HUNGRY CITIES PARTNERSHIP

The State of Household Food Security in Mexico City, Mexico

HUNGRY CITIES REPORT NO. 13

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The State of Household Food Security in Mexico City, Mexico

Guénola Capron, Salomón Gonzalez Arellano, Jeremy Wagner and Cameron McCordic

Series Editors: Prof Jonathan Crush and Dr Liam Riley

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Executive Summary

Evidence presented in *HCP Report No. 7: The Urban Food System of Mexico City, Mexico* (Capron et al 2017) suggested that the diets of residents of Mexico's capital city are increasingly influenced by the food economies of developed countries. Diets appear to be nutrient-poor, energy-dense and highly-processed, and these characteristics are associated with growing obesity, overnutrition and micronutrient deficiencies. This report presents and discusses the results of a subsequent city-wide survey of 1,200 randomly-selected households from the Metropolitan Zone of the Valley of Mexico in 2016. Through this survey, a comprehensive picture of household food insecurity and consumption patterns across the city could be constructed. Major findings include:

- About one in every four households in Mexico City are severely food insecure, while another quarter are mildly or moderately food insecure.
- Overall, food insecurity in Mexico City is not a problem of food scarcity or shortage but rather of constrained access to a diverse range of foods.
- Dietary diversity is generally quite low: one in five households had eaten food from fewer than four food groups in the 24 hours prior to the survey, while one in four had eaten food from eight or more food groups. This suggests considerable variation and inequality across the city.
- Food insecure households purchase healthier food products less often than food secure households and are also more likely to purchase energy-dense and nutrient-poor products.
- One in every three households go without preferred types of foods due to high food prices at least once a month.
- Price changes are most likely to reduce access to fruits, vegetables and animal products, and least likely to affect access to foods made from oil, fat or butter. This suggests a strong link between price sensitivity and the quality of diets.
- Households whose main income source is formal wage work have on average higher dietary diversity, lower food insecurity, and more consistent food provisioning throughout the year than households whose income source is informal wage work. It is therefore more likely for a household in Mexico City to be food insecure across all measurements if its main source of income is informal wage work.
- Only 10% of households in the city produce some of their own food through urban agriculture.

Households in Mexico City procure their food products primarily based on proximity and convenience. Markets and small shops are the two most commonly frequented food retailers, followed by markets on wheels and supermarkets. The small enterprise food economy plays an important role in food

provisioning for households. In particular, markets on wheels selling primarily fresh fruits and vegetables are commonly frequented. Most foods are purchased within the households' neighbourhoods or within walking distance. For example, 97% of households purchase tortillas several days per week and 89% do so at neighbourhood tortilleria outlets.

While supermarkets are an important food source for households, they are not the main food source for the most popular foods. Alternative food sources such as restaurants, online food markets and urban agriculture are uncommon in comparison to the main retail types. This implies that the local neighbourhood food environment and relative spatial accessibility to food retailers are an important determinant of food security for urban residents. The households that do not frequent supermarkets find them too far away, too expensive, or avoid them because they do not offer credit. Among supermarket patrons, the majority prefer shopping there because of the variety of products on offer and they can buy in bulk.

1. Introduction

This report presents and analyzes the findings of a household food security survey conducted by Universidad Autónoma Metropolitana as part of the Hungry Cities Partnership in Mexico City from January 10-19, 2016. It is a supplement to *HCP Report No. 7: The Urban Food System of Mexico City, Mexico* (Capron et al 2017). HCP Report No. 7 discusses the history, demography and economy of Mexico City, and contains an overview of the existing literature on its changing food system. This report provides a foundation for future research of Mexico City's food system, its food security and informal sector. It also contributes to comparative studies among the seven cities of the Hungry Cities Partnership project, which are Cape Town, South Africa; Maputo, Mozambique; Nairobi, Kenya; Bangalore, India; Nanjing, China; Kingston, Jamaica; and Mexico City.

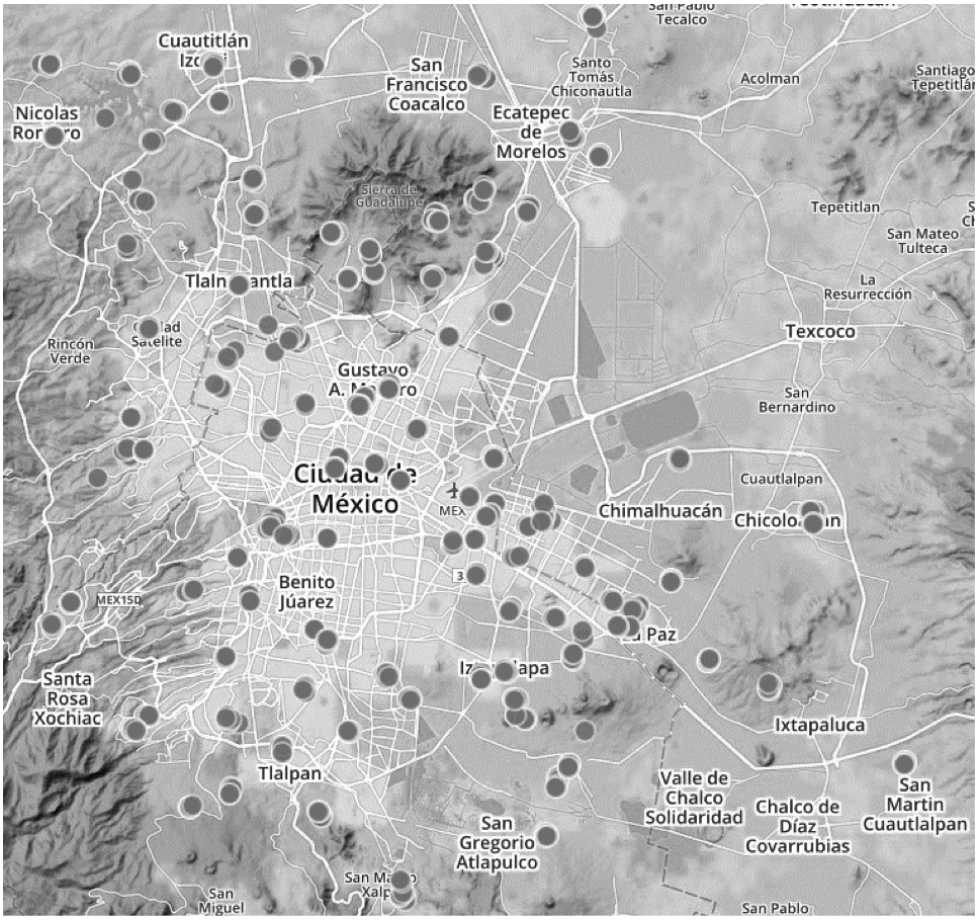
The report consists of six major sections. Following this introduction is an overview of the sampling strategies and methodologies of the city-wide survey in Mexico City. Section Three profiles the surveyed households included in the sample, including demographic characteristics, economic data, livelihoods and occupations, poverty indicators, and the use of social grants. Section Four discusses the prevalence of food insecurity in Mexico City using various food insecurity measurements: the Household Food Insecurity Access Scale (HFIAS), the Household Food Insecurity Access Prevalence (HFIAP) measure; the Household Dietary Diversity Score (HDDS); and the Months of Adequate Household Food Provisioning (MAHFP) indicator. Section Five explores factors affecting food insecurity, impacts of food price changes on food accessibility for households, and the relationship between food security and household characteristics. Section Six examines Mexico City's food system from the point of view of households' use of various food sources, including what they buy and how they perceive supermarkets and urban agriculture. In addition, it explores household production and consumption patterns using the Hungry Cities Food Purchases Matrix (HCFPM), which collects detailed information on the purchasing patterns of 32 individual food items.

2. Methodology

The Hungry Cities Partnership survey of Mexico City was completed in January 2016. The city-wide survey was administered across the Metropolitan Zone of the Valley of Mexico by a team of enumerators who were trained in the use of tablets and the survey instrument prior to implementation. The sampling strategy targeted Mexico City residents aged 18 years and older with the capacity to respond to questions regarding household expenses and home administration.

The 1,200 face-to-face household interviews created a confidence level of 95% and a theoretical margin of error of +/- 3.0 for the area being sampled. A probabilistic sample was applied to the sampling frame based on the Census Statistics System on Geostatistical Scales (Population and Housing Census 2010). This system provides the most up-to-date cartography of the country's geography of urban, mixed and rural areas, and provides census information for each geographical unit.

FIGURE 1: Spatial Distribution of Households Surveyed in Mexico City



The study sample was selected through a multistage sampling method, with the first stage being the selection of geographical units for sampling. The selection of conglomerates (defined as the set of units of the same municipality and socioeconomic level) was based on the probability proportional to their population. The socioeconomic strata was defined with the continuous index of welfare level calculated with the statistical technique of principal components based on census variables of possession of goods and access to services. This index was stratified into four socioeconomic levels using the Dalenius optimal stratification technique.

The second stage consisted of randomly selecting two units within each conglomerate, with each unit being selected with probability proportional to its size. Dwellings were also randomly selected with systematic sampling with equal probability and random start. Using this design guaranteed an adequate distribution of the characteristics of the target public that lives in the urban municipalities and delegations that make up the Metropolitan Zone of the Valley of Mexico.

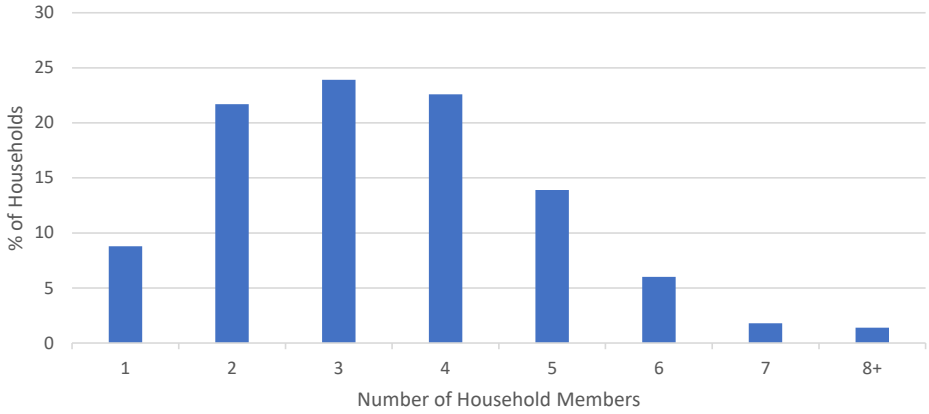
3. Profile of Mexico City Households

The HCP survey instrument contained several questions relating to the characteristics of the households and their members. This data provides a background picture for the sections that follow regarding the food system and food security, and residents' perceptions of both.

