Changes in the food and beverage consumption pattern in Argentina, 1996-2013

Cambios en el patrón de consumo de alimentos y bebidas en Argentina, 1996-2013

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ABSTRACT The dietary pattern of the population has shifted in recent years as a result of cultural changes and modifications in food accessibility. In order to describe the changes in food and beverage consumption patterns in the last two decades in Argentina, the National Survey of Household Expenditure [*Encuesta Nacional de Gastos de los Hogares*] was analyzed for the periods 1996-1997, 2004-2005 and 2012-2013. The average apparent consumption of food and beverages in grams or milliliters of net weight per adult equivalent was estimated for each period. The variation in the amount of food and beverages available for consumption between 1996 and 2013 shows that the structure of the dietary pattern has changed, appearing to indicate shifts in the ways of buying, preparing and consuming foods related to greater convenience and accessibility and less time spent on food preparation.
KEY WORDS Food Consumption; Food and Beverages; Food Habits; Socioeconomic Survey; Argentina.

RESUMEN El patrón alimentario de la población se ha modificado en los últimos años como consecuencia de cambios culturales y en la accesibilidad a los alimentos. Con el objetivo de describir los cambios en el patrón de consumo de alimentos y bebidas en las últimas dos décadas en Argentina, se analizó la Encuesta Nacional de Gastos de los Hogares de los años 1996-1997, 2004-2005 y 2012-2013. Se estimó el consumo aparente promedio de alimentos y bebidas en gramos o mililitros de peso neto por adulto equivalente para cada período. La variación en la cantidad de alimentos y bebidas disponibles para consumo entre 1996 y 2013 muestra un cambio en la estructura del patrón de dieta, que parece indicar un cambio en la forma de comprar, preparar y consumir los alimentos, relacionado con una mayor practicidad, más accesibilidad y menos tiempo dedicado a la preparación de los alimentos.
PALABRAS CLAVES Consumo de Alimentos; Alimentos y Bebidas; Hábitos Alimenticios; Encuesta Socioeconómica; Argentina.

INTRODUCTION

Over the years, Latin America has been affected by demographic, epidemiological, social and economic changes that directly or indirectly had an impact on food habits, lifestyle and health of the population.[1] Changes in dietary patterns and physical activity are described as determining factors for obesity in the context of socio-economic and demographic evolution.[2,3] In Latin America, overweight and obesity coexist with malnutrition, either by stunting, anemia or zinc deficiency.[4]

Urban societies have adopted sedentary lifestyles and a diet that is characterized for having poor nutritional quality (food that is high in saturated fats, sugar, sodium and poor in fiber and micronutrients).[5] These changes in food and physical activity have been associated to the increased obesity rates, which represents a high impact on morbidity and mortality, life quality and health care expenditure.[6]

Over time, food habits evolve under the influence of many complex interaction factors. Income, prices, individual preferences, beliefs and cultural traditions, marketing strategies and massification of food products, as well as geographical, environmental, social and economic factors conform, in a complex interaction, the characteristics of food consumption.[5]

The scarcity studies of population studies with national representativity using methods of food evaluation considered a reference standard, like 24-hour recall or records of food consumption, has been in the past and is still an obstacle to work on evidence-based nutrition and to plan food policies. The household expenditure surveys that are conducted periodically have national representativity and in the last years have been used in many countries as an approximated measure to bridge the gap regarding food and nutritional information.[7,8,9]

Studying changes in apparent consumption over time is essential to design and to redirect public policies, to plan educational campaigns and to guide food production and availability. The aim of this paper is to describe the changes in the food and beverage consumption in the last two decades in Argentina thanks to the information gathered in the National Survey of Household Expenditure (ENGHo) [*Encuesta Nacional de Gastos de los Hogares*] for the periods 1996-1997, 2004-2005 and 2012-2013, and the consumption differences between income quintiles in the last period.

METHOD AND MATERIAL

The analysis was made using the information of the databases of income and expenditures of the ENGHo conducted by the National Institute of Statistics and Censuses (INDEC) [*Instituto Nacional de Estadística y Censos*] for the periods 1996-1997, 2004-2005 and 2012-2013. The sample of the surveys from 1996-1997 and 2012-2013 belongs to urban households from localities of 5000 or more residents, whereas the survey for the period 2004-2005 includes urban (93.4%) and rural localities.

This study considered as apparent consumption or availability for consumption the amounts of food and beverages bought for consumption in the household or bought and consumed outside the household (at restaurants, bars and salons). The 1996-1997 survey only registered food bought for consumption in the household. The gathering of information on the total amounts of food and beverages bought for each household took a week. For the analysis, the weighting factor was considered for each household.

The 1996-1997 survey includes 98 food and beverage items, the one for 2004-2005, 400 items and the one for 2012-2013, 405 items. For the purpose of this analysis, categories have been unified taking the items from 1996-1997 as a reference, with the exception of those food and beverages that had not been registered on the first survey. The resulting number of food and beverages was grouped depending on their nutritional characteristics. From 2004-2005 survey, food

and beverages for consumption outside the household were registered.

