



# Estimating Consumption & Poverty in Afghanistan from the NRVA 2007-08

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for the second meeting of the Poverty Technical Review  
Committee  
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# Poverty Estimates Overview

- Measure of wellbeing, Total consumption
  - Food (53%)
  - Non-food, nondurable (35%)
  - Durables (3%)
  - Housing (8%)
- Poverty line
  - Food poverty line, cost of minimum calories
  - Adjustment for non-food consumption

*Source:* Deaton & Zaidi, “Guidelines for Constructing Consumption Aggregates For Welfare Analysis”, LSMS paper no. 135. World Bank, 2003.

# NRVA Questionnaires used

- Food
  - Household Female (quantity)
  - Household Male (food away from home)
  - District Market Price (value, price index)
- Non-food, Durables, Rent
  - Household Male & Female (expenditures, values, characteristics)
  - District Market Price (price index)



# Effective sample size

- Initial sample size: 20,576 households
  - In 4 PSUs, the female questionnaire was not administered. 32 households were not asked about food consumption (dropped, see table)
  - 1 household has no roster, no size (dropped)
  - 15 households with zero reported food consumption were left in the sample. They've responded to other questions.
- Effective sample size: 20,543 households



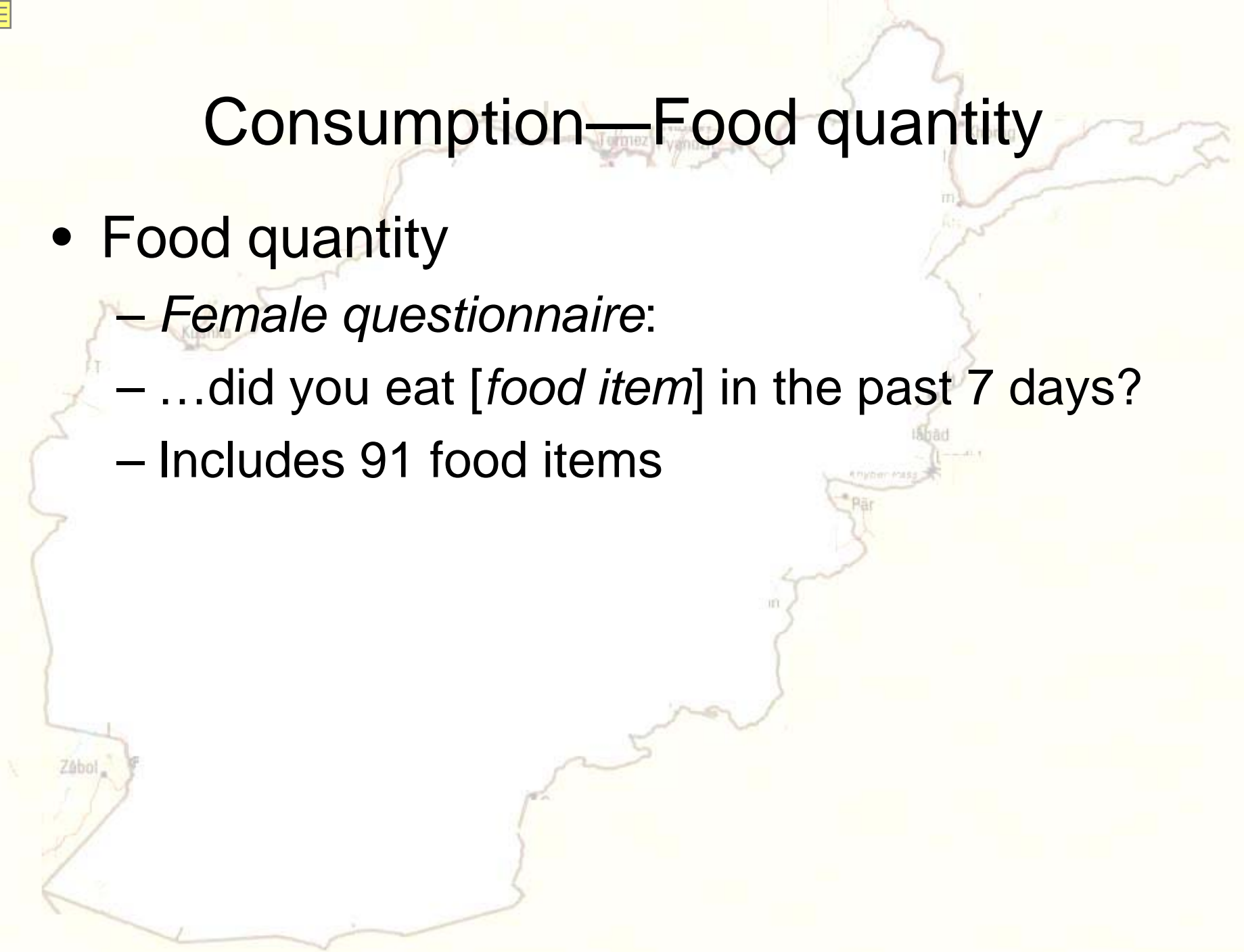
## PSUs missing Female Household information

