

# 25th REVES meeting



## A socioeconomic Index to Measure Health Inequalities in the Elderly Population: San Juan, Puerto Rico and La Havana, Cuba

**Esther María León Díaz,**

**Retired Researcher, Population and Development Studies Center. Cuba**

Temporary advisor Pan-American Health Organization

[techy.emld@gmail.com](mailto:techy.emld@gmail.com)

Ana Luisa Dávila, Alberto García, María Larriuz,  
Researchers PREHCO

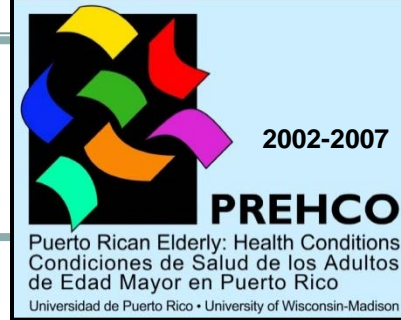
**University of Texas at Austin**

May 27-29, 2013

# Outline

- Characteristics of the Surveys PREHCO and SABE
- Design and construction of the Socioeconomic Index for each survey
- Testing the strength of the Index
- Inequalities in Health
- Longitudinal analysis of the Index (Wave 1 and 2 for PREHCO)
- Final remarks

# PREHCO, Puerto Rico.



**PREHCO Project** (Puerto Rican Elderly: Health Conditions) (2002 and 2007)  
Main purpose of the study was to register health conditions of elderly population.

The project was developed through a collaboration agreement between

- The Center for Demography and Ecology, Wisconsin–Madison University and
- The Graduate School of Public Health of University of Puerto Rico

The project was funded by

- The National Institute on Aging (NIA)

With the collaboration of

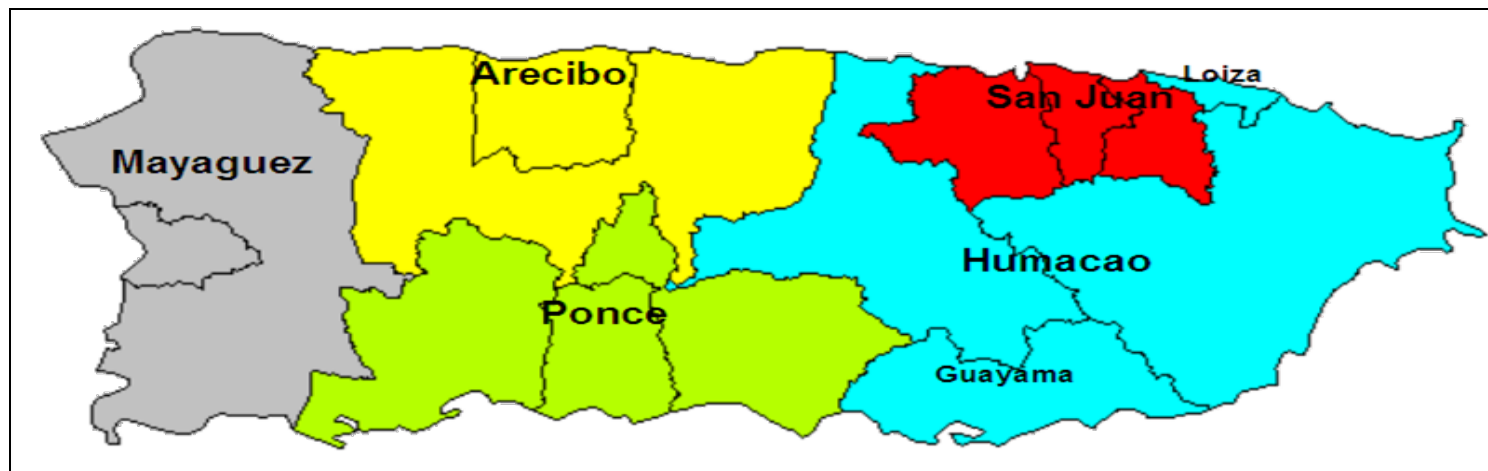
- Pan-American Health Organization (PAHO)
- Government's Offices for Elderly Affairs and the Legislature of Puerto Rico

# Sampling strategy. PREHCO. Puerto Rico.

## ➤ Sample design

Stratified two-stage cluster sampling design.