The food and beverages registered on the questionnaire for each household were transformed from their gross weight to grams of net weight, using the relevant correction factor for each food in accordance with the correction factor of the System of Analysis and Registry of Food [*Sistema de Análisis y Registro de Alimentos*][10,11] – SARA Software – and the chart compiled by the School of Nutrition of the Universidad de Buenos Aires (UBA).[12] In those cases where food and beverages were registered as units, the reference chart of weight and measures of SARA software[11] and the chart compiled by López[12] were used for the transformation to grams of net weight.

The total amount of equivalent adults per household was calculated. An equivalent adult, with coefficient 1, corresponds to a male between 30 and 59 years old, with a moderate activity and energy needs of 2700 Kcal. Coefficients are estimated according to the caloric needs of each biological group.[13]

After the transformation of all food and beverages from grams or milliliters of net weight per day, the total amounts were divided by the total amount of equivalent adults in the household. Consumption was expressed in the daily average grams or milliliters of food and beverages per equivalent adult, in net weight. Milk powder, juice powder and infusions are expressed in reconstituted values. The difference between the consumption of the highest household income quintile and the lowest household income quintile was estimated taking quintile 1 as a reference.

RESULTS

Table 1 shows the number of households and individuals polled in each period. On average, the amount of members and adults equivalents per household has slightly decreased between 1996 and 2013. This table

Table 1. Sample characteristics and household composition, according to the period in which the National Survey of Household Expenditure was performed. Argentina, 1996-2013.

Characteristics	1996-1997	2004-2005	2012-2013
Households (n)	27,260	29,138	20,960
Weighted households (n)	8,157,269	11,212,382	11,197,500
Individuals (n)	103,858	104,858	71,483
Weighted individuals (n)	29,397,441	38,257,977	36,138,213
Members per household			
<6 years old (mean ± SD)	0.4 ± 0.8	0.3 ± 0.7	0.3 ± 0.6
6 to 17 years old (mean ± SD)	0.8 ± 1.2	0.7 ± 1.1	0.7 ± 1.0
18 to 64 years old (mean ± SD)	2.0 ± 1.2	2.0 ± 1.2	1.9 ± 1.2
65 and more years old (mean ± SD)	0.3 ± 0.6	0.3 ± 0.6	0.3 ± 0.6
Total (mean ± SD)	3.6 ± 2.0	3.4 ± 1.9	3.2 ± 1.8
Equivalent adults per household (mean ± SD)	2.9 ± 1.6	2.7 ± 1.5	2.6 ± 1.5
Employment of women between 18 and 60 years old (%)	44.1	53.9	54.5

Source: Prepared by the authors on the basis of information of the National Survey of Household Expenditure (ENGHo).
SD= Standard deviations.

Table 2. Apparent average food and beverage consumption per equivalent adult (grams or milliliters per day), according to the period of the National Survey of Household Expenditure [Encuesta Nacional de Gastos de los Hogares]. Argentina 1996-2013.

Food and beverages	1996-1997 (g/ml per day)	2004-2005 (g/ml per day)	2012-2013 (g/ml per day)
Cereals			
Rice	26.7	23.1	28.6
Wheat flour	29.4	25.6	20.4
Other cereals (grains and flours)	7.6	9.2	7.9
Dry noodles	23.3	25.3	29.9
Pasta and fresh noodles	11.9	12.2	12.4
Store bought pie crust	5.4	5.6	7.7
Breakfast cereals and cereal bars	-	1.2	1.5
Total amount of cereals:	104.3	102.2	108.4
Legumes			
Fresh, dried and canned legumes	7.7	3.1	4.0
Baked goods and cookies			
Bakery bread	157.2	143.5	116.8
Pre-packed bread	10.6	5.7	7.0
Pizza dough	5.4	5.8	7.2
Patisserie products	10.8	17.9	14.6
Cookies	26,6	24,3	31,2
Total amount of baked goods and cookies:	210,6	197,2	176,8
Fruits			
Banana	18.5	17.6	17.0
Peach	7.7	5.5	4.6
Tangerine	20.9	11.6	7.8
Apple	38.6	21.4	17.3
Orange	26.9	20	16.8
Pear	8.7	4.5	5.4
Other fresh fruits	26.2	21.4	17.9
Canned fruits	7.3	2.6	4.7
Dry and dehydrated fruits	-	0.3	0.4
Total amount of fruits:	154.8	104.8	91.9
Vegetables			
Potato	113.8	92.2	69.6
Lettuce	9.5	7.9	7.6
Tomato	41.2	38.2	36.6
Pumpkin	13.2	11.1	9.4
Carrot	15.7	13.5	12.9
Canned tomatoes	12.9	14.8	16.4
Onion	25.3	26.0	26.6
Other starchy vegetables	5.8	16.0	13.1
Other non-starchy vegetables	36.8	27.5	25.5
Total amount of starchy vegetables	119.6	108.3	82.7
Total amount of non-starchy vegetables	154.6	139.0	135.1
Total amount of vegetables:	274.2	247.2	217.7

Source: Prepared by the authors on the basis of information of the National Survey of Household Expenditure (ENGHo).

