

FOOD AND NUTRITION RESEARCH INSTITUTE
Department of Science and Technology



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FOOD AND
NUTRITION
RESEARCH
INSTITUTE

DEPARTMENT
OF
SCIENCE AND
TECHNOLOGY



MANDATE

- Undertake researches that define the citizenry's nutritional status, with reference particularly to the malnutrition problem, its causes and effects and identify alternative solutions to them
- Develop and recommend policy options, strategies, programs and projects which address the malnutrition problem for implementation by appropriate agencies
- Disseminate research findings and recommendations to relevant end-users



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VISION

Optimum Nutrition

for all Filipinos, socially and economically empowered through scientifically sound and globally competitive technologies

MISSION

As the lead Agency

in food and nutrition research and development in the country, the FNRI fights malnutrition with accurate data, correct information, and innovative technologies



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Effects of migration and urbanization on food and nutrition security

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Food and Nutrition Research Institute

Department of Science and Technology



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Migration

- ❑ “a process of moving, either across an international border, or within a State.
- ❑ It encompasses any kind of movement of people, whatever its length, composition and causes; it includes refugees, displaced persons, uprooted people, and economic migrants.”

(International Federation of Red Cross and Red Crescent Societies)



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Migration

Two Types :

- ☐ **Internal** migration refers to a move from one area (a province, district or municipality) to another within one country.
- ☐ **International** migration is a territorial relocation of people between nation-states.

(International Migration and Multi-Cultural Policies, UNESCO)





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Migration : migrants

- ❑ The UN Convention on the Rights of Migrants defines a migrant worker as a "person who is to be engaged, is engaged or has been engaged in a remunerated activity in a State of which he or she is not a national."



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Urbanization

- ❑ is the increase in the proportion of a population living in urban places.
- ❑ It is measured in relative terms, it refers to a complex process of social transformation.
- ❑ Urbanization takes place through---
 - natural increase by urban dwellers
 - international immigration to cities
 - internal rural-to-urban migration

Drescher, A. and Laquinta D. (2002). Urbanization: Linking Development Across the Changing Landscape, Special Report . FAO)



Food Security

- ❑ Food security' exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

based on FAO definition (1996, 2009)

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Food Security

□ dimensions of food security:

- food availability
- economic and physical access to food
- food utilization, and
- stability over time

(Food and Agriculture Organization (FAO) of the United Nations)

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Food Security

- ☐ Hunger is a severe form of food insecurity
- ☐ Prolonged hunger may lead to malnutrition, illness, mental and physical growth retardation, among many other complications.
- ☐ The “ability to acquire acceptable foods in socially acceptable ways” contributes to food security

(Food and Nutrition Research Institute-Department of Science and Technology)



.... on migration and food security

□ Effects of remittances on food security

- purchasing power has led to improvement in quantity, quality and selection of food for families of OFWs
- preferences for imported food products and fast food
- reduced dependency on subsistence agriculture for food supply

Source: "Gender, Remittances and Development: The Case of Filipino Migration to Italy", United Nations INSTRAW, IFAD, and Filipino Women's Council, 2008 as cited in Reyes, Melanie. 2008. *Migration and Filipino Children Left-Behind: Review of Literature*.
www.unicef.org/philippines/synthesis_StudyJuly12008.pdf



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Philippine Statistics





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The Philippine Population based on census year

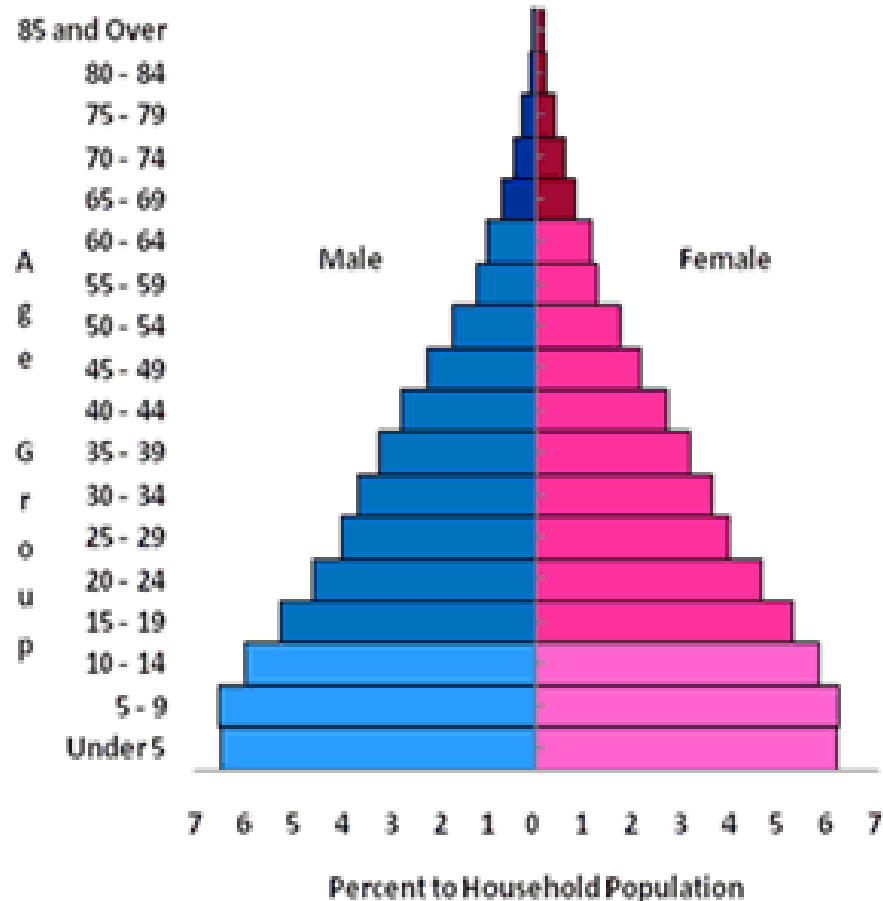
Census Year	Census Reference Date	Philippine Population in million
2010	May 1, 2010	92.34
2000	May 1, 2000	76.51
1990	May 1, 1990	60.70

Source: Phillippine Statistics Authority, 2010 Census

The 2010 population is higher by 15.83 million compared to the 2000 population of 76.51 million. In 1990, the total population was 60.70 million.

2000

Household Population: 76.3 million



2010

Household Population: 92.1 million

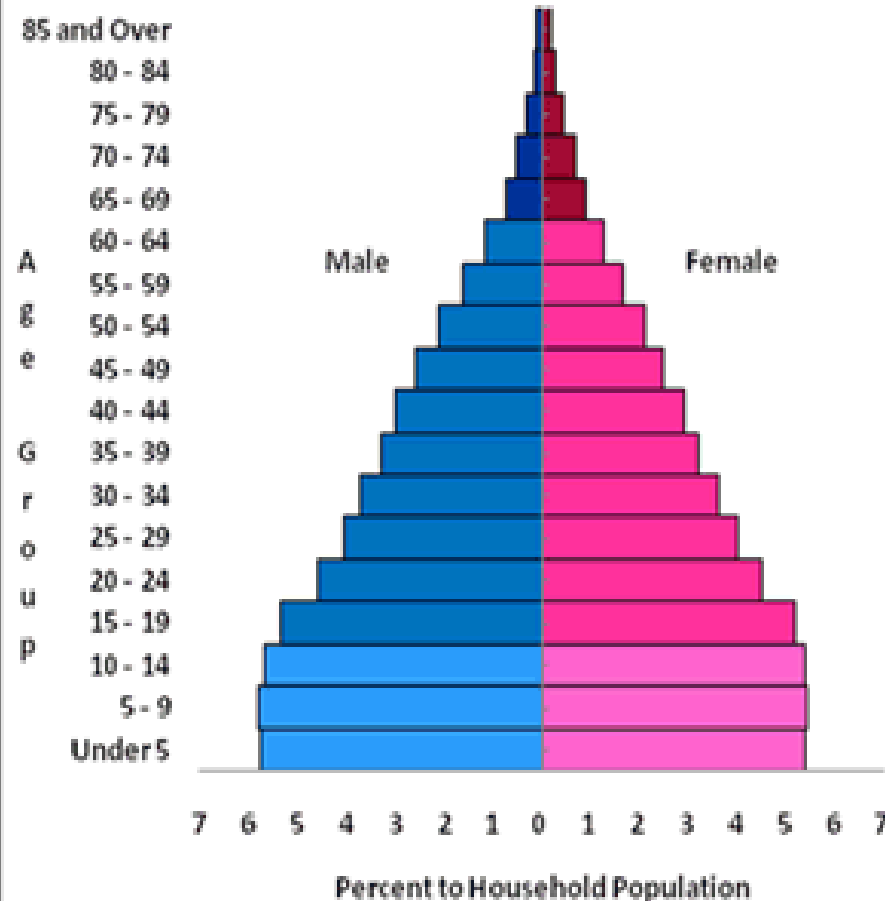
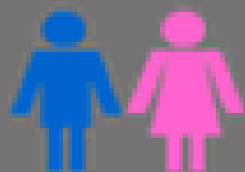


Figure 1. Age-Sex Pyramid of Household Population: Philippines

Source: Philippine Statistics Authority, NSO



Sex Ratios

All ages	102:100
0-14 years old	107:100
15-64 years old	102:100
65 years old and over	73:100

Source: Philippine Statistics Authority: NSO



The Filipino overseas workers



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Distribution of Overseas Filipino Workers by Age Group, Sex and Area: 2013

Region	Both Sexes	Male	Female
Philippines Number (In thousands)	2,295	1,154	1,141
Total	100.0	100.0	100.0
National Capital Region	12.8	14.6	10.9
Cordillera Administrative Region	2.2	1.2	3.1
I - Ilocos Region	8.2	6.1	10.3
II - Cagayan Valley	6.6	3.5	9.7
III - Central Luzon	13.9	16.5	11.2
IVA - CALABARZON	18.4	22.5	14.3
IVB - MIMAROPA	2.2	2.2	2.2
V - Bicol Region	3.3	2.7	4.1
VI - Western Visayas	9.4	8.9	10.0
VII - Central Visayas	6.5	8.5	4.4
VIII - Eastern Visayas	1.6	1.8	1.5
IX - Zamboanga Peninsula	1.7	1.3	2.0
X - Northern Mindanao	2.7	3.5	2.0
XI - Davao Region	2.6	1.9	3.4
XII - SOCCSKSARGEN	5.8	4.1	2.4
Caraga Autonomous	1.5	1.3	1.7
Autonomous Region in Muslim Mindanao	2.3	1.2	3.3

Source: Philippine Statistics Authority, 2013 Survey on Overseas Filipinos



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Distribution of Overseas Filipino Worker by Sex and Region: 2013

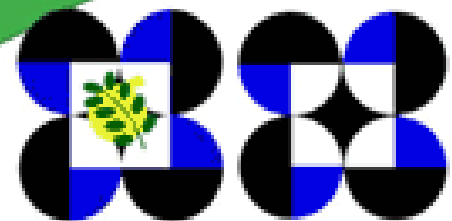
Area	Both Sexes	Male	Female
Age Group			
Philippines Number (In thousands)	2,295	1,154	1,141
Total	100.0	100.0	100.0
15 - 24	7.8	7.0	8.6
25 - 29	23.6	19.7	27.6
30 - 34	24.3	22.4	26.2
35 - 39	16.0	15.7	16.4
40 - 44	11.8	13.1	10.4
45 and over	16.4	22.0	10.8

Source: Philippine Statistics Authority, 2013 Survey on Overseas Filipinos

2nd NATIONAL NUTRITION SUMMIT:

8th NATIONAL NUTRITION SURVEY

"Juan Mission for a Well-Nourished Nation"



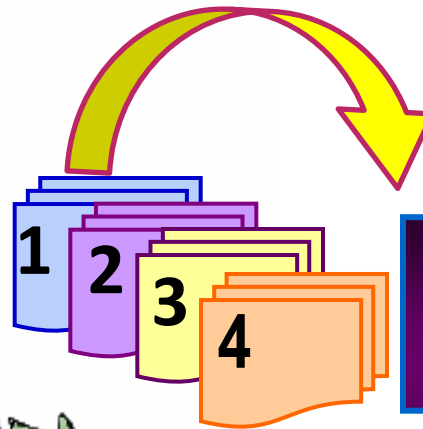
NNS SAMPLING DESIGN

**17 Regions/
80 Provinces
+ NCR**

4 replicates from the
NSO Master Sample
which utilized 100% of
the 2009 Labor Force
Survey (LFS) Households

**National Statistics Office
(NSO) Master Sample
(PSA)**

**Multi-Stage Stratified
Sampling Design**



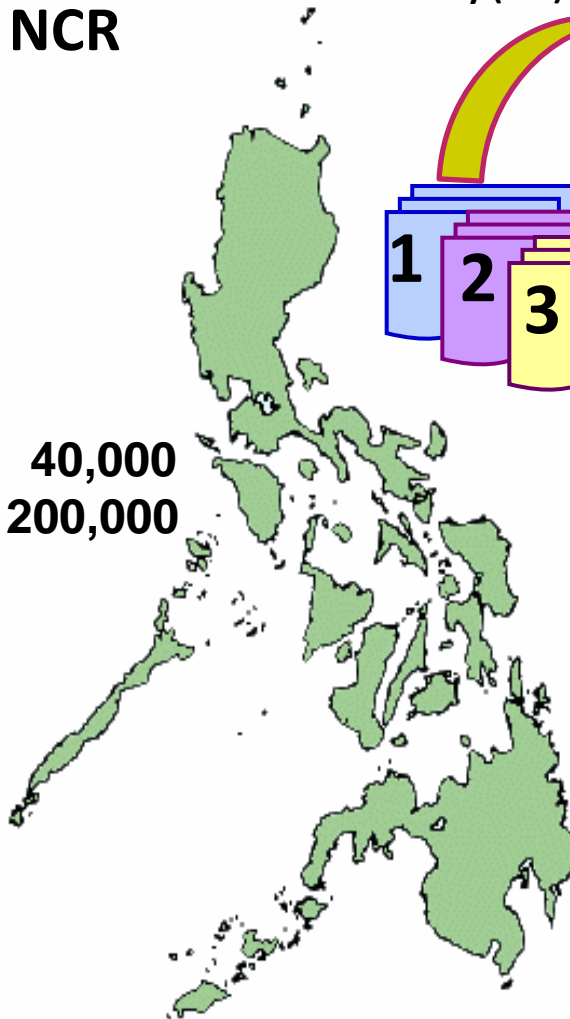
1st Stage – Primary Sampling Unit
One barangay or contiguous bgy's
with at least 500 HHs