Province	District	Village	Area
Laghman	Alishing	Islamabad	Rural
Laghman	Dawlat Shah	Gaman Dok	Rural
Nooristan	Kamdesh	Achamgari	Rural
Zabul	Day Chopan	-	Kuchi



# Consumption—Food quantity

- Food quantity
  - *Female questionnaire:*
  - ...did you eat [*food item*] in the past 7 days?
  - Includes 91 food items





# Consumption—Food value

- Value of food consumed= quantity \* price
  - *District Price Survey (DPS)* for all prices, except 'other'
  - DPS Mkt location as specified by interview: district, provincial capital, neighbor district.
  - Match DPS w NRVA by location and month for each item.
  - Create matrix of prices: item, month, district



# Food price matrix

- *Top code at 99<sup>th</sup>%, bottom code at 1<sup>st</sup>% (for each item)*
- *If multiple prices exist, use median.*
- *If missing:*
  - 1) weighted avg of 20 nearest districts, month;
  - 2) province average, month;
  - 3) weighted avg of 20 nearest districts, quarter;
  - 4) national average, month;
  - 5) province average, quarter;
  - 6) national average, quarter.



# “Other” breads, meats, fruits, etc. (0.5% of total food value)

Food items	Proxy price (price per kg)	Rationale
Other bread and cereals	Median, excluding nan	Little price variation. Medians are between 20 to 60 Afs per kg.
Other Meat and fish	Median, excluding dried meat	Little price variation (once dried meats excluded). Medians between 100-180 Afs.
Other dairy products	Median of lower price dairy products (dogh, milk, and yoghurt)	Much variation, correlated with weight/ moisture content. About Afs 10 for milk & yoghurt, Afs 200-300 for butter.
Other oils/ fat	price exists	
Other vegetables	median of fresh vegetables	Little price variation.
Other Fruit	median of fresh fruits	Once dried fruits excluded, little price variation.
Other Beverages	price of Bottled/ canned beverages and mineral water	Assume: other beverages are liquids, not dried leaves like tea.
Other spices	price of mixed spice	



# Food consumed away from home (2% of total food value)

- What has the household spent in the last 30 days for food & drinks consumed outside the home?
- Only value, no quantity.
- We use for value of total food consumption, but we do not impute a caloric amount to it.
- Reason: Food poverty is meant to provide information about food security and nutritional intake. Food away from home represents a dimension in which households obtain food.

