

Cost and affordability of diets during a pandemic year

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Team



FIC Argentina has an interdisciplinary team that works with the mission of promoting public policies and social changes to defend the **right to health** through the reduction of **non-communicable diseases**.

WORK AREAS

Research | Communication
Advocacy | Administration





I declare that I have no conflict of interest.

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- International Development Research Centre (IDRC)
- National Institutes of Health (NIH)
- American Heart Association (AHA)
- American Cancer Society (ACS)
- Global Smokefree Partnership (GSFP)
- Becas Salud Investiga “Dr.Abraam Sonis” (Msa)
- UNICEF Argentina



**Leveraging a National Big Data Source
to Measure Cost and Affordability Gaps
between Current and Healthy Diets:
an analysis for Argentina during the
Pandemic Year**

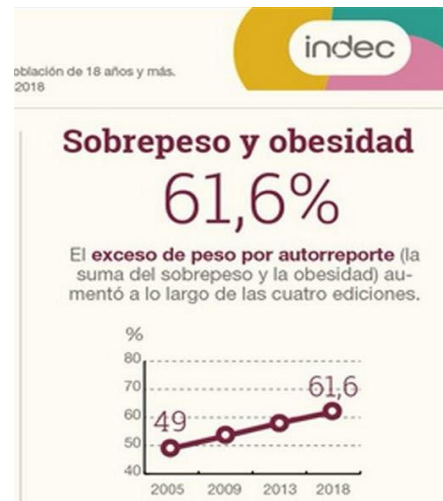
SUBMISSION 103

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Relevance

- **6 over 10 adults** in Argentina are overweighted. Upward trend since 2005.
- **Healthy diets** to reduce the prevalence of Chronic Noncommunicable Diseases (CND).
- **Obesity is a modifiable risk factor** for COVID-19 related mortality.



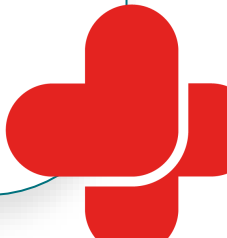
Implementing policies for **promoting healthy diets** is not only important to **prevent CND** but also in the fight **against the COVID-19 pandemic**

Motivation

- Food consumption habits as a **social phenomenon**
- Affected by **multiple factors**:
flavor, convenience, availability,
price and promotions.



Cost and affordability of food is recognized as **one of the most important barriers** for the population to access to a healthy diet



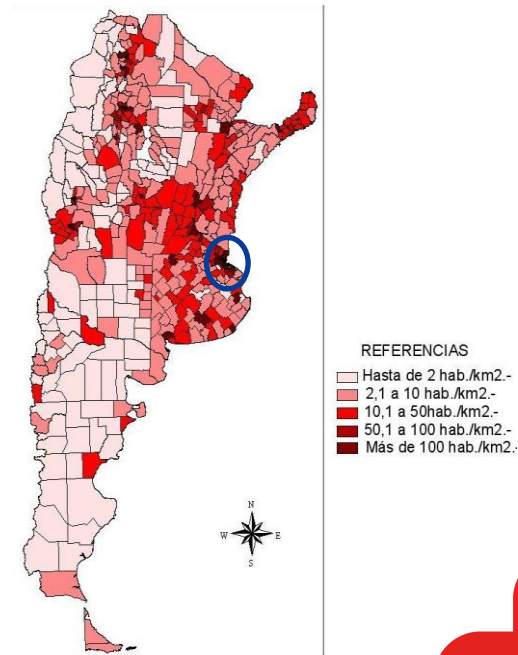
Objective

To analyze the cost and affordability gaps between current and healthy diets for the Argentinean population, during 2020.

The research was driven by the following questions:

1. Is a healthy diet more expensive, and less affordable, than the current diets for the Argentinean population?
2. How was the evolution of the cost and affordability gaps between current and healthy diets during 2020?