Table 2. Continued.

Food and beverages	1996-1997 (g/ml per day)	2004-2005 (g/ml per day)	2012-2013 (g/ml per day)
Dairy products			
Milk	179.5	119.3	120.9
Milk powder (reconstituted)	47.3	17.9	19.1
Yogurt	23.8	30.8	33.2
Soft cheeses	13.7	13.8	17.4
Hard cheeses	2.3	2.7	3.1
Semi-hard cheeses	4.4	3.5	4.3
Cream and spreadable cheese	2.7	2.2	3.1
Dairy desserts and others		2.1	1.8
Total amount of dairy products:	273.7	192.2	202.8
Meat and eggs			
Cow meat	116.0	96.6	84.4
Chicken	47.6	37.3	51.6
Fish and shellfish	9.7	6.5	8.2
Sheep and pork meat	3.4	3.9	5.2
Semi-finished meat products	11.5	15.6	32.1
Viscera, offal and bones	11.5	12.3	11.1
Cold meats and sausages	15.9	15.6	17.6
Eggs	16.7	20.7	20.2
Total amount of meat and eggs:	232.2	208.4	230.3
Oils and fats			
Blended oils	23.5	14.5	5.6
Pure oils	14.8	13.9	24.0
Butter	3.3	2.5	2.9
Mayonnaise	4.1	3.3	4.6
Margarine and other fats	3.1	3.9	3.3
Total amount of oils and fats:	48.8	38	40.4
Sugars, sweets, candies and desserts			
Sugar	48.0	37.9	31.2
Compact and spreadable jam	14.7	9.0	8.7
Ice-creams and desserts	4.6	7.7	8.0
Alfajores [Two cookies filled with sweet/jam and dipped in sugar or chocolate.]	1.9	2.5	2.2
Candies, bubble gum and lollipop	2.1	2.3	2.3
Chocolates	3.0	1.8	1.4
Other sweets	0.9	0.7	0.8
Sweetened or non-sweetened cocoa	-	0.9	0.2
Total amount of sugars, sweets, candies and desserts:	75.2	62.9	54.9
Non-alcoholic drinks			
Mineral and sparkling water	160.7	84.8	123.4
Soft drinks	97.3	205.6	198.1
Juice powder	66.6	84.9	158.9
Other juices	46.3	17.1	15.4
Other non-alcoholic drinks	-	8.3	28.1
Infusions			
Coffee	218.1	110.2	148.2
Tea	131.6	65.3	72.1
Mate [Hot beverage of Yerba mate]	454.8	376.3	406.4
Other infusions	-	17.3	14.0

Source: Prepared by the authors on the basis of information of the National Survey of Household Expenditure (ENGHo).

Table 2. Continued.

Food and beverages	1996-1997 (g/ml per day)	2004-2005 (g/ml per day)	2012-2013 (g/ml per day)
Alcoholic drinks			
Beer	28.2	23.9	27.4
Wine	54.7	38.7	29.3
Other alcoholic drinks	5.3	6.0	6.0
Meals ready-to-eat in the household			
Pizza, sandwiches, empanadas [turnover consisting of pastry and filling] and store bought pies	7.0	22.5	30.5
Other meals ready-to-eat	8.4	14.9	17.5
Meals ready-to-eat outside the household			
Pizza, sandwiches, empanadas and store bought pies	-	8.5	6.4
Other meals ready-to-eat	-	1.4	2.0
Breakfast and afternoon snack	-	5.8	3.5
Lunch or dinner	-	33.6	22.4
Other foods			
Salt (table or cooking)	6.0	5.6	4.9
Sauces and dressings	1.2	0.4	0.8
Snacks	-	1.1	1.7

Source: Prepared by the authors on the basis of information of the National Survey of Household Expenditure (ENGHo).

exhibits an increase in the proportion of adult women that joined the labor market between the first survey and the subsequent ones.

Table 2 presents, in a disaggregated way, the amount of food and beverages consumed per equivalent adult per year of survey. Figure 1 reflects the change in availability of food and beverages for consumption in the Argentine population between 1996-1997 and 2012-2013, while figure 2 reflects the percentage change between both periods.

Between 1996 and 2013, the total apparent consumption of cereals has not changed substantially (2.3%). Within this group, wheat flour consumption has decreased, while availability for consumption of the other food has increased in Argentine households. Store bought pie crust and *empanada* crust reflect the highest relative increase, followed by the breakfast cereals and the cereal bars, noodles and pasta. dried and canned legumes amount were reduced from 7.7 g. to 4.0 g.

The availability of bread for consumption decreased, both in its fresh version and its packaged version, and the apparent consumption of patisserie products was in the period 1996-1997 of 10.8 grams per day and that of cookies was of 26.6 grams per day, while in the period 2012-2013, it reached 14.6 g/d and 31.2 g/d each.

Fruits and vegetables reflect a sharp drop in consumption. In the period 1996-1997, the amount of non-starchy vegetables and fruits reached 309 g/d and, in the period 2012-2013, it was 227 g/d, which produced a drop of 27%, while the amount of starchy vegetables decreased 30.9%.