2nd Stage – Enumeration Area
Contiguous area in a barangay
with 150-200 HHs



3rd Stage – Households

**Households = 40,000
Individuals = 200,000**



TARGET GROUPS BY COMPONENT

COMPONENT	HH	0-5	6-12	13-19	20-59	60 & over	Preg	Lact
Anthropometry		✓	✓	✓	✓	✓	✓	✓
Biochemical		6m-5y	✓	✓	✓	✓	✓	✓
Clinical			10 y & above				✓	✓
Dietary	✓	6m-5y	✓	✓	✓	✓	✓	✓
Socio-Economic	✓							
Food Security	✓							
Gov't Program Participation & Salt Survey	✓	✓	✓	✓	✓	✓	✓	✓
Health					✓	✓	✓	✓
IYCF		0-36m						
Maternal				Mothers w/ 0-36 months child			✓	

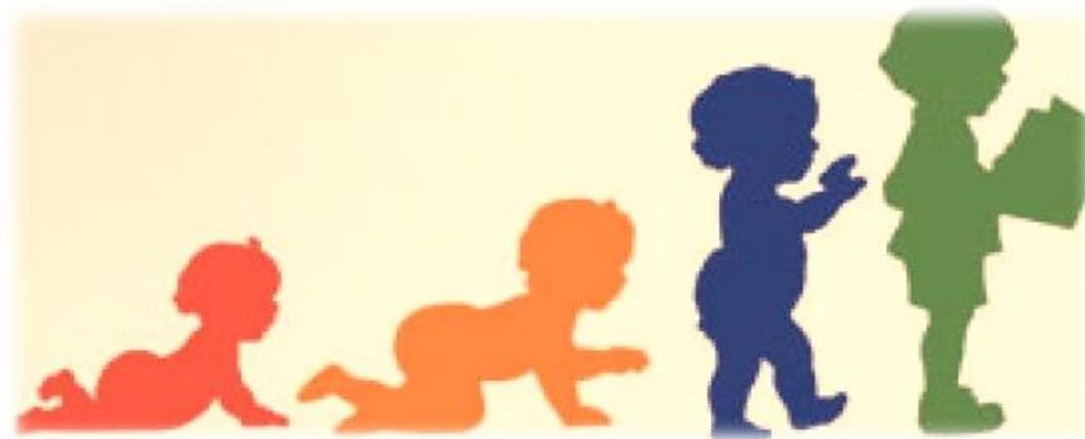


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CHILDREN, 0-5.0 YEARS OLD (0-60 MONTHS)



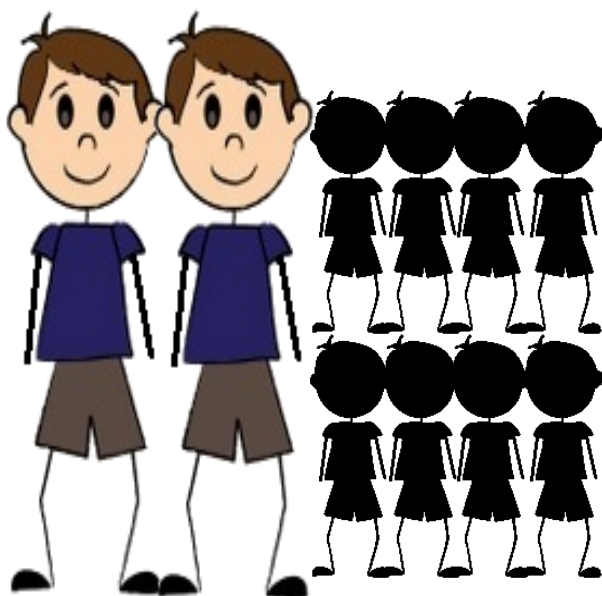


Prevalence of underweight children, 0-5.0 years old (**0-60 months**): Philippines, 2013

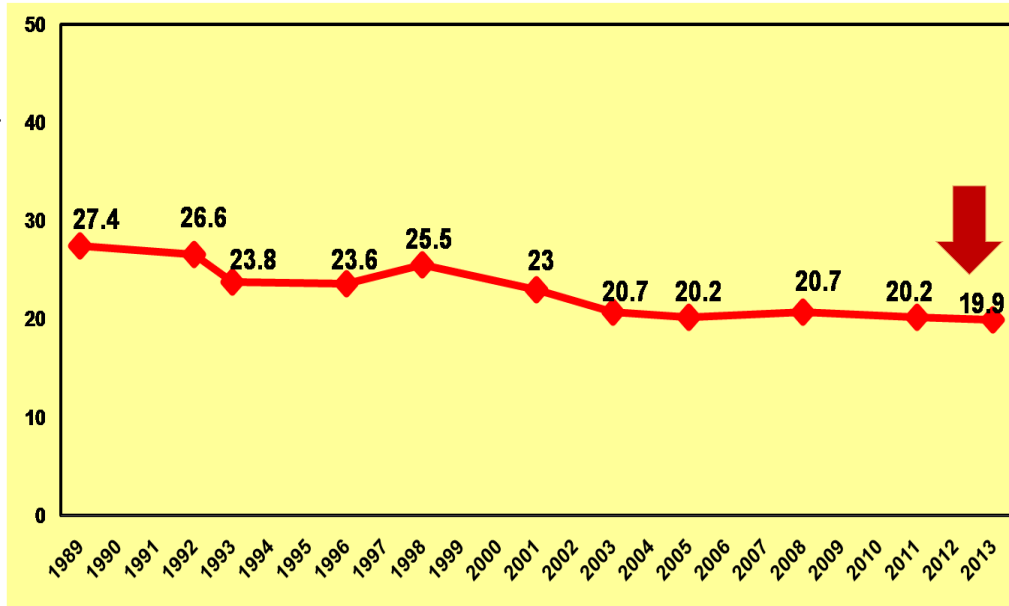
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2 out of 10 or **19.9%**
children among 0-5 years
old were underweight



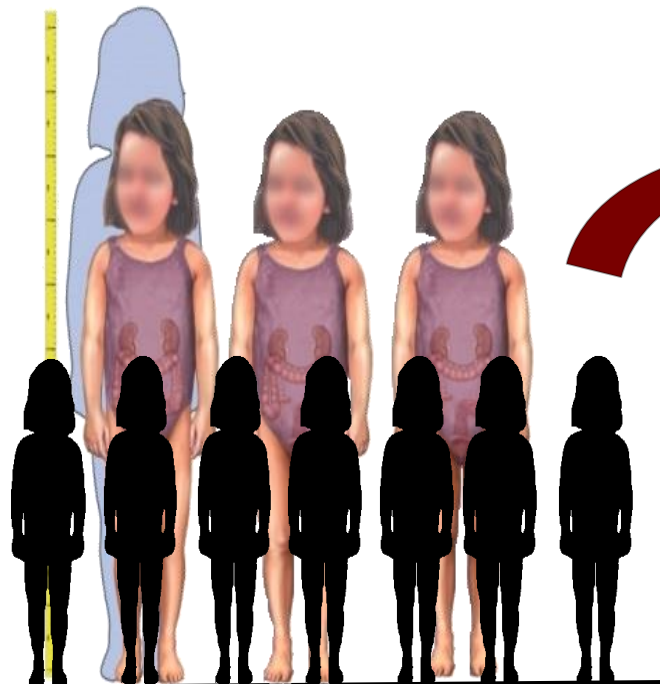


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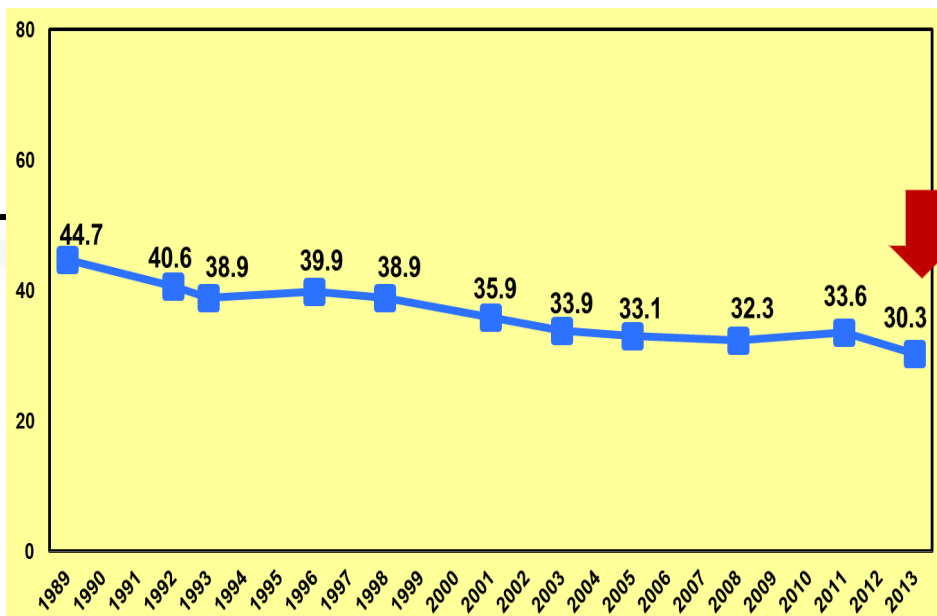
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Prevalence of stunting among children, 0-5.0 years old (**0-60 months**): Philippines, 2013



3 out of 10 or **30.3% children
among 0-5 years old were
Stunted**



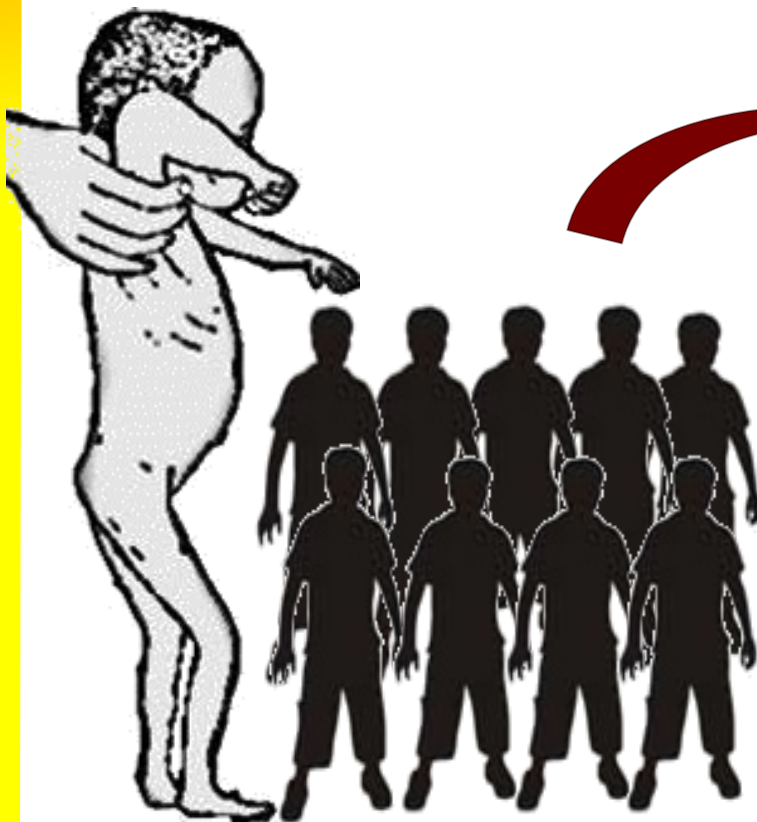


Prevalence of wasting among children, 0-5.0 years old (**0-60 months**): Philippines, 2013

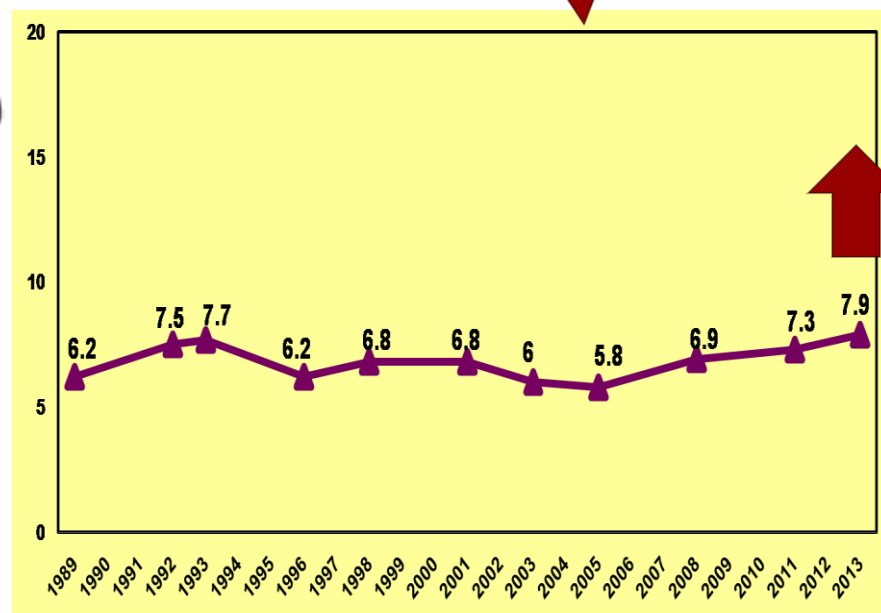
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1 out of 10 or **7.9%** children
among 0-5 years old were
wasted





