Nutrición Hospitalaria

Disponibilidad de alimentos, energía y nutrientes en hogares mexicanos de 1984 a 2018

Food, energy, and nutrient supply in Mexican households from 1984 to 2018

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ABSTRACT

Introduction: information about changes in food and energy supply, macronutrient and micronutrient availability by processing level is required to understand the nutritional transition in Mexican society.

Objective: to describe the food, energy, and nutrient supply in Mexican households from 1984 to 2018.

Methods: five waves of a Mexican cross-sectional survey were analyzed to identify changes in food, energy, and nutrient supplies in households. Food groups were created using the NOVA classification. The content of energy and nutrients was estimated using Mexican and U.S. databases. The education and income interaction with energy and nutritional supply was analyzed.

Results: in this period, the supply of fresh and processed fruits and vegetables, processed meat and dairy, fish and seafood, prepared food, and ultra-processed food and drinks increased, whereas unprocessed or minimally processed (UMP) cereals and tubers, legumes, meat, dairy, eggs, and all processed culinary ingredients decreased. These changes have implied a higher supply of protein, total fat, cholesterol, vitamins A and C, calcium and sodium. Total energy, energy density, carbohydrates, and magnesium and potassium density decreased. Across waves, UMP and processed cereals were the main supply for energy, carbohydrates, fiber, iron and potassium. Dairy was the main supply of saturated fat. UMP and processed cereals were the main source of sodium in 1984, whereas ultra-processed cereals were the main source of sodium in 2018.

Conclusions: although UMP foods remain the main group in most Mexican households, their supply has decreased over the years, whereas the supply of ultra-processed foods has increased.

Keywords: NOVA. Food supply. Ultra-processed foods. Mexican households. Nutritional transition.

RESUMEN

Introducción: se requiere información sobre los cambios de la disponibilidad de alimentos, energía y nutrientes, por nivel de procesamiento, para entender la transición nutricional en México.

Objetivo: describir la disponibilidad de alimentos, energía y nutrientes en los hogares mexicanos de 1984 a 2018.

Método: se crearon grupos usando la clasificación NOVA. El contenido de energía y nutrientes se estimó usando bases de datos mexicanas y estadounidenses. Se analizó la interacción de la educación y el ingreso con la disponibilidad de energía y nutrientes.

Resultados: en este periodo aumentó la disponibilidad de verduras naturales y procesadas, carnes y lácteos procesados, pescados y mariscos, comida preparada y comida y bebida ultraprocesada, mientras que los cereales sin procesar o mínimamente procesados (SPMP), las leguminosas, las carnes, los lácteos, los huevos y los ingredientes culinarios procesados disminuyeron. Estos cambios implican una mayor disponibilidad de proteína, grasa total, colesterol, vitamina A y C, calcio y sodio. La energía total, la densidad energética, los carbohidratos y la densidad de magnesio y potasio disminuyeron. A lo largo el tiempo, los cereales SPMP y procesados fueron la principal fuente de energía, carbohidratos, fibra, hierro y potasio. Los lácteos fueron la principal fuente de grasas saturadas. Los cereales SPMP y procesados fueron la principal fuente de sodio en 1984, mientras que los cereales ultraprocesados lo fueron en el 2018.

Conclusion: aunque los alimentos SPMP siguen siendo el grupo más disponible en los hogares, su disponibilidad ha disminuido a lo largo de los años, mientras que la de los ultraprocesados ha aumentado.

Palabras clave: NOVA. Disponibilidad de alimentos. Comida ultraprocesada. Hogares mexicanos. Transición nutricional.

INTRODUCTION

In Mexico the nutritional transition is characterized by the coexistence of two phases: receding famine and non-communicable diseases (1). This is known as the double burden of malnutrition. Stunting continues to be a relevant public health problem with a prevalence of 13.6 % among children younger than 5 years old in 2012. The combined prevalence of overweight and obesity rose from 71.3 % in 2012 to 75.2 % in 2018 for Mexican women (2, 3).

Information about changes in food habits, food supply, and dietary consumption is required to understand the nutrition transition in a society. There are three main sources to analyze diet quality at the population level: food balance sheets, household expenditure surveys, and individual food consumption surveys (4). Food balance sheets record the food supply at the country level; however, they are a gross proxy of consumption as they do not provide information about differences among groups in terms of food access, nor about specific food groups. For example, in Mexico, one study (5) showed that increased energy supply was associated with a higher supply of meat, dairy products, and sugars; however, it was not possible to make any distinctions based on processing level. Individual dietary surveys are another source but they have many disadvantages: higher cost and burden to respondents and interviewers; some tools do not capture long-term exposure to diet components; and in most low- and middle-income countries dietary surveys have not been part of nutritional surveillance in previous decades. In Mexico's case, dietary consumption data have been collected from 1988, but it was restricted to children and women of reproductive age (6). Individual dietary consumption for all age groups began to be collected in 2006.

The third source are household expenditure surveys. These surveys collect seven to fourteen days of food purchasing data and provide information about purchasing habits and the food environment to which household members are exposed to. Studies based on household

expenditure surveys have been done in Mexico previously; however, they covered a shorter time period (i.e., 1982 to 2002) (5,7,8). In most cases a distinction by level of processing was not made (5,7,8). A recent study reported household supply from 1984 to 2016 based on NOVA food groups; however, authors only estimated energy supply (9). In other words, changes in macro- and micronutrient households' supply remain unknown.

A food item's processing level is relevant to an individual's and a community's health because the increase of ultra-processed foods and drinks (UPFD) in the food supply is a concern given their poor nutritional qualities. UPFD are characterized by a high content of total fats, sugars, salt, and energy density (10). For this reason, their consumption has been associated with higher levels of low-density lipoproteins and total cholesterol (11), higher risk for overweight and obesity (12), hypertension (13), and metabolic syndrome (14).

The objectives of this study were: a) to describe the supply of food groups in Mexico, classifying them by their level of processing and nutritional characteristics from 1984 to 2018; b) to describe energy, macro- and micronutrient supplies in Mexican households and its association with education and income from 1984 to 2018; and c) to compare the main food groups that contribute the most energy, macro and micronutrients in Mexican households during the assessed years.

MATERIAL AND METHODS

Five waves of the National Households' Income and Expenditure Survey *(NHIES, Encuesta Nacional de Ingreso y Gasto de los Hogares)* carried out in Mexico in 1984, 1994, 2004, 2014, and 2018 were analyzed (15-19). Nutrition transitions are driven by social and economic forces, and they take time to change. Therefore, we believe that a span of ten years would be enough to see those changes. The NHIES is a cross-sectional survey aimed to describe the magnitude and distribution of income and

expenditure of Mexican households. The samples were probabilistic, with a bi-phase sampling, stratified by geographic region, locality size, and clustering (by census tracts), design. The last sampling units were dwellings, and observation units were their households (i.e., the people who shared food expenditures). Formally, participation in the NHIES is compulsory because it is part of the governmental system of information. Confidentiality is guaranteed to participants.

The samples for each wave were: 4,597 for 1984; 12,532 for 1994; 22,287 for 2004; 19,471 for 2014; and 74,602 for 2018. Exclusion criteria included households with no food supply information, and households with nutritional supply higher than 5 standard deviations (SD) from the mean. The analytical sample included 125,897 nationwide households distributed as follows: 4,345 for 1984; 11,953 for 1994; 21,308 for 2004; 18,400 for 2014; and 69,891 for 2018.

In the NHIES, the respondents (usually the housewife or a household member who knew about the household food expenditures) were trained to record any food or beverage purchased and/or obtained by any individual living in the household during a week. Trained interviewers reviewed the responses. Clarifications and probing for missing data were made at the end of the week. Interviewers categorized the recorded foods and beverages into most consumed single items (e.g., orange) or less consumed food categories (e.g., a category was formed by mandarin, nectarine, and tangerine).

The number of individual items or composed categories of food and beverages in each wave were 198 in 1984, 202 in 1994, 234 in 2004, and 238 in 2014 and 2018. In most cases the same items and categories were recorded along the waves (e.g., staple food such as maize, legumes, and sugar). The description of some foods was not the same in some waves; however, we treated them as the same product in the analysis. Similarly, there were cases when a food item or beverage was recorded as an individual item in one wave, but it was treated as part of

a food category in another. In these cases, the weights of single items were added to create the same category in the different waves. Equivalence between waves with respect to single items or categories is reported in table VI.

A total of 285 food items or categories were included in the database, which were classified into four groups according to the NOVA classification: unprocessed or minimally processed (UMPF), processed culinary ingredients (they will be referred to as "ingredients" from here onward), processed foods and drinks (PFD), and UPFD (20). Within each group, different subgroups were created. We created these subgroups because NOVA classification does not allow the identification of changes in specific items. In most cases, the description of foods and beverages made in the NHIES is enough to identify the level of processing. A complete list of food and beverages for each NOVA subgroup can be consulted in table VII.

We followed standardized procedures (21, 22) to identify and manage outliers and to make estimations of household supplies based on the NHIES data. In NHIES, beverage data were recorded in milliliters, therefore the FAO/INFOODS Density Database was consulted to make the conversion from milliliters to grams (23). The amount (in grams per day per adult equivalent) for each NOVA food group and subgroup was estimated to analyze household supply. The total number of household members was adjusted using adult equivalent values specific for the Mexican population (24). We made per-capita estimates using these adjusted total number of household members. The values used to estimate food supply data that were higher than 5 SD of the average total grams for each food were truncated.

Energy, macronutrients (proteins, carbohydrates, total fats, and saturated fats), cholesterol, fiber, and micronutrients (calcium, vitamin A, vitamin C, magnesium, iron, potassium, zinc, and sodium) supplies were estimated. The content of calories and nutrients was taken from

the national food composition reference (25). When nutrient information was not found in this reference, the United States Department of Agriculture (USDA) Food Composition Databases (26) were consulted. The percentages of the edible portions of 234 of the 274 foods included in the analysis were found in the consulted food databases. For these items or categories, the non-edible portion was subtracted from the recorded weight. The average of energy and nutrient content was used to make estimations when different foods and beverages were included in one category. For the rest of the foods, it was not possible to estimate nutrient content because their description in the NHIES was unspecific (e.g., "other vegetables"), therefore they were excluded from the nutritional analysis. However, the contribution of these categories was 6.5 % of the total weight of food and beverages. Energy was estimated as total kcal per day and as energy density per 100 grams of food and beverages. Macronutrients were expressed as the percentage of total energy supply. Micronutrients were estimated as the nutrient density per 1,000 kcal. Sodium was estimated both considering and not considering salt supply. The mean contribution of each food group to energy and nutrient totals was estimated as percentage. We focused on the contribution of NOVA groups to energy and nutrient supply.

Sex, age, and the head of household's education (hereinafter 'education') was evaluated. Education was categorized in five groups: no education (e.g., preschool, elementary school or less (e.g., elementary); junior high school (e.g., junior high school, technical or commercial career with elementary education finished); high school (e.g., technical or commercial career with junior high school finished), and bachelor's degree or more (e.g., bachelor's degree, master's degree, and doctoral degree). Family income was analyzed in deciles. Another characteristic was whether there were minors in the households. States were categorized in four regions: north, west, center, and south. We distinguished between rural and urban localities based on population

size — < 15,000 and > 15,000 inhabitants, respectively. This cut off was chosen to match the only two locality size categories in the 1984 database.