3.1. Demographic Characteristics

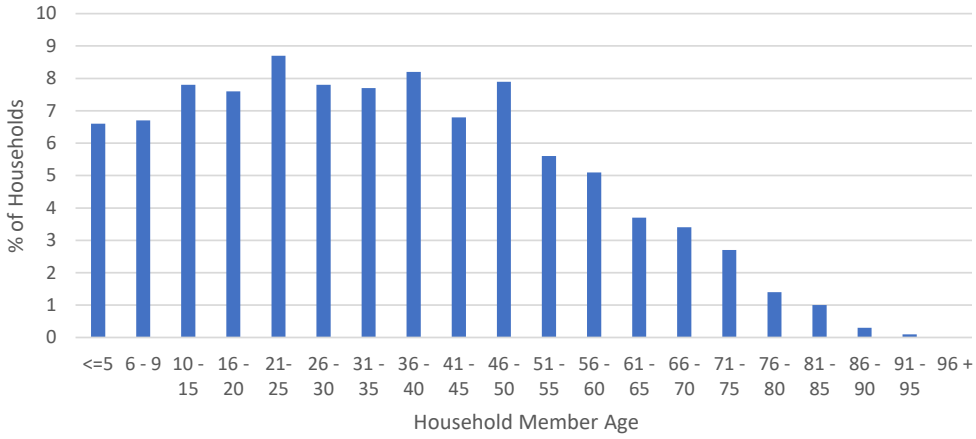
The average household size was 3.45. The frequency distribution of household size in Figure 2 shows that 24% of the households had three household members, followed by households with four members (23%), and two members (22%). Households that had five members made up 14% of the sample, while those with only one member made up 9%, and those with six members made up 6%. Few households had more than six members.

FIGURE 2: Distribution of Household Size



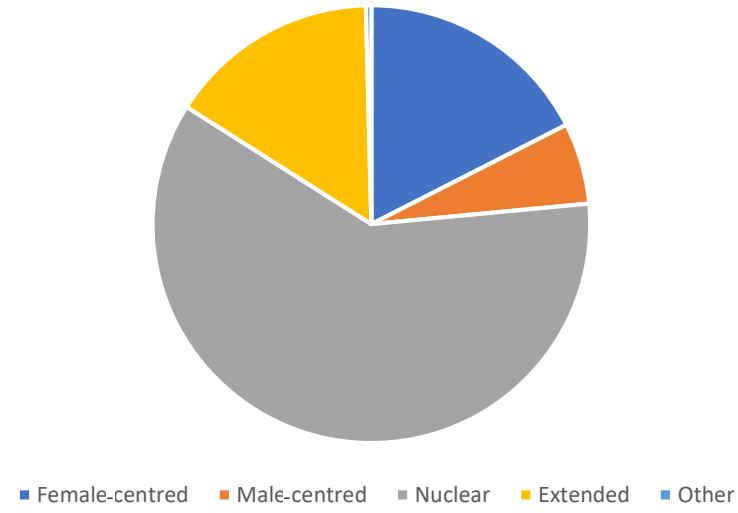
The 4,071 household members in this survey had an average age of 35. The majority (53%) were aged 35 and younger, while 29% were 20 years old and younger (Figure 3). Only 1% were over 80. This age distribution is similar to that in the official census data (Capron et al 2017).

FIGURE 3: Age of Individual Household Members



The HCP survey categorizes households into five types, based on the composition of members and their relationships to one another. Female-centred and male-centred households include a head without a spouse or partner and any combination of children, relatives and non-relatives. They are distinguished from each other by the sex of the head. Nuclear and extended households include a head with a spouse or partner. The distinguishing feature between these two structures is that the nuclear household only includes children as additional members, whereas extended households have other members too (e.g. in-laws, grandparents, siblings, and other relatives and non-relatives). Nuclear households were the most common household structure in Mexico City (at 61%) (Figure 4). This was followed by female-centred and extended households, which represented 18% and 16% of the surveyed households respectively. Male-centred households were much less common, making up only 6% of all households.

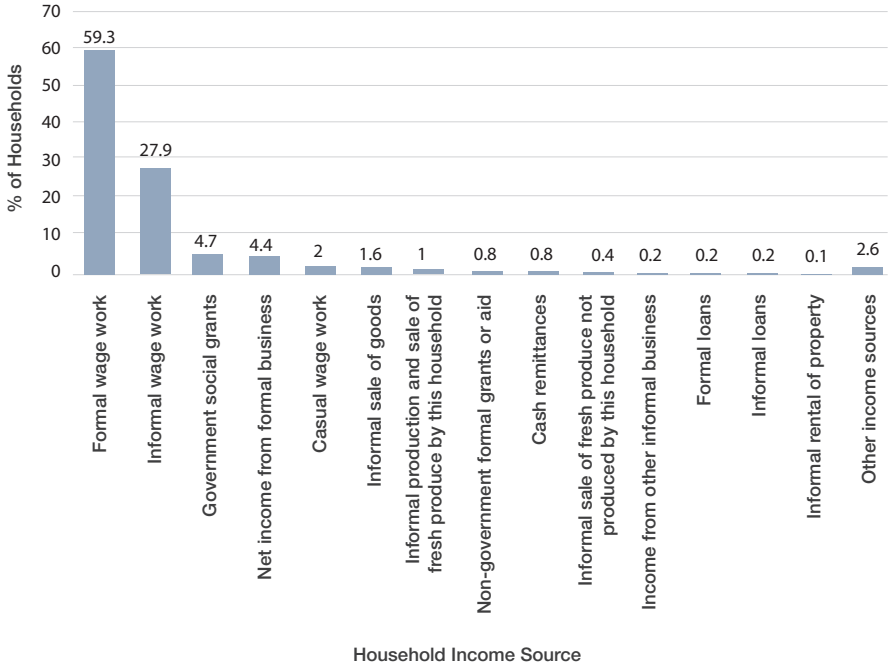
FIGURE 4: Household Typology



3.2. Economic Profile of Households

The sampled households rely primarily on wage work in the formal and informal sectors for income. Formal wage work was the most common source of income (59% of the sampled households had received income from formal wage work in the previous month) (Figure 5). The next most common source of household income was informal wage work (28%), followed by government social grants (5%), net income from formal business (4%), and casual wage work (2%).

FIGURE 5: Monthly Household Income Sources



The low overall response in providing details about income means that the findings in Table 1 should be treated with caution. The average monthly amount received through income from formal wage work for reporting households was MXN10,635 (or USD582) (Table 1).1 Average income earned from informal wage work was a little more than half this amount, or MXN5,627 (USD308) on average. Several households reported income from formal and informal business activities. The most lucrative forms of informal business were the production and sale of fresh produce (at MXN11,500 or USD630), the sale of goods (MXN6,827 or USD374), the sale of fresh produce not produced by the household (MXN6,500 or USD356), and property rental (MXN3,000 or USD164). However, in each case the number of reporting households was so small that these cannot be seen as representative either of rates of participation in the informal sector or of income earned.

TABLE 1: Average Monthly Income Amount by Income Source

	No. of households reporting income	% of total households	Mean (MXN)	Mean (USD)
Formal wage work	489	41	10,635	582
Informal wage work	257	21	5,627	308
Government social grants	42	4	4,445	243
Net income from formal business	32	3	9,575	524
Casual wage work (formal and informal)	16	1	5,638	309
Net income from informal business (sale of goods)	15	1	6,827	374
Cash remittances	10	<1	2,560	140
Non-governmental formal grants or aid	8	<1	2,000	110
Net income from informal business (production and sale of fresh produce produced by household)	4	<1	11,500	630
Informal loans	3	<1	2,167	119
Formal loans	2	<1	9,000	493
Net income from informal business (sale of fresh produce not produced by this household)	2	<1	6,500	356
Net income from other informal business	2	<1	9,000	493
Net income from informal business (renting property)	1	<1	3,000	164
Other income sources	25	2	4,600	252
Note: Multiple-response question.				

More households were prepared to provide information about their expenses. Figure 6 shows that food and groceries are the most common household expenditure (incurred by 97% of surveyed households in the previous month). Other major expenditures include fuel (69%), public utilities (67%), transportation (63%), and telecommunications (62%). Only 20% of households said they had expenses for housing, education, and medical care. Cash remittances, savings, and family gifts or donations were only rarely identified as household expenditures.

Households reported spending an average of MXN2,878 (USD158) on food and groceries, one of the highest categories of expenditures. Other expenses incurred by a significant number of households included household goods (MXN3,266 or USD179), housing (MXN2,381 or USD130), and clothing (MXN2,042 or USD112). Debt repayments were also relatively high (an average MXN2,449 or USD134), while the few households able to save did so with an average MXN2,582 or USD141. Other expenses incurred by many households included public utilities, telecommunications, transportation, fuel, education, and medical care, although the average amount spent on each of these was generally much

lower. Only two households reported sending remittances to rural areas, which is a sign of the permanent urbanization of the city's population.

FIGURE 6: Monthly Household Expenditures

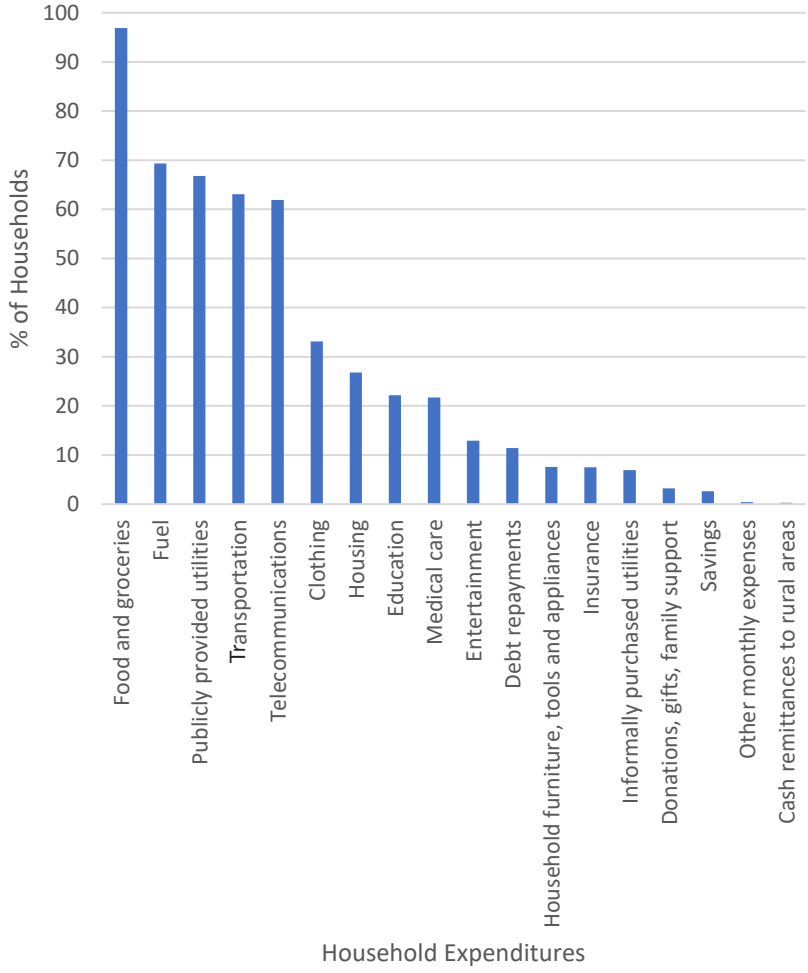


Table 3 separates household monthly income into quintiles. Households in the first (lowest) income quintile have incomes below MXN3,500 (USD192) and the fifth (highest) income quintile is MXN12,001 (USD657) and above. Table 4 examines household expenditures for the top eight expenses (i.e. those incurred by the greatest number of households) by income quintile. As household income increases, so does expenditure on most items. For instance, households in the first quintile spent MXN1,560 (USD85) on average on food and groceries, while those in the fifth spent nearly triple that amount (MXN4,443 or USD243). Expenditures on housing, clothing, transportation, telecommunications, and medical care, followed a similar pattern, although the trend is not consistently linear among the second, third, and fourth quintiles. Although expenditure on food and groceries is highest among households in the upper quintile (and nearly three times as high as for households in the lowest), households in the upper

quintile spend more on housing on average than on food. They also spend significantly more on education than households in all the other quintiles.