Analysis is focused on the Greater Buenos Aires Region (almost 40% of the population)



Methods

- **Current diet (CD):** basket of food products, habitual consumption patterns of the Argentine population.
- **Healthy diet (HD):** basket of food products, healthy options.
- **Affordability of diets:** indicates *how much of an average income is needed to buy a diet (a basket of food products).*

INFORMAS

Benchmarking food environments

Giacobone et al. *BMC Public Health* (2021) 21:891
<https://doi.org/10.1186/s12889-021-10914-6>

BMC Public Health

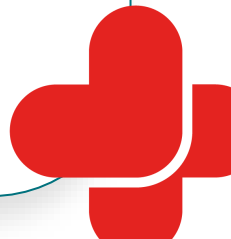
RESEARCH ARTICLE

Open Access

Measuring cost and affordability of current vs. healthy diets in Argentina: an application of linear programming and the INFORMAS protocol



Gabriel Giacobone¹, Maria Victoria Tiscornia¹, Lella Guarnieri¹, Luciana Castronuovo^{1*}, Sally Mackay² and Lorena Allemandi¹



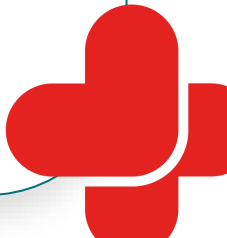
Methods

The **current diet** and two types of **healthy diets** were modelled:

- ✓ **HD1** have **equal energy intake** than the current diet
- ✓ **HD2** is 6.3% **lower in energy** than CD (based on literature review)

Diets were designed for

- A typical household
- A period of 14 days



Data

A major limitation is usually the **availability** of price data.

The main two price data sources:

- Consumer Price Index Survey (prices for the 50 most consumed food products, not representative for healthy diets)
 - Household Expenditure Survey (last survey from 2018, it did not survey prices directly, food prices are inferred from household declarations about total expenditure on each food product)

We leverage an unexplored National Big Data source as a tool to overcome these information limitations: **Precios Claros website** (PC)



Data

Precios Claros

- Electronic Price Advertising System
- Developed by the National Government.
- Product prices in different retailers and wholesalers throughout the country.
- Continually updated.
- On the background, a huge price data set.

Sistema Electrónico de Publicidad de Precios Argentinos
Encontrá el precio del producto que estás buscando

Nombre de producto o marca

Mostrar como:

[Cambiar ubicación](#)
Mi ubicación almacenada

Ver productos de
 > Almacén
 > Aceites

Aceite de Girasol Lira 900 Cc	Aceite de Girasol Cocinero 900 MI	Aceite de Mezcla Clovelly 900 MI
7790070231468 \$225,65 a \$239,20	7790070012050 \$135,45 a \$135,45	7798316700525 \$169,10 a \$172,50

How to get the data set?



Data

How to get the *Precios Claros* data set?

- Web Scraping on the website.
- Open Data Cordoba: two web scrapings of PC (one in 2018, and another in 2020).
- The code and downloaded data sets are publicly available.

What we did..

- We used the April 2020 dataset for the estimation of cost and affordability
- *(Future plans)* We are going to perform our own web scrapings to record food prices history



STEP 1: Price by food product

- Average retail prices of 112 food products.
- April 2020 PC dataset, downloaded by Open Data Cordoba.
- Greater Buenos Aires Region.

STEP 2: Diets design for Argentina

- Nutrition experts + INFORMAS Protocol + Dietary Guidelines + Household Expenditure Survey + WHO/PAHO recom.

STEP 3: Cost of the diets April 2020

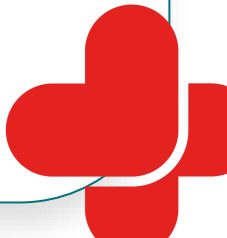
- Cost by food group (28 food groups), 3 different combinations per food group for each diet + Monte Carlo Simulation to estimate average cost of each diet

STEP 4: Estimation of diet costs along 2020

- Extrapolation of the food prices by applying Food Groups Price variability (Consumer Price Index - INDEC).
- Cost of the diets (repeat step 3) for each month.