# Shares of food group to total food consumption by per capita expenditure (PCE) quintile

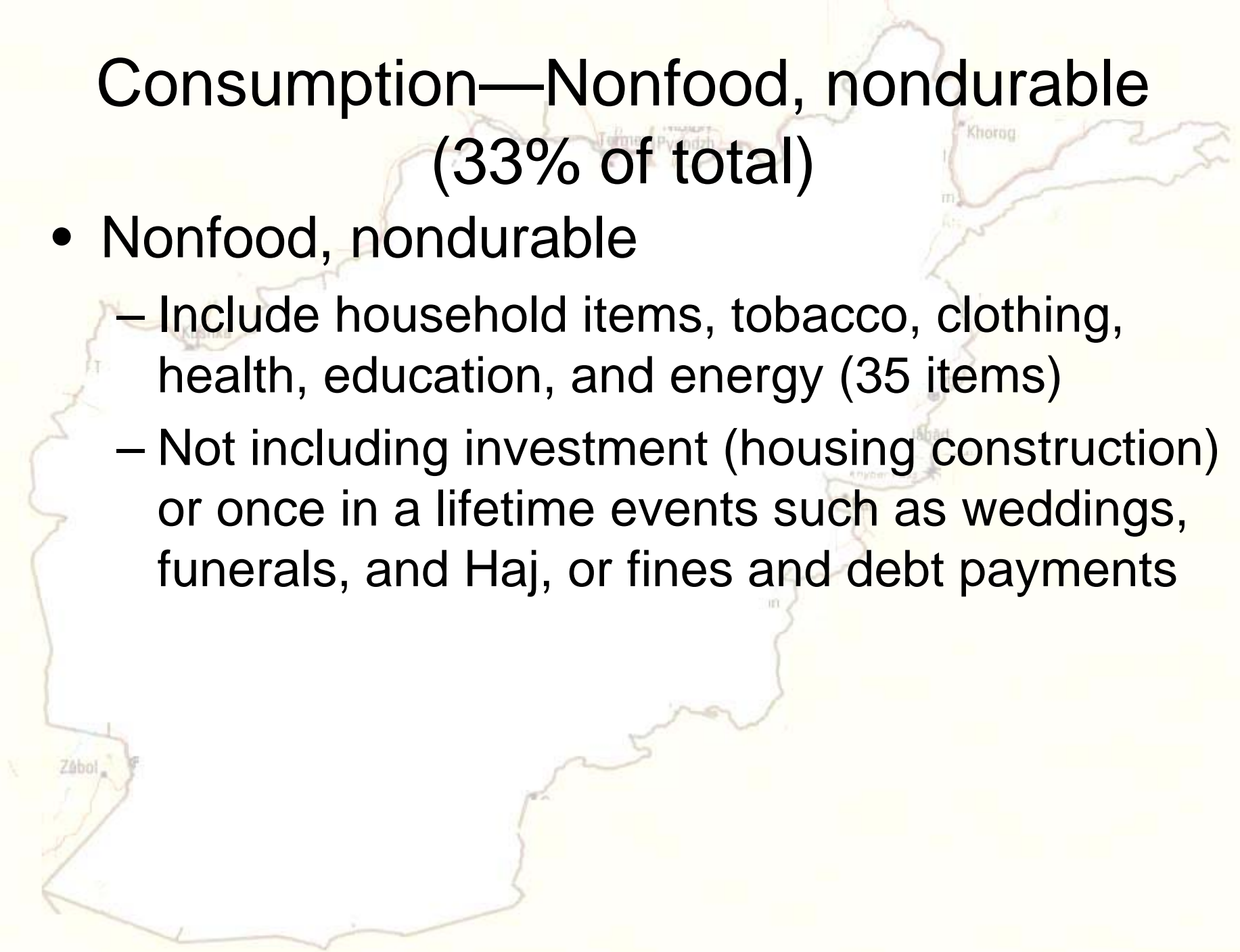
<b>PCE quintile</b>	<b>Bottom 20%</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Top 20%</b>	<b>Total</b>
Bread and cereals	<b>56.2</b>	52.1	47.2	41.8	<b>33.0</b>	43.2
Meat and fish	<b>6.1</b>	9.2	12.3	15.4	<b>18.2</b>	13.7
Dairy products	<b>10.4</b>	10.4	10.4	9.9	<b>9.3</b>	9.9
Oils/ fat	<b>8.5</b>	8.3	7.7	6.9	<b>5.7</b>	7.0
Vegetables	<b>8.0</b>	8.2	8.2	8.5	<b>9.0</b>	8.5
Fruit	<b>2.3</b>	3.4	5.0	7.8	<b>13.2</b>	7.7