The statistical analysis was run using the Stata software, version 15.0. In all analyses the complex design of the NHIES was considered. Frequencies of categorical variables and means of continuous variables were conducted. Pearson's chi-square test was estimated to identify whether differences between groups existed. The respective confidence intervals (95 % CIs) with adjustment by Bonferroni's test were calculated to compare means of food and nutrient supplies according to each wave, and significant differences were noted. Linear regression models were generated with food, energy and nutrient supplies as the outcomes, and wave as the exposure variable. To analyze whether socioeconomic disparities in food and nutrient supply have changed, the interaction term of wave with family income and wave with household head education were introduced. When the interaction was not significant only the main effect of education and/or income were kept. In these linear regression models, waves, family income (in deciles), and education were treated as continuous variables. All models were adjusted for presence of minors in the household, geographical region, locality size, and age and sex of the household head.

RESULTS

Men predominated as head of households across the five waves; nevertheless, households headed by women have increased (Table I). The proportions of households with individuals aged 65 years or older as head of household have increased. Most heads of household had elementary education across the five waves. Heads of household with high school or more education also increased. Households located in the center region and locality size with more than 15,000 habitants were

more prevalent along the waves. Households with underaged residents decreased.

Household supply of UMPF and ingredients decreased during the assessed waves (Table II). The UMPF and ingredients subgroups (those with similar trends across waves were legumes, meats, dairy and eggs, sugars, oils, fats, and salt) supply decreased over waves, except for fruits and vegetables, which were the only UMPF subgroup that increased. Fish and seafood and other UMPF had no differences between waves. PFD increased only in the last two waves. Vegetables and legumes, meat and dairy, fish and seafood, prepared foods, and seeds were the PFD subgroups that had an increasing trend. Processed cereals were the only group that was lower in successive waves when compared to wave 1. The supply of UPFD group and almost all UPFD subgroups increased with waves; the exception was alcoholic beverages, which decreased. A result to highlight is that the increase in sweetened beverages supply stopped in 2014.

Compared to wave 1, household supply of total energy, energy density, contribution of carbohydrates to total energy, and density of magnesium, zinc, potassium, and sodium including salt were lower in successive waves (Table III). The higher decrements were observed in sodium considering salt and energy density. In contrast, the following micronutrients tend to be higher in posterior waves: vitamin A, cholesterol, vitamin C, sodium without considering salt, fiber, contribution of proteins, total fats, and saturated fat to total energy. No linear trend was observed in the case of calcium and iron.

In the five waves, UMPFs were the main source of energy, carbohydrates, saturated fats, protein, potassium, fiber, and iron (Table IV). However, their contribution to energy and every analyzed nutrient decreased over time. Ingredients contribution to energy, carbohydrates, saturated fats, sodium, and iron also decreased. Conversely, PFD and

UPFD contribution to energy and nutrients increased, with the increment of the former being higher than that of the latter.

Along the waves, the supply of PFD, energy, fats, saturated fats, vitamin A, and sodium were higher as the education was higher, whereas ingredients and carbohydrate supply were lower (Table V). UPFD also was higher with more education, and these differences increased over time. Protein, cholesterol, calcium, and zinc were greater as education was higher, and energy density and fiber were lower; but these differences decreased over time. Over time more education was associated with lower supply of UMPF, energy, iron, and magnesium, and more supply of vitamin C; however, at wave 1 there were no differences in these items between education groups. Over the waves, more family income had less UMPF, fiber and potassium supply. At wave 1, more family income was related with more supply of PFD, UPFD, proteins, total and saturated fats, cholesterol, vitamin C, vitamin A, calcium, zinc, and sodium without considering salt; however, the increase of these items over time was lower as family income grew higher. At wave 1, energy density and the supply of carbohydrates, iron, magnesium, and sodium considering salt were lower as family income grew higher, and these differences decreased over time.

DISCUSSION

The supply of fruits and vegetables and most PFD and UPFD increased in Mexican households. The opposite happened with most UMPF subgroups. Similarly, all ingredients and processed cereal supplies decreased across the five waves. At the nutrient level, the previous changes at food level have produced reductions in energy supply, energy density, proportion of calories from carbohydrates, and density of magnesium, potassium, zinc, and sodium considering salt, whereas the proportion of calories from proteins, total and saturated fats, and density of fiber cholesterol, vitamin A, vitamin C, and sodium without considering salt increased.

The nutrition transition argument proposes that industrialization and urbanization increases PFD and UPFD supply (27). Part of our results support this premise because PFD and UPFD increased from 1984 to 2018, whereas the opposite trend was observed for UMPF and ingredients. The same trends were reported previously for the period 1984 to 2016 (9). Among the factors that could have a role in the raising of UPFD are: the profit aims by the food industry, the marketing that can have impact in food choices, the palatability and the convenience of UPFD that are appealing for people who work long hours or commute long distances and do not have enough time to prepare meals (28-30). An interesting finding in our study was that the increase of sweetened beverages supply stopped in 2014. Sweetened beverages are products that were taxed as part of a government intervention aimed to promote healthy eating (31).

The social environment in Mexico is changing; people spend more time at work and less time at home, this leads to less time to cook; consequently, people must look for more suitable options that can be available and accessible in a short time interval (9). PFD and UPFD meet these criteria; they are easy to find, ready to eat, and economically accessible (29). A recent study reported that the expenditure of food eaten away from home increased from 22.8 % in 2008 to 25.4 % in 2016 among Mexicans (28).

Despite the increase in UPFD supply, UMPF are predominant in Mexican households and are the main source of energy and most nutrients, except sodium. Even the fresh fruits and vegetable supply has increased, which can explain the increment in vitamin C supply. In terms of contribution of UMPF and ingredients to energy, our estimate for 2014 was similar to the intake of Mexican adults assessed in 2012 (56.1 % versus 54.0 %, and 10.2 % versus 9.5 %, respectively) (30). The consumption of UPFD was higher than household supply (29.8 % versus 17.1 %) and the opposite trend was observed for PFD (6.0 % versus

13.2 %) (30). Part of the discrepancies could be because the Mexican NHIES does not assess food eaten away from home, which has a higher supply of UPFD. In any case, compared with high-income countries, our findings and previous studies (9,30) show that supply and consumption of PFD and UPFD in Mexico is still low (31.9 %). In the USA they represented 67.3 % of total energy intake (32), and 61.7 % of household energy supply in Canada (33).

Changes in food groups supply have produced modifications in the energy and nutrient supply in Mexican households. The following changes in our study show how PFD and UPFD have become the main source of some nutrients in Mexican households that used to be obtained mainly from ingredients: in the eighties, oils and fats were one of the main sources of total energy; however, after the eighties processed cereals became one of the main sources of total energy (Table VIII). While progressively table sugar and table salt have been less important as sources of carbohydrates and sodium, respectively, sweetened beverages and processed cereals have increased their contribution to the former, and ultra-processed cereals and meat as the latter (Table IX). The reduction in ingredients is relevant because people are aware when they use them for cooking or eating (e.g., add salt to prepared meal), therefore it is easier to regulate the amount that is used. In contrast, the increase of UPFD is worrisome because they have "unseen" ingredients that for most people are hard to know and regulate. Education campaigns to raise awareness of this fact are needed.

The rise of ultra-processed cereals, processed meat and dairy, prepared food, desserts, and sweetened beverages supplies in Mexican households had as a consequence a rise in saturated fat, cholesterol, and sodium supply. This is a concern given their association with negative health outcomes. Saturated fat consumption is a risk factor for high blood pressure, impaired glucose tolerance, and dyslipidemia (34).

Similarly, sodium intake has been associated with higher blood pressure (34).

Legumes supply in Mexican households decreased over the last thirty-four years, and this could be related to the reduction in potassium supply. This finding is consistent with the stagnation of legume production and the reduction in national supply (28). This pattern should be a public health concern because legume consumption is associated with lower risk of colorectal and breast cancer, cardiovascular disease, and type-2 diabetes (35). Government support to the production of legumes is required to increase national supply, and subsequently this could increase their household supply and consumption. In addition, mass communication campaigns could be implemented to encourage legume consumption.

Although meat, vegetable and fruit production in Mexico has increased, most fruits and vegetables are exported (28). This might be associated with the below-recommended consumption of fruits and vegetables among Mexican households. Government policies should be aimed at increasing fruit and vegetable supply for national consumption. Fruit and vegetable consumption is a protective factor for chronic diseases including cardiovascular diseases, diabetes, and some forms of cancer (36-38). Fish consumption has also been associated with some benefits for cardiovascular function (34); however, fish supply in Mexican households is below the recommended amount.

The increase or decrease in the production and supply of certain food groups is not independent of the other ones. The Mexican alimentary system became more industrialized, and therefore globalized, with foreign investments, primarily due to the 1994 North America Free Trade Agreement (NAFTA). In 1993 (before NAFTA), subsidies to agriculture production disappeared in 1995 (39). Subsequently, support to agriculture increased in 2002 but then decreased in 2018. Most of the Mexican government's subsidies have been distributed to the richest

10 % of the farming producers. In contrast, small farming producers who are responsible for producing fresh foods for national consumption were placed at a disadvantage due to the decreased in subsidies associated with NAFTA. In this way, a strong policy directed to support small farming producers should be implemented to promote the production and retailing of UMPF. Eventually, this measure could influence the household supply and individual consumption of UMPF.

Changes in diet disparities associated with socioeconomic status are an important element of the nutrition transition. There is a co-existence of healthy and unhealthy characteristics in food and beverage supply and consumption across the different socioeconomic strata in Mexico. While households with low socioeconomic status have a higher supply of UMPF, and lower energy density, iron, magnesium, and potassium, they also have a lower supply of protein and micronutrients (vitamins A and C, calcium and zinc). On the other hand, high socioeconomic status households have a higher supply of protein, vitamin A, calcium, and zinc; but also a higher supply of PFD and UPFD, total and saturated fats, cholesterol, and sodium without considering salt.

A strength of this study is the use of a national survey that covers several time periods over a 34-year timeframe. This allows us to see changes in food supply over time. Furthermore, these data represent household food supply rather than individual intake, which give us a better idea of what families are exposed to and consume at home. One limitation is that the NHIES survey asks participants how much they spent on foods eaten away from home, but it does not record the type and amount of food and beverages consumed outside the household. Therefore, we were unable to estimate the quantity of food and beverages acquired away from home and their energy and nutrient content.

UMPF has been dominant in the Mexican household supply for over three decades. This makes them the main source of most nutrient, except

sodium. Positive changes have been seen including an increase in healthy components such as fresh fruits and vegetables, and vitamins A and C. However, some of our findings highlight the need for policies aimed at promoting healthier diets. Although the fresh fruit and vegetable supply has increased in recent years, it remains lower than ideal. Legumes are another food group that needs promotion so that their consumption does not decrease. Although UPFD and PFD are not predominant in the Mexican household food supply, they have increased in an accelerated way. This has been conducive to an increment in unhealthy dietary components including saturated fat, cholesterol, and sodium. The Mexican society is in a primal time to stop the increase of PFD and UPFD, and increase or at least keep the level of UMPF supplies. In addition to bolstering the recent tax-based regulatory measures, more policies aimed at promoting the production and sales of healthier options of PFD and UPFD by the food industry and retailers are required. A challenge to nutrition policies is identifying interventions that simultaneously maintain the healthy characteristics of low socioeconomic household's diets while at the same time preventing access to unhealthy products. In this scenario, the incorporation of moderate amounts of fresh, lean meat and skim dairy products to the traditional Mexican diet (based mainly on UMPF) could be promoted.

