained, listing all the webshops found in each country, region-wise. Both the name of the stores and their respective URLs are logged. These shops are categorized as local (serves in only a particular city/town in a region), regional (serves only in a particular region), multiregional (serves in two or more regions in the country), national (serves all over the country), or international (serves in multiple countries). A description of the stores is also maintained for any comments one might have while surveying the webshop (for example- if a particular store does not sell meat, this would be mentioned in the comments). Finally, once the survey is completed, the date of the most recent access of the website, as well as the date of the survey being filled are logged in. For future reference concerning a country's data, and to ensure fair distribution of work, the team members' names are always recorded. This is because if a team of three is working together to research a country, and only two surveys are required to be filled, it helps to note which of the team members completed them. The next time, a different set of people in that team can fill the surveys. Moreover, having a manager coordinate with the team aids in ensuring that a sufficient pace is kept and that WageIndicator is kept abreast of the progress through reports.

## 7. Peer Review

Peer Review is an essential element due to the need for standardization and accuracy in collecting data. The interns from FLAME University were divided into groups to collect the prices from webshops based on countries. The project started with larger groups to enable the interns to learn through experience and set a standard for the rest of the duration. The initial weeks saw an excel spreadsheet with a list of webshops shortlisted by the groups' members. Further, the prices of the products on the Cost-of-Living Survey were listed down to compare the data collected. This set precedent and indicators for those involved to keep an eye out for any data discrepancies.

## 8. Limitations

The following are the limitations of our research:

1. **Decision Making and Manual Error:** As there were multiple web-shops in a particular region, making a decision about which web-shops were cost-effective and popular was a tumultuous process across an array of options with specific parameters. In such a case, an error is probable in data

collection as the decision-making process is unique to every country and region based on its demographics.

2. **Remote working methodology for Data Collection:** One of the most significant limitations of this study was to collect price data using search engines and web-shops. Primary data collection on-field offers a thorough insight into the sphere of inquiry that secondary data collection with web-shops help does not answer in totality.

3. **Time:** Lack of depth and detail in research, some countries could not be delved into fully. For example, China's websites and apps were not accessible from the Indian network and required Virtually Private Networks (VPNs). Translation was also a major challenge with respect to this country.

## 9. Observations:

While studying webshops from around the world, we picked up on specific recurring patterns that could be useful to keep in mind while filling out the surveys or even while conducting initial research on the country in question.

1. In geographically large countries like China and Russia, few stores delivered multi regionally or nationally, and local stores were easily located only in critical economic centres of the country (big cities like Moscow in Russia for example). Countries of this size require much time and extensive research in order to collect data that is actually representative of the prices of groceries there.

2. The websites of the stores that you visit are usually indicative of the country's technological development. Well built, attractive webshops are usually found in more technologically advanced countries, while more basic stripped-down websites are common in less technologically advanced countries. This information can be used when trying to pick webshops that are more commonly used in a particular country.

3. The context of a country is very often reflected in the prices of their basic groceries. For example, in some African countries like Nigeria and Ivory Coast, regular pasteurized milk was harder to find and is quite expensive. It is easier to find condensed or evaporated milk in these countries. The same goes for dairy products like butter. The prices of meat and basic groceries like rice and lentils also indicate the most commonly consumed foods in the country. The cheaper they are and the easier they are to find- the more familiar they are in most local households.

4. In richer, more economically developed countries it is common to find a handful of national chain stores that dominate smaller local stores. For example, in the USA, a few stores like Walmart, Target, Krogers etc. deliver across a majority of the country. While these can be filled once (for a particular cluster), it is still helpful to consider smaller, more localized or even multi-regional stores to get a better understanding of local pricing of groceries.

# APPENDIX

## 1. Tools Utilized

1. **Google Search Engine:** Used to conduct searches for accessing web-shops and retrieving actual price data.
2. **Google Sheets:** Used to collect preliminary data, handle and organising data sets.
3. **Tripadvisor and Yelp:** Used for gathering precise information pertaining to web-shops in a region based on user responses.

## 2. List of countries covered

| Countries | | | | |
|---|---|---|---|---|
| Albania | Croatia | Japan | Pakistan | Switzerland |
| Angola | Cyprus | Jersey | Paraguay | Tanzania |
| Argentina | Czech Republic | Jordan | Peru | Trinidad and Tobago |
| Australia | Denmark | Kazakhstan | Philippines | Tunisia |
| Austria | Dominican Republic | Kenya | Poland | Turkey |
| Azerbaijan | Egypt | Kuwait | Portugal | Uganda |
| Bahamas | El Salvador | Lebanon | Puerto Rico | Ukraine |
| Bahrain | France | Luxembourg | Qatar | United Arab Emirates |
| Bangladesh | Georgia | Malawi | Romania | United Kingdom |
| Belarus | Germany | Malaysia | Russian Federation | United States of America |
| Belgium | Ghana | Malta | Rwanda | Uruguay |
| Botswana | Greece | Mauritius | Saudi Arabia | Vietnam |
| Brazil | Guatemala | Mexico | Serbia | Zambia |
| Bulgaria | Hong Kong | Mozambique | Slovakia | |
| Cabo Verde | Hungary | Namibia | Slovenia | |
| Canada | India | Netherlands | South Africa | |
| Chile | Indonesia | New Caledonia | South Korea | |
| China | Ireland | New Zealand | Spain | |
| Colombia | Italy | Nigeria | Sri Lanka | |
| Costa Rica | Jamaica | Oman | Sweden | |

Table 1: List of countries

## 3. List of food items in the Cost-of-Living Survey Application

| Food Items | | | | |
|---|---|---|---|---|
| Apples | Cassava | Groundnuts (Shelled Eq) | Onions | Salt |
| Bananas | Cereal flour | Honey | Orange or other citrus | Soyabeans |
| Beans | Cereals | Kale | Pasta | Spinach or other leafy green vegetables |
| Beer | Chicken Breasts (Boneless, Skinless) | Lemons, Limes | Peas | Starchy Roots (Beet, Celeriac, Radish) |
| Bell pepper or sweet pepper | Chickpeas or other pulses | Lentils | Pineapples | Sugar (Raw Equivalent) |
| Bottle of water | Coffee | Loaf of Fresh White Bread | Plantains | Sunflower seeds or palm kernels |
| Bottle of Wine (Mid-Range) | Cream | Local Cheese | Pork Meat | Sunflower-seed oil |
| Bovine Meat (Beef) | Dried Fish | Maize | Potato | Sweet Potatoes |
| Bulgur | Eggs | Mango | Poultry Meat | Tea |
| Butter, Ghee | Fish, Seafood | Milk (regular, pasteurized and prepackaged) | Regular cooking oil | Tofu |
| Cabbage | Flatbread or pita | Mutton and Goat Meat | Rice (cheapest available) | Tomato |
| Carrot or other non-green vegetables | Freshwater Fish | Olives | Rice (of standard quality) | Yams |
| | | | | Yogurt |

Table 2: List of food items
Source: WageIndicator.org

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