# Shares of food group to total food consumption by per capita expenditure (PCE) quintile, continued

<b>PCE quintile</b>	<b>Bottom 20%</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Top 20%</b>	<b>Total</b>
Sugar and candy	<b>3.3</b>	3.5	3.7	3.5	<b>3.4</b>	3.5
Beverages	<b>3.3</b>	2.7	2.5	2.5	<b>3.1</b>	2.8
Spices	<b>1.3</b>	1.4	1.5	1.4	<b>1.5</b>	1.5
Food away from home	<b>0.5</b>	1.0	1.5	2.2	<b>3.5</b>	2.1
<i>Total food</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>
"Other" food items	0.4	0.2	0.3	0.5	0.7	0.5

# Consumption—Nonfood, nondurable (33% of total)

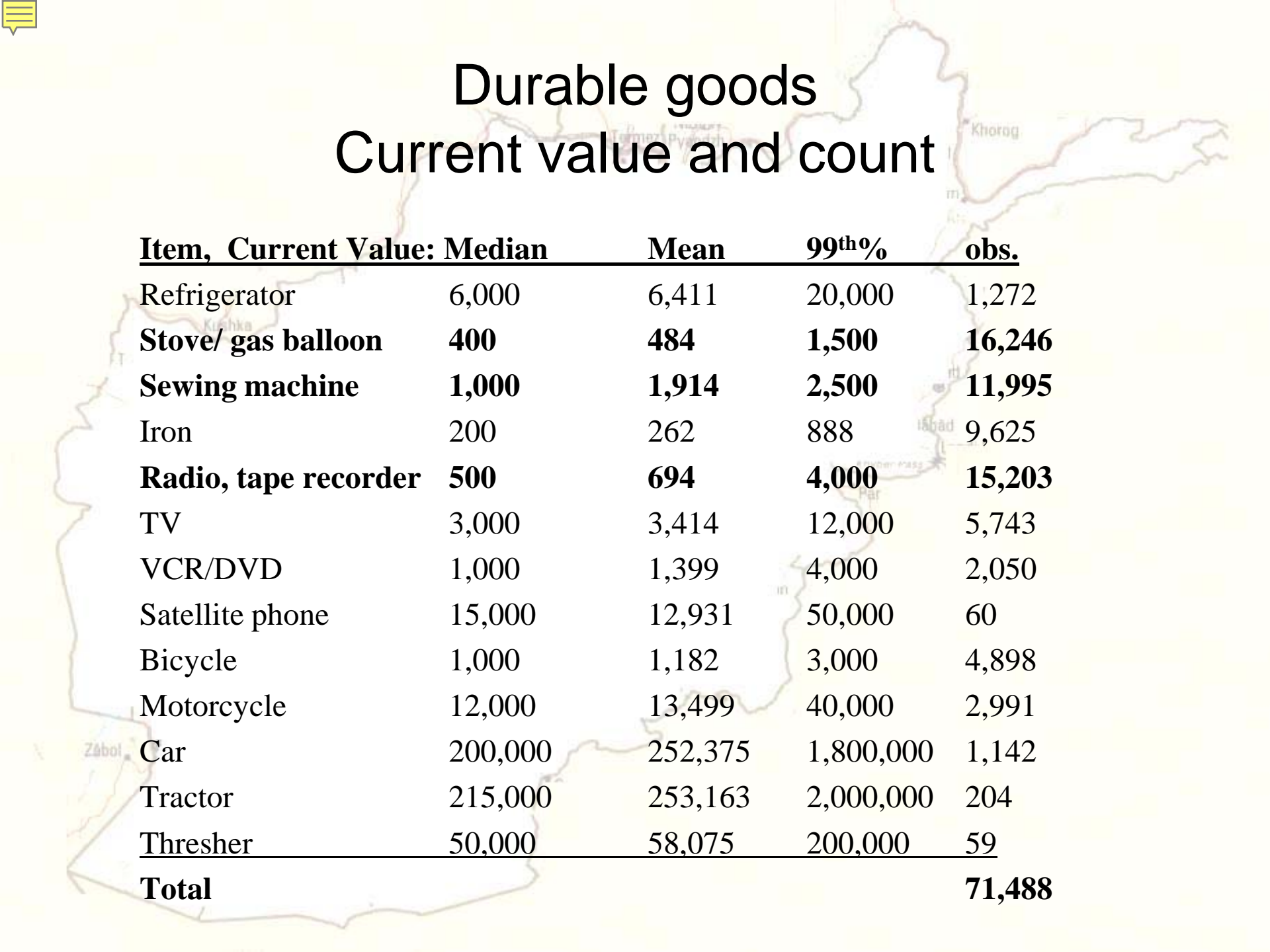
- Nonfood, nondurable
  - Include household items, tobacco, clothing, health, education, and energy (35 items)
  - Not including investment (housing construction) or once in a lifetime events such as weddings, funerals, and Haj, or fines and debt payments