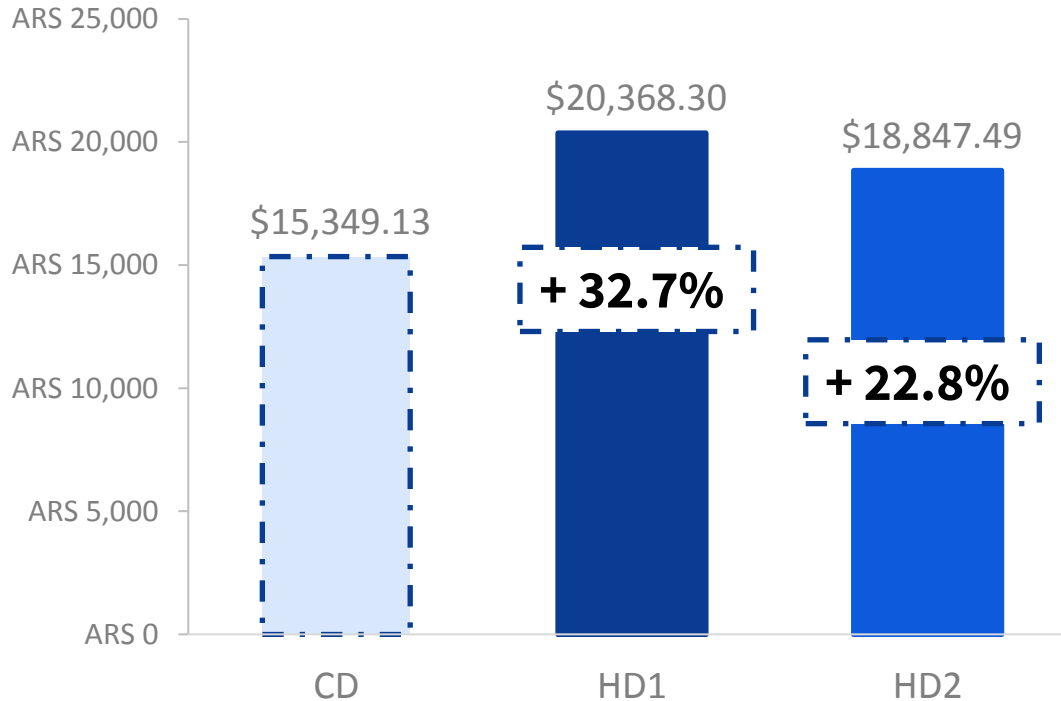
STEP 5: Affordability of the diets

- Percentage of an average income that is needed to cover the costs of current and healthy diets.



Results

Cost of current and healthy diets in Argentina. April 2020



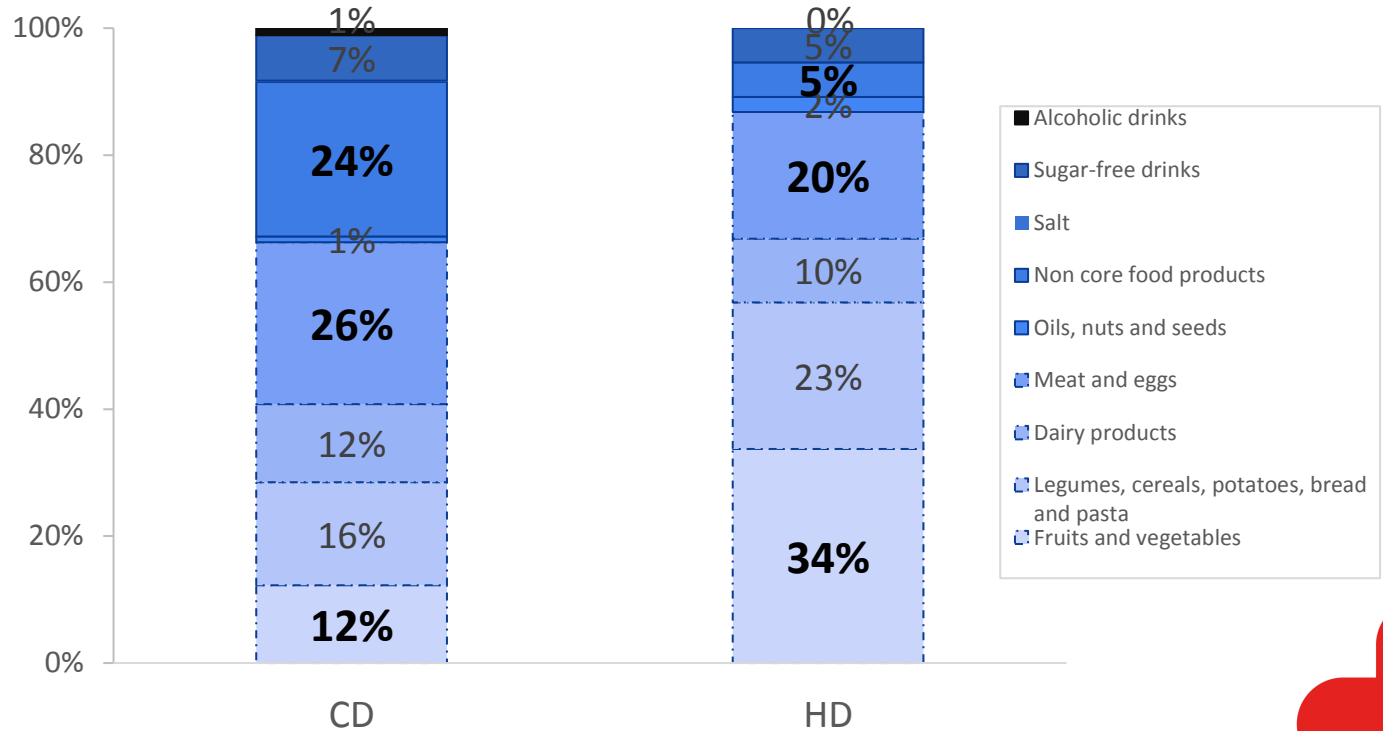
In April 2020, CD's cost was **ARS 15,350** while HD1 cost **ARS 20,368** and HD2 cost **ARS 18,847**.