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Table I. Sociodemographic characteristics of Mexican households between 1984 and 2018

	Wave					
	1984 %	1994 %	2004 %	2014 %	2018 %	p*
n	4, 597	12,532	22,287	19471	74,602	
Household head's sex						
Men	84.7	84.6	76 .7	74.3	71.3	< 0.0001
Women	15.3	15.4	23.3	25.7	28.7	
Household head's age, years						
34 or younger	29.9	30.0	24.5	19.4	18.5	< 0.0001
35 to 49	32.3	33.1	36.0	36.1	33.6	
50 to 64	22.6	21.6	24.0	26.9	28.8	
65 or older	11.6	12.8	15.5	17.7	19.1	
Household head's education						
None	19.9	17.2	11.5	8.0	6.9	< 0.0001
Elementary	56.1	45.5	41.5	33.8	30.7	
Junior high school	10.9	15.2	20.2	24.7	26.6	
High school	5.9	10.3	12.9	16.6	17.5	
Bachelor or higher	7.2	11.8	13.8	16.9	18.4	
Geographic region						
North	23.2	22.5	22.9	23.7	23.6	< 0.0001
Western	24.7	21.7	21.9	22.6	22.6	
Center	36.3	32.0	31.9	31.3	31.2	
South	15.8	23.8	23.3	22.4	22.7	
Locality size, habitants						
≥ 15,000	65.0	63.1	63.8	64.5	62.9	0.266
< 15,000	35.0	36.9	36.2	35.5	37.1	
Underage residents						
Yes	69.2	62.5	54.5	48.8	44.2	< 0.0001
No	30.8	37.5	45.5	51.2	55.8	

*p-value was estimated by Pearson's chi-squared test.

Table II. Food groups supply by waves among Mexican households

	Food supply, grams (means)†						LRM, B
	1984	1994	2004	2014	2018	%	
UMPF	828.2	798.9	742.2^{a,b}	760.3^{a,b}	728.0^{a,b,d}	-12.0	-32.6***
Cereals and tubers	307.1	260.7^{a}	236.6^{a,b}	251.1^{a,b,c}	240.1^{a,b,d}	-21.8	-16.2***
Fruits and vegetables	175.2	206.7^{a}	206.8^{a}	237.5^{a,b,c}	227.3^{a,b,c,d}	29.7	11.7***
Legumes	40.5	32.1^{a}	26.8^{a,b}	25.9^{a,b}	22.0^{a,b,c,d}	-45.7	-4.9***
Meat, dairy and egg	297.2	291.2	264.1^{a,b}	236.9^{a,c}	228.8^{a,c,d}	-23.0	-23.2***
Fish and seafood	5.6	6.1	5.9	6.5	7.0^{a,c}	25.0	0.1
Others	2.5	2.1	2.0	2.4	2.7^{b,c}	8.0	0.0
Ingredients	60.4	52.7^{a}	40.8^{a,b}	36.3^{a,b,c}	34.8^{a,b,c}	-42.4	-7.8***
Sugars	32.2	26.3^{a}	20.4^{a,b}	17.3^{a,b,c}	16.1^{a,b,c,d}	-50.0	-4.8***
Oils and fats	24.6	23.3	18.4^{a,b}	17.4^{a,b}	17.2^{a,b,c}	-30.1	-2.4***
Salt	3.6	3.1	2.0^{a,b}	1.6^{a,b,c}	1.5^{a,b,c}	-58.3	-0.6***
PFD	83.0	79.5	100.2^{a,b}	153.9^{a,b,c}	176.9^{a,b,c,d}	113.1	29.1***
Cereals	51.9	32.0^{a}	33.3^{a}	35.1^{a,b}	35.5^{a,b,c}	-31.6	-2.5***
Vegetables and legumes	2.2	3.3^{a}	3.3^{a}	5.9^{a,b,c}	8.2^{a,b,c,d}	272.7	1.6***
Meat and dairy	9.7	13.0^{a}	14.3^{a,b}	19.0^{a,b,c}	18.0^{a,b,c,d}	85.6	2.4***
Fish and seafood	1.2	2.3^{a}	2.5^{a}	3.2^{a,b,c}	3.0^{a,b,c}	150.0	0.4***
Prepared food	7.6	17.0^{a}	35.3^{a,b}	80.0^{a,b,c}	96.5^{a,b,c,d}	1,169.7	26.4***
Sugars and desserts	0.7	1.4^{a}	0.5^{b}	0.8^{b}	1.2^{a,c,d}	71.4	0.0
Seeds	0.0	0.1	0.1	0.1	0.4^{a,b,c,d}		0.1***
Alcoholic beverages	9.8	10.4	10.8	9.7	14.1^{c,d}	43.9	0.6
UPFD	109.7	163.3^{a}	210.9^{a,b}	231.5^{a,b,c}	227.2^{a,b,c}	107.1	31.6***
Cereals	8.4	14.5^{a}	19.1^{a,b}	22.4^{a,b,c}	23.1^{a,b,c}	175.0	3.9***
Meat	6.2	12.0^{a}	20.3^{a,b}	25.1^{a,b,c}	23.6^{a,b,c,d}	280.6	5.5***
Prepared food	0.8	1.7^{a}	3.0^{a,b}	4.1^{a,b,c}	5.4^{a,b,c,d}	575.0	1.4***
Sugar and desserts	2.0	3.4^{a}	3.5^{a}	4.1^{a}	4.2^{a,c}	110.0	0.6***
Fats	0.8	1.6^{a}	1.8^{a}	1.8^{a}	2.0^{a,b}	150.0	0.3***
SS beverages	90.9	128.6	162.6^{a,b}	173.3^{a,b,c}	168.4^{a,b}	85.3	20.1***
Alcoholic beverages	0.6	1.4^{a}	0.6^{b}	0.6^{b}	0.5^{b}	-16.7	-0.2***

UMPF: unprocessed or minimally processed; PFD: processed foods and drinks; UPFD: ultra-processed foods and drinks; SS: sugar-sweetened.

†Average grams or milliliters of food per day per adult equivalent; %: rate of changes between 2018 and 1984. B: regression coefficients from models adjusted by age and sex of the head of household, minors in the household, geographical region, and locality size. Superscripts mean that there was a significant difference (p < 0.050) using Bonferroni's adjustment for multiple comparisons: [a]significant difference from 1984, [b]significant difference from 1994, [c]significant difference from 2004, and [d]significant difference from 2014. *p < 0.050; **p < 0.010; ***p < 0.001. Weighted estimates are reported.

Table III. Energy and nutrient supply by waves among Mexican households

	Means[†]					%	LRM, B
	1984	1994	2004	2014	2018		
Total energy, kcal/day	1,925.4	1,733.2	1,609.3[a,b,c]	1,664.7[a,b]	1622.6[a,b,d]	-15.7	-79.8***
Energy density, kcal/g/day	2.0	1.3[a]	1.6[a,b]	1.5[a,b,c]	1.5[a,b,c,d]	-25.0	-0.1***
Macronutrients, % of calories							
Proteins	13.6	14.7[a]	14.7[a]	14.4[a,b,c]	14.7[a,d]	8.1	0.1***
Carbohydrates	59.5	56.4[a]	56.9[a]	57.9[a,b,c]	56.6[a,d]	-4.9	-0.4***
Total fats	27.6	29.2[a]	28.8[a]	28.4[b]	29.3[a,c,d]	6.2	0.3***
Saturated fats	9.0	9.2	9.6[a,b]	9.3[c]	9.6[a,b,d]	6.7	0.2***
Micronutrients, units/1000 kcal							
Fiber, g	5.8	5.6	5.7	6.1[b,c]	5.9[b,c,d]	1.7	0.1***
Cholesterol, mg	133.2	158.2[a]	171.2[a,b]	166.1[a]	183.4[a,b,c,d]	37.7	11.2***
Vitamin A, µg	157.8	179.5[a]	223.5[a,b]	230.4[a,b]	242.0[a,b,c,d]	53.4	24.1***
Vitamin C, mg	30.7	32.8	38.7[a,b]	43.2[a,b,c]	41.6[a,b,c]	35.5	3.4***
Calcium, mg	478.3	505.8[a]	523.4[a,b]	507.3[a,c]	494.8[a,c,d]	3.4	0.6
Iron, mg	7.9	7.8	7.8	7.8	7.9	0.0	0.0
Magnesium, mg	223.0	219.8	212.5[a,b]	216.3[a]	211.7[a,b,d]	-5.1	-3.3***
Potassium, mg	1,376.0	1,349.7	1,315.1[a,b]	1,315.8[a,b]	1,265.5[a,b,c,d]	-8.0	-30.4***
Zinc, mg	4.4	4.6[a]	4.5[b]	4.4[b,c]	4.4[b,c]	0.0	-0.1***
Sodium, mg[§]	1,426.0	1,396.2	1,203.8	1,081.0[a,b]	1066.3[a,b]	-25.2	-96.1***
Sodium, mg	570.4	572.6	674.6[a,b]	727.7[a,b,c]	745.5[a,b,c,d]	30.7	60.5***

%: rate of changes between 2018 and 1984. B: regression coefficients from models adjusted by age and sex of the head of household, minors in the household, geographical region, and locality size. Superscripts mean that there was a significant difference (p < 0.050) using Bonferroni's adjustment

for multiple comparisons: [a]significant difference from 1984, [b]significant difference from 1994, [c]significant difference from 2004, and [d]significant difference from 2014. *p < 0.050; **p < 0.010; ***p < 0.001. Weighted estimates are reported.

Table IV. Percent contribution of each nutriment to total daily household food supply by adult equivalent in Mexican households from 1984 to 2018 by NOVA food groups

	Means (%)					LRM, B	Means (%)					LRM, B
	84	94	04	14	18		84	94	04	14	18	
	Energy						Carbohydrates					
UMPF	59.6	59.6	56.6[a,b]	56.1[a,b]	55.4[a,b,c,d]	-1.5***	63.8	63.4	60.0[a,b]	60.5[a,b]	59.8[a,b,d]	-1.3***
PCI	16.3	14.7[a]	11.2[a,b]	9.5[a,b,c]	9.3[a,b,c]	-2.1***	9.8	8.8	6.9[a,b]	5.4[a,b,c]	5.2[a,b,c]	-1.4***
PFD	11.4	9.6[a]	12.5[a,b]	13.2[a,b,c]	14.3[a,b,c,d]	1.1***	11.6	8.7[a]	10.0[a,b]	9.6[a,b]	10.4[a,b,d]	0.0
UPFD	6.3	10.7[a]	15.0[a,b]	17.1[a,b,c]	17.5[a,b,c]	3.2***	7.5	12.5[a]	17.5[a,b]	19.5[a,b,c]	20.3[a,b,c,d]	3.6***
	Saturated fats						Protein					
UMPF	50.9	54.9[a]	50.6[b]	46.4[a,b,c]	45.8[a,b,c]	-2.5***	74.1	74.1	69.4[a,b]	67.3[a,b,c]	66.5[a,b,c,d]	-2.6***
PCI	26.7	19.2[a]	13.9[a,b]	12.8[a,b,c]	12.1[a,b,c,d]	-3.6***	0.2	0.2	0.2	0.2	0.2	0.0
PFD	15.7	15.1	21.2[a,b]	23.9[a,b,c]	25.3[a,b,c,d]	3.1***	11.5	11.4	14.5[a,b]	15.8[a,b,c]	17.5[a,b,c,d]	1.9***
UPFD	6.0	10.5[a]	14.1[a,b]	16.6[a,b,c]	16.6[a,b,c]	3.2***	3.2	5.3[a]	8.5[a,b]	9.9[a,b,c]	10.2[a,b,c]	2.1***
	Sodium						Potassium					
UMPF	30.9	33.0	27.9[a,b]	23.6[a,b,c]	23.5[a,b,c]	-3.3***	79.1	79.4	78.3[b]	75.7[a,b,c]	75.1[a,b,c,d]	-1.5***
PCI	12.2	9.5[a]	6.1[a,b]	4.6[a,b,c]	4.3[a,b,c]	-2.0***	0.2	0.2	0.2	0.2	0.2	0.0***