# Consumption– durables (3% of total)

- Nonfood, durable goods
  - Use-value, Hypothetical: “cost if rented?”
  - Rental value =  $\text{Value of the durable} * \text{depreciation} * \text{opportunity cost of money}$
  - Proxy for  $\text{depreciation} * \text{cost of money}$ : 0.13  
assuming an estimated life span of about 10 years – 10% flat-line depreciation rate, and an interest rate 3%



# Durable goods

## Current value and count

Item, Current Value:	Median	Mean	99 <sup>th</sup> %	obs.
Refrigerator	6,000	6,411	20,000	1,272
<b>Stove/ gas balloon</b>	<b>400</b>	<b>484</b>	<b>1,500</b>	<b>16,246</b>
<b>Sewing machine</b>	<b>1,000</b>	<b>1,914</b>	<b>2,500</b>	<b>11,995</b>
Iron	200	262	888	9,625
<b>Radio, tape recorder</b>	<b>500</b>	<b>694</b>	<b>4,000</b>	<b>15,203</b>
TV	3,000	3,414	12,000	5,743
VCR/DVD	1,000	1,399	4,000	2,050
Satellite phone	15,000	12,931	50,000	60
Bicycle	1,000	1,182	3,000	4,898
Motorcycle	12,000	13,499	40,000	2,991
Car	200,000	252,375	1,800,000	1,142
Tractor	215,000	253,163	2,000,000	204
Thresher	50,000	58,075	200,000	59
<b>Total</b>				<b>71,488</b>