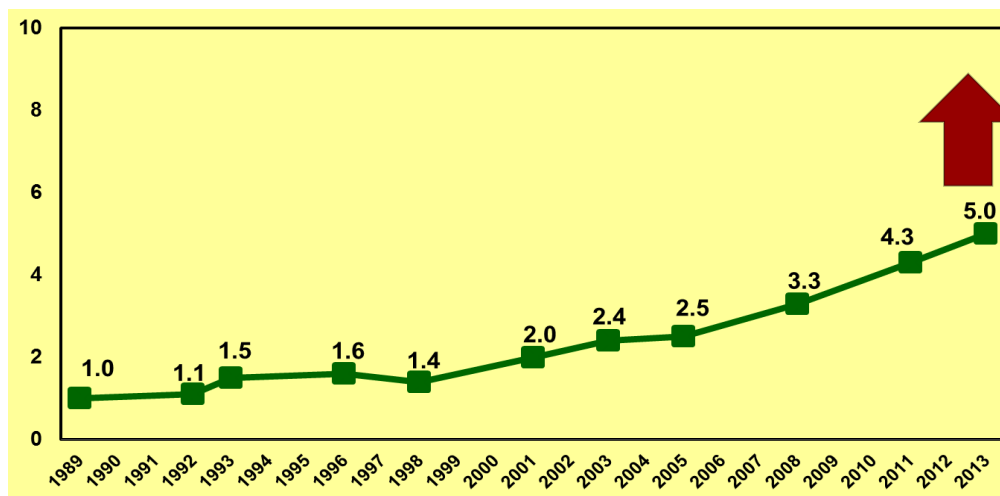
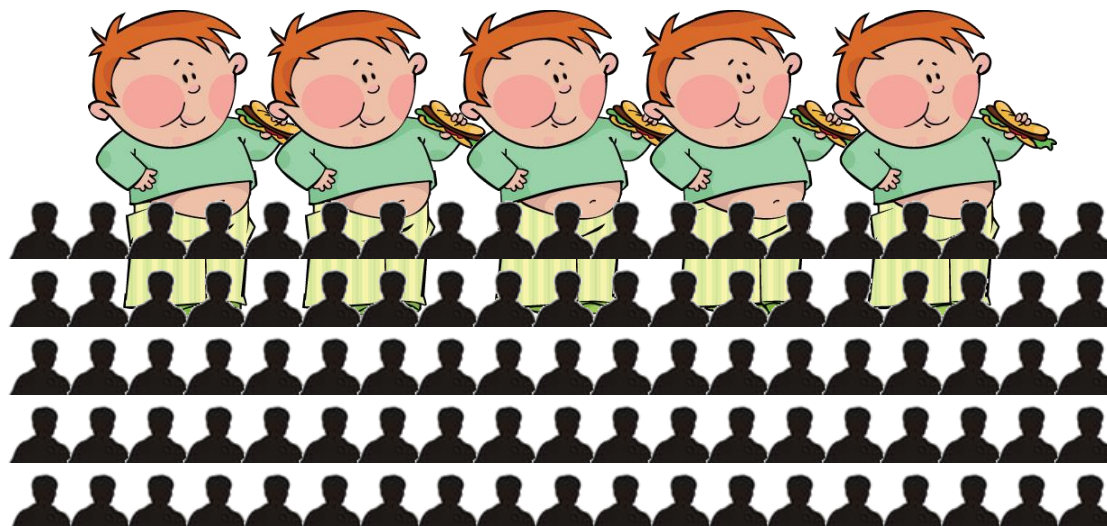
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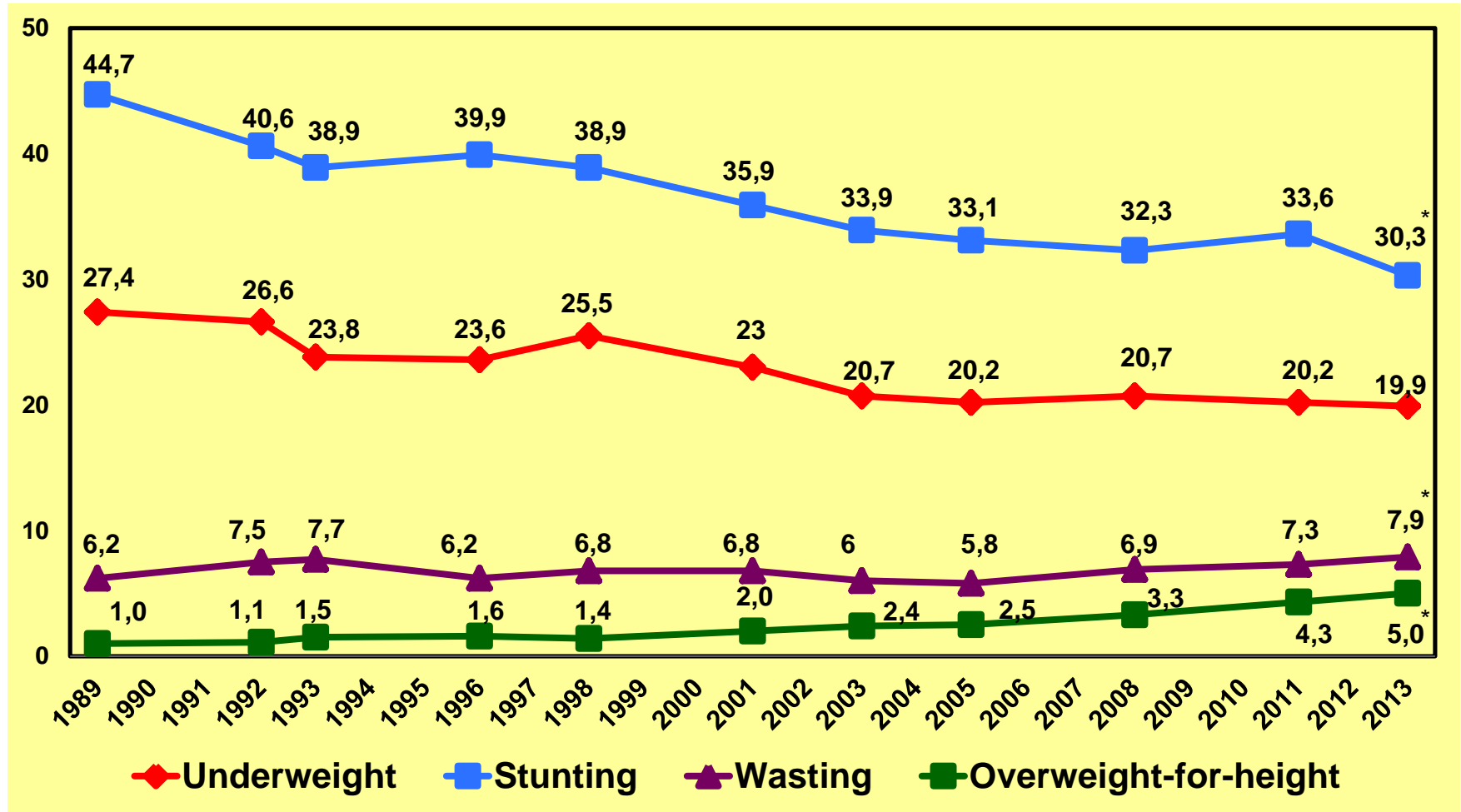
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Prevalence of overweight-for-height among children, 0-5.0 years old (**0-60 months**): Philippines, 2013



Trends in the prevalence of malnutrition among children, 0-5.0 years old (0-60 months): Philippines, 1989-2013



*significant (p-value<0.05)

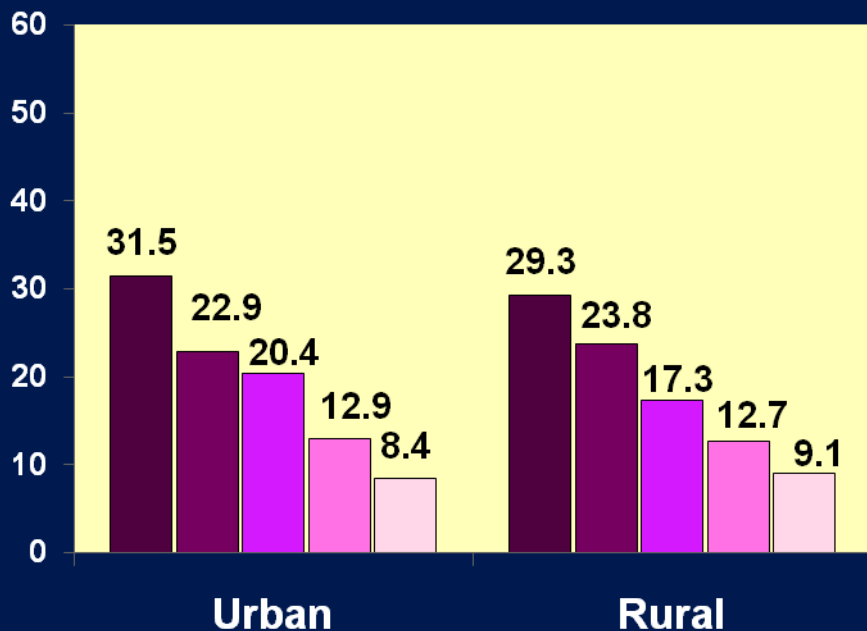


Prevalence of malnourished children, 0-5.0 years old (**0-60 months**) by place of residence and by wealth quintile: Philippines, 2013



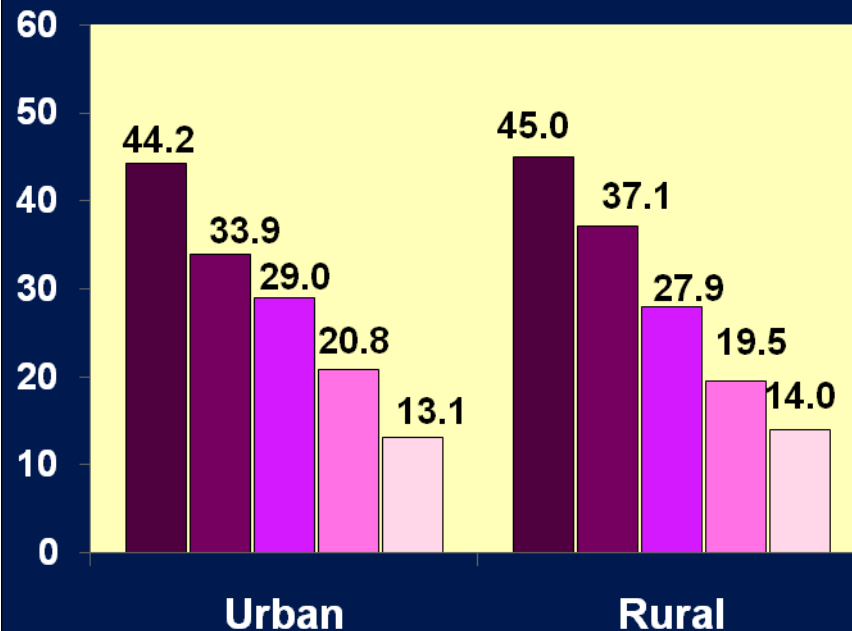
Philippines: 19.9%

UNDERWEIGHT



Philippines: 30.3%

STUNTING



■ Poorest ■ Poor ■ Middle ■ Rich ■ Richest

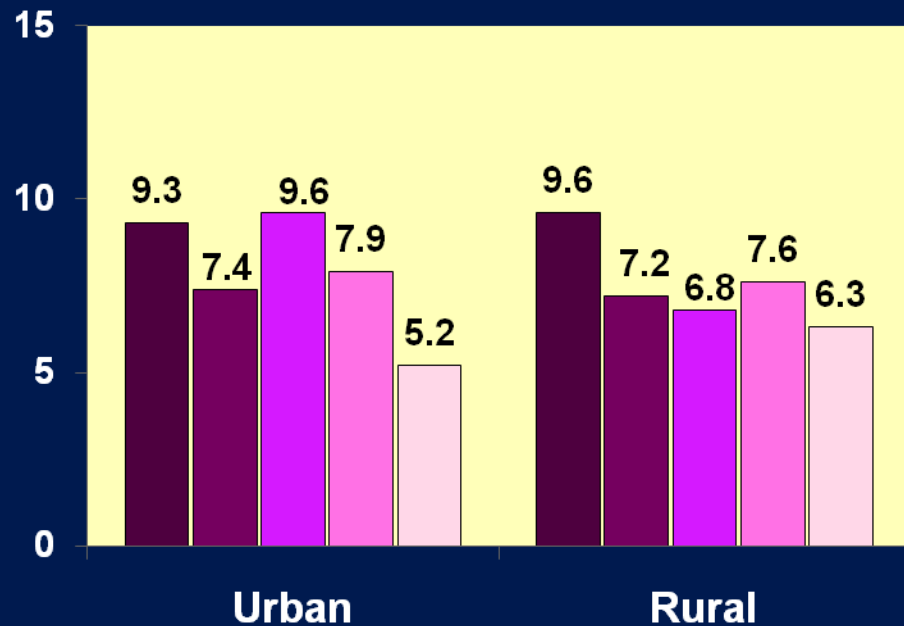


Prevalence of malnourished children, 0-5.0 years old (**0-60 months**) by place of residence and by wealth quintile: Philippines, 2013



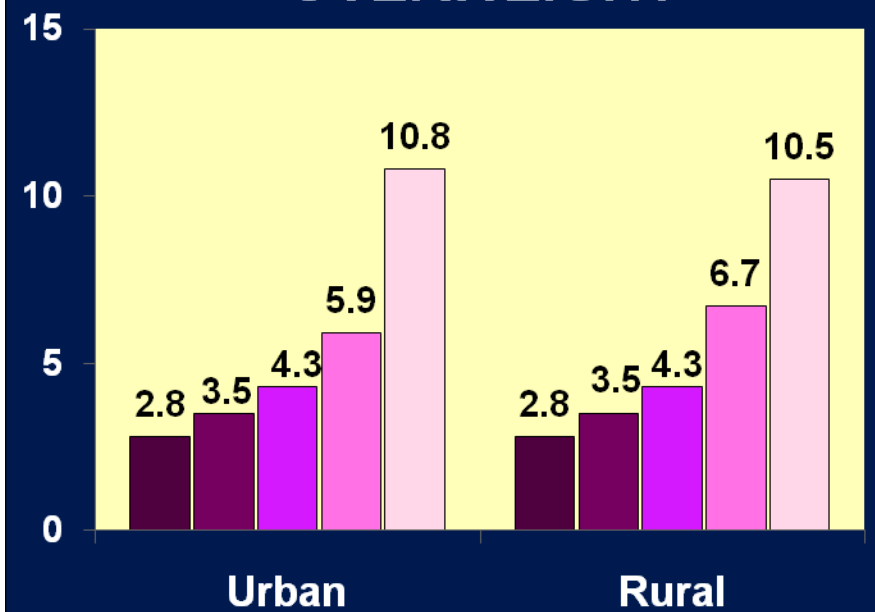
Philippines: 7.9%

WASTING



Philippines: 5.0%

OVERWEIGHT



■ Poorest ■ Poor ■ Middle ■ Rich ■ Richest





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CHILDREN, 5.08-10.0 YEARS OLD (61-120 MONTHS)