PFD	42.4	35.4[a]	38.9[a,b]	42.4[b,c]	43.5[b,c,d]	1.4***	3.5	4.0	4.6[a,b]	5.9[a,b,c]	7.6[a,b,c,d]	1.1***
UPFD	11.5	19.6[a]	24.4[a,b]	26.7[a,b,c]	26.2[a,b,c]	4.0***	1.8	3.2[a]	5.9[a,b]	8.2[a,b,c]	8.6[a,b,c]	2.1***
	Fiber						Iron					
UMPF	78.0	79.1	76.2[a,b]	76.5[a,b]	75.5[a,b,c,d]	-1.0***	73.5	74.9	71.7[a,b]	70.5[a,c]	70.1[a,b,c]	-1.4***
PCI	0.00	0.00	0.00	0.00	0.00	-	1.3	1.1	0.8[a,b]	0.6[a,b,c]	0.6[a,b,c]	-0.2***
PFD	7.1	5.9[a]	7.1[b]	6.4[c]	8.0[a,c,d]	0.3***	10.6	8.3[a]	10.0[b]	11.2[b,c]	12.4[a,b,c,d]	0.9***
UPFD	2.6	4.4[a]	7.5[a,b]	9.3[a,b,c]	10.0[a,b,c,d]	2.3***	3.3	5.8[a]	9.4[a,b]	10.4[a,b,c]	10.8[a,b,c]	2.2***

UMPF: unprocessed or minimally processed foods; PCI: processed culinary ingredients; PFD: processed foods and drinks; UPFD: ultra-processed foods and drinks. Weighted estimates are reported. Superscripts mean that there was a significant difference ($p < 0.050$) using Bonferroni's adjustment for multiple comparisons: [a]significant difference from 1984, [b]significant difference from 1994, [c]significant difference from 2004, and [d]significant difference from 2014. B: regression coefficients from models adjusted by age and sex of the head of household, minors in the household, geographical region, and locality size.

Table V. Association of education and income with NOVA food groups, energy and nutrient supply in Mexican households, 1984-2018

	Wave	Household head education	Wave X household head education	Family income	Wave X family income
	B†	B	B	B	B
UMPF (kcal/day)	-27.28**	-22.40	-10.66***	-3.17*	NS
PCI (kcal/day)	-39.71***	-17.14***	NS	-0.47	NS
PFD (kcal/day)	17.27***	4.95***	NS	16.19***	-2.11***
UPFD (kcal/day)	53.81***	18.16***	2.17*	25.75***	-4.72***
Energy (kcal/day)	-29.08*	-59.35***	NS	33.87***	-6.78**
Energy density (kcal/g/day)	-0.36***	-0.12***	0.02***	-0.17***	0.03***
Macronutrients (% of calories)					
Proteins	0.52***	0.59***	-0.07**	0.31***	-0.06***
Carbohydrates	-1.59***	-1.30***	NS	-1.65***	0.31***
Total fats	1.14***	0.89***	NS	1.15***	-0.21***
Saturated fats	0.65***	0.68***	NS	0.74***	-0.14***
Micronutrients (units/1000 kcal)					
Fiber (g)	-0.03	-0.18**	0.06***	-0.06***	NS
Cholesterol (mg)	23.38***	11.81***	-2.11***	7.63***	-1.51***
Vitamin A (µg)	35.64***	14.98***	NS	13.64***	-2.90
Vitamin C (mg)	3.27**	1.84	1.05**	3.53***	-0.74***
Calcium (mg)	39.13***	41.04***	-7.95***	13.99***	-3.50***
Iron (mg)	-0.03	-0.03	-0.05***	-0.21***	0.04***
Magnesium (mg)	1.14	-1.54	-2.36***	-6.75***	1.06***
Potassium (mg)	-	4.86	NS	-9.17***	NS

Zinc (mg)	24.22*** 0.07**	0.10***	-0.03***	0.03**	-0.01**
Sodium (mg)‡	-368.10***	51.05***	NS	-189.98***	43.78***
Sodium (mg)§	87.41***	64.38***	NS	52.74***	-9.41***

UMPF: unprocessed or minimally processed foods; PCI: processed culinary ingredients; PFD: processed foods and drinks; UPFD: ultra-processed foods and drinks; NS: the interaction was not significant, therefore was excluded from the final model. B†: linear regression coefficient. Waves, income (in deciles), and education were introduced as continuous variables. ‡Including salt supply. §Without salt supply. *$p < 0.050$; **$p < 0.010$; ***$p < 0.001$.

Table VI. Equivalences among waves in single and categories of food and beverages*

Spanish description (ENIGH)	English description (ENIGH)	ENIGH 1984	ENIGH 1994	ENIGH 2004	ENIGH 2014	ENIGH 2018
Maíz	**Maize**					
Maíz en grano	Maize grain	A001	A001	A001	A001	A001
Harina de maíz	Maize flour	A002	A002	A002	A002	A002
Masa de maíz	Maize dough	A003	A003	A003	A003	A003
Tortilla de maíz	Maize *tortilla*	A004	A004	A004	A004	A004
Tostadas	Fried *tortilla*	ND	ND	A005	A005	A005
Fécula de maíz (maicena, polvo para atole)	Cornstarch (*atole* flour)	A005	A005	ND	A005b	
Otros productos de maíz (94, 84: tostadas, hojuelas, pinole, etc.)	Other maize products	A006	A006	A006	A006	A006
Trigo	**Wheat**					
Harina de trigo	Wheat flour	A007	A007	A007	A007	A007
Tortilla de harina	Wheat *tortilla*	A008	A008	A008	A008	A008
Pasta para sopa	Soup pasta	A015	A015	A009	A009	A009
Galletas dulces	Cookies	A010	A010	A010	A010	A010
Galletas saladas	Crackers	A009	A009	A011	A011	A011
Pan blanco: (04, 94: bolillo, telera, baguete, etcétera)	White bread (*bolillo, telera, baguete*)	A011	A011	A012	A012	A012
Pan dulce en piezas	Sweet bread in pieces	ND	ND	ND	A013	A013
Pan dulce empaquetado	Packaged sweet bread	ND	ND	ND	A014	A014
Pan dulce: (04, 94: en pieza o	Sweeten bread in pieces	A012	A012	A013	A014b	

empaquetado)	or packaged					
Pan para sándwich, hamburguesa, hot-dog y tostado (94: pan de caja)	Sandwich, hamburger, hot dog or toasted bread	A013	A013	A014	A015	A015
Pasteles y pastelillos en piezas o a granel	Cakes or cupcakes in pieces	ND	ND	ND	A016	A016
Pasteles y pastelillos empaquetados	Packaged cakes or cupcakes	ND	ND	ND	A017	A017
Pasteles y pastelillos: en pieza o empaquetado (94, 84: pan de marca, panecillos y pasteles)	Cakes or cupcakes in pieces or packaged	A014	A014	A015	A017b	
Otros productos de trigo (04: grano, salvado)	Other wheat products (grain, bran)	ND	ND	A016	A018	A018
Otros productos de trigo (94: pasta para fritura; 84: hojuelas, harina preparada, etc.)	Other wheat products (pasta for fried chips, wheat flakes)	A016	A016	ND	A018b	
ARROZ	**RICE**					
Arroz en grano	Rice	A017	A017	A017	A019	A019
Otros productos de arroz (04: harina) (94, 84: harina, tostado, etc.)	Other rice products (rice flour, toasted rice)	A018	A018	A018	A020	A020
Otros cereales	**Other cereals**					

Avena	Oats	A019	A019	ND	A020b	
Cereal de maíz, de trigo, de arroz, de avena, de granola, etcétera	Flakes			A019	A021	A021
Botanas: frituras, palomitas, cheetos, doritos, etcétera (2014: (excepto papas)) (94: frituras procesadas de trigo o maíz)	Snacks: fries, popcorn, Cheetos, Doritos. (maize or wheat processed fries)	ND	A021	A020	A022	A022
Sopas instantáneas	Instant soup	ND	ND	A021	A023	A023
Otros cereales (04: avena, cebada, centeno, etc.) (94, 84: centeno, cebada, etc.)	Other cereals (oats, barley, rye)	A020	A020	A022	A024	A024
Carne de res y ternera	**Beef and veal meat**					
Bistec de res (de cualquier parte que se saque)	Beef steak	ND	ND	A023	A025	A025
Bistec y milanesa	Breaded beef and beef steak	A021	A022	ND	A025b	
Arrachera, filete	Skirt steak, fillet	ND	ND	A024	A026	A026
Lomo y filete	Loin, fillet	A024	A025	ND	A026b	
Milanesa de res	Breaded beef	ND	ND	A025	A027	A027
Chamorro de res	Beef calf	ND	ND	A026	A028	A028
Chuleta de costilla de res	Rib beef cutlet	A026	A027	A027	A029	A029
2014: Agujas, aldilla, chambarete, diezmillo,	Beef chuck, shank, tithe, backbone, strip, patch,	ND	ND	A028	A030	A030

espinazo, fajilla de res para asar, retazo, tampiqueña. 2004: Aldilla, fajilla paraar, diezmillo	*tampiqueña*					
Cocido de res (94, 84: + o retazo con hueso)	Beef stew (or beef patch)	A023	A024	A029	A031	A031
Cortes especiales de res (04, 94, 84, +: t-bone, roastbeef, etc.)	Special beef cuts (t-bone, roast beef)	A025	A026	A030	A032	A032
Hamburguesas de res para asar	Beef patties	ND	ND	A031	A033	A033
Molida de res	Grounded beef	ND	ND	A032	A034	A034
Pulpa de res en trozo	Pulp beef	ND	ND	A033	A035	A035
Pulpa de res en trozo y molida	Pulp and grounded beef	A022	A023	ND	A035b	
Carne de otras partes de la res (2004: cabeza, ubre, etc.)	Beef from other parts (neck, head, udder)	ND	ND	A034	A036	A036
Vísceras de res	Beef offal	A027	A028	A035	A037	A037
Carnes de cerdo	Pork meat					
Bistec de puerco (de cualquier parte que se saque)	Pork steak	ND	ND	A036	A038	A038
Pierna de puerco en trozo	Pork leg	ND	ND	A037	A039	A039
Lomo y pierna	Pork loin or leg	A028	A029	ND	A039b	
Pulpa de puerco en trozo	Pork pulp	ND	ND	A038	A040	A040
Molida de puerco	Grounded pork	ND	ND	A039	A041	A041
Costilla y chuleta de puerco	Pork rib or chops	A029	A030	A040	A042	A042
Espaldilla de puerco	Pork shoulder	ND	ND	A041	A043	A043