TABLE 2: Average Monthly Expenditure by Expenditure Type

	No. of households reporting expense	% of total households	Mean (MXN)	Mean (USD)
Food and groceries	985	82	2,878	158
Publicly provided utilities	662	55	536	29
Telecommunications	638	53	639	35
Transportation	634	53	1,039	57
Clothing	322	27	2,042	112
Fuel	286	24	357	20
Housing	276	23	2,381	130
Education	222	19	1,441	79
Medical care	221	18	1,223	67
Entertainment	117	10	1,042	57
Debt repayments	115	10	2,449	134
Household furniture, tools and appliances	77	6	3,266	179
Informally purchased utilities	66	6	424	23
Insurance	57	5	1,973	108
Donations, gifts, family support	27	2	1,869	102
Savings	25	2	2,582	141
Cash remittances to rural areas	2	<1	5,600	307
Note: Multiple-response question.				

TABLE 3: Household Monthly Income Quintiles

Income quintiles	Mexican peso (MXN)	USD
1	<=3,500.00	<=191.63
2	3,501.00–5,000	191.64–273.75
3	5,001.00–8,000.00	273.76–438.00
4	8,001.00–12,000.00	438.01–657.00
5	12,001.00+	657.01+

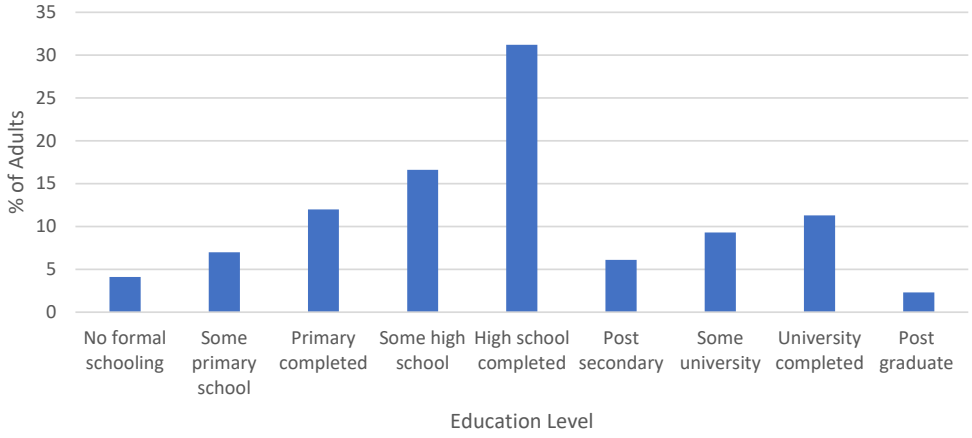
TABLE 4: Average Cost of Monthly Expenditure Categories by Income Quintile

	1	2	3	4	5
Food and groceries	1,560	2,271	2,845	3,240	4,443
Clothing	1,291	1,361	1,961	1,687	2,686
Housing	1,012	1,377	1,830	1,673	4,627
Education	547	463	837	938	2,900
Transportation	517	633	897	1,138	1,523
Fuel	344	314	371	296	434
Public utilities	326	470	454	583	744
Telecommunications	325	373	525	537	969

3.3. Occupational Profile

This section outlines the economic contributions of individuals within the sampled households. Educational status is both a reflection of socioeconomic status and a determining factor in the ability of an individual and a household to earn adequate income. In the total sample, 89% of the adult household members had at least completed primary school, whereas 60% had completed high school or a higher qualification (Figure 7). Only 14% had completed a university degree or postgraduate training.

FIGURE 7: Educational Level of Adult Household Members



Of the adult population over the age of 18, 32% were working full-time, and 5% were working part-time, casually, on contracts or seasonally (Figure 8). Four percent of household members were unemployed and looking for work, indicating low levels of unemployment within Mexico City at the time of the survey. One-quarter of the adult population identified their occupation as doing unpaid housework (Table 5). Other adult household members were self-employed (17%), students or at school (7%), pensioners (5%), or medically unfit (1%).

The occupational profile shows a wide variety of formal sector activity including businesswoman/man (9%), office workers (5%), service workers (4%), skilled and unskilled manual workers (7% in total), domestic workers (3%), civil servants (3%), professionals (3%), and taxi drivers (2%) (Table 5). Smaller numbers were employers/managers, security personnel, truck drivers, and working in education and health. Around 6% of household members were working as vendors in the informal sector. Around one-third were involved in unpaid work in the household (25%) or students (7%). Another 5% were pensioners. Overall, the unemployment rate was low (around 4%).

FIGURE 8: Work Status of Household Members Over the Age of 18

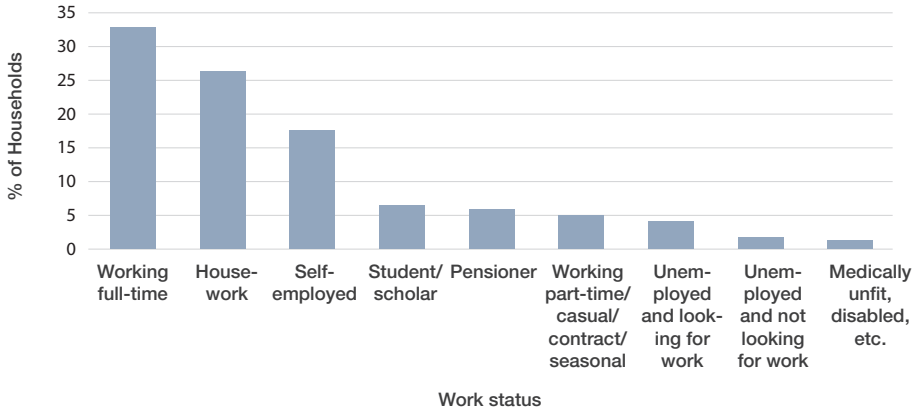


TABLE 5: Occupations of Household Members Over the Age of 18

Occupation	No.	%
Employed		
Businessman/woman	259	8.6
Trader/hawker/vendor	178	5.9
Office worker	155	5.1
Service worker	119	3.9
Unskilled manual worker	105	3.5
Skilled manual labour	90	3.0
Domestic worker	89	2.9
Civil servant	84	2.8
Professional (doctor/lawyer)	79	2.6
Taxi driver	73	2.4
Employer/manager	43	1.4
Security personnel	33	1.1
Truck driver	28	0.9
Health worker	25	0.8
Teacher	23	0.8
Nurses	16	0.5
Informal sector producer	16	0.5
Foreman	12	0.4
Police/military	13	0.4
Agricultural worker	9	0.3
Not employed		
Housework (unpaid)	756	25.0
Scholar/student	216	7.2
Pensioner	146	4.8
Unemployed/job seeker	127	4.2
Other	315	10.4

3.4. Poverty Profile

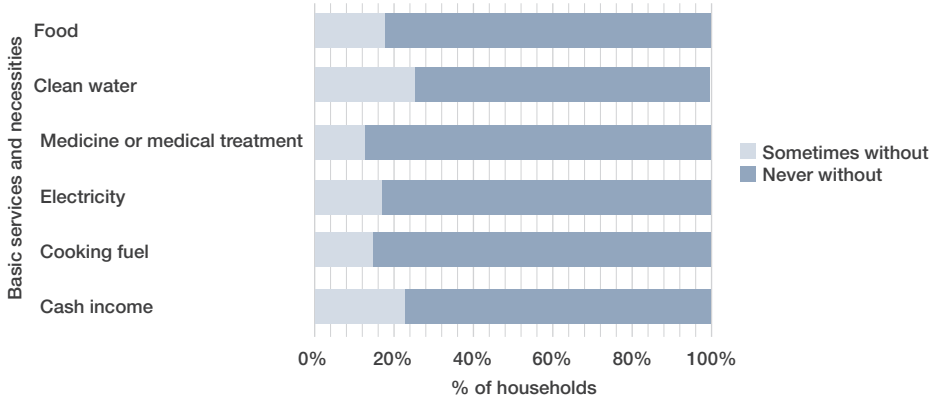
The Lived Poverty Index (LPI) provides a subjective experiential index of "lived poverty." The LPI is based on how often people report being unable to secure a basket of basic necessities: food, clean water, medicine/medical treatment, fuel to cook food, electricity and a cash income. Responses are grouped together into a single index on a scale that ranges from 0 (never going without) to 4 (always going without). The higher the LPI value, the greater the degree of lived poverty. The mean household score was 0.27 with every indicator also having a mean score of less than 1.00. Table 6 shows that of the various HCP cities, Cape Town and Maputo have the highest average levels of lived poverty, followed by Kingston and Nairobi. Mexico City has a lower and similar score to Bangalore, but not as low as Nanjing.

TABLE 6: Comparative LPI Scores

City	Mean LPI
Cape Town, South Africa	0.65
Maputo, Mozambique	0.53
Kingston, Jamaica	0.47
Nairobi, Kenya	0.46
Mexico City, Mexico	0.27
Bangalore, India	0.23
Nanjing, China	0.10

One-quarter of households had sometimes gone without clean water in the year prior to the survey and nearly 23% had gone without consistent cash income (Figure 9). Nearly one in five (18%) households had sometimes gone without food. Other basic necessities such as medicine and cooking fuel seem better accessed in the city, with more than 85% of households never going without either.

FIGURE 9: Access to Basic Services and Necessities in Past Year



3.5. Social Grants

Social grants do not play a major role in the livelihood strategies of households in Mexico City. Figure 10 indicates that old-age pensions are the most common type of social grant, received by 10% of households. Also, food vouchers (5%) and child grants (5%) were received by a few households. Cards for *diconsa* stores (a public federal program that sells the most basic food products at very low prices) were held by 4%. Other types of social grants were received by less than 1% of households. Grant-receiving households received an average of MXN1,343 (USD74) per month and a median amount of MXN1,000 (USD55), although there was a wide degree of variation in the amounts received (the standard deviation from the mean was MXN1,559). Most grant recipients used them for paying for food and groceries (Figure 11). Other uses included covering educational and medical expenses, buying household items, and paying for utilities.