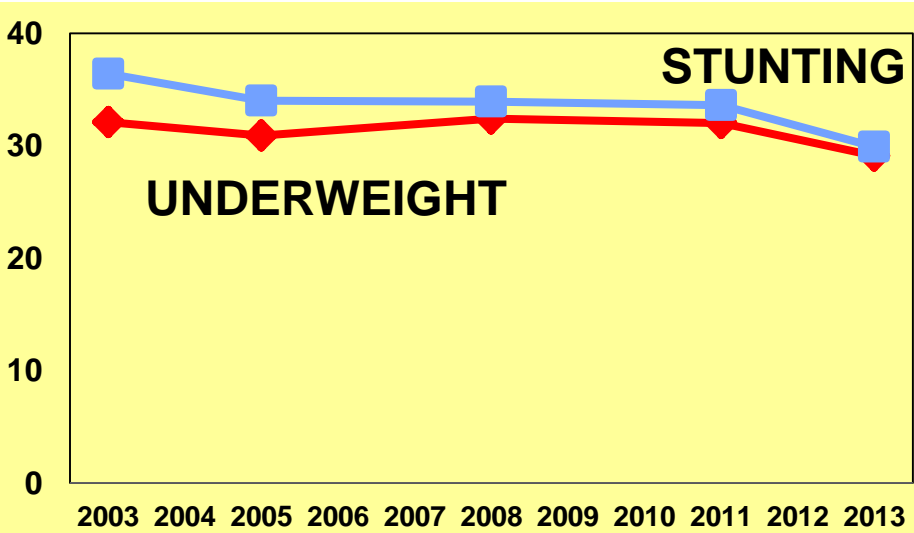
Prevalence of malnourished children, 5.08-10.0 years old (**61-120 months**): Philippines, 2013

UNDERWEIGHT

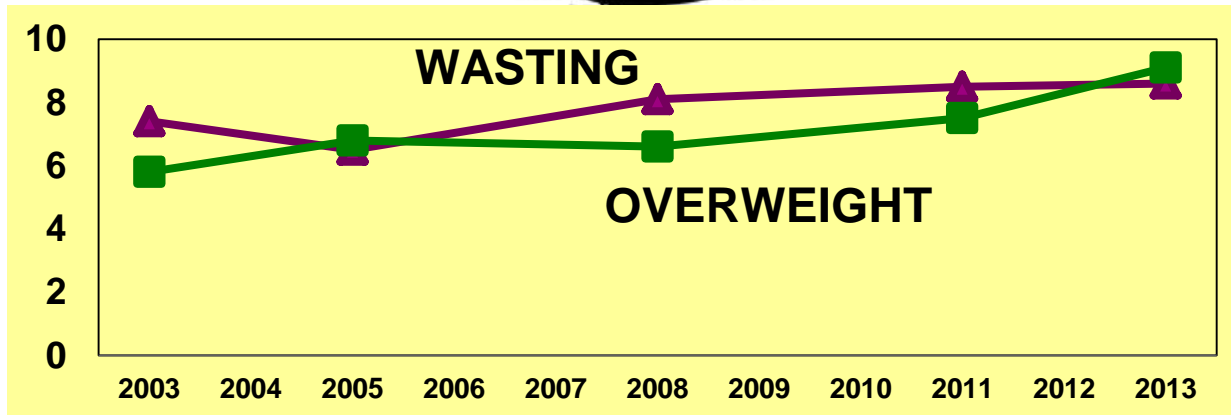
29.1%

STUNTING

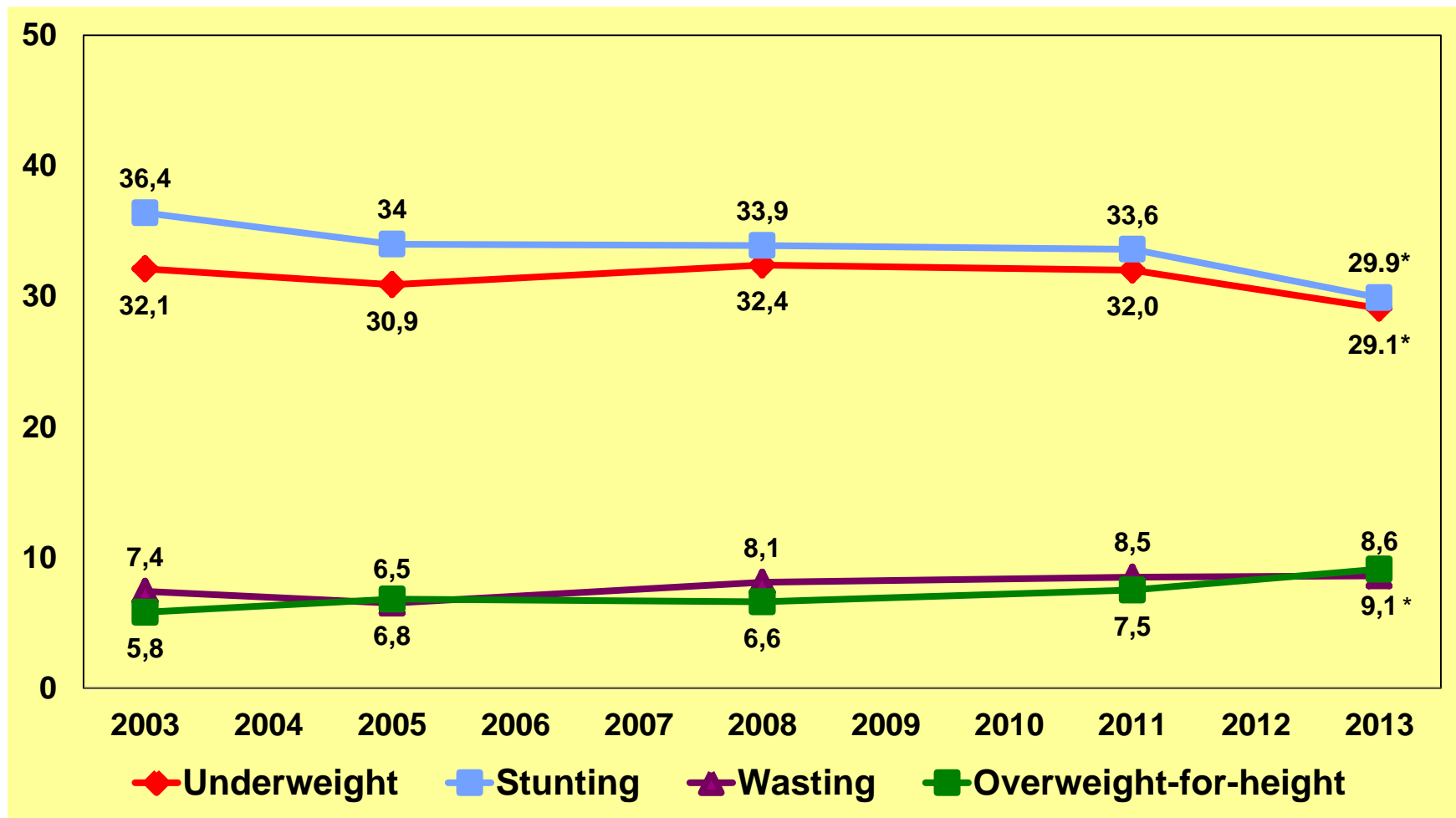
29.9%



Prevalence of malnourished children, 5.08-10.0 years old (**61-120 months**): Philippines, 2013



Trends in the prevalence of malnutrition among children, 5.08-10.0 years old (61-120 months): Philippines, 2003-2013



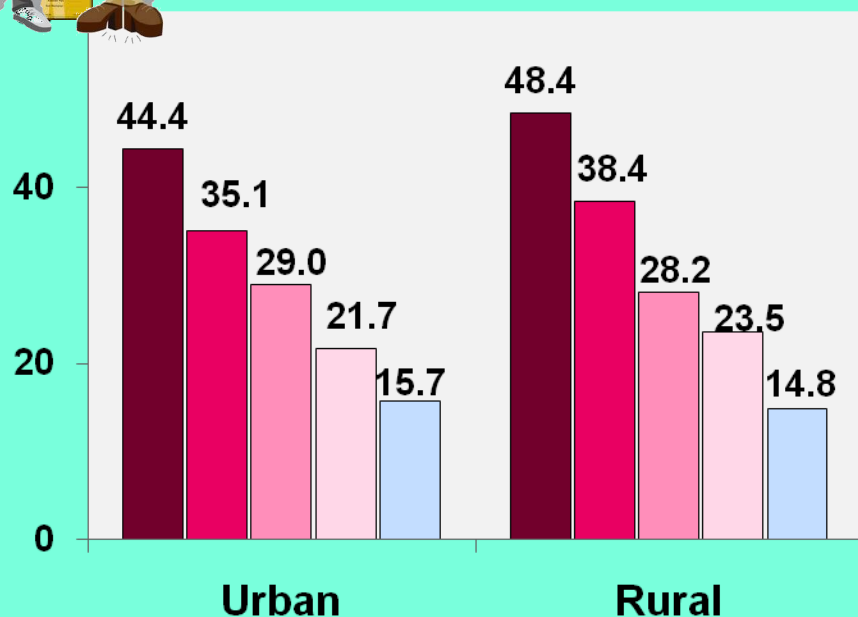
*significant (p-value<0.05)



Prevalence of malnourished children, 10.08-19.0 years old (121-228 months) by place of residence and by wealth quintile: Philippines, 2013

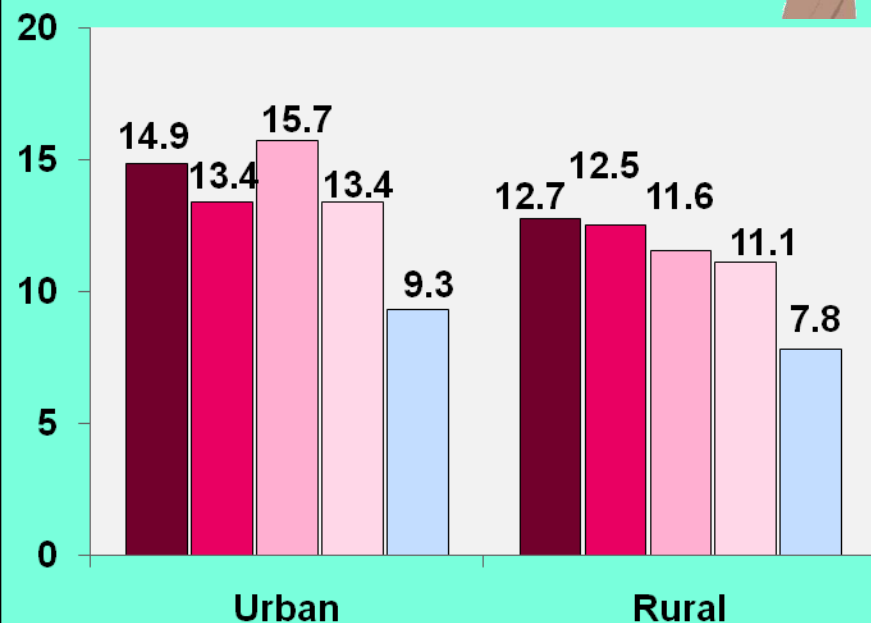
Philippines: 31.5 %

STUNTING



Philippines: 12.4%

WASTING



Poorest
 Poor
 Middle
 Rich
 Richest





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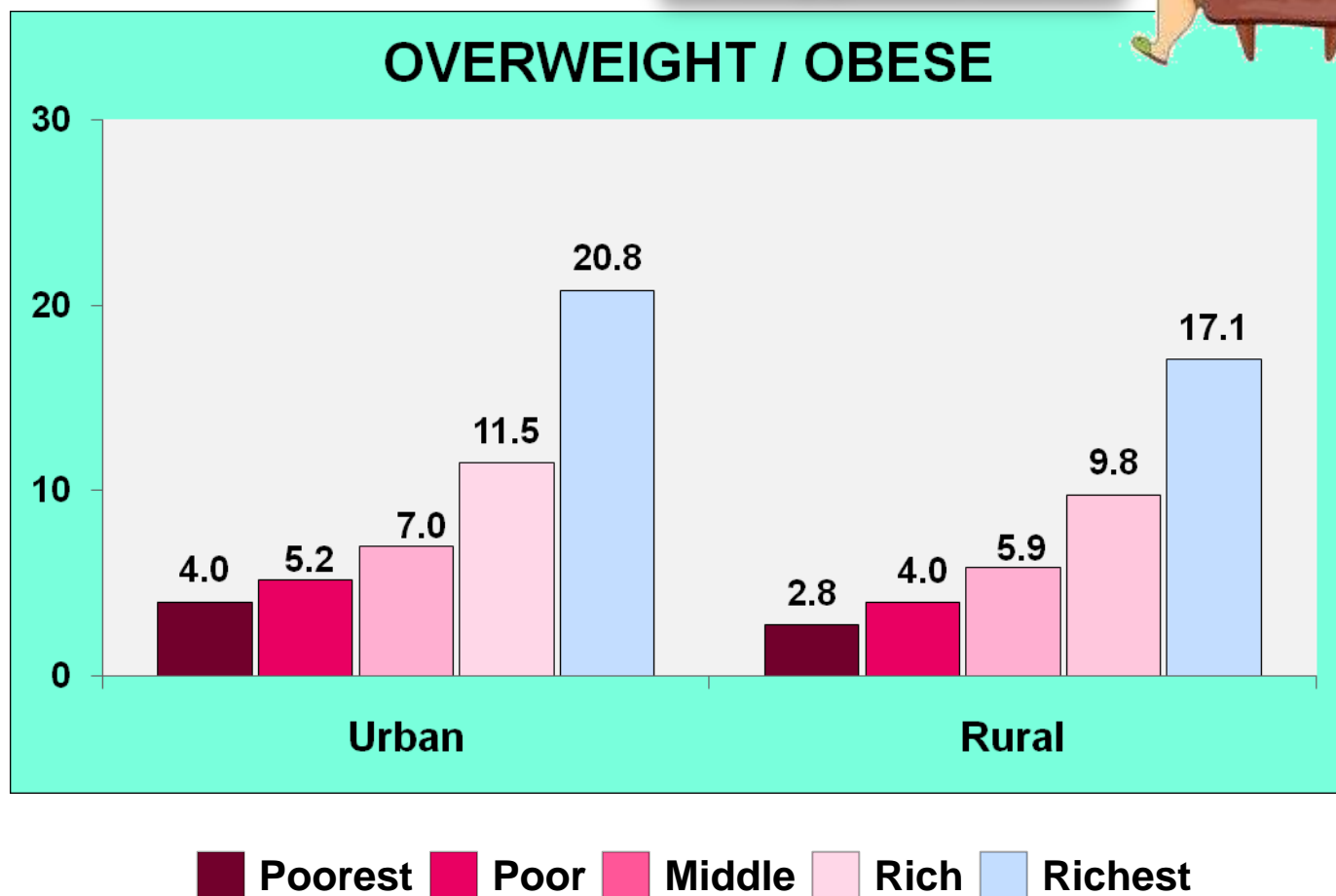
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Prevalence of overweight / obese children, 10.08-19.0 years old (**121-228 months**) by place of residence and by wealth quintile: Philippines, 2013