Codillo de puerco	Pork knuckle	ND	ND	A042	A044	A044
Carne de otras partes del puerco (04: + cabeza, espinazo, panza, pecho, etc.)	Other pork meat (head, spine, breast, belly)	ND	ND	A043	A045	A045
Pulpa, bistec, trozo y molida	Pulp, steak, in piece, and grounded	A030	A031	ND	A046b	
Vísceras de puerco	Pork offal	A031	A032	A044	A046	A046
CARNES PROCESADAS	PROCESSED MEAT					
Carne enchilada (94, 84: o ahumada)	Spiced or smoked meat	A044	A045	A045	A047	A047
Chicharrón de puerco	Pork rinds	ND	ND	A046	A048	A048
Chorizo con cualquier condimento y color y longaniza	Sausages with any seasoning or color and *longaniza*	A043	A044	A047	A049	A049
Chuleta ahumada de puerco	Pork smoked chop	ND	ND	A048	A050	A050
Machaca y carne seca	Dried meat and *machaca*	ND	ND	A049	A051	A051
Machaca, carne seca y cecina	Dried meat and *machaca*	A046	A047	ND	A051b	
Jamón de puerco	Pork ham	ND	ND	ND	A052	A052
Jamón	Ham	A040	A041	A050	A052b	
Mortadela, queso de puerco y salami, bolonia de carnes surtidas	Mortadella, salami, bologna of assorted meats, and pork cheese	A047	A048	A051	A053	A053
Lardo procesado (tocino)	Bacon	A041	A042	A052	A054	A054
Salchicha y salchichón	Sausages	ND	ND	A053	A055	A055
Salchicha	Wiener	A042	A043	ND	A055b	
Queso de puerco	Pork head cheese	A045	A046	ND	A056b	

Otras carnes procesadas (04: de res y puerco: rellena, cecina, etc.)	Other processed meats (beef, pork, fried meat, stuffed, etc.)	ND	ND	A054	A056	A056
Carne de pollo	**Chicken meat**					
Pierna, muslo o pechuga de pollo con hueso	Chicken leg, thigh or breast with bone	ND	ND	A055	A057	A057
Pierna, muslo o pechuga de pollo sin hueso	Chicken leg, thigh or breast boneless	ND	ND	A056	A058	A058
Pollo en piezas	Chicken pieces	A032	A033	ND	A058b	
Pollo entero o en piezas excepto, pierna, muslo y pechuga	Whole chicken, except leg, thigh or breast	A033	A034	A057	A059	A059
Gallina entera o en piezas	Whole chicken or in pieces	A034	A035		A059b	
Vísceras y otras partes del pollo	Chicken offal	A035	A036	A058	A060	A060
Otras aves (04: gallina, pavo, pato, etc.) (94, 84: pavo, pichón, pato, etc.)	Other fowl (chicken, turkey, duck, squab)	A036	A037	A059	A061	A061
Carnes procesadas de ave	**Processed fowl meat**					
Chorizo de pollo, jamón y nugget, salchicha, mortadela, etcétera	Chicken sausage, ham, nugget, mortadella, etc.	ND	ND	A060	A062	A062
Otras carnes	**Other meats**					
Borrego: carnero y borrego	Lamb: ram and lamb	A037	A038	A061	A063	A063
Chivo y cabrito (94, 84:	Goat and goatling	A038	A039	A062	A064	A064

cabrito)						
Otras carnes: caballo, conejo, iguana, jabalí, rana, tortuga, venado	Other meats: horse, rabbit, iguana, wild boar, frog, turtle, deer	A039	A040	A063	A065	A065
Pescados frescos	**Fresh fish**					
Pescado entero limpio y sin limpiar (2004: bagre, carpa, mojarra, etc.)	Whole clean or unclean fish (catfish, carp, *mojarra*, etc.)	ND	ND	A064	A066	A066
Huachinango	Red snapper	A048	A049	ND	A066b	
Mojarra	*Mojarra*	A049	A050	ND	A066c	
Robalo	Bass	A050	A051	ND	A066d	
Mero	Grouper	A051	A052	ND	A066e	
Cazón, liza, bagre	School shark, lisa, catfish	A052	A053	ND	A066f	
Filete de pescado	Fish steak	ND	ND	A065	A067	A067
Pescados procesados	**Processed fish**					
Atún (14: enlatado)	Tuna (canned)	A056	A057	A066	A068	A068
Salmón y bacalao procesado	Processed salmon and cod	ND	ND	A067	A069	A069
Sardinas	Sardine	A055	A056		A069b	
Otros pescados	**Other fish**					
Pescado ahumado, seco, nugget, sardina, etcétera	Smoked or dried fish, nugget, sardine, etc.	ND	ND	A068	A070	A070
Secos: bacalao, charal, camarón, etc.	Dried: cod, *charal*, shrimp, etc.	A057	A058	ND	A070b	
Anguilas, angulas, hueva de pescado, mantarraya, pejelagarto, etc.	Eel, roe, stingray, *pejelagarto*, etc.	ND	ND	A069	A071	A071

Otros: abulón, ostión, pulpo, etc.	Abalone, oyster, octopus, etc.	A058	A059	ND	A071b	
Mariscos	**Seafood**					
Camarón fresco	Fresh shrimp	A053	A054	ND	A072	A072
Mariscos frescos (04: almeja, camarón, calamar, jaiba, ostión, pulpo, etc.)	Fresh seafood (clam, shrimp, squid, crab, oyster, octopus, etc.)	ND	ND	A070	A073	A073
Otros pescados y mariscos: trucha, jaiba, ostión, almeja, etc	Other fish and seafood: trout, crab, oyster, clam, etc.	A054	A055	ND	A073b	
Mariscos procesados (2004: ahumado, envasado, harina, camarón seco.)	Processed seafood (smoked, canned, flour, dried shrimp)	ND	ND	A071	A074	A074
Leche	**Milk**					
Leche pasteurizada de vaca (2004: de vaca, líquida pasteurizada: deslactosada, descremada, entera, light, saborizada, semidescremada, etc.) (94, 84: pasteurizada)	Cow pasteurized milk	A059	A060	A072	A075	A075
Leche condensada	Condensed milk	A062	A063	A073	A076	A076
Leche evaporada	Evaporated milk	A061	A062	A074	A077	A077
Leche en polvo entera o	Powdered milk whole or	A063	A064	A075	A078	A078

descremada	skim					
Leche modificada o maternizada (94, 84: maternizada)	Modified or infant milk	A064	A065	A076	A079	A079
Leche no pasteurizada (leche bronca)	Raw milk	A060	A061	A077	A080	A080
Otras leches: de burra, de cabra, (14, 04: de soya)	Other milk: donkey, goat, soy	A065	A066	A078	A081	A081
Quesos	**Cheese**					
Queso amarillo (2014: en rebanadas o para untar)	American cheese	A070	A071	A079	A082	A082
Queso añejo y cotija	Old or *cotija* cheese	A071	A072	A080	A083	A083
Queso chihuahua	*Chihuahua* cheese	A067	A068	A081	A084	A084
Queso fresco	Fresh cheese	A066	A067	A082	A085	A085
Queso manchego	Manchego cheese	A069	A070	A083	A086	A086
Queso oaxaca o asadero	*Oaxaca* or *asadero* cheese	A068	A069	A084	A087	A087
Requesón	Curd cheese	A072	A073	ND	A087b	
Otros quesos (04: cottage, doble crema, enchilado, etc.) (94, 84: enchilado, gruyere, parmesano, holandés, crema, etc.)	Other cheeses (double cream, spicy, gruyere, parmesan, Dutch, cream, etc.)	A073	A074	A085	A088	A088
Otros derivados de la leche	**Other dairy products**					
Crema	Cream	A074	A075	A086	A089	A089
Mantequilla	Butter	A075	A076	A087	A090	A090
Bebidas fermentadas de leche	Fermented beverages	ND	ND	ND	A091	A091

yogurt	Yogurt	ND	ND	A088	A091b	
Otros derivados de la leche (04: jocoque, requesón, suero; 84, 94: yogurt, etc.)	Other dairy products (*jocoque*, curd cheese, buttermilk, yogurt)	A076	A077	A089	A092	A092
Huevos	**Eggs**					
Huevo de gallina blanco y rojo	Chicken eggs, red and white	A077	A078	A090	A093	A093
Otros huevos: codorniz, pata, pava etcétera	Other eggs: quail, duck, turkey, etc.	A078	A079	A091	A094	A094
Aceites	**Oils**					
Aceite vegetal (14, 04: canola, cártamo, girasol, maíz, etcétera)	Vegetable oil	A079	A080	A092	A095	A095
Aceite de coco, oliva, soya	Coconut, olive and soy oil	ND	ND	A093	A096	A096
Grasas	**Fats**					
Margarina	Margarine	A082	A083	A094	A097	A097
Manteca de puerco	Pork lard	A081	A082	A095	A098	A098
Manteca vegetal	Vegetable shortening	A080	A081	A096	A099	A099
Otros aceites: de bacalao, de tiburón, de tortuga, enjundia	Other oils: cod, shark, turtle, *enjundia*	ND	ND	A097	A100	A100
Otros: aceite de oliva, enjundia, etc.	Other: olive oil, *enjundia*	A083	A084	ND	A100b	
Tubérculos crudos o frescos	**Fresh or raw roots**					
Betabel y camote	Beets or sweet potato	ND	ND	A098	A101	A101
Papa	Potato	A084	A085	A099	A102	A102
Rábano	Radish	ND	ND	A100	A103	A103

Spanish	English				
Otros tubérculos (04: jenjibre, nabo, 94, 84: camote, yuca, ñame, betabel, etc	Other roots (ginger, turnip, sweet potato, yucca, yam, beetroot, etc.)	A086	A087	A101	A104	A104
Tubérculos procesados	**Processed roots**					
Harina para puré de papa	Mashed potatoes flour	A085	A086	A102	A105	A105
Papas fritas en bolsa o a granel	Fried potato, packaged or in bulk	ND	ND	A103	A106	A106
Verduras y legumbres frescas	**Fresh vegetables and legumes**					
Acelgas, espinacas y verdolagas	Chard, spinach, or purslane	A104	A106	A104	A107	A107
Aguacate	Avocado	A093	A095	A105	A108	A108
Ajo	Garlic	A155	A094	A106	A109	A109
Brócoli	Broccoli	ND	ND	A107	A110	A110
Calabacita (04,14: y calabaza)	Zucchini and pumpkin	A102	A104	A108	A111	A111
Cebolla	Onion	A092	A093	A109	A112	A112
Chayote	*Chayote*	A101	A103	A110	A113	A113
Chicharo	Pea	A099	A101	A111	A114	A114
Chile jalapeño	*Jalapeño* pepper	ND	ND	A112	A115	A115
Chile poblano	*Poblano* pepper	A090	A091	A113	A116	A116
Chile serrano	*Serrano* pepper	ND	ND	A114	A117	A117
Chile serrano y jalapeño	*Serrano* and *jalapeño* pepper	A089	A090		A117b	
Otros chiles (04: ancho, chipotle, 94, 84: árbol,	Other peppers (*ancho, chipotle, arbol, habanero*	A091	A092	A115	A118	A118

habanero, etc.)	pepper)					
Cilantro	Cilantro	A106	A108	A116	A119	A119
Col y repollo	Savoy and cabbage	A094	A096	A117	A120	A120
Ejote	Bean	A098	A100	A118	A121	A121
Elote	Corn	A100	A102	A119	A122	A122
Epazote (94, 84: + pápalo y apio)	*Epazote*	A107	A109	A120	A123	A123
Jitomate	Tomato	A087	A088	A121	A124	A124
Lechuga	Lettuce	A095	A097	A122	A125	A125
Nopal	Cactus	A103	A105	A123	A126	A126
Pepino	Cucumber	A097	A099	A124	A127	A127
Perejil y yerbabuena	Parsley and peppermint	A105	A107	A125	A128	A128
Tomate verde	*Tomatillo*	A088	A089	A126	A129	A129
Zanahoria	Carrot	A096	A098	A127	A130	A130
Verduras mixtas en bolsa	Packaged mixed vegetables	A108	A110		A130b	
Otras verduras (04: aceitunas, alcaparras, etc.) (84, 94: alcachofa, quelites, romeritos, rábanos, poro, etc.)	Other vegetables (olives, caper, artichoke, rosemary, radish, pore, etc.)	A109	A111	A128	A131	A131
Germinados de maíz, de soya, de trigo	Maize, soy and wheat germinated	ND	ND	A129	A132	A132
Verduras y legumbres procesadas	**Processed vegetables and legumes**					
Chiles envasados (04: en escabeche, rajas, enteros)	Canned peppers (brine, sliced, whole)	A110	A112	A130	A133	A133