Dairy products decreased 25.9% and, within this group, milk decreased from 227 ml/d to 140 ml/d, while the amount of yogurt and cheese increased.

Grams or milliliters

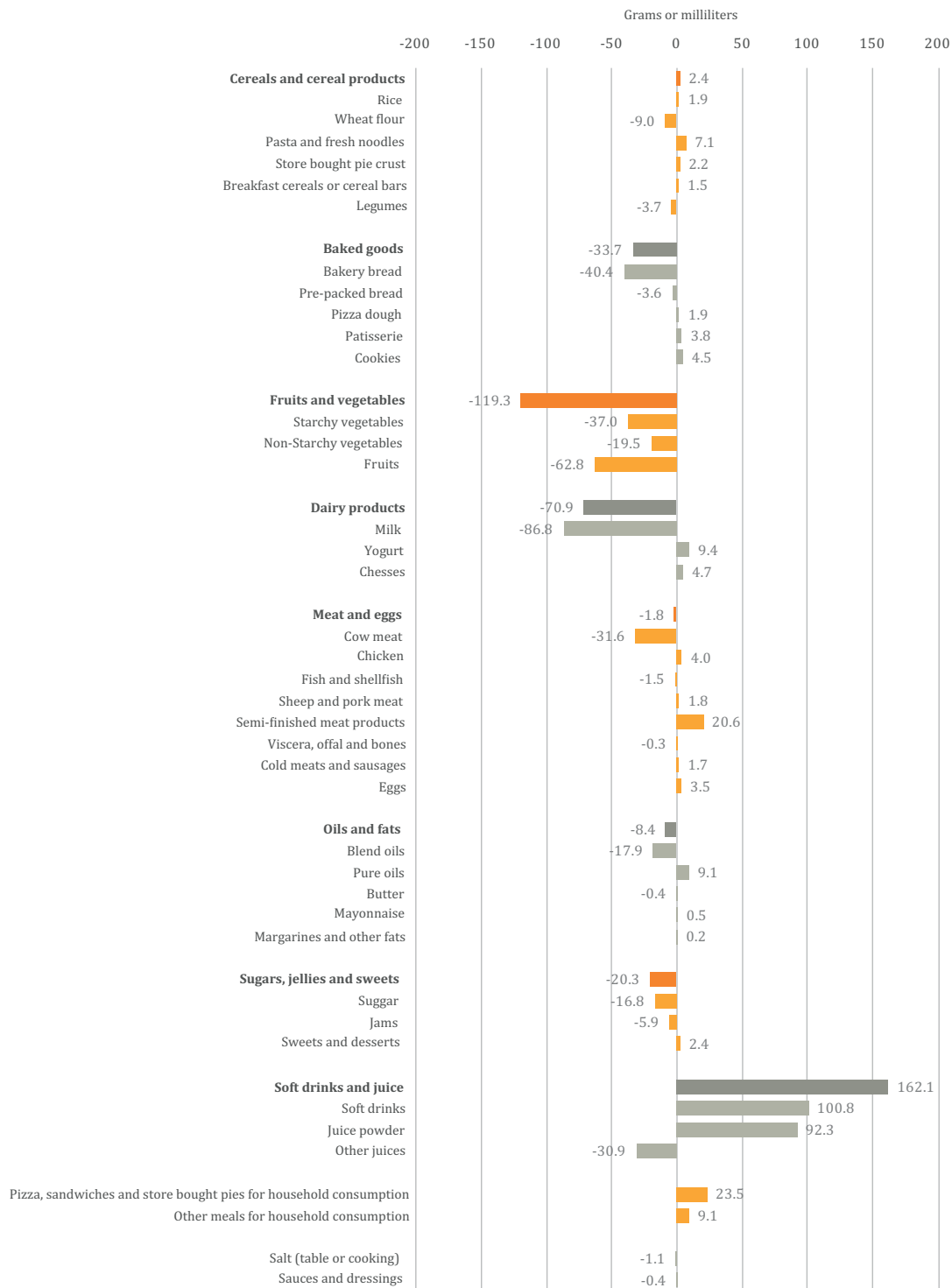| Category	Value
Cereals and cereal products	2.4
Rice	1.9
Wheat flour	-9.0
Pasta and fresh noodles	7.1
Store bought pie crust	2.2
Breakfast cereals or cereal bars	1.5
Legumes	-3.7
Baked goods	-33.7
Bakery bread	-40.4
Pre-packed bread	-3.6
Pizza dough	1.9
Patisserie	3.8
Cookies	4.5
Fruits and vegetables	-119.3
Starchy vegetables	-37.0
Non-Starchy vegetables	-19.5
Fruits	-62.8
Dairy products	-70.9
Milk	-86.8
Yogurt	9.4
Chesses	4.7
Meat and eggs	-1.8
Cow meat	-31.6
Chicken	4.0
Fish and shellfish	-1.5
Sheep and pork meat	1.8
Semi-finished meat products	20.6
Viscera, offal and bones	-0.3
Cold meats and sausages	1.7
Eggs	3.5
Oils and fats	-8.4
Blend oils	-17.9
Pure oils	9.1
Butter	-0.4
Mayonnaise	0.5
Margarines and other fats	0.2
Sugars, jellies and sweets	-20.3
Suggar	-16.8
Jams	-5.9
Sweets and desserts	2.4
Soft drinks and juice	162.1
Soft drinks	100.8
Juice powder	92.3
Other juices	-30.9
Pizza, sandwiches and store bought pies for household consumption	23.5
Other meals for household consumption	9.1
Salt (table or cooking)	-1.1
Sauces and dressings	-0.4