Philippines: 8.3%

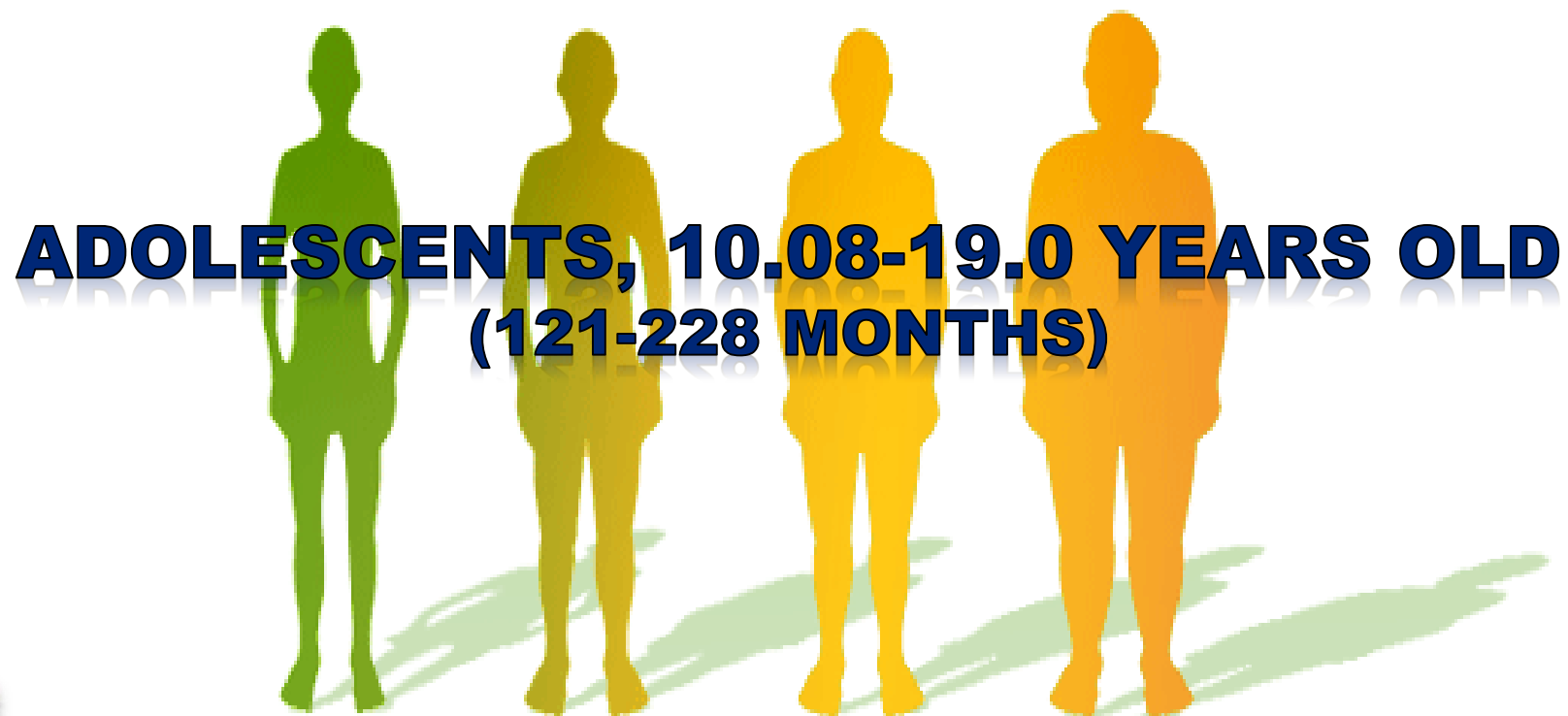




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Prevalence of malnourished children, 10.08-19.0 years old (**121-228 months**): Philippines, 2013

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WASTING

12.4%



OVERWEIGHT

8.3%

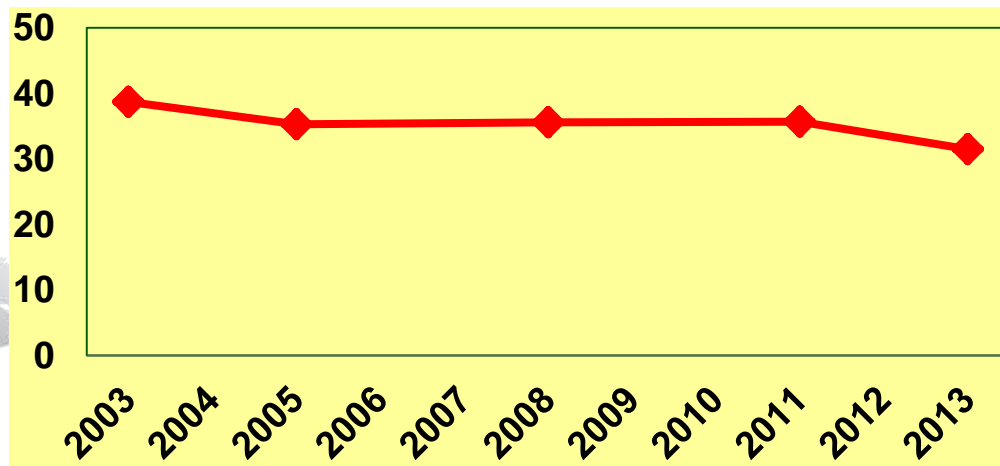




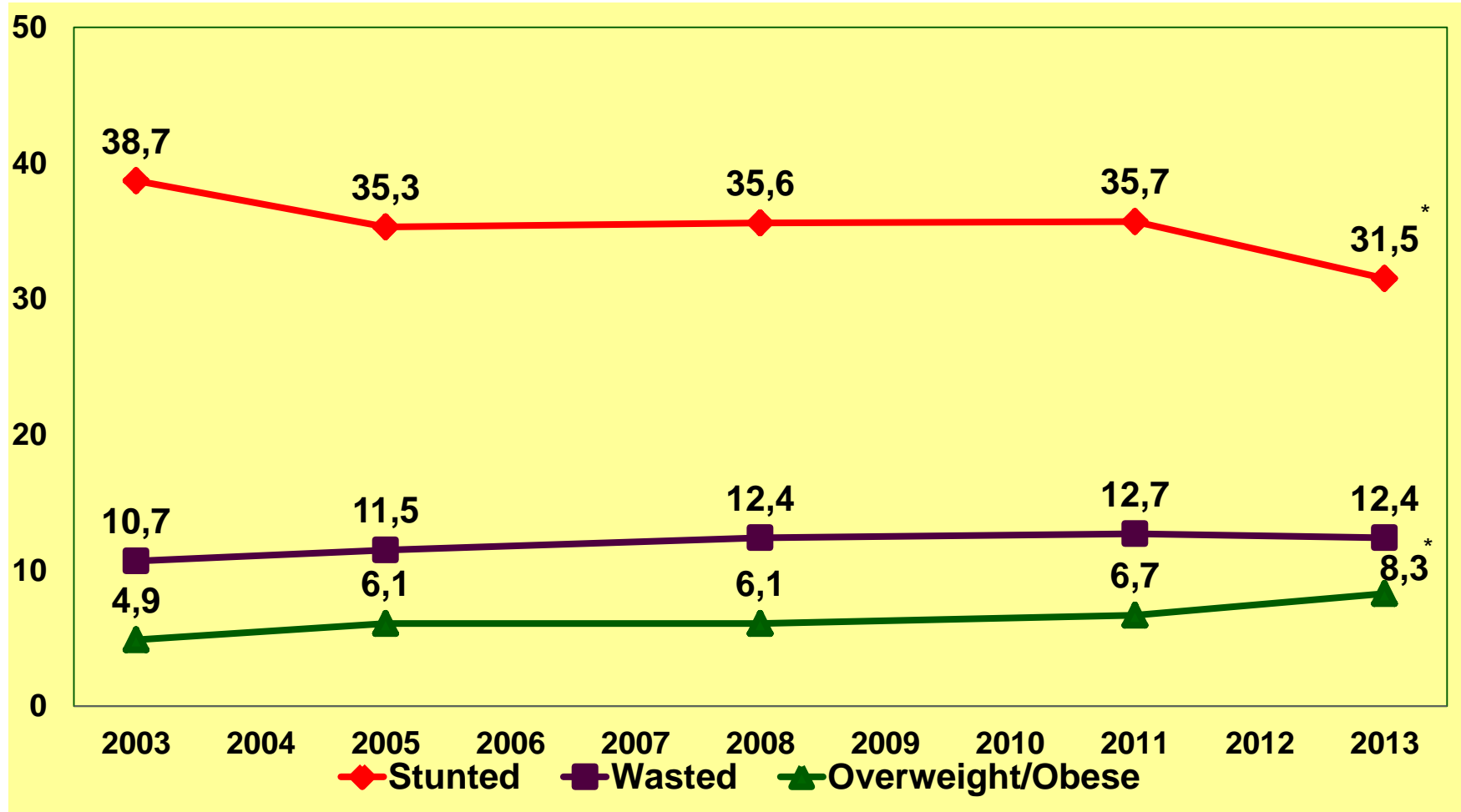
Prevalence of malnourished children, 10.08-19.0 years old (**121-228 months**): Philippines, 2013

STUNTING

31.5%



Trends in the prevalence of malnutrition among children, 10.08-19.0 years old (**121-228 months**): Philippines, 2003-2013



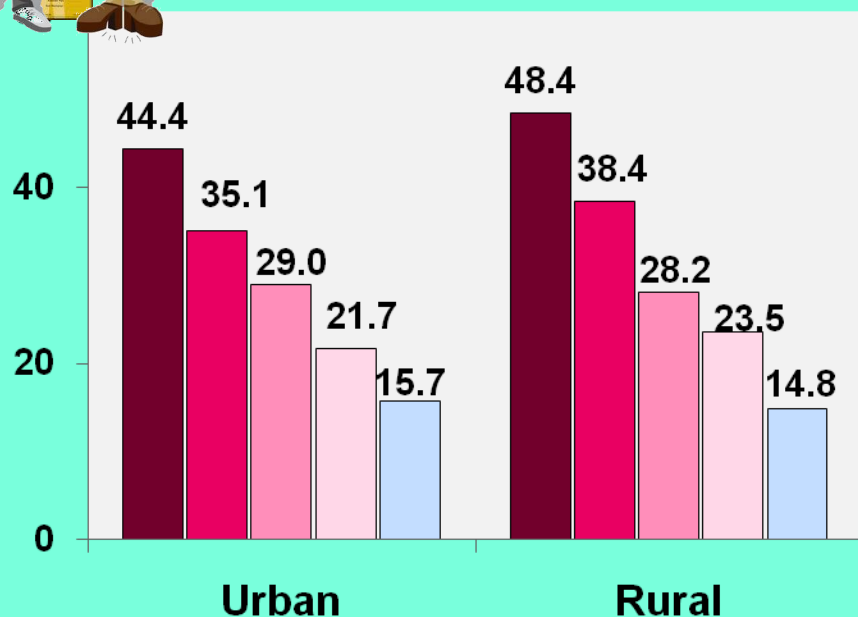
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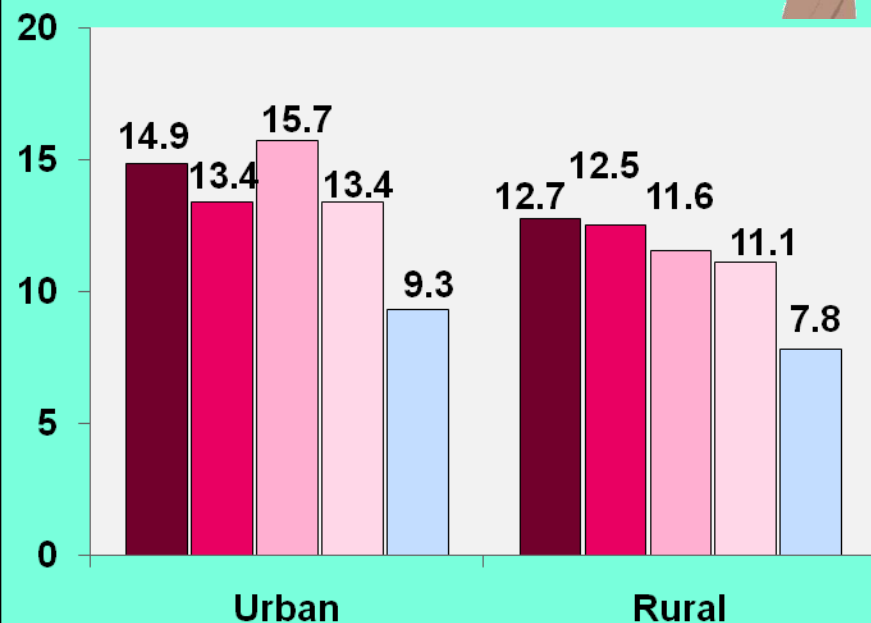
Philippines: 31.5 %