## ➤ Strata and sub-strata

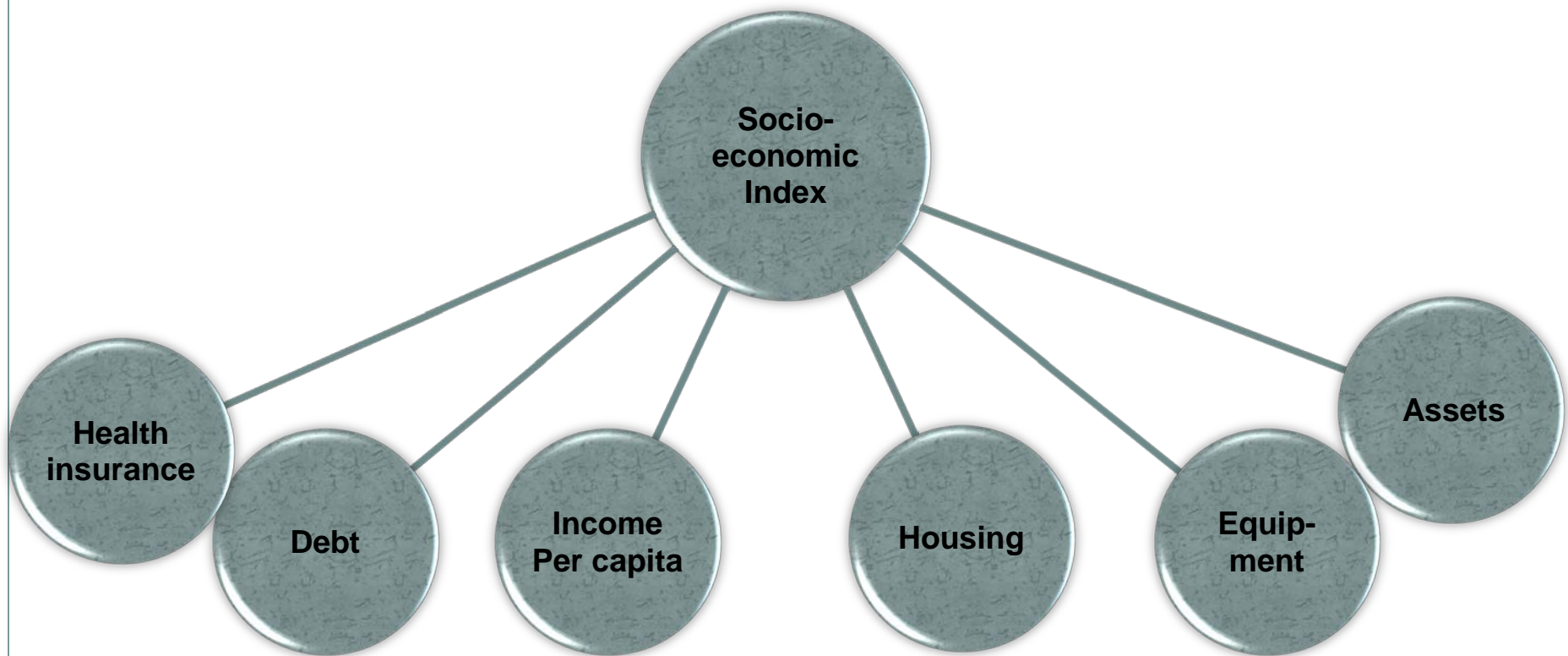


## ➤ Estimators

Ratio estimators, combined with post estratification technics

➤ **Sample:** 20,653 Households and 4,291 adult population interviewed in Wave 1, and 3,165 in Wave 2.