Chile secos o en polvo	Dried peppers	A111	A113	A131	A134	A134
Verduras y legumbres envasadas (04: aceitunas, alcaparras, etc.) (94: verduras envasadas) (84: otros: sopas y verduras envasadas, aceitunas, etc.)	Canned vegetables and legumes (olives, caper, soups and vegetables, etc.)	A113	A114	A132	A135	A135
Verduras y legumbres congeladas (04, 94: verduras mixtas en bolsa, etc.)	Frozen vegetables and legumes	ND	A115	A133	A136	A136
Puré de tomate	Tomato puree	A112	ND	ND	A136b	
Leguminosas	**Legumes**					
Frijol en grano (2004: bayo, flor de mayo, negro, etc.)	Beans	A114	A116	A134	A137	A137
Garbanzo en grano	Chickpea	A115	A117	A135	A138	A138
Haba amarilla o verde en grano	Broad bean	ND	ND	A136	A139	A139
Lenteja en grano	Lentils	ND	ND	A137	A140	A140
Otras leguminosas en grano (2004: alubia, alverjón; 94, 84: lentejas, haba, etc.)	Other legumes	A116	A118	A138	A141	A141
Leguminosas procesadas	**Processed legumes**					
Frijol procesado (04: frijol envasado: en caja, lata, bolsa,	Processed bean (packaged, canned, etc.)	A117	A119	A139	A142	A142

etc.)						
Otras leguminosas procesadas (04: alubia, garbanzo, haba, lenteja, soya, etc.) (94: en lata o secas) (84: otras: lenteja, haba, etc.)	Other processed legumes (dried, canned, etc.)	A118	A120	A140	A143	A143
Semillas	**Seeds**					
Semillas a granel (2004: ajonjolí, amaranto, girasol, nuez, piñón, etc.)	Bulk seeds	A119	A121	A141	A144	A144
Semillas envasadas (2004: ajonjolí, amaranto, girasol, nuez, piñón, etc.)	Packaged seeds	A120	A122	A142	A145	A145
Semillas procesadas (2004: harina de ajonjolí, castaña asada, calabaza, etc.)	Processed seeds	ND	ND	A143	A146	A146
Frutas frescas	**Frsh fruit**					
Anona, chirimoya, guanábana	Annona, custard apple, soursop	ND	ND	A144	A147	A147
Cereza, frambuesa, fresa, zarzamora	Cherry, raspberry, strawberry, blackberry	ND	ND	A145	A148	A148
Fresa	Strawberry	A130	A132	ND	A148b	
Chabacano, durazno, (14, 04: melocotón)	Peach	A128	A130	A146	A149	A149

Chicozapote y mamey	*Chicozapote* and *mamey*			A147	A150	A150
Ciruela (14, 04: y jobo)	Plum	A129	A131	A148	A151	A151
Guayaba	Guava	A131	A133	A149	A152	A152
Jícama	*Jícama*	A138	A140	ND	A152b	
Lima	Lime			A150	A153	A153
Limón	Lemon	A122	A124	A151	A154	A154
Mandarina, nectarina, tangerina (2004: mandarina, tangarina)	Mandarin, nectarine, tangerine	ND	ND	A152	A155	A155
Toronja	Grapefruit	ND	ND	A153	A156	A156
Otros cítricos: lima, toronja, mandarina, etc.	Other citrus: lime, grapefruit, mandarin, etc.	A123	A125	ND	A156b	
Mango	Mango	A132	A134	A154	A157	A157
Mamey	*Mamey*	A133	A135		A157b	
Manzana y perón	Apple and *peron*	A126	A128	A155	A158	A158
Melón	Cantaloupe	A135	A137	A156	A159	A159
Naranja	Orange	A121	A123	A157	A160	A160
Papaya	*Papaya*	A134	A136	A158	A161	A161
Pera	Pear	A127	A129	A159	A162	A162
Piña	Pineapple	A137	A139	A160	A163	A163
Pitahaya y tuna	Dragonfruit and pickly pear	ND	ND	A161	A164	A164
Plátano macho y de Castilla	Plantain and banana	ND	ND	A162	A165	A165
Plátano verde y tabasco (04, 94, 84: plátano tabasco)	Green and tabasco banana	A124	A126	A163	A166	A166
Otros plátanos (Chiapas, dominico, guineo, manzano,	Other banana (*Chiapas*, dominican, *guineo*,	ND	ND	A164	A167	A167

dorado, portalimón y roatan)	*manzano*, *dorado*, roatan)					
Otros plátanos: macho, dominico, morado y manzano.	Other banana: plantain, dominican, *morado* and *manzano*	A125	A127	ND	A166b	
Sandía	Watermelon	A136	A138	A165	A168	A168
Uva	Grapes	A139	A141	A166	A169	A169
Otras frutas: garambullo, granada, higo, jícama, kiwi, etcétera (2004: caña, coco, granada, guayaba, higo, jícama, nanche, tamarindo, etc.) (84, 94: guanábana, granada, tuna, higo, coco, tamarindo, etc.)	Other fruits: *garambullo*, pomegranate, yam bean, kiwi, guava, fig, *nanche*, tamarind, soursop, prickly pear, coconut	A140	A142	A167	A170	A170
Frutas en almíbar y conserva (04: chabacano, durazno, fresa, mango, etc) (94, 84: durazno, mango, piña, cereza, etc.)	Syrup and canned fruits (peach, strawberry, mango, pineapple, cherry, etc.)	A141	A143	A168	A171	A171
Jalea y mermelada (durazno, fresa, naranja, etc.)	Jelly and jam (peach, strawberry, orange, etc.)	ND	ND	A169	A171b	
Frutas cristalizadas, enchiladas y secas (84, 94:	Crystallized fruits, spicy and dried	A142	A144	ND	A172	A172

Spanish	English					
cristalizadas y secas)						
Otras: frutas endulzadas, enchiladas, etc.	Other fruits: sweetened, spicy, etc.	A143	A145	ND	A172b	
Azúcar y mieles	**Sugar and syrup**					
Azúcar blanca y morena	White and brown sugar	A144	A146	A170	A173	A173
Miel de abeja	Honey	A145	A147	A171	A174	A174
Otras azúcares y mieles (04, 94,84 : glass, mascabado, piloncillo) (94, 84: miel de maíz, etc.)	Other sugar and syrup: corn syrup, glass, masked, *piloncillo*, etc.	A146	A148	A172	A175	A175
Café	**Coffee**					
Café tostado en grano molido	Toasted coffee bean	A147	A149	A173	A176	A176
Café tostado soluble (94: café soluble o instantáneo)	Toasted soluble coffee	A149	A151	A174	A177	A177
Café sin tostar (en grano)	Raw coffee bean	A148	A150	ND	A177b	
Té	**Tea**					
Flor y hojas para té (04: anís, jamaica, 94, 84: manzanilla, naranja, etc.)	Flower and leaves for tea (anise, hibiscus, chamomile, orange, etc.)	A150	A152	A175	A178	A178
Té soluble (cualquier sabor) (04: azahar, canela, limón, manzanilla, negro, etc.)	Soluble tea (any flavor)	A151	A153	A176	A179	A179
Chocolate	**Chocolate**					
Chocolate en tableta	Chocolate bar	ND	ND	A177	A180	A180
Chocolate en polvo	Chocolate powder	ND	ND	A178	A181	A181
Chocolate en tableta o en	Chocolate bar or powder	A152	A154		A181b	

polvo						
Otros chocolates (04: cocoa, jarabe de chocolate, etc.) (94, 84: cocoa, etc.)	Other chocolate (cocoa, chocolate syrup, etc.)	A153	A155	A179	A182	A182
Especias y aderezos	**Spices and dressing**					
Canela	Cinnamon	A157	A158	A180	A183	A183
Clavo	Cloves	ND	ND	A181	A184	A184
Yerbas de olor (2004: comino)	Aromatic herbs	ND	ND	A182	A185	A185
Concentrados de pollo y tomate	Chicken broth and tomato concentrates	A163	A164	A183	A186	A186
Mayonesa	Mayonnaise	A158	A159	A184	A187	A187
Mole (14, 04: en pasta o en polvo)	*Mole* (pulp or powder)	A162	A163	A185	A188	A188
Mostaza	Mustard	A159	A160	A186	A189	A189
Pimienta (94,84: + clavo y comino)	Pepper	A156	A157	A187	A190	A190
Sal	Salt	A154	A156	A188	A191	A191
Salsas (2014: dulces y picantes)	Sauce (sweet and chili)	ND	ND	A189	A192	A192
Salsa cátsup	Ketchup	A160	A161	ND	A192b	
Salsas picantes	Spicy sauce	A161	A162	ND	A192c	
Vinagre	Vinegar	A164	A165	A190	A193	A193
Otros aderezos, especies y salsas (04, 94, 84: ablandadores de carne, aderezos, polvo para hornear,	Other dressing, spices and sauce (meat tenderizers, dressing, baking powder, thyme, oregano, soy	A165	A166	A191	A194	A194

04: tomillo, orégano, salsa de soya, etc.)	sauce, etc.					
Alimentos preparados para bebe	**Prepared baby food**					
Cereal de arroz, avena, plátano, manzana, mixto para bebé (94: Cereales, sopas y galletas para bebé)	Rice, oat, banana, apple, and mixed cereals.	ND	A168	A192	A195	A195
Papillas para bebé (94, 84: alimentos colados y picados de cualquier combin)	Baby porridge	A166	A167	A193	A196	A196
Jugos de frutas (04, 94: y verduras) de cualquier combinación	Fruit and vegetable juice (any combination)	ND	A169	A194	A197	A197
Otros alimentos para bebé (no incluye leche)	Other baby food but formula	A167	ND	ND	A197b	
Alimentos preparados para consumir en casa	**Prepared food for household consumption**					
Pizzas preparadas	Prepared pizza	ND	A174	A195	A198	A198
Carnitas (94, 84: y chicharrón)	*Carnitas* and pork rind	A168	A170	A196	A199	A199
Pollo rostizado	Roasted chicken	A169	A171	A197	A200	A200
Barbacoa y birria (94, 84: barbacoa)	*Barbacoa* and *birria*	A170	A172	A198	A201	A201