Figure 1. Changes in the availability of food and beverages for consumption in the Argentine population between 1996-1997 and 2012-2013 (expressed in grams and milliliters equivalent per adult per day).

Source: Prepared by the authors on the basis of information of the National Survey of Household Expenditure (ENGHo).
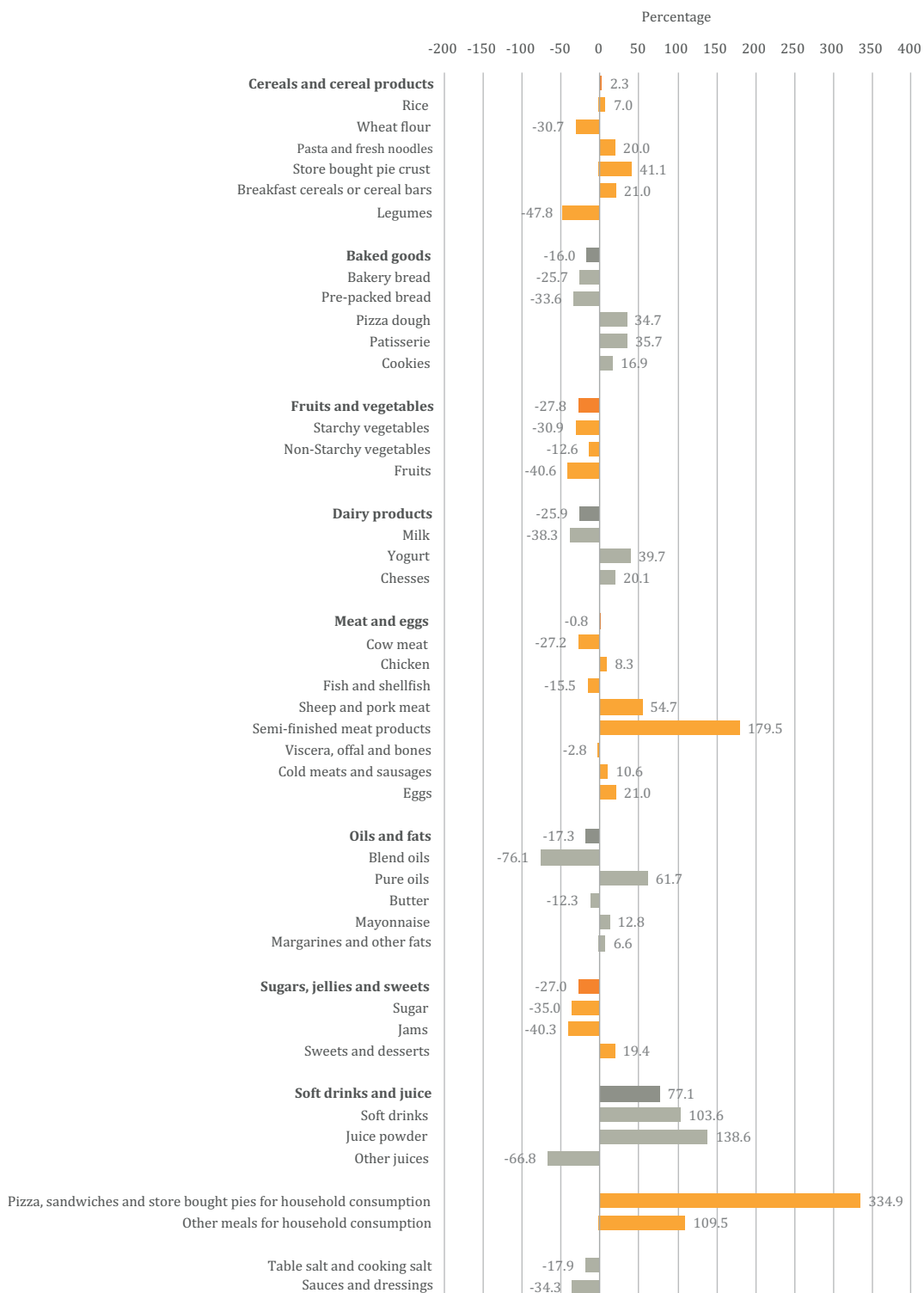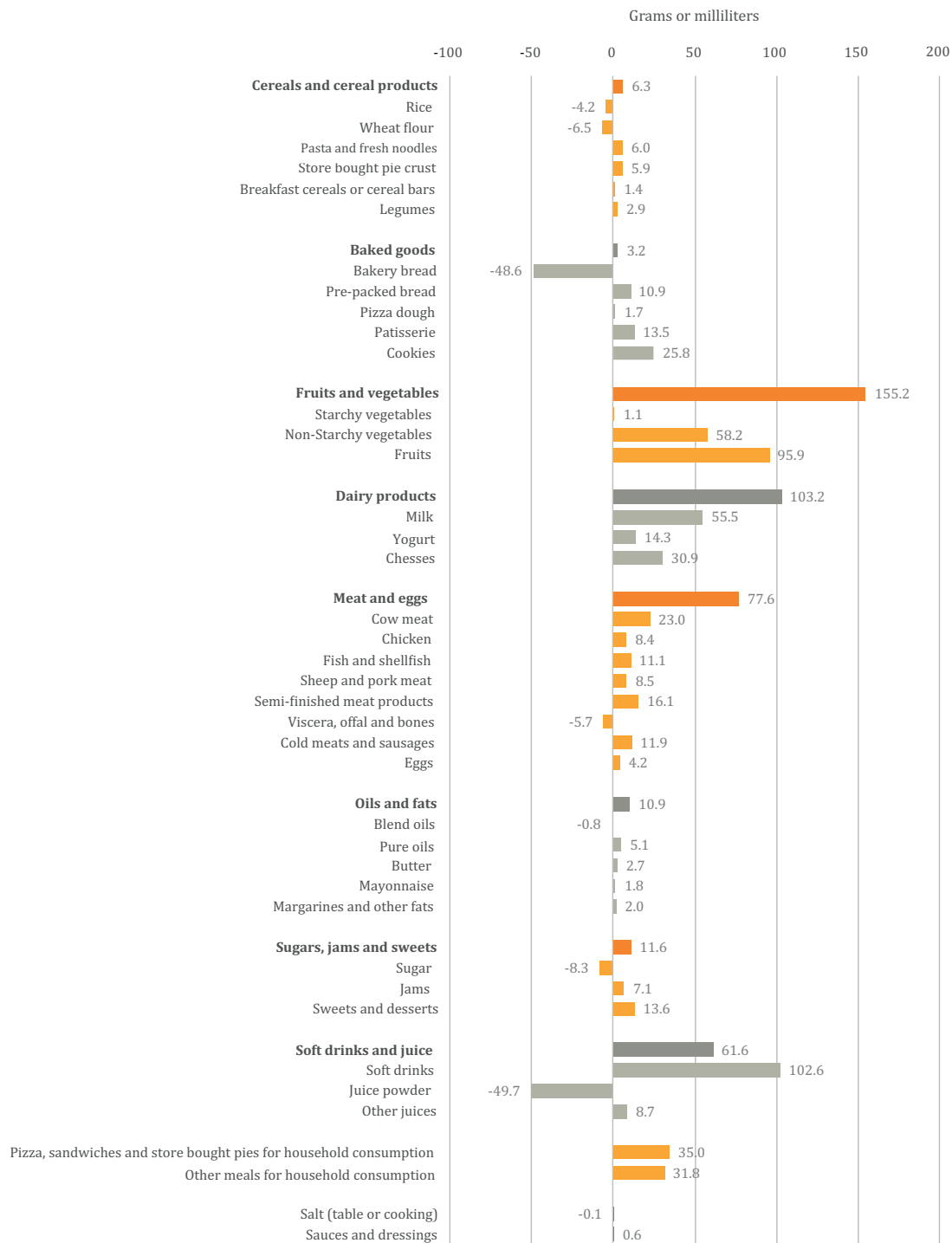
Percentage