# Dimensions of the Socio-economic Index. Puerto Rico

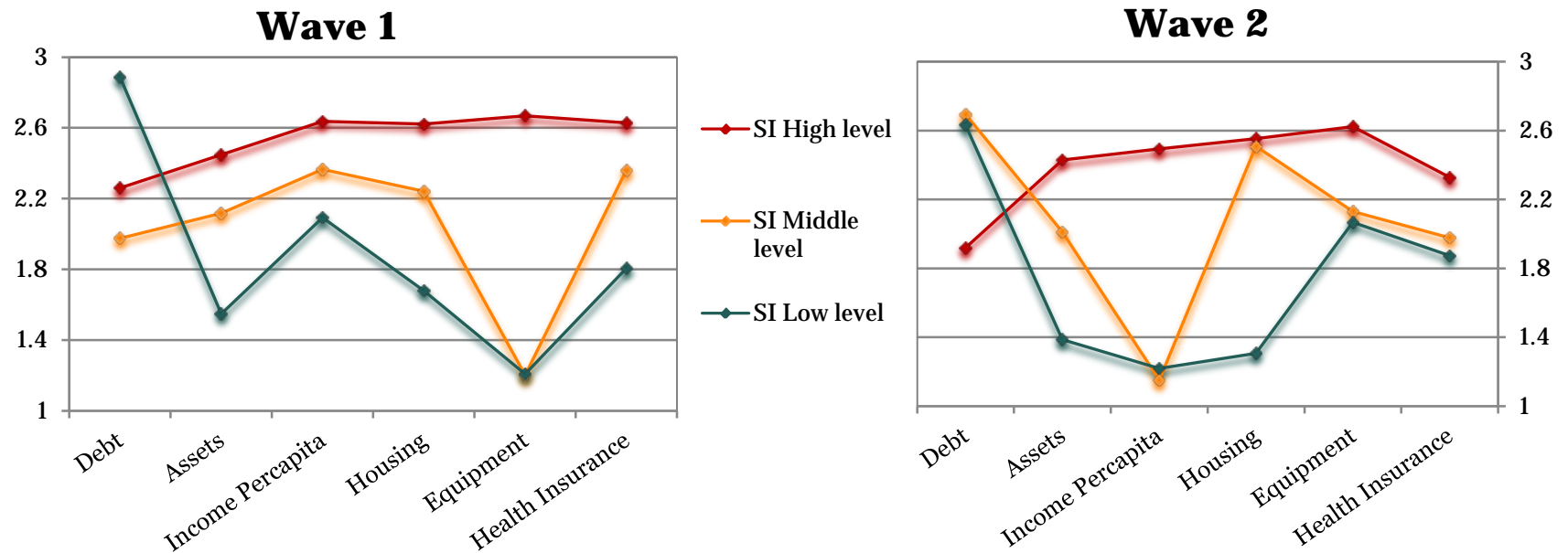


# Construction of socio-economic Index

Multivariate Method used:

Kmeans Cluster Analysis. Elderly population was grouped in three clusters of socio-economic status: low, middle and high.

**Mean values for each dimension according to the Socio-economic (SI) level in each wave.**



# Socio-economic Longitudinal Analysis.

**Socio-economic status of elderly population.  
Follow-up of initial population (Wave 1) according to their  
response in Wave 2.**

<b>Socio-economic Index. Wave 1 (%)</b>				
<b>Follow up in Wave 2</b>	<b>Low</b>	<b>Middle</b>	<b>High</b>	<b>Total</b>
Not interviewed	35.64	28.56	35.80	100
Target	38.94	32.21	28.84	100
Proxy Target	64.28	19.57	16.15	100
Institucionalized	<b>59.90</b>	17.38	22.72	100
Deceased	<b>57.88</b>	20.00	22.12	100
<b>Total</b>	<b>44.06</b>	<b>28.76</b>	<b>27.18</b>	<b>100</b>

# SABE Survey, Habana.



Survey on Health, Well-Being, and Aging in Latin America and the Caribbean (1999/2000)

The objective was to examine health conditions, functional limitations and socio-economic conditions of persons aged 60 and older in main urban areas of Argentina, Barbados, Brazil, Chile, Cuba, Mexico, and Uruguay.

In the region ,the project was coordinated by

- Panamerican Health Organization (PAHO)



In Cuba, the project was developed through a colaboration agreement between

- Population and Development Studies Center.
- Iberoamerican Center for the Third Age .



The project was funded by

- Panamerican Health Organization (PAHO)
- National Statistics Office and Public Health Ministry of Cuba.