FIGURE 10: Households Receiving Social Grants

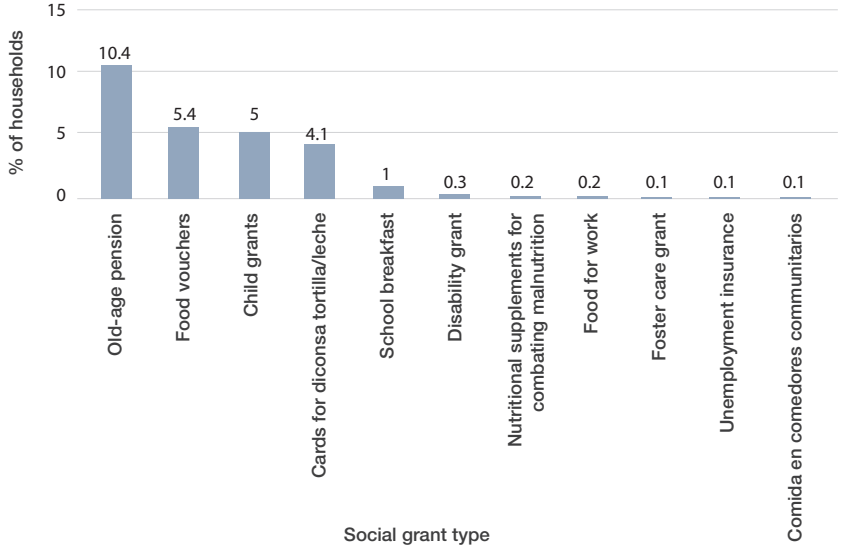
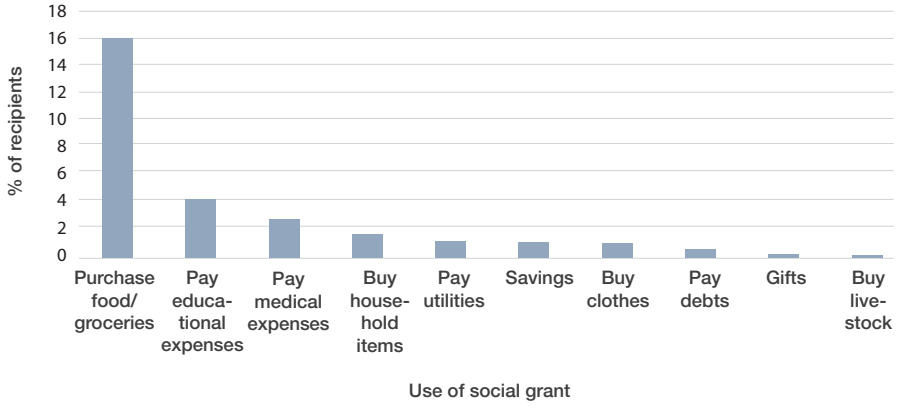


FIGURE 11: Uses of Social Grants



Contrasting Images of Mexico City Residential Areas

Source:
https://mexicoinstitute.wordpress.com/2013/05/30/mexico-housing-bust-bruises-investors-buyers/

Source:
https://myfancyhouse.com/2015/04/29/cordoba-reurbano-housing-building-in-mexico-city-mexico/

Source: https://www.archdaily.com/900023/social-inequality-as-seen-from-the-sky/5b6da91ef197cc4b620001f2-social-inequality-as-seen-from-the-sky-photo

Source: https://www.archdaily.com/900023/social-inequality-as-seen-from-the-sky/5b6da930f197cc4b620001f3-social-inequality-as-seen-from-the-sky-photo

Source: http://www.thisisplace.org/i/?id=2584d991-db3b-4a34-b953-bf4aa0f7cb3d

Source: https://medium.com/upmetrics-data-for-good/building-community-and-brighter-futures-after-school-in-mexico-d60dd02ba6f3

4. Household Food Insecurity

Household food insecurity is multidimensional and highly contextual. The HCP survey focuses on household experiences of food deprivation, constrained access and dietary choices to develop a picture of the food security situation in each city. The Hungry Cities Partnership uses the food security assessment methodology developed by the Food and Nutrition Technical Assistance (FANTA) project (Swindale and Bilinsky 2006). FANTA conducted a series of studies exploring and testing alternative measures of household food insecurity in a variety of geo-

graphical and cultural contexts and developed various widely used indicators and scales to measure aspects of food insecurity. There are four main metrics:

- Household Food Insecurity Access Scale (HFIAS): The HFIAS score is a continuous measure of the degree of food insecurity (access) in the household (Coates et al 2007). An HFIAS score is calculated for each household based on answers to nine frequency-of-occurrence questions designed to capture different components of the household experience of food insecurity in the previous four weeks. The minimum score is 0 and the maximum is 27. The higher the score, the more food insecurity the household experienced. The lower the score, the less food insecurity the household experienced.
- Household Food Insecurity Access Prevalence (HFIAP): The HFIAP indicator is based on the HFIAS and uses a scoring algorithm to categorize households into four levels of household food insecurity: food secure, mildly food insecure, moderately food insecure, and severely food insecure (Coates et al 2007). Households are categorized as increasingly food insecure as they respond affirmatively to more severe conditions and/or experience those conditions more frequently.
- Household Dietary Diversity Scale (HDDS): Dietary diversity refers to how many food groups are consumed within the household in the previous 24 hours (Swindale and Bilinsky 2007). The scale runs from 0 to 12 and a score is calculated for each household. An increase in the average number of different food groups consumed provides a quantifiable measure of improved household dietary diversity.
- Months of Adequate Household Food Provisioning Indicator (MAHFP): The MAHFP indicator captures changes in the household's ability to ensure that food is available above a minimum level the year round (Bilinsky and Swindale 2007). Households are asked to identify in which months (during the past 12 months) they did not have access to sufficient food to meet their household needs.

4.1. Household Food Access

In general, the FANTA indicators suggest that Mexico City has low levels of food insecurity in terms of access to food. The average HFIAS score of Mexico City households was only 3.2 and nearly half (47%) of the households had a score of 0 out of 27, which is a scenario more often seen in cities of the Global North (Figure 12). A score of zero means that in the month before the survey, these households never experienced any of the events characteristic of food insecurity. Responses to the individual questions from which the HFIAS score is calculated are shown in Figure 13. As indicated, 18% of households often or sometimes worried about not having enough to eat, and 16% often or sometimes ate a limited variety of foods due to a lack of resources. A smaller number (12%)

often or sometimes ate unwanted foods. Very few households experienced an absolute shortage of food, with 95% reporting that they never went a whole day and night without eating anything. Similarly, 90% reported that no one in their household went to sleep hungry. Food insecurity in Mexico City therefore appears to be less about food scarcity and more of an issue of constrained access to particular kinds of foods.

FIGURE 12: HFIAS Scores

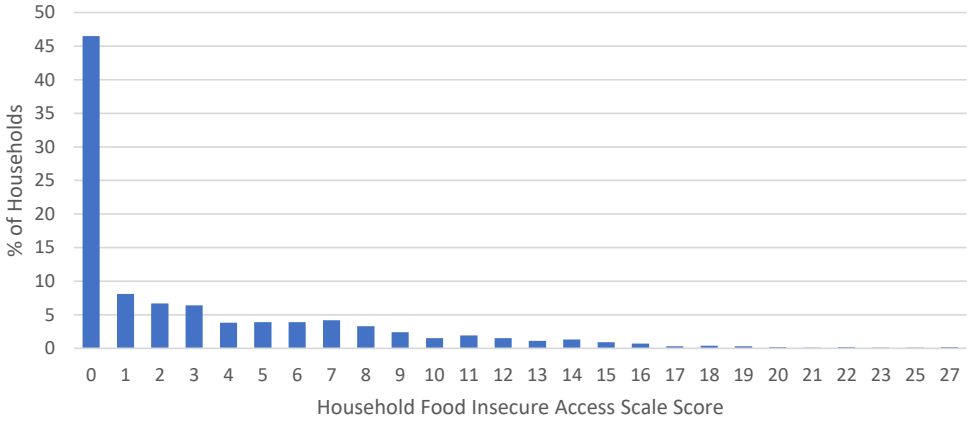
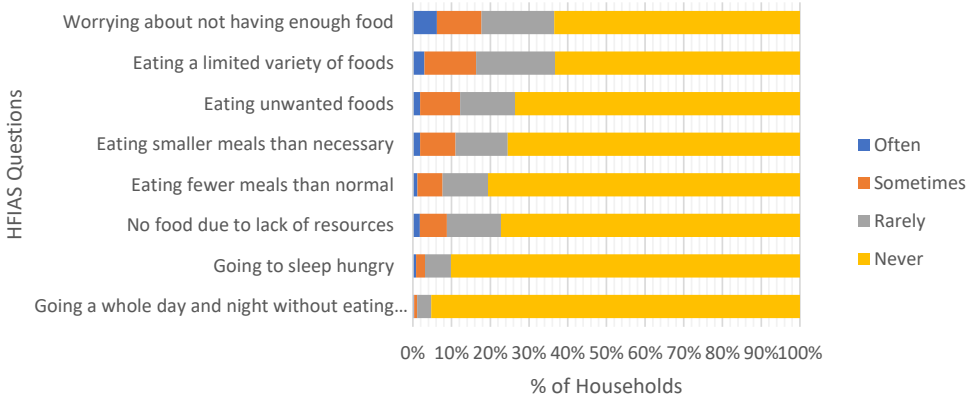
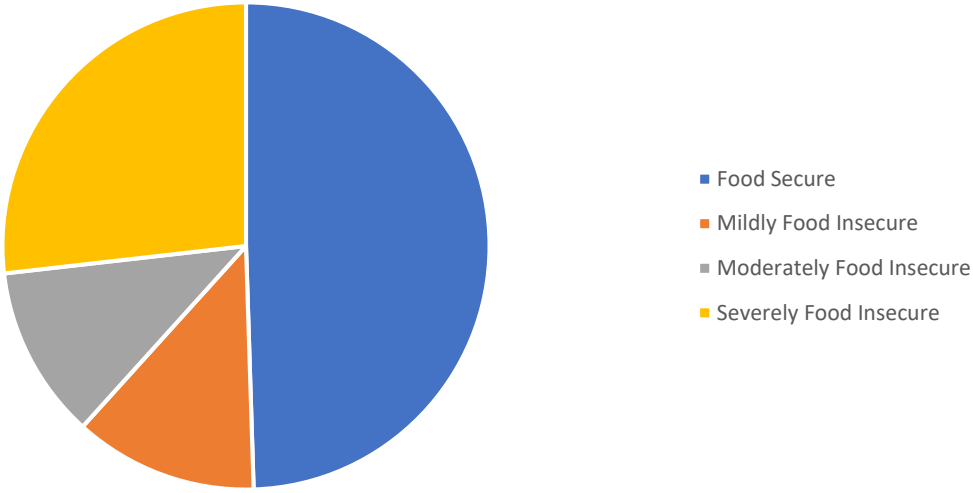


FIGURE 13: Responses to HFIAS Food Security Questions



When the HFIAS results are converted into the four HFIAP categories using the FANTA algorithm, a slightly different picture emerges (Figure 14). Exactly half of the households surveyed are completely food secure, while just over a quarter (27%) are severely food insecure. The remainder are either mildly or moderately food insecure. This means that some form of food insecurity is prevalent in around half of the households, primarily experienced at the household scale by lack of access to particular kinds of foods. This conclusion can be further tested by examining the HDDS scores for the city.