| | -200 | -150 | -100 | -50 | 0 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 |

Cereals and cereal products 2.3
Rice 7.0
Wheat flour -30.7
Pasta and fresh noodles 20.0
Store bought pie crust 41.1
Breakfast cereals or cereal bars 21.0
Legumes -47.8

Baked goods -16.0
Bakery bread -25.7
Pre-packed bread -33.6
Pizza dough 34.7
Patisserie 35.7
Cookies 16.9

Fruits and vegetables -27.8
Starchy vegetables -30.9
Non-Starchy vegetables -12.6
Fruits -40.6

Dairy products -25.9
Milk -38.3
Yogurt 39.7
Chesses 20.1

Meat and eggs -0.8
Cow meat -27.2
Chicken 8.3
Fish and shellfish -15.5
Sheep and pork meat 54.7
Semi-finished meat products 179.5
Viscera, offal and bones -2.8
Cold meats and sausages 10.6
Eggs 21.0

Oils and fats -17.3
Blend oils -76.1
Pure oils 61.7
Butter -12.3
Mayonnaise 12.8
Margarines and other fats 6.6

Sugars, jellies and sweets -27.0
Sugar -35.0
Jams -40.3
Sweets and desserts 19.4

Soft drinks and juice 77.1
Soft drinks 103.6
Juice powder 138.6
Other juices -66.8

Pizza, sandwiches and store bought pies for household consumption 334.9
Other meals for household consumption 109.5

Table salt and cooking salt -17.9
Sauces and dressings -34.3

Figure 2. Changes in the availability of food and beverages for consumption in the Argentine population between 1996-1997 and 2012-2013 (expressed in percentage equivalent per adult per day).