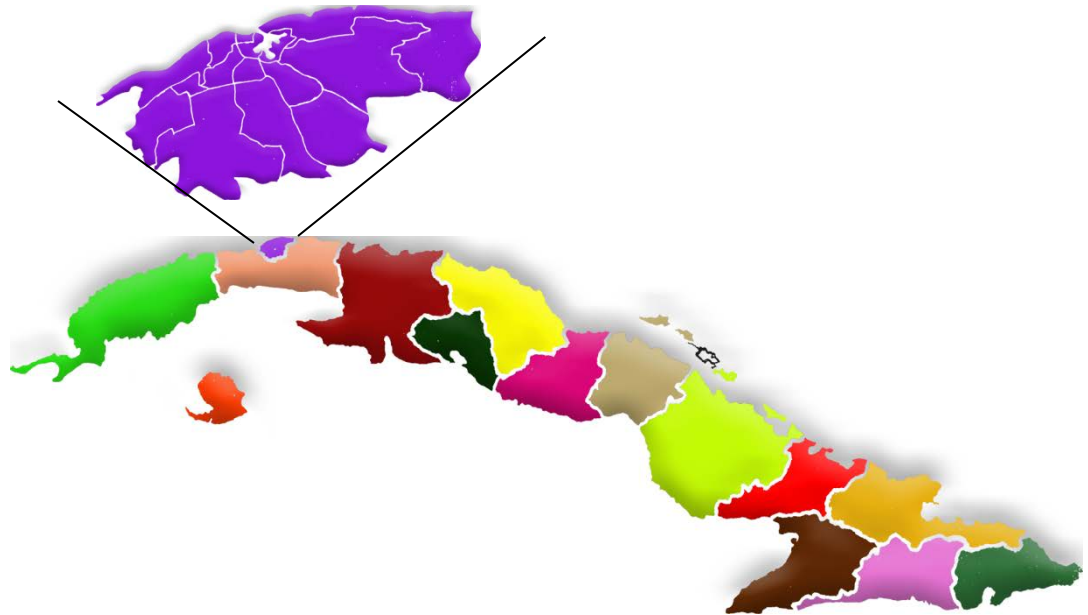




# Sampling Strategy (Habana, Cuba)

➤ **Sample design:** Stratified three-stage cluster sampling design.