Birria	*Birria*	A171	A173		A201b	
Otros alimentos preparados: atole, flautas, guisados, hot-dog, emparedados, sopas, tacos, tamales, tortas, sopes, menudo, pozole, arroz con leche, etcétera.	Other prepared food: *atole*, *flautas*, stew, hot-dog, sandwiches, soup, *tacos*, *tamales*, *tortas*, *sopes*, *menudo*, *pozole*, *arroz con leche*, etc.	ND	ND	A199	A202	A202
Otros: sopa, guisados, ensaladas, tortas, 84: pizzas, etc.	Other: soup, stew, salads, *tortas*, pizza, etc.	A172	A175	ND	A202b	
Alimentos diversos	**Various foods**					
Hongos frescos: champiñones, huitlacoche y setas	Fresh mushrooms: champignon, *huitlacoche*, and mushrooms	ND	ND	A200	A203	A203
Insectos: chapulines, chinicuiles, escamoles, gusanos de maguey, hormigas (chicatana), jumiles. (94, 84: chapulines, gusano de maguey, etc.)	Insects: grasshoppers, *chinicuiles*, *escamoles*, *maguey* worms, ants, *jumiles*, etc.	A173	A176	A201	A204	A204
Flanes, gelatinas y pudines en polvo	Custard, gelatin, and powder pudding	A175	A177	A202	A205	A205
Flanes, gelatinas y pudines	Custard, gelatin, and	A176	A178		A205b	

	pudding					
Cajetas, dulces de leche, jamoncillos (2014: y natillas)	*Cajeta*, caramel, *jamoncillos*, and custard	A178	A180	A203	A206	A206
Ates, crema de cacahuate, jaleas, mermelada	*Ates*, peanut butter, jelly, and jam.	A179	A181	ND	A207	A207
Ates, crema de cacahuate	*Ates* and peanut butter			A204	A207b	
Helados, nieves (14, 04: y paletas de hielo)	Ice cream and popsicles	A180	A182	A205	A208	A208
Otras golosinas (04, 94, 84: caramelos, paletas de dulce y otras golosinas)	Other sweets (candy, lollipops, etc.)	A177	A179	A206	A209	A209
Otros: chilacayote, cocada, visnaga, alegrías, etc.	Other: *chilacayote*, *cocada*, *visnaga*, *alegrías*, etc.	A181	A183	ND	A209b	
Bebidas no alcohólicas	**Non-alcoholic beverages**					
Agua natural embotellada (94, 84: agua purificada)	Bottled water	A188	A191	A212	A215	A215
Agua mineral, quina, desmineralizada con o sin sabor (04: agua purificada (mineral, quina, natural, desmineralizada), con o sin sabor) (84, 94: agua mineral	Mineral water, *quina*, demineralized with or without flavor	A186	A189	ND	A216	A216

(con o sin sabor))						
Agua preparada y jugos naturales	Prepared water and natural juices	ND	ND	A213	A217	A217
Jugos y néctares naturales	Natural juices and nectars	ND	ND	A214	A217b	
Jugos y néctares envasados (94, 84: enlatados)	Bottled juices and nectars	A187	A190		A218	A218
Concentrados y polvos para preparar bebidas (94: agua, en vez de bebidas) (84: refrescos en vez de bebidas)	Concentrates and powder to prepare beverages	A174	A192	A215	A219	A219
Refrescos de cola y de sabores (94, 84: refrescos o bebidas (con o sin gas))	Soda or beverages with or without carbon dioxide gas	A185	A188	A216	A220	A220
Bebida energética	Energy drinks	ND	ND	A217	A221	A221
Bebidas fermentadas de maíz, hielo, jarabe natural, lechuguilla, sangrita, tascalate, tepache y tuba (2004: solo jarabe natural: granadina, sangrita)	Fermented maize beverages, ice, natural syrup, *lechuguilla*, *sangrita*, *tascalate*, *tepache* and *tuba*	A189	A193	A218	A222	A222
Bebidas alcohólicas	**Alcoholic beverages**					
Coñac y brandy	Cognac and brandy	A191	A195	A219	A223	A223
Cerveza	Beer	A190	A194	A220	A224	A224
Anís (licor)	Anisette	ND	ND	A221	A225	A225
Jerez	Sherry	ND	ND	A222	A226	A226

Licor o cremas de frutas	Liqueur or fruit cream	ND	ND	A223	A227	A227
Aguamiel, pulque, tlachique	Mead, pulque, and *tlachique*	ND	ND	A224	A228	A228
Pulque	*Pulque*	A192	A196		A228b	
Aguardiente, alcohol de caña, charanda, mezcal (94, 84: aguardiente, mezcal, sotol)	Schnapps, cane alcohol, *charanda*, and *mezcal*	A196	A200	ND	A229	A229
Mezcal	*Mezcal*	ND	ND	A225	A229b	
Ron añejo, blanco, con limón	Old, white or lemon rum	A195	A199	A226	A230	A230
Rompope	*Rompope*	ND	ND	A227	A231	A231
Sidra blanca y rosada	White or pink cider	ND	ND	A228	A232	A232
Tequila añejo, azul y blanco	Old, blue or white *tequila*	A193	A197	A229	A233	A233
Vino de mesa blanco, rosado, tinto	White, pink or red wine	A197	A201	A230	A234	A234
Vodka	Vodka	ND	ND	A231	A235	A235
Whisky	Whiskey	A194	A198	A232	A236	A236
Bebida alcohólica preparada (04: bebida preparada envasada: Caribe Cooler, Viña Real, Xtassy, Zas, President-Cola, Ron & Cola; cócteles: daiquiri, margarita, piña colada, tequilada)	Prepared alcoholic beverages	ND	A203	A233	A237	A237
Otras bebidas alcoholicas: champaña; 04: sidra,	Other alcoholic beverage: champagne, etc.	A198	A202	A234	A238	A238

rompope, jerez cremas, vodka, etc.						

"ND" means that there were no data for that food or beverage item in that wave.

Table VII. NOVA food groups and subgroups

Unprocessed or minimally processed foods	
Unprocessed cereals and tubers	Maize grain, maize flour, maize dough, maize *tortilla*, wheat flour, soup pasta, other wheat products, rice, other rice products, oats, other cereals, beetroot, sweet potato, potato, other roots.
Fresh fruits and vegetables	Sugar-apple, custard-apple and soursop; cherry, raspberry, strawberry and blackberry; strawberry; peach; *chicozapote* and *mamey*; plum; guava; *jicama*; lime; lemon; mandarin, nectarine and tangerine; grapefruit; other citrus; mango; *mamey*; apple and *peron*; cantaloupe; orange; papaya; pear; pineapple; dragonfruit and prickly pear; plantain and banana; green and *tabasco* banana; other banana; watermelon; grapes; other fruits; radish; chard, spinach and purslane; garlic; broccoli; zucchini and pumpkin; onion; *chayote*; pea; *jalapeño* pepper; *poblano* pepper; serrano pepper; other pepper; cilantro; collard, kale and cabbage; bean; corn; *epazote*; tomato; lettuce; cactus; cucumber; parsley and peppermint; green tomato; carrot; packaged mixed vegetables; other vegetables; maize, soy and wheat germinated; powder chili; frozen vegetables and legumes; fresh mushrooms.
Legumes	Beans, chickpea, broad bean, lentils, other legumes.

Meat, dairy and egg	Beef steak; skirt, steak and fillet; breaded beef; beef chamorro; beef rib cutlet; beef chuck, shank, tithe, backbone, strip, patch, *tampiquena*; cooked beef and remnant beef; special beef cuts (t-bone, roastbeef, etc.); grounded beef; pulp beef; beef from other parts; beef offal; pork steak; pork leg; pork pulp; grounded pork; pork rib or chops; pork shoulder; pork knuckle; other pork meat; pork offal; bacon; chicken leg, thigh or breast with bone; chicken leg, thigh or breast boneless; whole chicken except leg thigh or breast; chicken offal; other fowl; lamb; goat and goatling; other meats; chicken eggs red and white; other eggs; cow pasteurized milk; powdered milk whole or skim; raw milk.
Fish and seafood	Whole clean or unclean fish; fish steak; eel, egg fish, stingray, *pejelagarto*, etc; ablone, oyster, octopus, etc; fresh shrimp; fresh seafood; other fish and seafood.
Otros	Bulk seeds; toasted been coffee; toasted soluble coffee; raw been coffee; flower and leaves for tea; soluble tea; cinnamon; clove; aromatic herbs; pepper.
Processed culinary ingredients	
Sugar	White and brown sugar; honey; other sugar and syrup.
Vegetable oil	Vegetable oil; coconut, olive and soy oil; vegetable shortening; other oils.
Animal fat	Cream, butter, pork lard.
Salt	Salt
Processed foods and drinks	
Cereals	Fried *tortilla*; other maize products; white bread (*bolillo*); sweet bread in pieces; cakes or

	cupcakes in pieces; mash potatoes fluor.
Vegetables and legumes	Processed vegetables; canned vegetables and legumes; tomato puree; processed bean; other processed legumes.
Meat and dairy	Spiced or smoked meat; pork rinds; smoked porkchops; dried meat and *machaca*; pork head cheese; other processed meats; evaporated milk; old or *cotija* cheese; *Chihuahua* cheese; fresh cheese; manchego cheese; *Oaxaca* or *asadero* cheese; curd cheese; other cheeses; other dairy products.
Fish and seafood	Canned tuna; processed salmon and cod; sardine; smoked or dried fish, nugget, sardine; dried: cod, chara, shrimp, etc.; processed seafood: smoked, canned, flour, dried shrimp.
Prepared food	*Carnitas* and pork rinds; roasted chicken; *barbacoa* and *birria*; other prepared food: *atole*, *flautas*, stew, hot-dog, sandwiches, soup, *tacos*, *tamales*, *tortas*, *sopes, menudo, pozole, arroz con leche*, etc.
Sugar and desserts	Condensed milk; syrup and canned fruits; crystallized fruits, spicy and dried fruits; other fruits: sweetened, spicy, etc.; other typical sweets: *chilacayote*, *cocada*, *alegrías*, etc.
Processed seeds	Packaged seeds, processed seeds.
Alcoholic beverages	Beer; mead, *pulque* and *tlachique*; white, pink or red wine.
Ultra-processed foods and drinks	

Cereals	Cornstarch; wheat *tortillas*; sweet cookies; crackers; packaged sweet bread; sandwich, hamburger, hot-dog or toasted bread; packaged cakes or cupcakes; other wheat products; flakes; snacks: fries, popcorn, Cheetos, Doritos; instant soup; fried potato packaged or in bulk; rice, oat, banana, apple, and mixed cereals for baby.
Fats	Margarine, mayonnaise, *mole*.
Sweets and dessert	Jelly and jam; chocolate bar; chocolate powder; other chocolate: cocoa, chocolate syrup, etc.; custard, gelatin and powder pudding; *cajeta*, caramel, *jamoncillos*; *ates* and peanut butter; ice cream and popsicles; other sweet: candy, lilipops, etc.; ketchup.
Meat and dairy	Beef patties; sausages with any seasoning or color and *longaniza*; ham; mortadella, salami, bologna, and pork head cheese; chicken sausage, ham, nugget, mortadella, etc.; modified or infant milk; other milk; American cheese; fermented beverages; yogurt.
Prepared food	Sauce (sweet and spicy); other dressing, spices and sauce; baby porridge; other baby food; prepared pizza; chicken broth and tomato concentrates.
Sweetened beverages	Prepared water and natural juices; fruit and vegetable juice for babies; mineral water with or without flavour; packaged juices and nectars; concentrates and powder to prepare beverages; soda; energy drinks; fermented maize beverages, ice, natural syrup, *sangrita*, *tepache* and *tuba*.
Alcoholic beverages	Cognac and brandy; anise; sherry; liqueur or fruit cream; schnapps, cane alcohol, *charanda* and *mezcal*; old, white or lemon rumn; *rompope*; old, blue or white *tequila*;

	vodka; whiskey; prepared alcoholic beverage; other alcoholic beverage.