STUNTING



Philippines: 12.4%

WASTING



Poorest
 Poor
 Middle
 Rich
 Richest





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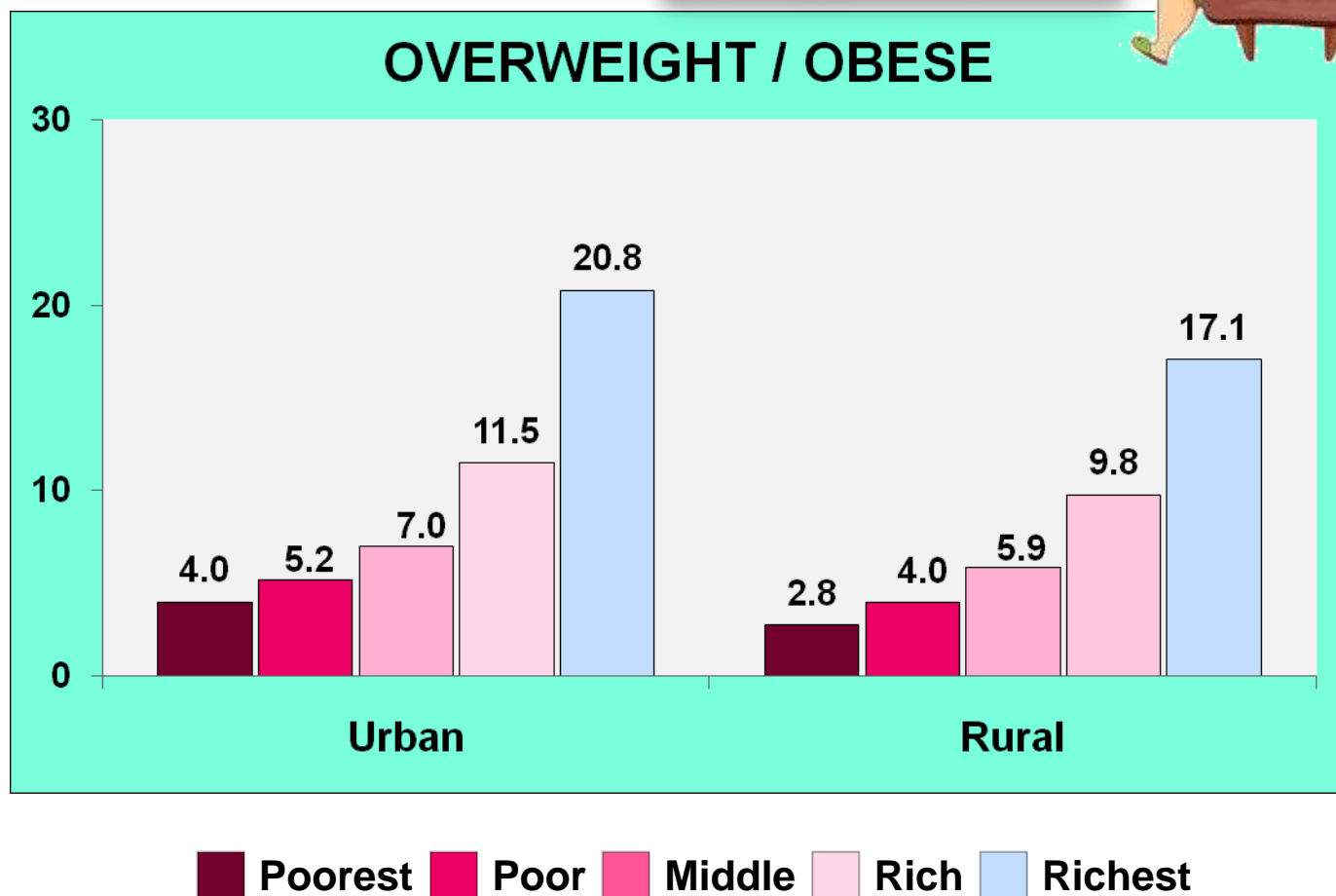
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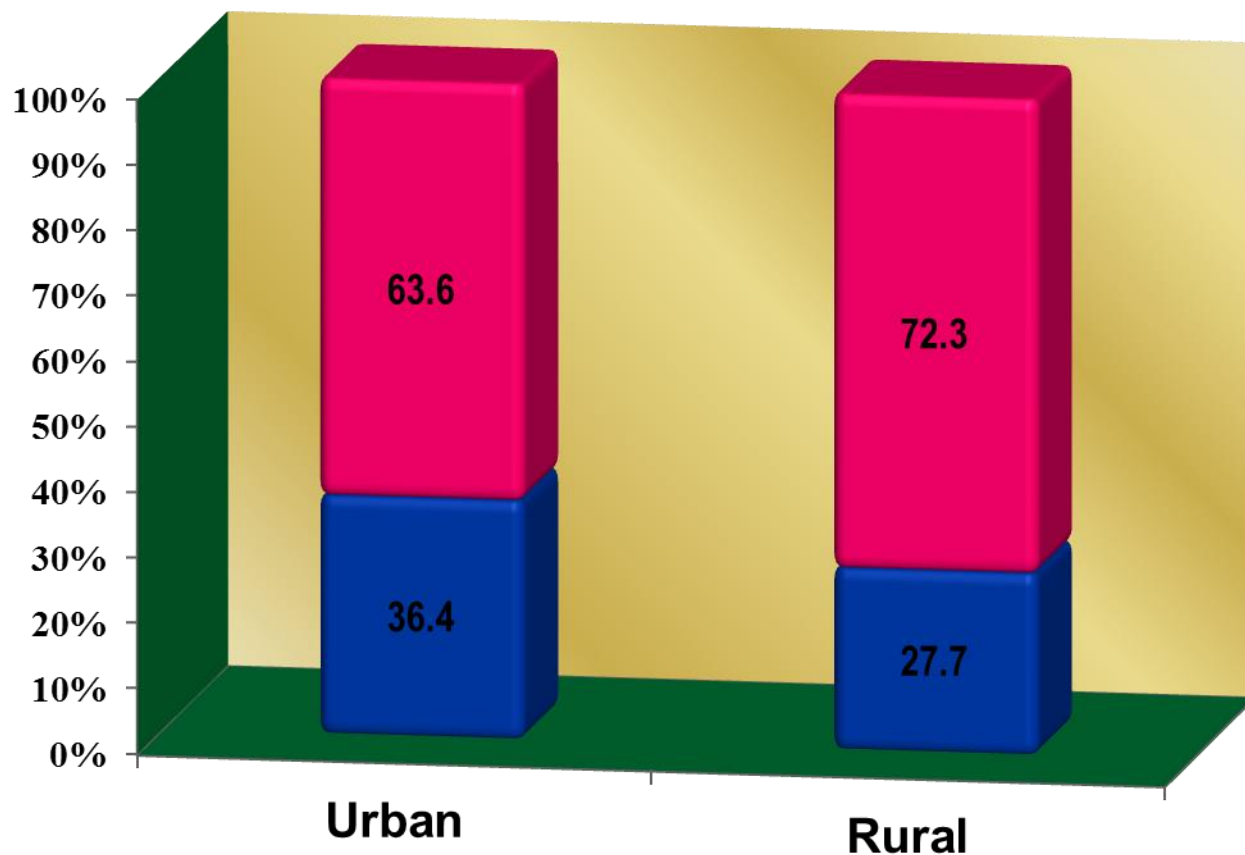
Nutritional Status and Nutrient Intake of Children by Maternal Working Status by Urbanization





Distribution of 6 to 71 months old children by employment status of mothers by urbanization: Philippines, 2008

■ Working mother ■ non-working mother



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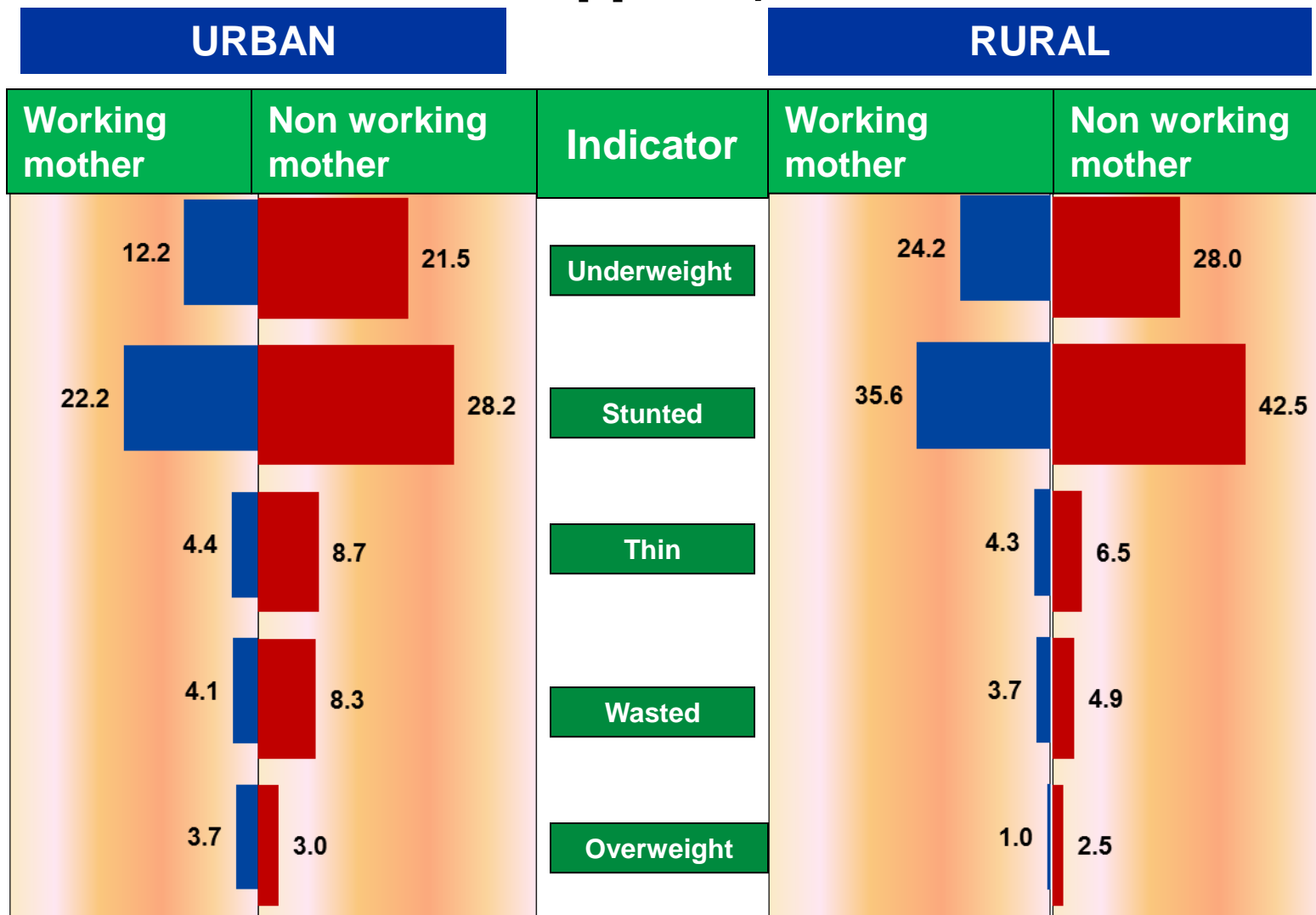


Prevalence of Malnutrition among 6-71 month old children by working status of mothers in urban and rural: Philippines, 2008