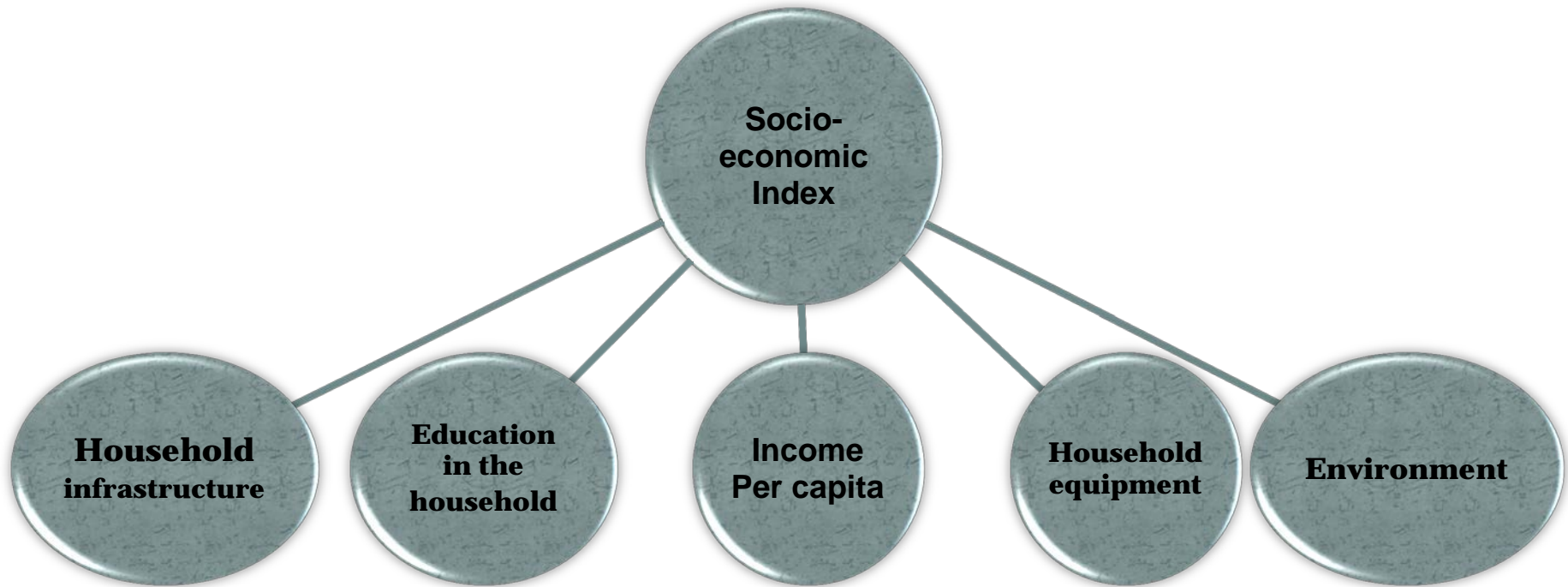
➤ **Stratas**



➤ **Estimators:** Ratio estimators, combined with post-stratification technics

➤ **Sample size:** 5,000 households and 1,905 interviewees

# Dimensions of the Socio-economic Index.



## **Multivariate method used:**

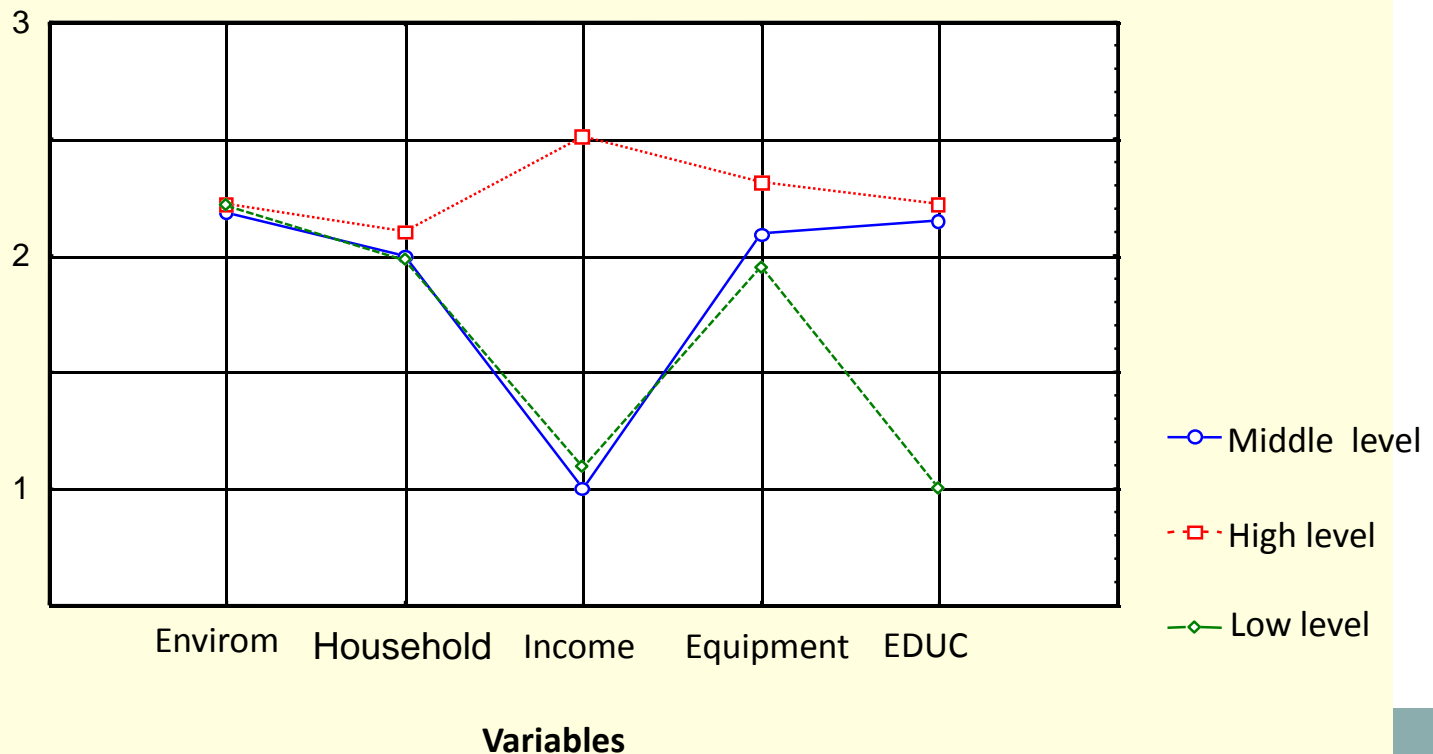
Kmeans Cluster Analysis. Elderly population was grouped in three clusters of socio economic status: low, middle and high.