Table VIII. Contribution of NOVA groups and subgroups to energy, carbohydrates, saturated fat, and protein supply in Mexican households from 1984 to 2018

	Energy (average of percentage)					Carbohydrates (average of percentage)				
	84	94	04	14	18	84	94	04	14	18
UMPF	59.6	59.6	56.6[a,b,c]	56.1[a,b,c]	55.4[a,b,c,d]	63.8	63.4	60.0[a,b,c]	60.5[a,b,c]	59.8[a,b,c,d]
Cereals and tubers	32.3	30.3[a]	28.8[a,b,c]	30.4[a,c]	29.8[a,c,d]	44.8	44.1	42.0[a,b,c]	43.8[c]	43.9[c]
Fruits and vegetables	4.4	4.5	4.8	5.1[b,c]	5.0[b]	6.7	7.1	7.8	7.7[b]	7.7[b]
Legumes	6.4	5.4[a]	4.8[a,b,c]	4.6[a,b,c]	3.9[a,b,c,d]	7.3	6.6[a]	5.8[a,b,c]	5.4[a,b,c]	4.7[a,b,c,d]
Meat, dairy and egg	16.4	19.2[a]	17.9[a,b,c]	15.7[b,c]	16.4[b,c,d]	5.0	5.5	4.6[b]	3.6[a,b,c]	3.4[a,b,c]
Ingredients	16.3	14.7[a]	11.2[a,b,c]	9.5[a,b,c]	9.3[a,b,c]	9.8	8.8	6.9[a,b,c]	5.4[a,b,c]	5.2[a,b,c]
Sugars	6.0	5.2[a]	4.1[a,b,c]	3.2[a,b,c]	3.1[a,b,c]	9.8	8.8	6.9[a,b,c]	5.4[a,b,c]	5.2[a,b,c]
Oils and fats	10.3	9.6	7.1[a,b,c]	6.3[a,b,c]	6.2[a,b,c]	0.0	0.0	0.0	0.0	0.0
PFD	11.4	9.6[a]	12.5[a,b,c]	13.2[a,b,c]	14.3[a,b,c,d]	11.6	8.7[a]	10.0[a,b,c]	9.6[a,b,c]	10.4[a,b,c,d]
Cereals	9.2	6.3[a]	7.7[a,b,c]	7.4[a,b,c]	7.5[a,b,c]	11.0	7.7[a]	9.1[a,b,c]	8.3[a,b,c]	8.6[a,b,c]
UPFD	6.3	10.7[a]	15.0[a,b,c]	17.1[a,b,c]	17.5[a,b,c]	7.5	12.5[a]	17.5[a,b,c]	19.5[a,b,c]	20.3[a,b,c,d]
Cereals	1.8	3.0[a]	4.6[a,b,c]	5.6[a,b,c]	5.9[a,b,c,d]	2.4	4.0[a]	6.1[a,b,c]	6.9[a,b,c]	7.4[a,b,c,d]
SS beverages	2.6	4.3[a]	5.6[a,b,c]	6.1[a,b,c]	6.0[a,b,c]	4.3	7.5[a]	9.6[a,b,c]	10.1[a,b,c]	10.2[a,b,c]

	Saturated fats (average of percentage)					Protein (average of percentage)				
UMPF	50.9	54.9[a]	50.6[b]	46.4[a,b,c]	45.8[a,b,c]	74.1	74.1	69.4[a,b,c]	67.3[a,b,c]	66.5[a,b,c,d]
Cereals and tubers	6.6	5.3[a]	4.5[a,b,c]	4.7[a,b,c]	4.5[a,b,c]	24.9	21.6[a]	20.3[a,b,c]	21.6[a,c]	20.9[a,d]
Legumes	0.7	0.5	0.4[a]	0.3[a,b,c]	0.3[a,b,c]	11.0	9.0[a]	7.9[a,b,c]	7.5[a,b,c]	6.3[a,b,c,d]
Meat, dairy and egg	42.1	47.6[a]	44.4[a,b,c]	39.7[a,b,c]	39.5[a,b,c]	33.4	38.9[a]	36.3[a,b,c]	33.1[b,c]	34.3[b,c,d]
Ingredients	26.7	19.2[a]	13.9[a,b,c]	12.8[a,b,c]	12.1[a,b,c,d]	0.2	0.2	0.2	0.2	0.2
Oils and fats	26.7	19.2[a]	13.9[a,b,c]	12.8[a,b,c]	12.1[a,b,c,d]	0.1	0.1	0.1	0.2[a]	0.2[a,b,c]

PFD	15.7	15.1	21.2[a,b,c]	23.9[a,b,c]	25.3[a,b,c,d]	11.5	11.4	14.5[a,b,c]	15.8[a,b,c]	17.5[a,b,c,d]
Cereals	10.3	7.6[a]	9.6[b]	10.0[b]	10.1[b]	6.6	4.2[a]	4.7[a,b,c]	3.9[a,b,c]	3.9[a,c]
Meat and dairy	3.6	4.6[a]	8.0[a,b,c]	9.8[a,b,c]	10.2[a,b,c]	2.3	3.2[a]	5.1[a,b,c]	5.9[a,b,c]	6.2[a,b,c,d]
UPFD	6.0	10.5[a]	14.1[a,b,c]	16.6[a,b,c]	16.6[a,b,c]	3.2	5.3[a]	8.5[a,b,c]	9.9[a,b,c]	10.2[a,b,c]
Meat	3.1	5.8[a]	7.5[a,b,c]	7.9[a,b,c]	7.3[a,b,c,d]	1.6	2.7[a]	4.4[a,b,c]	4.9[a,b,c]	4.6[a,b,c]

M: mean; UMP: unprocessed or minimally processed; PCI: processed culinary ingredients; PFD: processed foods and drinks; UPFD: ultra-processed foods and drinks; SS: sugar-sweetened. Percent contribution of each nutriment to total daily household food supply by adult equivalent. Weighted estimates are reported. Superscripts mean that there was a significant difference ($p < 0.050$) using Bonferroni's adjustment for multiple comparisons: [a]significant difference from 1984, [b]significant difference from 1994, [c]significant difference from 2004, and [d]significant difference from 2014.

Table IX. Contribution of NOVA groups and subgroups to sodium, potassium, fiber and iron supply in Mexican households from 1984 to 2018

	Sodium (average of percentage)					Potassium (average of percentage)				
	84	94	04	14	18	84	94	04	14	18
UMPF	30.9	33.0	27.9[a,b]	23.6[a,b,c]	23.5[a,b,c]	79.1	79.4	78.3[b]	75.7[a,b,c]	75.1[a,b,c,d]
Cereals and tubers	1.9	1.5	1.2[a,b]	1.0[a,b,c]	1.0[a,b,c]	25.8	23.5[a]	24.1[a]	25.0[b,c]	25.0[b,c]
Fruits and vegetables	2.9	2.3	2.1	2.1	2.1	14.3	15.8[a]	16.9[a,b]	18.0[a,b,c]	18.3[a,b,c]
Legumes	2.8	1.9[a]	1.3[a,b]	1.1[a,b,c]	0.9[a,b,c,d]	15.4	13.2[a]	11.6[a,b]	10.7[a,b,c]	9.3[a,b,c,d]
Meat, dairy and egg	23.2	27.2[a]	22.9[b]	19.0[a,b,c]	19.1[a,b,c]	23.5	26.8[a]	25.2[a,b]	21.3[a,b,c]	21.8[a,b,c]
Ingredients	12.2	9.5[a]	6.1[a,b]	4.6[a,b,c]	4.3[a,b,c]	0.2	0.2	0.2	0.2	0.2
Salt	11.8	9.1[a]	5.7[a,b]	4.3[a,b,c]	4.0[a,b,c]	0.0	0.0	0.0	0.0	0.0
PFD	42.4	35.4[a]	38.9[a,b]	42.4[b,c]	43.5[b,c,d]	3.5	4.0	4.6[a,b]	5.9[a,b,c]	7.6[a,b,c,d]
Cereals	34.5	23.7[a]	25.5[a,b]	26.5[a,b]	26.1[a,b]	1.6	1.1[a]	1.3[a]	1.5[b]	1.6[b,c]
Meat and dairy	5.1	7.0[a]	7.8[a]	9.2[a,b,c]	9.2[a,b,c]	0.6	0.5	0.3[a,b]	0.4	0.4
UPFD	11.5	19.6[a]	24.4[a,b]	26.7[a,b,c]	26.2[a,b,c]	1.8	3.2[a]	5.9[a,b]	8.2[a,b,c]	8.6[a,b,c]
Cereals	3.3	5.8[a]	8.5[a,b]	9.9[a,b,c]	10.3[a,b,c]	0.3	0.5	1.1[a,b]	1.3[a,b,c]	1.5[a,b,c]
Meat	3.7	7.9[a]	9.4[a,b]	8.8[a,b]	7.8[a,c,d]	0.5	1.0[a]	2.5[a,b]	2.8[a,b,c]	2.9[a,b,c]

	Fiber (average of percentage)					Iron (average of percentage)				
	84	94	04	14	18	84	94	04	14	18
UMP	78.0	79.1	76.2[a,b]	76.5[a,b]	75.5[a,b,c,d]	73.5	74.9	71.7[a,b]	70.5[a,b,c]	70.1[a,b,c]
Cereals and tubers	37.6	36.5	35.7[a]	34.9[a,b]	35.4[a,b]	38.3	36.8	35.8[a]	37.0[c]	36.6[a]
Fruits and vegetables	28.2	31.8[a]	31.0[a]	33.1[a,b,c]	32.7[a,c]	8.1	9.3	9.8[a]	10.0[a,b]	9.8[a]
Legumes	12.3	10.7[a]	9.5[a,b]	8.5[a,b,c]	7.4[a,b,c,d]	11.4	9.9[a]	8.7[a,b]	8.2[a,b,c]	7.0[a,b,c,d]
Meat, dairy and egg	0.00	0.00	0.00	0.00	0.00	15.5	18.6[a]	17.0[a,b]	15.0[b,c]	16.2[b,c,d]
Ingredients	0.00	0.00	0.00	0.00	0.00	1.3	1.1	0.8[a,b]	0.6[a,b,c]	0.6[a,b,c]
PFD	7.1	5.9[a]	7.1[b]	6.4[c]	8.0[a,c,d]	10.6	8.3[a]	10.0[b]	11.2[b,c]	12.4[a,b,c,d]
Cereals	6.6	4.7[a]	5.9[b]	4.2[a,b,c]	4.5[a,b,c]	8.8	5.8[a]	6.5[a,b]	6.4[a,b]	6.3[a,b]
UPFD	2.6	4.4[a]	7.5[a,b]	9.3[a,b,c]	10.0[a,b,c,d]	3.3	5.8[a]	9.4[a,b]	10.4[a,b,c]	10.8[a,b,c]
Cereals	2.3	3.6[a]	6.0[a,b]	6.7[a,b,c]	7.0[a,b,c]	1.5	2.8[a]	5.7[a,b]	6.0[a,b]	6.1[a,b,c]

M: mean; UMP: unprocessed or minimally processed; PCI: processed culinary ingredients; PFD: processed foods and drinks; UPFD: ultra-processed foods and drinks; SS: sugar-sweetened. Percent contribution of each nutriment to total daily household food supply by adult equivalent. Weighted estimates are reported. Superscripts mean that there was a significant difference (p < 0.050) using Bonferroni's adjustment for multiple comparisons: [a]significant difference from 1984, [b]significant difference from 1994, [c]significant difference from 2004, and [d]significant difference from 2014.