FIGURE 14: HFIAP Classification



4.2. Household Dietary Diversity

The HDDS indicates that most households in Mexico City do not have a particularly diverse diet. The mean HDDS was only 5.8 out of a possible 12, where a score of 6 is generally considered the minimum necessary for adequate nutritional intake. About 20% of households had eaten food from fewer than four food groups in the 24 hours before the survey was conducted (Figure 15). Only 26% had eaten foodstuffs from eight or more food groups. Overall, these findings reflect a low level of dietary diversity among a significant portion of residents in Mexico City. This is consistent with other findings that suggest that the primary nutritional and food security challenge in Mexico City relates not to food availability but to food utilization (Capron et al 2017).

The food group consumed in the greatest number of households items was staple grains (including corn, pasta, rice and bread) (Figure 16). Meat and vegetables were consumed in about two-thirds of households. However, only half had consumed any fruit. Most other nutritious foods were consumed by less than half of the households. The least commonly consumed food by far was fish or shellfish (10% of households). More detailed purchasing and consumption patterns are discussed below.

FIGURE 15: Household Dietary Diversity Scores

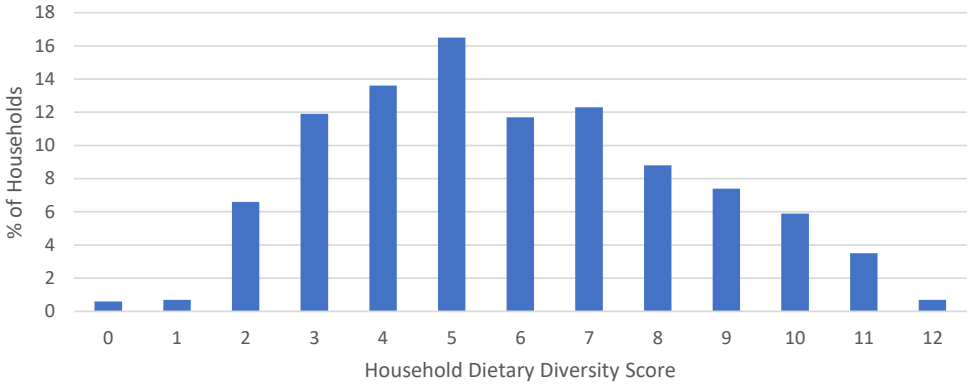
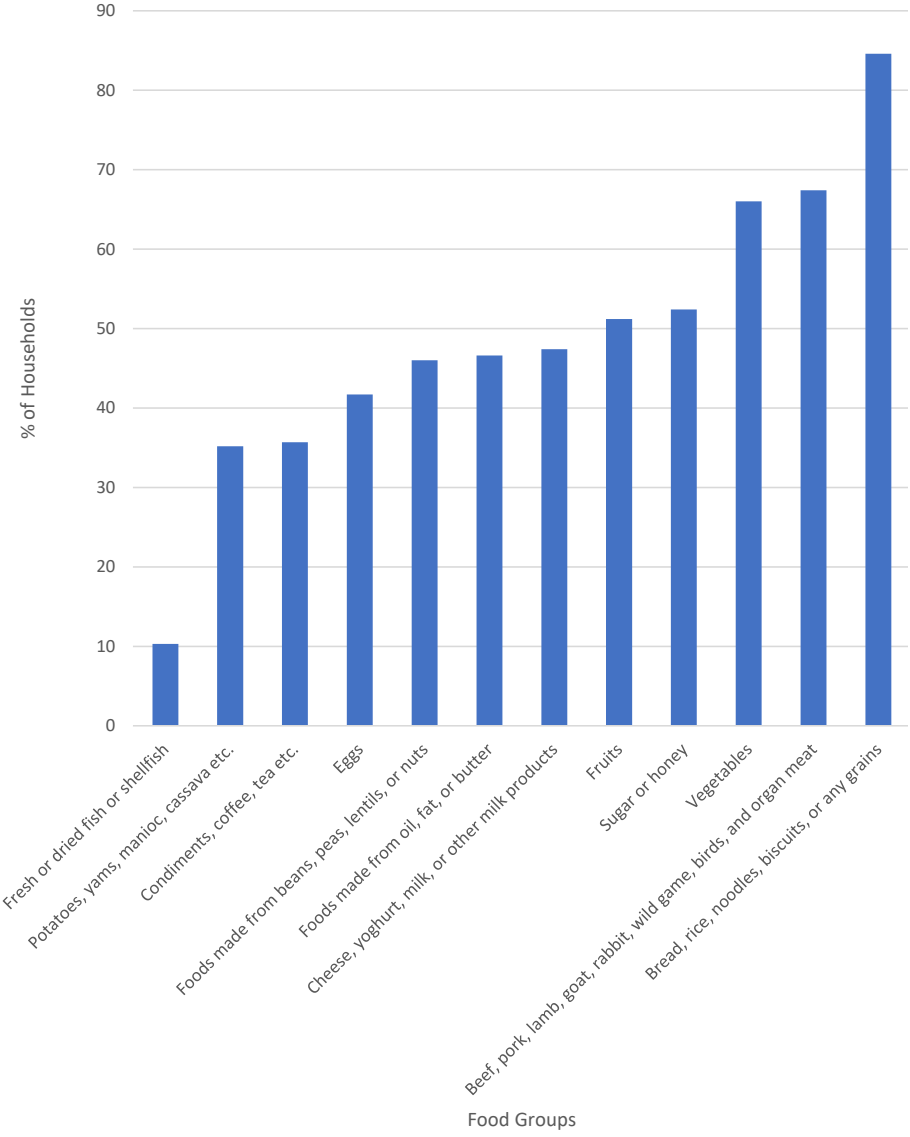


FIGURE 16: Food Groups Consumed in the Previous 24 Hours



4.3. Adequacy of Household Food Provisioning by Month

The average MAHFP of surveyed households in Mexico City was 11.4, which indicates very little variation in food supply over the course of a year. As many as 80% of households had scores of 12, indicating adequate food provisioning throughout the year. A small number of households (9%) experienced inadequate food provisioning for at least three months of the year.

4.4. Impact of Food Price Increases

Increases in food prices in the previous six months were not an obstacle to food access for many surveyed households. However, only 55% of the households reported that they had never gone without food because of its cost (Figure 17). Almost one-third of the households had gone without some types of food due to high food prices on a monthly basis, while 14% had done this weekly. These findings demonstrate that food prices are a significant factor shaping household food security and narrowing dietary diversity in Mexico City. Animal products were the most frequently mentioned food type that households went without due to food price changes. One in every three households had gone without meat because it was unaffordable (Figure 18). One-quarter reported that vegetables were unaffordable and 13% that fruits were unaffordable. On the other hand, foods made from oil, fat or butter experienced little price volatility. In general, households may be more inclined to consume energy-dense and nutrient-poor food products due to larger price fluctuations in healthier food choices.

FIGURE 17: Food Price Change Impacts on Food Access

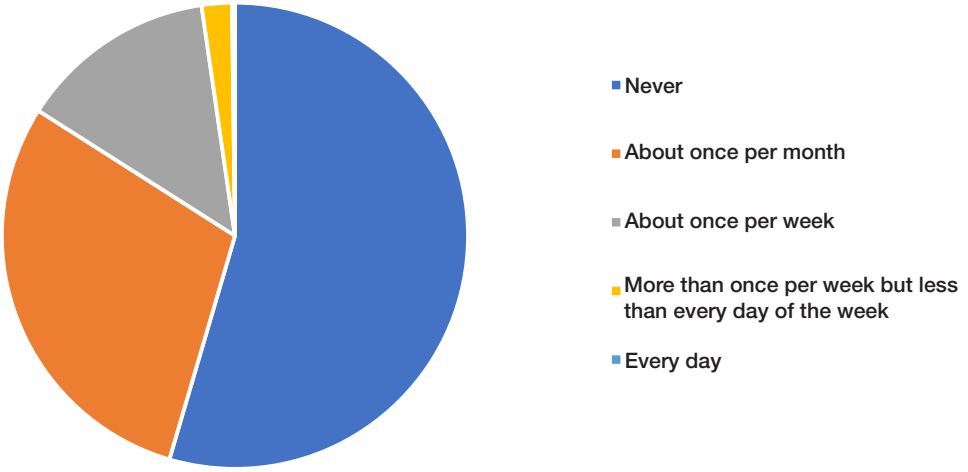


FIGURE 18: Food Categories Deemed Unaffordable Due to Price Changes in the Past Six Months