Source: Prepared by the authors in accordance with the information from the National Survey of Household Expenditure (ENGHo).

Grams or milliliters

Cereals and cereal products	6.3
Rice	-4.2
Wheat flour	-6.5
Pasta and fresh noodles	6.0
Store bought pie crust	5.9
Breakfast cereals or cereal bars	1.4
Legumes	2.9
Baked goods	3.2
Bakery bread	-48.6
Pre-packed bread	10.9
Pizza dough	1.7
Patisserie	13.5
Cookies	25.8
Fruits and vegetables	155.2
Starchy vegetables	1.1
Non-Starchy vegetables	58.2
Fruits	95.9
Dairy products	103.2
Milk	55.5
Yogurt	14.3
Chesses	30.9
Meat and eggs	77.6
Cow meat	23.0
Chicken	8.4
Fish and shellfish	11.1
Sheep and pork meat	8.5
Semi-finished meat products	16.1
Viscera, offal and bones	-5.7
Cold meats and sausages	11.9
Eggs	4.2
Oils and fats	10.9
Blend oils	-0.8
Pure oils	5.1
Butter	2.7
Mayonnaise	1.8
Margarines and other fats	2.0
Sugars, jams and sweets	11.6
Sugar	-8.3
Jams	7.1
Sweets and desserts	13.6
Soft drinks and juice	61.6
Soft drinks	102.6
Juice powder	-49.7
Other juices	8.7
Pizza, sandwiches and store bought pies for household consumption	35.0
Other meals for household consumption	31.8
Salt (table or cooking)	-0.1
Sauces and dressings	0.6

Figure 3. Difference in food and beverage consumption between the quintile one and five in 2012-2013 (expressed in grams or milliliters per adult equivalent to a day).

Source: Prepared by the authors in accordance with the information from the National Survey of Household Expenditure (ENGHo).

Within the meat group, cow meat decreased 27.2% and fish and shellfish decreased 15.5%. Chicken consumption increased 8.3% and sheep and pork meat increased 54.7%. Semi-finished meat products reflect the bigger percentage change and, between 1996 and 2013, its availability for consumption was tripled. The egg consumption increased from 16.7 g/d to 20.2g/d.

The apparent consumption of oil and fat decreased. Oil consumption has not significantly changed, the change can be observed in the type of oils, whereas blend oils decreased 76.1%, pure oils (mainly sunflower oil) increased 61.7%. Mayonnaise, margarine and other fat consumption slightly increased on the period case of study, and butter consumption slightly decreased.

Table sugar and compact and spreadable jam consumption decreased 38%, the table sugar consumption decreased from 48 g/d to 31 g/d, the equivalent of going from 10 teaspoons a day to 6 teaspoons a day added to infusions and preparations. Candies and desserts increased from 12.5g/d to 14.9g/d.

The availability for consumption of soft drinks in the Argentine population was doubled, in the period 1996-1997 the consumption was of half a glass a day (97 ml) and in the period 2012-2013 it was of a glass a day (198 ml/d). Juice powder consumption increased 2.3 times (from 67 ml/d to 159 ml/d). Undiluted juices consumption and juice concentrate decreased by 66.8%.

The apparent consumption of pizzas, sandwiches, *empanadas* and store bought pies for household consumption quadrupled between 1996 and 2013, going from 7.0g/d to 30.5g/d, and the consumption of other ready-to-eat meals based on meat, chicken, cereals and vegetables doubled (from 8.4g/d to 17.5g/d).

The availability of table salt and cooking salt in the household decreased by 18% in the period case of study, decreasing from 6.0g/d to 4.9g/d per equivalent adult.

Figure 3 shows the differences in the food and beverage consumption between an equivalent adult to the quintile of incomes 1 and the quintile of incomes 5, during the the last survey carried out. The only foods which are not consumed in larger amounts in households under quintile 1 are juice powder, bakery bread, sugar, wheat flour, viscera, offal, bones, rice and oil blend.

DISCUSSION

The aim of this study was to describe changes in the food and beverage consumption pattern in the last two decades in Argentina based on the information about the apparent consumption or availability for the consumption in households.

Surveys on family budgets and expenses, despite being performed with a specific aim, have served traditionally to carry out different dietary studies, especially related to the analysis of consumption and the effects of several conditioning factors.[14] The methodology of apparent consumption is a quick way to learn about household consumption while being less intrusive. The food purchase used to estimate consumption may be more useful in families with lower income, and where waste or any other destinations of food purchased are minimal. Using food and beverage purchase data to estimate the apparent consumption at an individual level requires information or assumptions about the distribution of food within the household. Despite their limitations, surveys of household expenditure are an underused instrument that possess a great potential to assess the consumption of food and beverage, principally in low and middle income countries.[7]

A number of countries have used this methodology to assess the apparent food consumption among their population. Some of them are: Chile,[15,16] Uruguay,[17] Brazil,[18,19] Ecuador,[20] Mexico,[21,22] Spain[23,24] and The United Kingdom.[25] In Argentina, the National Survey of Family Expenditure (ENGHo) has been carried out on three occasions (1996-1997, 2004-2005, 2012-2013) with national representativity, by the National Statistics and Censuses Institute (INDEC) with the aim of updating the basic household cost of living, almost every ten years.