- HD1 was **32.7%** more expensive than the CD.
- HD2 was **22.8%** more expensive than CD.



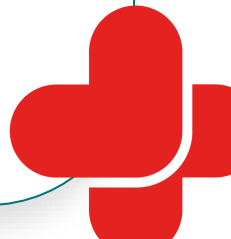
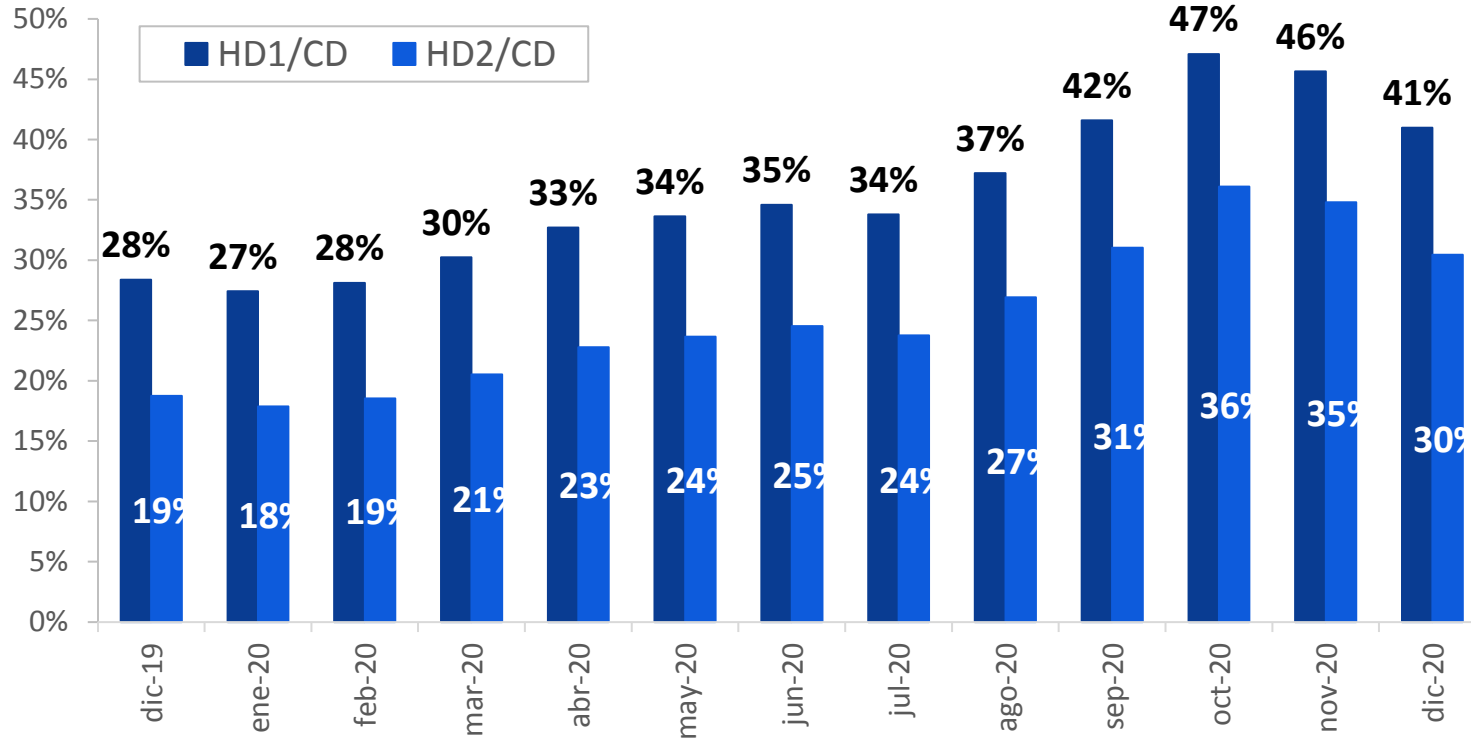
Results