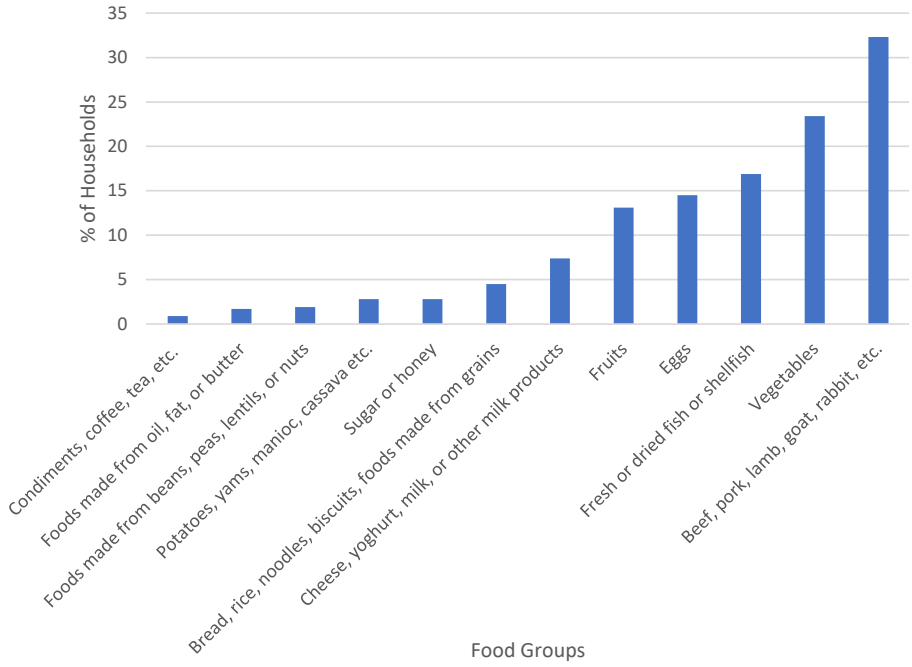
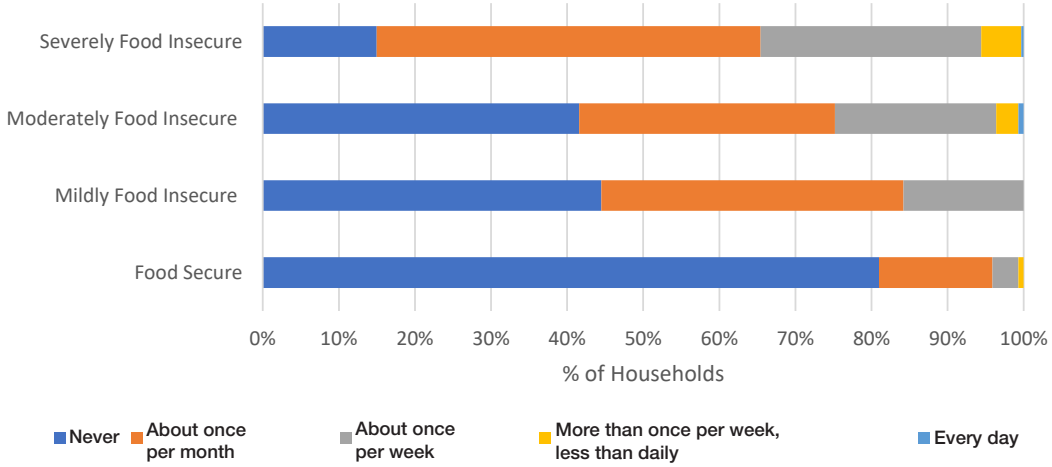


Figure 19 shows that food price increases had the least impact on the most food secure households. Four in every five food secure households never had to give up any type of food because of price increases. In contrast, severely food insecure households were most sensitive to food price increases with 85% going without some types of food because of price changes. An important consequence to note here is that households more prone to food insecurity are more likely to avoid shopping for price-volatile food items (including vegetables and animal products) and instead purchase food products that do not experience price volatility, including foods made from oil, fat, or butter.

FIGURE 19: Food Price Impact on Households by HFIAP



5. Food Security and Household Characteristics

5.1. Household Type and Food Security

Cross-tabulating the major household types with the various FANTA food security indices shows that there is a relationship between the type of household and its food security (Table 7). In terms of the HFIAS, female-centred households are the most food insecure and male-centred households are the least food insecure. Extended households have the best dietary diversity and male-centred households the worst. The pattern of female-centred households being the most food insecure and male-centred households being relatively food secure, yet having low dietary diversity, is evident in other HCP surveys and suggestive of a gender-based trend in household food security (Riley and Caesar 2017). The average MAHFP scores were similar across all household structures although the female-centred households had the lowest score on average, confirming that they tend to be more food insecure than other types of household.

TABLE 7: Average Food Security Scores by Household Structure

Household types	HFIAS	HDDS	MAHFP
Female-centred	3.6	5.6	11.3
Male-centred	2.8	5.5	11.3
Nuclear	3.2	5.9	11.4
Extended	3.3	6.2	11.5

5.2. Household Size and Food Security

In general, as household size increases so does food insecurity (Table 8). Households with six or more members have the highest HFIAS and are thus the most food insecure. The MAHFP indicator shows the same result. Small households (with 1-3 members) tend to be more food secure on average on both the HFIAS and MAHFP indicators. Although the differences are smaller, there is an interesting opposite trend with regard to dietary diversity. As household size increases, so does dietary diversity, with large households having a higher average HDDS than smaller ones. The reasons for larger households having the highest levels of food insecurity, yet the greatest dietary diversity needs further exploration with other methodologies.

TABLE 8: Average Food Security Scores by Household Size

Number of household members	HFIAS	HDDS	MAHFP
1	2.6	5.1	11.3
2	2.7	5.9	11.4
3	2.9	5.7	11.5
4	3.4	6.1	11.3
5	3.3	5.9	11.4
6+	5.6	6.3	10.9

5.3. Household Income and Food Security

The positive relationship between food security and household income is clear (Table 9). The mean HFIAS score declines (gets better) with every succeeding income quintile, from 5.7 for households in the lowest income quintile to 1.6 for those in the upper quintile. Similarly, there is a strong and direct relationship between income and the MAHFP, which increases from 10.8 for households in the lowest quintile to 11.8 for those in the upper quintile. Even the quality of the household diet improves with income. Households in the first quintile have an average HDDS of only 5, while those in the fourth and fifth quintiles have average scores of 6.1 and 6.4, respectively (Table 9). However, a score of 6.4 out of 12 is still relatively low, emphasizing the fact that lack of dietary diversity is a problem across the city. Poor dietary diversity may be particularly acute in low-income households but it is not resolved by an increase in household income.

TABLE 9: Average Household Food Security Scores by Income Quintiles

Income quintile	1	2	3	4	5
HFIAS	5.70	3.90	3.00	2.20	1.60
HDDS	4.99	5.11	5.67	6.07	6.43
MAHFP	10.80	11.30	11.30	11.70	11.80

5.4. Income Sources and Food Security

This section examines whether there are differences in the food security status of households that do and do not source income from formal and informal employment. First, households receiving income from formal wages on average have better HFIAS scores than those that do not (3.0 versus 3.6) (Table 10). They also have more diverse diets with HDDS scores of 6.2 versus 5.3. That the differences are not larger (as well as their MAHFPs being identical) is probably because households that do not have income from formal wages include those that have income from other sources, including informal employment. Second, in partial confirmation of this, households receiving informal wages are more food insecure (HFIAS score of 4.3) and have a less diverse diet (HDDS of 5.4) than those that do not receive informal wages (6.0 and 2.8 respectively).

TABLE 10: Average Household Food Security Scores by Wage Income Source

		HFIAS	HDDS	MAHFP
Household has income from formal wages	Yes	3.0	6.2	11.4
	No	3.6	5.3	11.4
Household has income from informal wages	Yes	4.3	5.4	11.2
	No	2.8	6.0	11.4

5.5. Social Grants and Food Security

Old-age pensions, child grants and food vouchers are the most common social grants in Mexico City. Table 11 indicates that households receiving food vouchers and child grants have higher levels of food insecurity than households that do not receive any social grants. Households receiving old-age pensions are less food insecure than households that do not receive pensions or that receive other types of grants. When it comes to dietary diversity, a different picture emerges, with households receiving child grants having the highest HDDS scores. What these results seem to suggest is that households receiving child grants use them to diversify household diets and that households with pensioners use this income to increase the quantity of food they access. These conclusions about the relationship between food security and social grants are tentative because the number of households receiving grants is relatively small.

TABLE 11: Average Food Security Scores and Social Grants

Grants received	HFIAS	HDDS	MAHFP
Child grants	3.7	6.5	11.5
Old-age pension	2.6	6.0	11.6
Food vouchers	3.7	5.8	10.8
No grants	3.2	5.9	11.4

Food Retail Outlets in Mexico City

Superama Supermarket
Source: http://octopup.org/mexico-city/condesa

Interior of Superama Supermarket
Source: http://octopup.org/mexico-city/condesa

Small Neighbourhood Grocery Shop
Source: http://www.puebla-mexico.com/oxxo-mexico%E2%80%99s-answer-to-the-24-hour-mini-mart/

Tortilleria Outlet
Source: https://www.yelp.com/biz/tortilleria-cordoba-m%C3%A9xico

Outdoor Market
Source: http://peekingduck.co/five-great-mexico-city-markets/

Tianguis (market on wheels)
Source: http://www.mexconnect.com/articles/152-shopping-in-mexico-the-tianguis

Mobile Street Vendor
Source: https://commons.wikimedia.org/w/index.php?curid=32117668

Street Vendor
Source: https://commons.wikimedia.org/w/index.php?curid=32117708

Wholesale Cereals Outlet
Source: Maria Salamone

Wholesale Fruit and Vegetable Outlet
Source: Maria Salamone

Polleria Selling Fresh Chicken
Source: Maria Salamone

Cooked Food Stall in La Merced Market
Source: Maria Salamone

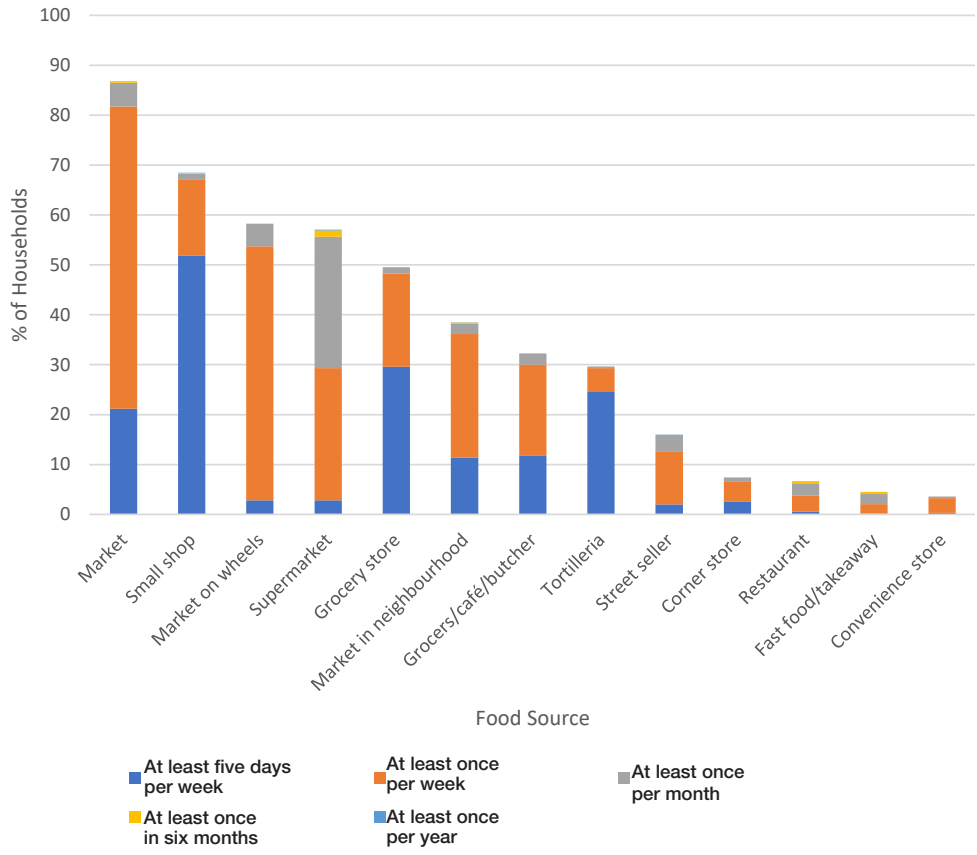
6. The Food System

The HCP survey included questions pertaining to sources of food in Mexico City and the frequency of patronage. In addition, the Hungry Cities Food Purchases Matrix (HCFPM) collected detailed information on the purchasing patterns of 32 individual food items (Crush and McCordic 2017). This section combines these results to present insights into the urban food system of Mexico City from the point of view of household food sourcing and consumption.