# Construction of socio-economic index

## Multivariate method used:

Kmeans Cluster Analysis. Elderly population was grouped in three clusters of socio economic status: low, middle and high.

## Mean values for each dimension according to the Socio-economic Index (SI).



# Socio-economic Index. Variable: Sex

## San Juan (PREHCO W1) - Habana (SABE)

	Socio-economic Index (%)			Total
	Low	Middle	High	
<b>San Juan</b>	30.77	26.24	<b>42.98</b>	100
<b>La Habana</b>	12.41	<b>58.99</b>	28.59	100

Sex	Socio-economic Index (%)			Total
	Low	Middle	High	
<b>San Juan</b>				
Female	32.55	28.77	39.18	100
Male	28.30	23.42	<b>48.28</b>	100
<b>La Habana</b>				
Female	12.96	<b>59.57</b>	27.47	100
Male	11.62	<b>58.16</b>	30.22	100

Samples: San Juan (1,340) La Habana (1,905)

# Socio-economic Index. Years of education San Juan (PREHCO W1) - La Habana (SABE).

Socio-economic Index (%)				
San Juan	Low	Middle	High	Total
0-6	<b>55.85</b>	26.30	17.85	100
7-12	32.36	32.73	34.91	100
>12	8.15	18.74	<b>73.11</b>	100
<b>Total</b>	<b>30.77</b>	<b>26.24</b>	<b>42.98</b>	<b>100</b>

Socio-economic Index (%)				
La Habana	Low	Middle	High	Total
0-6	<b>51.53</b>	59.09	25.37	100
7-12	9.23	60.11	30.67	100
>12	3.41	<b>50.40</b>	<b>46.19</b>	100
<b>Total</b>	<b>12.41</b>	<b>58.99</b>	<b>28.59</b>	<b>100</b>

# Socio-economic Index. Heart disease San Juan (PREHCO W1) - La Habana (SABE).

Socio-economic Index (%)				
San Juan	Low	Middle	High	Total
No	30.79	25.67	<b>43.54</b>	100
Si	30.66	30.07	39.28	100
<b>Total</b>	<b>30.77</b>	<b>26.24</b>	<b>42.98</b>	<b>100</b>

Socio-economic Index (%)				
La Habana	Low	Middle	High	Total
No	11.88	<b>58.22</b>	<b>29.90</b>	100
Si	14.10	<b>61.44</b>	24.47	100
<b>Total</b>	<b>12.41</b>	<b>58.99</b>	<b>28.59</b>	<b>100</b>

# Socio-economic Index Cerebrovascular disease San Juan (PREHCO W1)-La Habana (SABE).

Socio-economic Index (%)				
San Juan	Low	Middle	High	Total
No	30.15	25.82	<b>44.03</b>	100
Si	<b>40.36</b>	32.91	26.72	100
<b>Total</b>	<b>30.77</b>	<b>26.24</b>	<b>42.98</b>	<b>100</b>

Socio-economic Index (%)				
La Habana	Low	Middle	High	Total
No	12.61	<b>58.82</b>	28.57	100
Si	10.64	<b>60.57</b>	28.80	100
<b>Total</b>	<b>12.41</b>	<b>58.99</b>	<b>28.59</b>	<b>100</b>

# Final Remarks

➤ Longitudinal Analysis for Puerto Rico: elderly people with low IS in Wave 1, showed the higher percentages of institutionalized or deceased in Wave 2.

➤ Both cities showed similar behavior in **Heart diseases and Hypertension**

Differential in regards to IS: those without this disease, show the higher percentages of high IS.

➤ Different behavior for **Cerebrovascular diseases and Depression**.

Large differential in IS for San Juan, population without diseases has the highest percentage with high IS.

For Habana, it was not found differences in level of IS for those with or without diseases.



# Final Remarks

- The Socio-economic Index related to health status reveals important inequalities among aging population.
- It could be useful to develop future strategies related to health care and social needs.

<http://prehco.rcm.upr.edu>

<http://www.one.cu>



**THANKS!!!**