Composition of diet costs by food group products in Argentina. April 2020



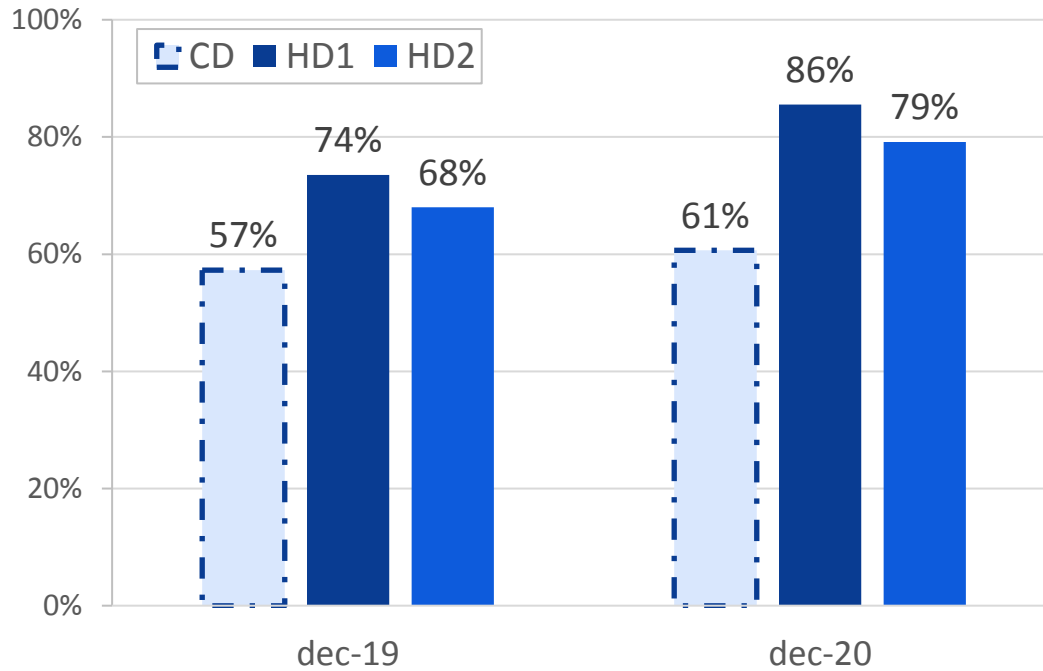
Results

Cost gaps between the current and healthy diets in Argentina



Results

Affordability of current and healthy diets in Argentina. Dec 19 – dec 20



After one year:

- CD is 4 p.p. less affordable in dec 2020 than in the same period of 2019
- HD are 11-12 p.p. less affordable in dec 2020

Not just the affordability of the diets has been reduced over 2020, but this **reduction** has been **greater for healthy diets**



Discussion

- An average household had to spend between 28-41% more money on food to ensure equal energy intake from a healthy diet (HD1) than from a current model diet during 2020.
- When the energy intake target was reduced, the difference in cost was between 19-30%.
- The affordability of both current and healthy diets has been reduced over 2020, but this reduction has been greater for healthy diets
 - The cost and affordability gaps between CD and HDs increased during the pandemic year.

It is necessary to implement urgent measures to transform the obesogenic environment:

Making healthier products more affordable, available and desirable, and Discouraging the consumption of nutrient-poor, energy-rich foods.



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**Big Data tools
were valuable to
overcome the
limitation of
price data
availability**

**And to be able to
estimate cost
and affordability
gaps between
diets**



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Thank you!

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