6.1. Major Food Sources

Households in Mexico City purchase food at a variety of different types of outlets (Figure 20). Markets and small shops are the most important contemporary food sources for the surveyed households. Markets are patronized by nearly 90% of households and include temporary open-air markets (tianguis) and large wholesale markets such as La Merced. Small shops are patronized by nearly 70% of households. Other smaller food sources for households include markets on wheels, grocery stores, small outlets such as butchers and cafés, and tortilleria (shops that produce and sell freshly made tortilla). Supermarkets are patronized by approximately 55% of households. Street vendors are patronized by only 15% of households. More important are smaller neighbourhood markets, which are patronized by nearly 40% of households. Purchasing frequencies reinforce the relative significance of different food outlets. Among all households, 21% visited markets at least five days per week, while 61% visited at least once per week. Small shops are patronized very often with the majority of patrons buying food from these outlets on a daily basis. This is in contrast to supermarkets, where about half the customers shop at least once per week and the other half once per month. Tortilleria are patronized on an almost daily basis, while neighbourhood-market and street-seller buying tends to take place weekly.

FIGURE 20: Frequency of Accessing Food from Various Sources



6.2. Food Purchasing Frequency

Figure 21 takes an item-focused approach to the question of purchasing frequency. The figure looks at the frequency with which the most-commonly consumed items are purchased, using data from the HCFPM. Tortillas are purchased by 79% of households almost daily (at least five days per week). A second group of fresh foods purchased most often on a weekly basis includes vegetables, chicken, eggs, fruit, meat, white bread, and bottled water. A third group of staple and processed foods has a more variable purchasing pattern.

Table 12 shows the percentage of households that purchased each food item in the HCFPM in the month prior to the survey, as well as the outlets where each item was bought. Supermarkets are the dominant source of only two fresh products – cheese/yoghurt and brown bread. Mexico City households prefer to purchase their vegetables and fruit at the city's formal and informal markets. Other products are dominated by specialized outlets including butcheries for meat, *tortilleria* for tortillas, *polleria* (poulterers) for chicken, small shops for eggs and milk, and *pandería* (bakeries) for white bread. Supermarkets are the dominant

source for some processed foods and small shops are a more important source for others. Cooked and frozen foods are only purchased by a very small proportion of households.

Supermarkets have been rapidly expanding as a major food source in cities of developing countries, and Mexico City is no exception (Reardon and Berdegue 2002). But what these results suggest is that while supermarkets and "one-stop" shopping are important, especially for processed food products, they have not swept away other forms of food retail, both formal and informal, in the way predicted by proponents of the supermarket revolution model. Residents of the city purchase their food from a wide variety of general and specialized outlets and shop for food very frequently. The food system of Mexico City is far more complex than that of many other cities in the HCP network and traditional and small-scale food retailing seems to have considerable resilience despite the spread of supermarkets.

FIGURE 21: Food Purchasing Frequency of Popular Food Items

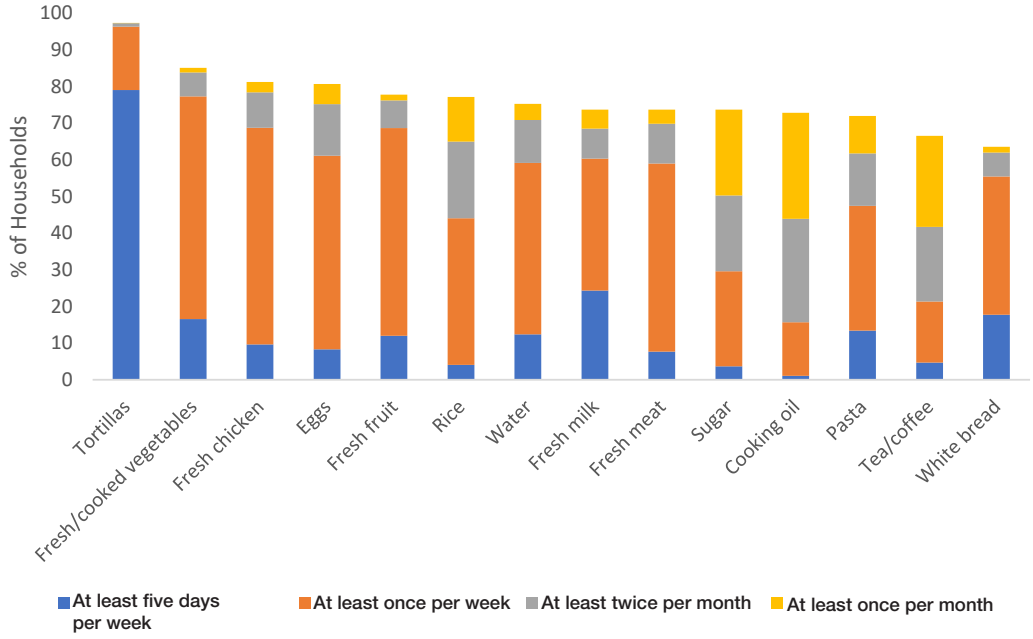


TABLE 12: Food Purchases by Food Source

	% of households purchasing each food at each source												
	% of households purchasing each food	Supermarket	Small shop	Butchery	Take away	Restaurant	Formal market	Informal market on wheels	Grocery store from home	Street seller	Polleria	Tortilleria	Panadería
Fresh produce													
Tortillas	97	8.1	5.6	0.1		0.1	3.4	0.4	0.5	4.4	0.2	88.5	0.1
Vegetables	85	18.8	20.6			0.2	39.3	52.2	0.7	5.5			
Chicken	81	15.7	2.6	0.2	0.1		27.5	10.7	0.2	3.3	65.2	0.2	0.1
Eggs	80	25.9	64.2		0.1		19.7	10.2	3.1	0.3	4.3	0.1	
Fruit	77	20.1	21.5				39.6	54.0	1.5	7.5			
Milk	73	41.4	67.8			0.1	7.5	1.4	3.7	1.2			1.5
Meat	73	20.0	2.6	58.2	0.2	0.2	32.4	10.8	0.2	1.8	0.2		
White bread	63	25.5	20.9	10.2			1.3	0.4	1.3	2.7		0.1	57.1
Yoghurt, cheese	48	53.8	48.1				14.2	6.6	1.2	3.3			
Fish	25	37.8	4.7	0.3			41.5	27.4	0.3	2.3	0.7		
Brown bread	23	60.6	43.6	2.8			3.2	0.4	0.7				13.5
Offal	9.3	6.2		28.3		2.7	34.5	30.1		14.2	5.3		
Processed foods													
Water	75.0	14.9	41.3			0.1	1.9	0.2	3.6	58.5			
Sugar	73.3	47.0	47.2		0.1		16.9	11.4	1.7	0.7		0.1	0.1
Cooking oil	72.6	60.4	32.3				17.4	14.5	2.6	0.6			
Pasta	71.7	53.0	40.6			0.1	18.8	12.8	2.6	0.7			
Tea/ coffee	66.4	61.1	33.5			0.6	12.5	10.7	1.1	2.9			0.9
Rice	76.6	51.2	35.0			0.1	21.9	13.9	1.6	0.6	0.1	0.1	0.2
Refreshments	49.8	13.5	88.7			0.2	3.2	1.0	4.3	0.3	0.5	0.2	
Sweets/ chocolate	18.3	31.5	77.9			0.5	5.0	5.0	0.9	8.6			
Snacks	13.7	28.9	78.9				3.0	2.4	1.8	10.2			
Canned vegetables	8.6	74.0	38.5				5.8	2.9					
Canned fruit	5.0	78.7	32.8				8.2						
Canned meat	1.5	83.3	16.7					11.1	11.1	5.6			
Cooked food													
Tamales/ quesadillas/tacos	32.0	1.6	6.2		0.3	6.2	16.8	17.1	0.3	77.5			
French fries	9.7	28.2	47.9		1.7	0.9	4.3	6.0	3.4	33.3			
Chicken	5.0	13.1	18.0		24.6	24.6	18.0	3.3		3.3	13.1		4.9
Meat	4.2	25.5	2.0	7.8	5.9	27.5	21.6	11.8		23.5			
Fish	1.4	23.5	11.8		5.9	58.8	17.6	5.9		17.6			

Frozen food													
Meat	6.0	81.9	2.8	11.1			6.9	5.6					
Chicken	6.4	57.7	10.3				10.3	12.8		1.3	34.6		
Fish	4.7	73.7	1.8	1.8	0.0	1.8	15.8	14.0		1.8			
Note: Multiple-response question.													

Table 13 reveals another important aspect of household food sourcing behaviour in Mexico City. It shows the spatial location of the outlets where households normally purchase the various food items. Most food purchases are made in the same neighbourhood (within walking distance). For example, 98% of households that purchase tortillas do so at an outlet within walking distance, as do 97% of those buying chicken and 95% of those buying vegetables. Proximal location is a major factor in household food source location and few households purchase food outside of their neighbourhoods. This shows that food is generally accessible throughout the city, including in residential neighbourhoods, and without resort to long-distance travel. This is a very different situation to that of many cities in the United States where food deserts substantially limit access to nutritious food.