Diets develop over time under the influence of many factors and complex interactions. Income, prices, individual preferences, beliefs, and cultural traditions, and also geographical, environmental, social and economic factors form the characteristics of the consumption of the environment,[5] in its complex interaction. Demographic, technological, economic and environmental processes that occur simultaneously all over the world have a big impact on the supply of food. These processes, along with the quick urbanization and international borders becoming increasingly clear, are having a big impact on the availability of food, and generally tend to have a greater degree of preparation of food in the moment of obtaining them.[26, 27, 28, 29]

During the last half of the 20th century, there were significant changes in the food consumption patterns all over the world.[30] This study shows that, in Argentina, the apparent consumption of food and beverage has been changed during 1996 and 2013. The reduction in the apparent consumption of fruits and vegetables, wheat flour, legumes, cow meat and milk as well as the increase in the consumption of store bought pie crust and *empanada* crust, yogurt, pig meat, semi-finished meat products, soft drinks, juice, and ready-to-eat food are remarkable. These variations show a change in the dietary pattern associated with an increase in the acquisition of food locally produced in industrialized countries and a reduction in the consumption of traditional food and with a low level of industrialization, such as vegetables, fruits, legumes, which also require greater time of preparation.

Changes in the dietary patterns may have significant consequences on the nutritional quality of eating practices found in the population. Changes in the structure of diets affect all society in different ways,[31] and seem to indicate a change in the way the purchase, preparation and consumption of food is made, partly related to the incorporation of women to the labor market, which has increased from the first survey.

Currently, about a half of Argentine women are part of the labor market.[32] and therefore, the time dedicated to housework and the preparation of food has decreased. On top of this there are more women who are less educated in culinary skills and meal preparation and who, as a result, depend more on Foods that are easily prepared or ready-to-eat. The percentage of people who must prepare one or more meals to eat outside their homes for work reasons is increasing. Also, children and teenagers do not eat regularly at home because they prefer to socialize, because there is nobody at home or worse, because they have no food. Even when the market offers more healthy options, it is known that a large share of food consumed outside the household has worse nutritional characteristic than the ones which are prepared in the household.[33]

Argentina, like all of the other countries in the Southern Cone, presents a dietary model or pattern organized by the core wheat-meat.[34] During the 19th and the 20th centuries, the Argentine diet was characterized by the high consumption of cow meat.[35] The meat pattern is explained by a confluence of factors: both the low density of population and the easy cattle raising in the plains, which have conditioned the actual low prices in the market, and the nutritional density, the feeling of satiety and the prestige that its consumption had.[36] The consumption of cow meat has been reduced because of an increase in the consumption of chicken, pig, semi-finished meat products, cold meat, and sausages, whereas in the case of wheat it is observed that there has been a change in the consumption patterns, a decrease in the consumption of fresh bread and flour and a consequent increase in the consumption of noodles, cookies, pastries and baked goods and store bought pie crust, *empanadas* and pizzas for preparation.

Consumption patterns are also conditioned by household income and the access to food. According to the analysis of ENGHo 2012-2013,[31] when income increases, households develop a more diverse diet and economically more expensive, increasing the consumption of dairy products, especially cheese, expanding the quantity and diversity

of fruits and vegetables; the same occurs with the consumption of alcoholic and soft drinks and ready-to-eat food. The consumption of fresh pasta, store bought pie crust and *empanada* crust, packaged bread, pastries and baked goods and cookies increases proportionally in line with an increase in income, whereas consumption of French bread, wheat flour, and dried noodles decrease. Depending on the household income, different meat cuts are selected and different oils and fatty substances are used.

Marketing and advertising of food and beverage have been identified as one of the decisive factors in the consumption of food and beverage of poor nutritional quality, principally in the child population. Among the strategies used, messages appearing in food labels, communication in the media, price strategy, easy accessibility, food valorization, and food convenience[39] are highlighted.

Food and beverage that have increased mostly in the Argentine diet over the last years are the most recurrent in advertising.

It is important to characterize the level and the extent of changes in food consumption patterns.[30] Diet and lifestyle have important roles, because they have led to a harmonic development of human beings to increase life quality.[40] The nutrition status of a population, now valued based on the nutritional education and dietary habits, is directly connected with the social and economic development of a country. Studying the changes in the apparent consumption over time is essential to design and redirect public policies, to plan educational campaigns, and guide the production and availability of food, with the aim of improving the eating practices of the population, principally during childhood, which is the stage in which dietary habits and lifestyle are consolidated.

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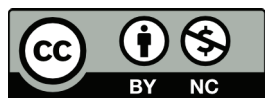
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