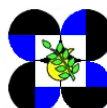
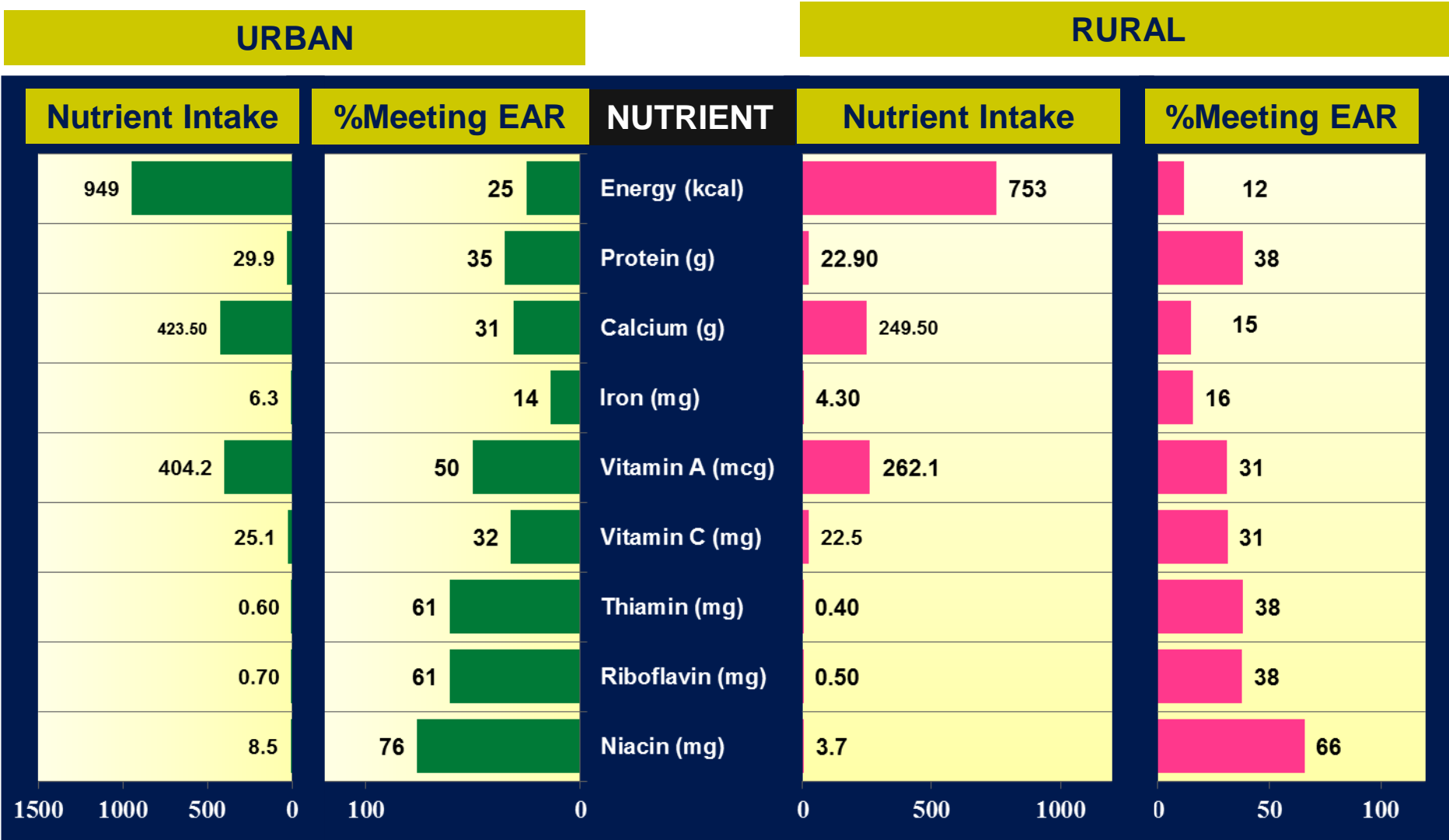
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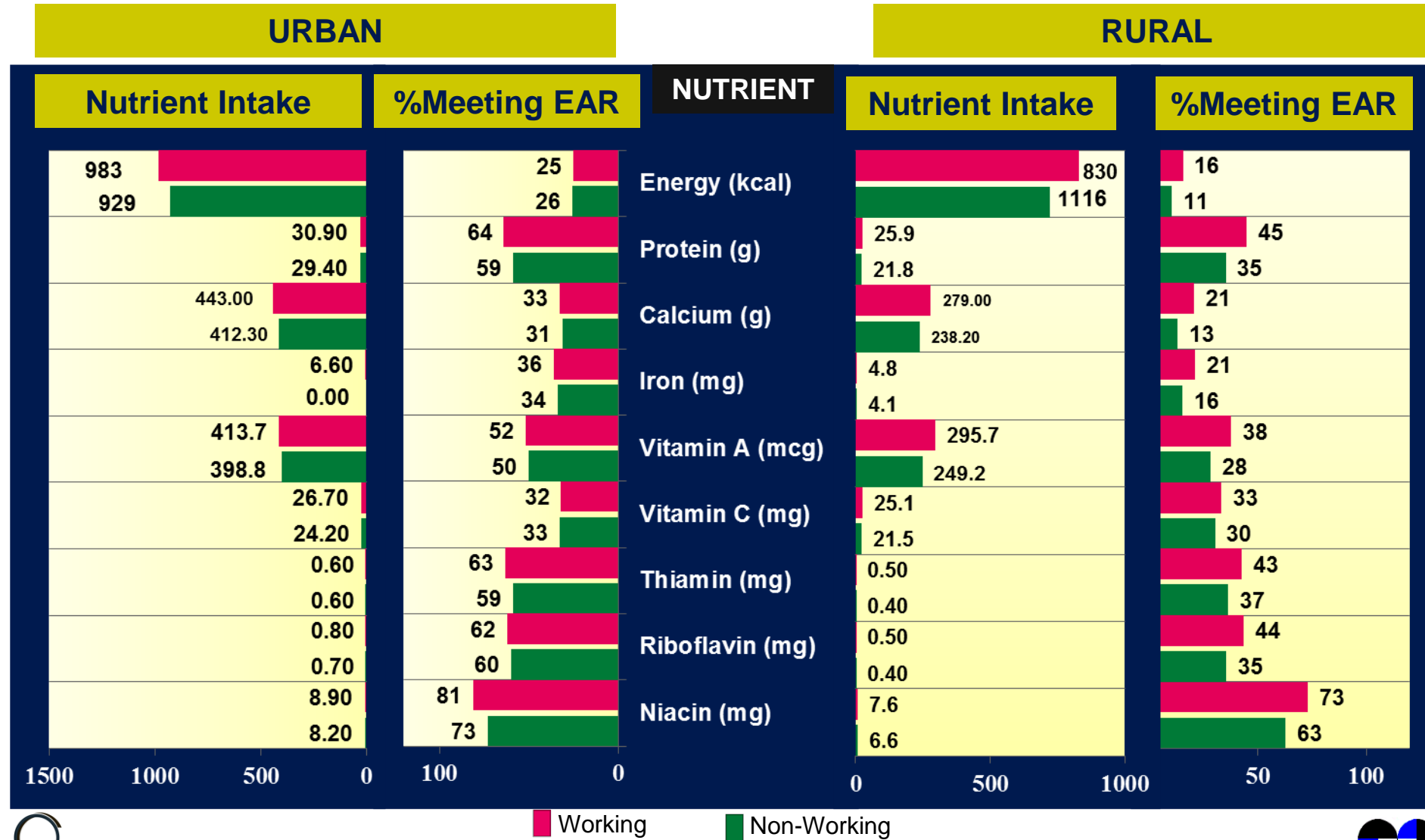
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Nutrient intake and proportion of children meeting Estimated Adequacy Requirement (EAR) by urbanization: Philippines, 2008



Nutrient intake and proportion of children meeting Adequacy Requirement (EAR) by urbanization by mother's employment : Philippines, 2008





Grains, Roots and Tubers



Meat, Fish and Poultry



Vit. A-rich Fruits and Vegetables



Legumes and Nuts



Eggs



Dairy Products



Other Fruits and Vegetables

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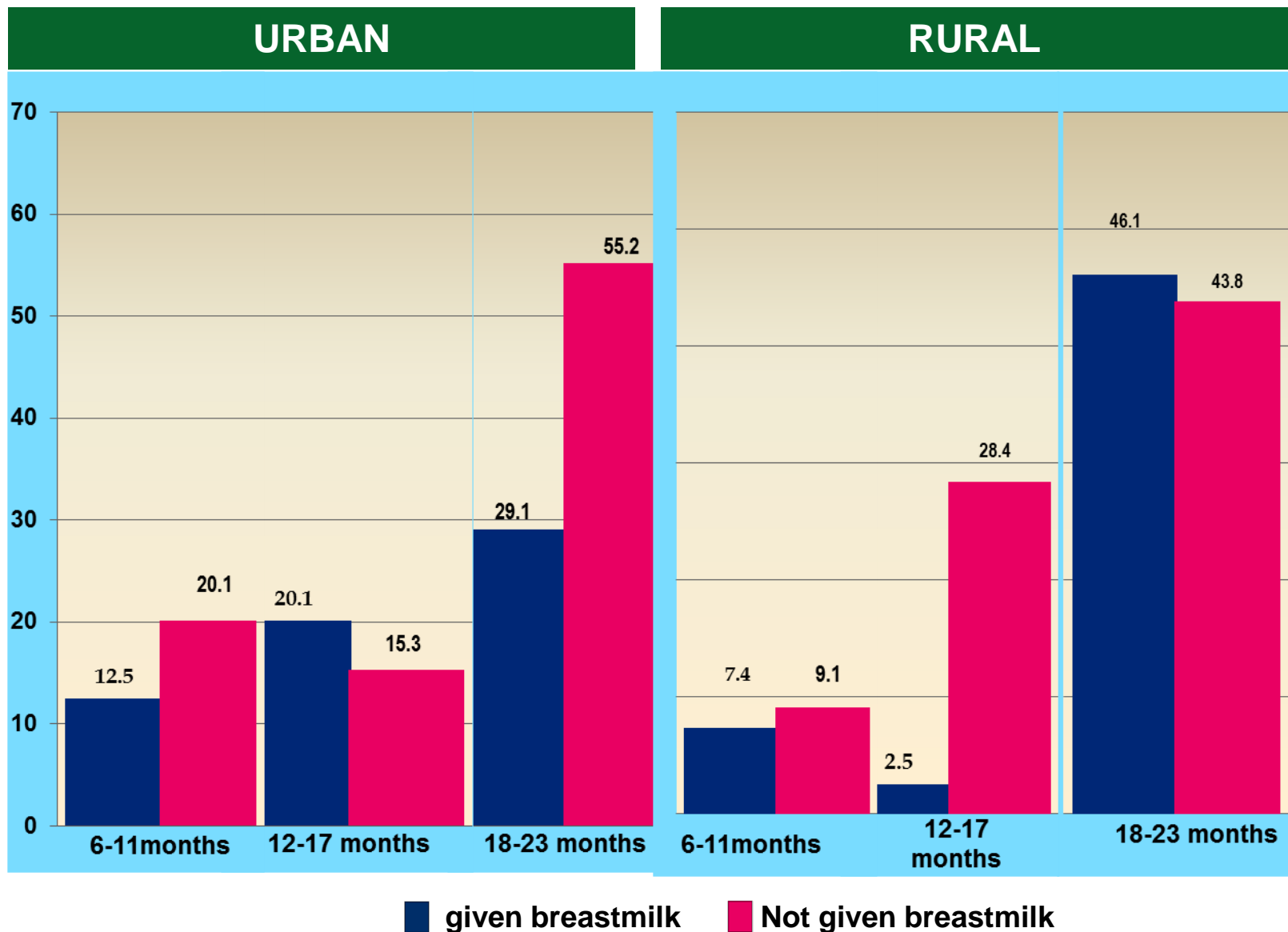


Percent of Children given breast milk by Dietary Diversity Score (DDS) of ≥ 4 in urban and rural areas: Philippines, 2008

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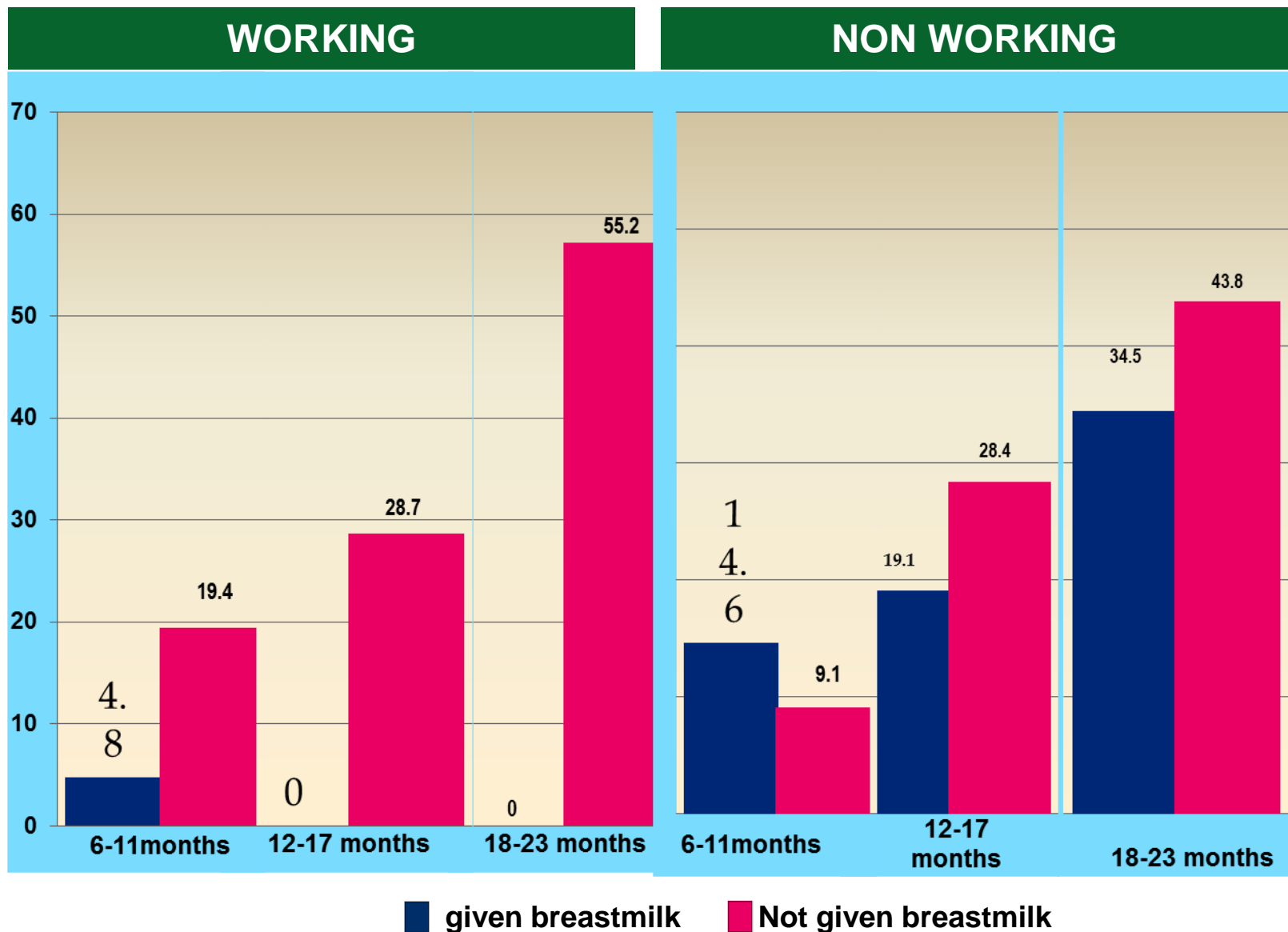


Percent of Children of working and non working mothers given breast milk by Dietary Diversity Score (DDS) of ≥ 4 in urban areas: Philippines, 2008