TABLE 13: Food Purchases by Food Source Location

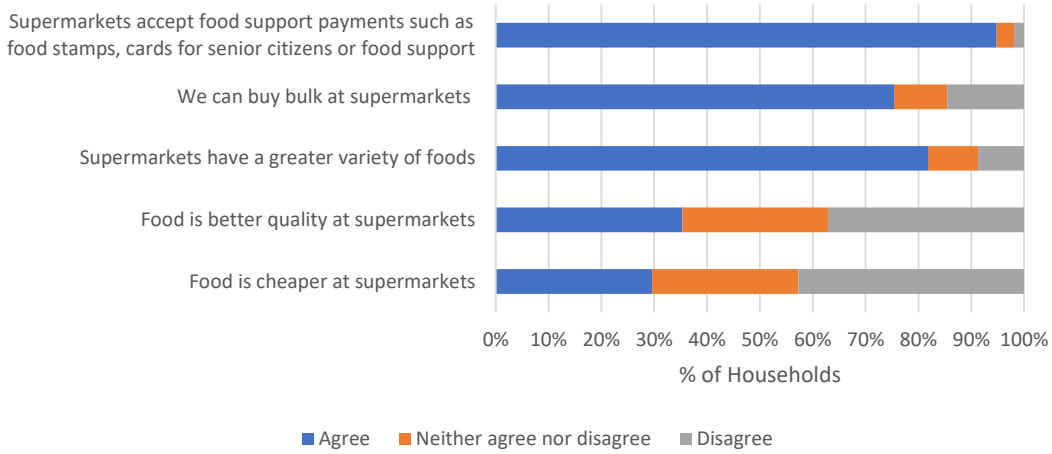
	% of households normally purchasing each food in each location				
	Within my neighbourhood (in walking distance)	On road to or from work	Historical centre DF/ downtown	Other shopping area	Outside the city
Tortillas	98.1	1.0	0.2	0.9	
Vegetables	94.7	2.8	1.8	2.7	
Fresh chicken	97.4	2.2	1.0	0.8	
Eggs	95.4	3.4	1.3	1.2	
Fresh fruit	95.2	2.8	1.8	2.6	0.1
Rice	89.6	5.3	1.5	2.6	
Water	97.1	2.4	0.8	0.2	
Fresh milk	93.9	3.7	1.1	1.6	
Fresh meat	96.1	3.6	1.5	1.7	
Sugar	92.6	2.9	1.6	3.0	
Cooking oil	87.9	5.5	3.1	2.6	
Pasta	90.0	5.0	2.0	2.3	0.1
Tea/coffee	88.2	6.7	3.1	2.4	0.1
White bread	96.3	3.1	1.4	0.3	
Refreshment	98.0	2.2	0.3	0.5	
Yoghurt, cheese	91.7	5.9	1.0	2.1	
Tamales/tacos	95.3	8.3	2.6	1.3	0.5
Fresh fish	86.3	6.4	2.3	8.4	0.7
Brown bread	87.6	6.7	1.8	2.1	
Sweets/chocolate	94.1	6.3		1.4	

Snacks	96.4	6.0	0.6	0.6	
Chips/French fries	93.2	7.7	1.7	1.7	
Offal	92.9	2.7	2.7	2.7	
Canned vegetables	87.5	11.5	2.9	3.8	
Frozen chicken	91.0	10.3		2.6	
Frozen meat	83.3	11.1		8.3	
Canned fruit	88.5	11.5		3.3	
Cooked chicken	82.0	11.5	4.9	4.9	
Frozen fish	82.5	7.0	3.5	7.0	
Cooked meat	84.3	5.9	3.9	2.0	
Canned meat	94.4	11.1			
Cooked fish	76.5	23.5	23.5		
Note: Multiple-response question.					

6.3. Perceptions of Supermarkets

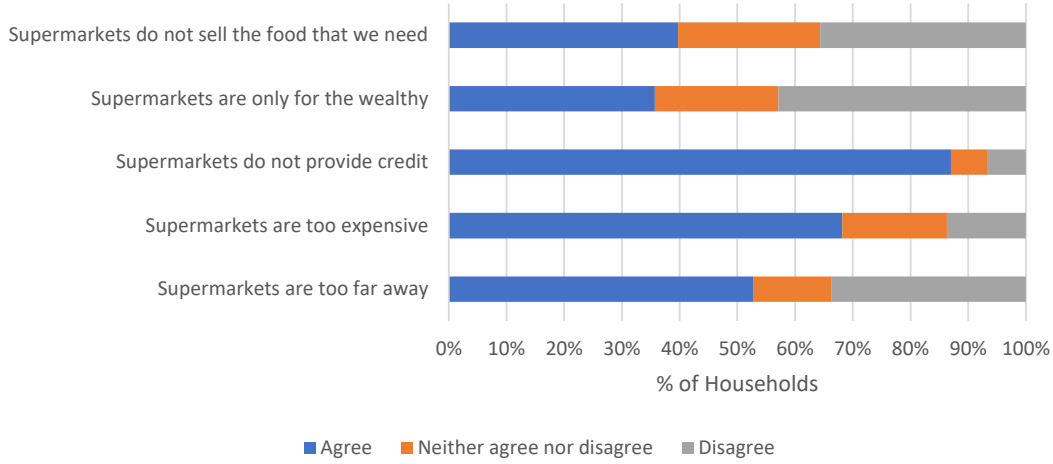
Given the expansion of supermarkets in the city, the survey asked respondents about their perceptions with a set of "agree/disagree" questions for supermarket patrons and non-patrons. The vast majority of households shopping at supermarkets (95%) agreed that supermarkets accept food-support payments (Figure 22). Stocking of a greater variety of food items and being geared towards bulk buying were also seen as supermarket advantages among patrons. However, only one-third agreed that food was of better quality and cheaper in supermarkets.

FIGURE 22: Perceptions of Supermarket among Customers



Among households that do not shop at supermarkets, the most common negative perception was that they do not provide credit (Figure 23). A majority also agreed that supermarkets are too expensive and that they are too far away, which is an important disadvantage for people who prefer to access food in their vicinity. More respondents disagreed than agreed that supermarkets are only for the wealthy.

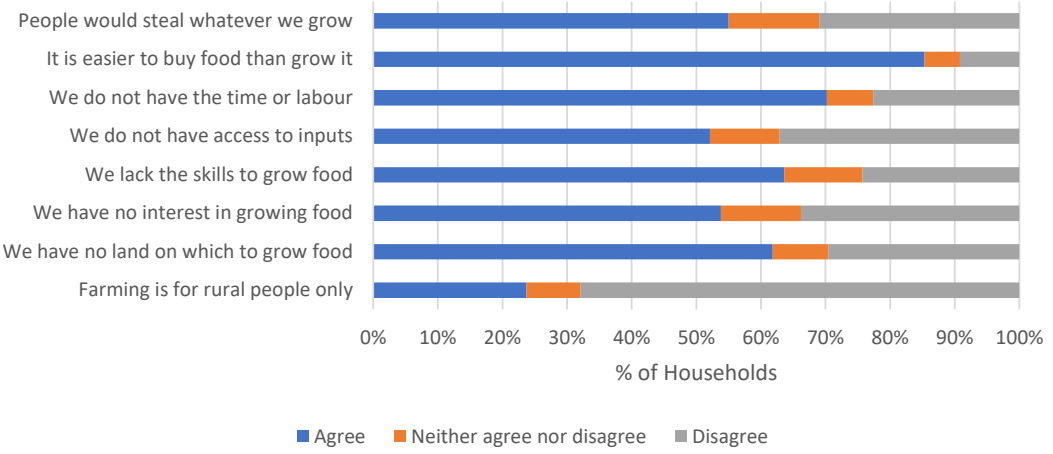
FIGURE 23: Perceptions of Supermarkets among Non-Customers



6.4. Urban Agriculture

Capron et al (2017) argue that urban agriculture is "in its infancy" in Mexico City. This survey found that only 11% of households produce some of their own food through urban agricultural activities including growing crops and/or raising animals (8% grow crops and the rest keep livestock). The vast majority of surveyed households therefore do not practise urban agriculture. To understand popular perceptions of urban agriculture, respondents were asked to agree or disagree with a series of statements (Figure 24). The majority (86%) agreed that it is easier to buy food than to grow it and over half said they had no interest in growing food. Over 60% said they lacked the necessary skills and land, and over 50% that they did not have access to farming inputs. A similar proportion expressed concern that food being grown within the city would be stolen.

FIGURE 24: Reasons for Not Engaging in Urban Agriculture



The small number who practise urban agriculture do so on their own housing plots (83%), while a few have hanging gardens (15%). The survey found no households that farmed on riverbeds, roadsides, industrial sites or in urban forests. The most common crop was vegetables (86% of those growing crops), followed by corn (11%), and fruit (2%). Among the households raising livestock for food, three-quarters had chickens.

7. Conclusion

The Hungry Cities Partnership aims to promote inclusive growth in urban food systems in Mexico City and other cities of the Global South. The production of new empirical knowledge about the levels of household food security and the various facets of the urban food system is a core component of this effort. The Mexico City survey findings demonstrate the importance of a variety of food sources and their contribution to food security in the city. The system of food markets is a particularly important food source patronized by the majority of households on a regular basis. As a critical source of food and livelihoods in Mexico City, small-scale vendors should be given all the support they need. The next HCP report on Mexico City will focus on food vendors and provide insights into their operations, needs, and business challenges.

Endnote

1. All currency conversions from MXN to USD are converted based on exchange rates on January 19th, 2016, the final day of data collection in Mexico City (MXN1 = USD0.05475).

References

1. Capron, G., Arellano, S., Wigle, J., Diez, A., Monterrubio, A., Hidalgo, H., Morales, J., Castro, J., Sanchez-Mejorada, M., Huarte, M., Esquivel, M., and Flores, R. (2017). *The Urban Food System of Mexico City, Mexico.* Hungry Cities Report No. 7, Hungry Cities Partnership.

2. Coates, J., Swindale, A. and Bilinsky, P. (2007). *Household Food Insecurity Access Scale (HFIAS) for Measurement of Food Access: Indicator Guide (Version 3)* (Washington, DC: Academy for Educational Development).

3. Crush, J. and McCordic, C. (2017). *The Hungry Cities Food Purchases Matrix:*

A Measure of Urban Household Food Security and Food System Interactions. Hungry Cities Discussion Paper Series No. 10, Cape Town and Waterloo.

4. Reardon, T. and Berdegue, A. (2002). "The Rapid Rise of Supermarkets in Latin America: Challenges and Opportunities for Development" *Development Policy Review* 20(4): 371-388.

5. Riley, L. and Caesar, M. (2017). *Comparing Household Food Security in Cities of the Global South through a Gender Lens.* Hungry Cities Discussion Paper Series No. 9, Cape Town and Waterloo.

6. Swindale, A. and Bilinsky, P. (2006). "Development of a Universally Applicable Household Food Insecurity Measurement Tool: Process, Current Status, and Outstanding Issues" *Journal of Nutrition* 136: 1449S-1452S.

7. Swindale, A. and Bilinsky, P. (2007). *Months of Adequate Household Food Provisioning (MAHFP) for Measurement of Household Food Access: Indicator Guide.* Food and Nutrition Technical Assistance Project.

About one in every four households in Mexico City are severely food insecure, while another quarter are mildly or moderately food insecure. Overall, food insecurity in Mexico's capital is not a problem of food scarcity or shortage but rather of constrained access to a diverse range of foods. These are among the major findings of a city-wide survey of 1,200 households that are presented and discussed in this report. The survey found that households in Mexico City procure their food products primarily based on proximity and convenience. Most foods are purchased within the households' neighbourhoods or within walking distance. Markets and small shops are the two most commonly frequented food retailers, followed by markets on wheels and supermarkets. Another key finding is that households whose main income source is formal wage work have on average higher dietary diversity, lower food insecurity, and more consistent food provisioning throughout the year than households whose income source is informal wage work. It is therefore more likely for a household in Mexico City to be food insecure across all measurements if its main source of income is informal wage work. As a critical source of food and livelihoods in Mexico City, small-scale vendors should be given all the support they need from national and local policy makers and other stakeholders.

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