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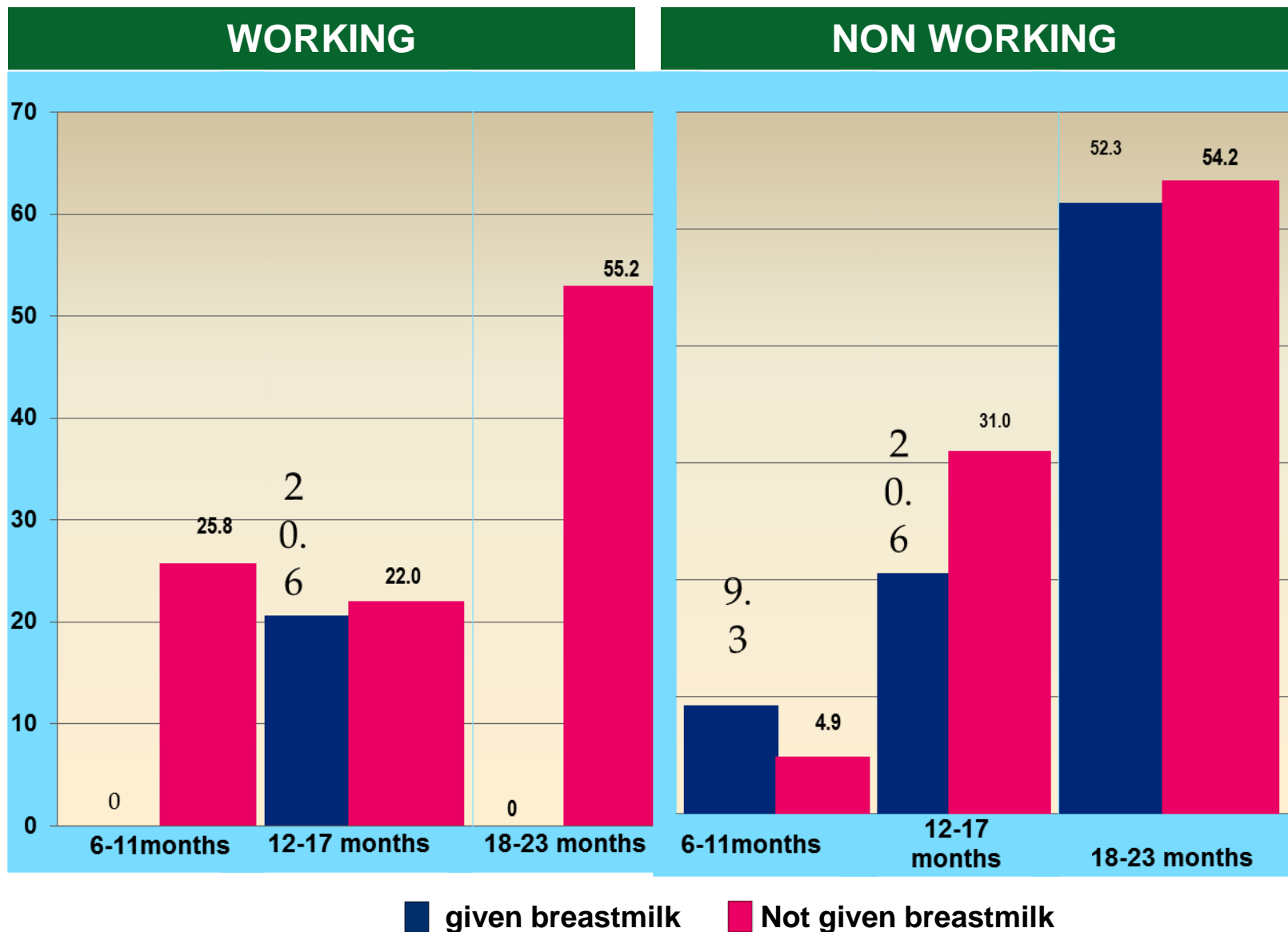


Percent of Children of working and non working mothers given breast milk by Dietary Diversity Score (DDS) of ≥ 4 in rural areas: Philippines, 2008

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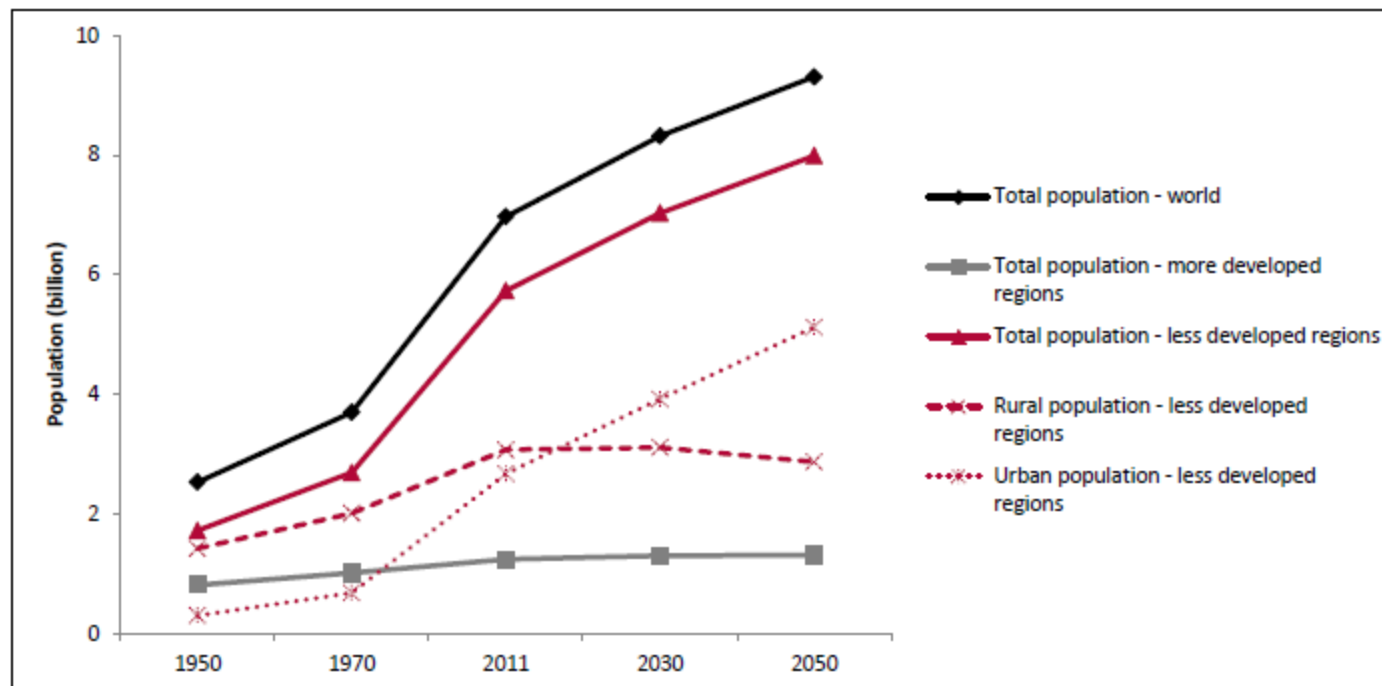
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Demographic Trends 1950 - 2050

www.gainhealth.org



Source: United Nations, World Urbanization Prospects, The 2011 Revision
http://esa.un.org/unup/pdf/WUP2011_Highlights.pdf

Transformation of environment and diets



www.gainhealth.org

- ▶ Urban market constitutes about 60-70% of the food consumed in Asia

(Source: Reardon et al., Urbanization, Diet Change, and Transformation of Food Supply Chains in Asia, Michigan State University, Global Center for Food Systems Innovation, 2014)

- ▶ Commercial Food Consumption in rural areas:
 - ▶ Rural Bangladesh and Indonesia = 80%
 - ▶ Rural Vietnam = 72%



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-
- **Prevalence of underweight and stunting were significantly higher in rural areas.**
 - **Urban areas have a higher occurrence of overweight among children**
 - **Underweight prevalence was significantly high among children of non-working mothers for all age groups from the rural areas.**



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-
- **Pervasiveness of thinness and overweight were higher among children of non working mothers.**
 - **Mean DDS score of children of working and non-working mothers in both urban and rural areas fell short of the acceptable score.**
 - **Mean DDS score of 6-11 months and 18-23 months old children from the rural areas were significantly lower than their urban counterparts.**



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The analysis provided evidence that urbanization and maternal working status have a significant impact on the nutritional status and food and nutrient intake of children.

The Way Forward





.... on the proposed definition

‘Food and Nutrition Security’

“Food and nutrition security exists when all people at all times have physical, social and economic access to food, which is consumed in sufficient quantity and quality to meet their dietary needs and food preferences, and is supported by an environment of adequate sanitation, health services and care, allowing for a healthy and active life.”

United Nations System, Standing Committee on Nutrition.

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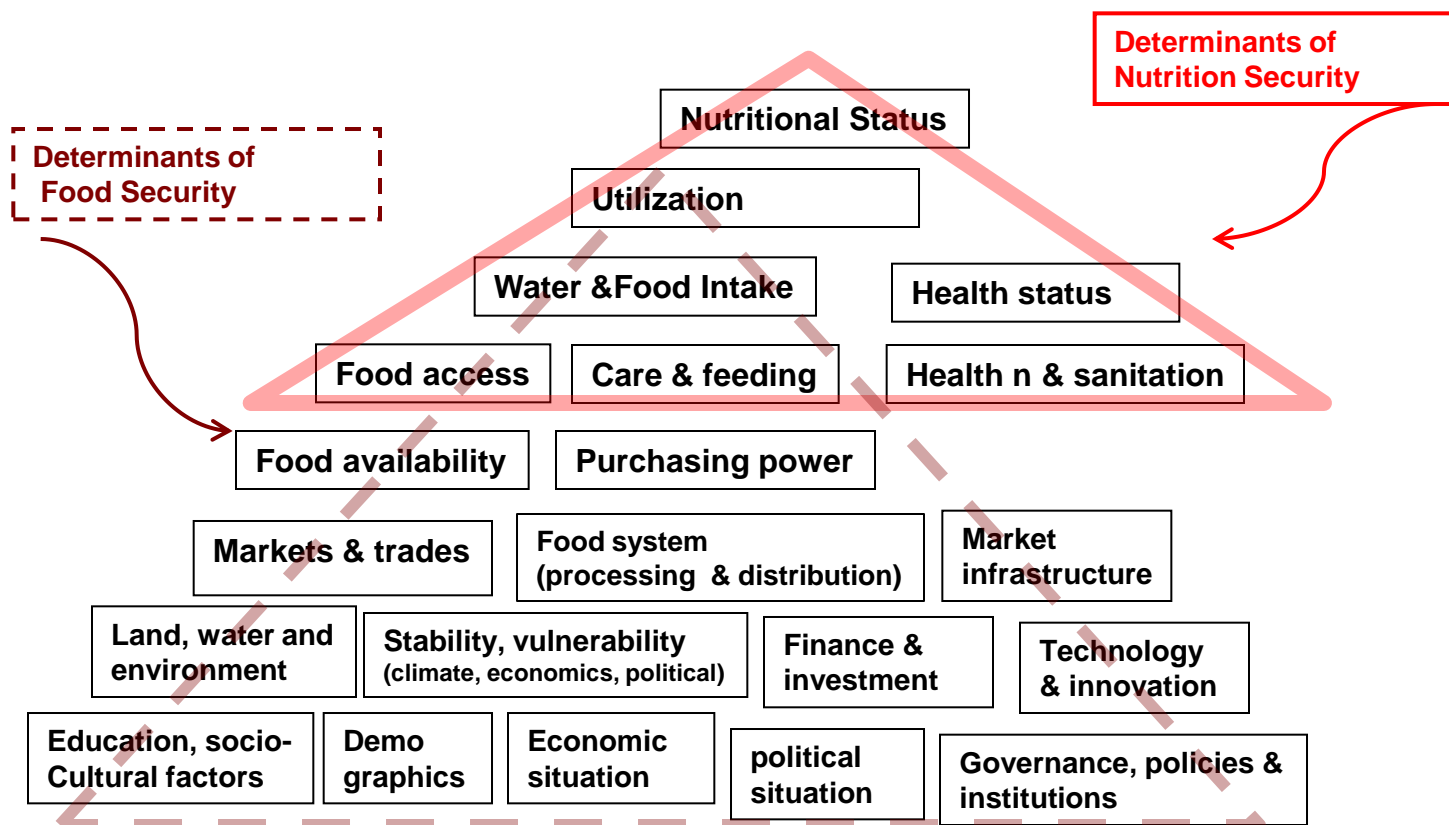


Determinants of Food security and Nutrition security

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Source FAO as cited by United Nations System, Standing Committee on Nutrition.



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.... on Research

- **Further research on the impact of migration (internal and international) on the food and nutrition security of households with vulnerable children (pre-school, school and adolescents)**
- **The conduct of cohort studies that will investigate the effects of migration (both internal and international) on the food and nutrition security of the households with children and adolescents;**



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.... on Research

- **The use of both quantitative and qualitative approach for investigating the lives of migrant households in terms of food and nutrition security.**
 - **The quantitative approach will provide the numbers and can be done through national surveys while the qualitative can be in the form of case studies which will provide the depth in the study**



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.... on Research

- **The cohort studies on the effect of migration and urbanization on the food and nutrition security of households can also be started.**



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... on programs and policies on food security in the Philippines

Feeding Programs

- aimed to reduce hunger among school children through the provision of meals and snacks

Food Fortification

- includes programs which aim to address micronutrient deficiency.

Information, Education, and Nutrition Awareness

- includes programs which promotes the enhancement of nutritional status through information drive.

Source: Philippine Food Security Information System ,Philippine Statistics Authority



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... on programs and policies on food security in the Philippines

Food Production

- consists of programs which intend to foster self-sufficiency and mitigate hunger.

Support to Farmers and Subsidies

- take the form of grants and assistance.

Comprehensive and Integrated Food Security Programs

- provide support which link supply with demand. Services under such programs are geared towards productivity and enhancing the beneficiaries' purchase capacity.

Source: Philippine Food Security Information System ,Philippine Statistics Authority

Thank you