# Consumption—housing (8% of total)

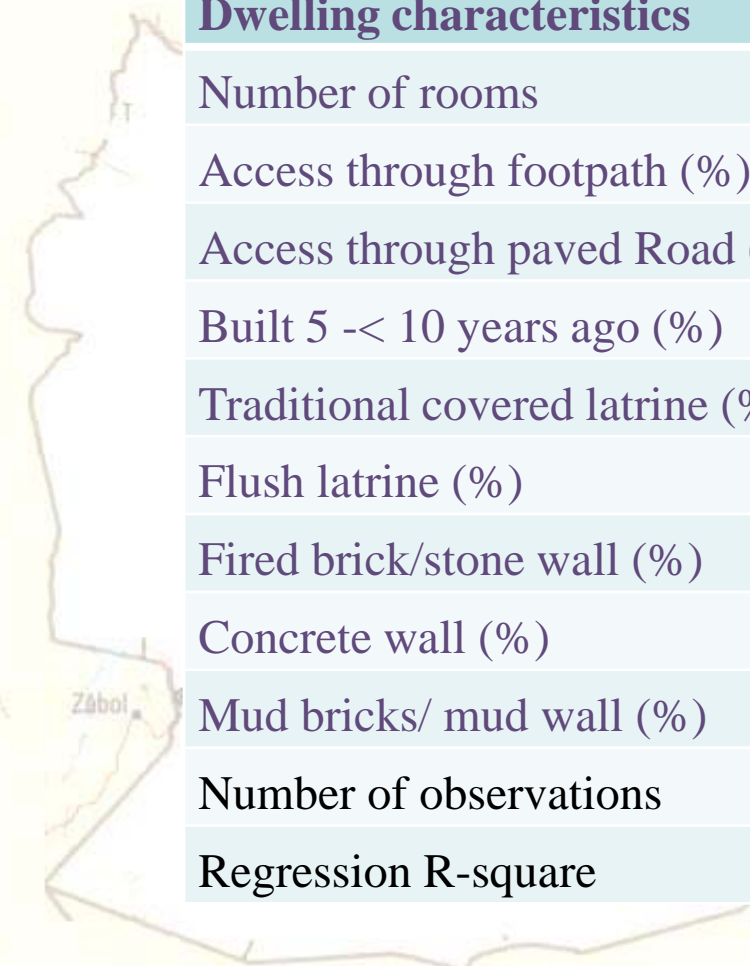
- Housing: rents
  - Few households report rents (lt 5%)
  - Many households report value of house (48% in urban, 38% rural, 38% Kuchi)
  - Imputed housing value from dwelling characteristics (>99% of households have sufficient household characteristics)
  - Separate urban and rural models
  - Est. rent = value \* depreciation \* interest rate





# Housing Regression Model

$\log \text{ value} = f(\text{dwelling characteristics})$



Dwelling characteristics	Urban dwelling	Rural dwelling
Number of rooms	3.9	3.3
Access through footpath (%)	14	31
Access through paved Road (%)	30	3
Built 5 -< 10 years ago (%)	10	15
Traditional covered latrine (%)	73	58
Flush latrine (%)	13	0
Fired brick/stone wall (%)	17	6
Concrete wall (%)	5	0
Mud bricks/ mud wall (%)	77	89
Number of observations	1,562	5,927
Regression R-square	0.51	0.48

# Predicted & Reported value

Dwelling type	Actual	Predicted
Urban dwelling	700,000	654,463
Rural dwelling	100,000	101,751
Tents	9,000	7,385

*Note:* Medians of predicted and actual housing values of households that reported housing values.

# Imputed & Reported Rent

Dwelling type	Actual rent	Imputed rent		
		Rate of 4%	Rate of 4.5%	Rate of 5%
Urban dwelling	3,170	2,765	3,110	3,456
Rural dwelling	1,493	495	557	618
Total	2,816	2,285	2,571	2,857

*Note:* Means of predicted rental values. Figures shown based on households that reported actual rents. Rate is the sum of depreciation and interest rate.

# Urban rents from CPI data

Monthly rent	Kabul	Herat	Jalalabad	Mazar -e-sharief	Khost	Kandahar
Rent, 4 rooms non-concrete	8,042	4,667	5,333	5,500	3,500	5,500
Rent, house 2 rooms concrete	5,433	3,167	3,333	5,000	3,000	5,000
Rent, 2 rooms non-concrete	4,625	2,333	2,500	3,000	1,750	3,000

*Note:* Rent in urban areas from CPI data in February 2009

*Source:* CSO

# Price index

- Adjust for price differences across regions and across quarters
  - Essential due to food price crisis during the beginning of 2008
  - Price adjust all nominal figures to fall 2007
- Use the District price survey for food
- Use CPI for nonfood

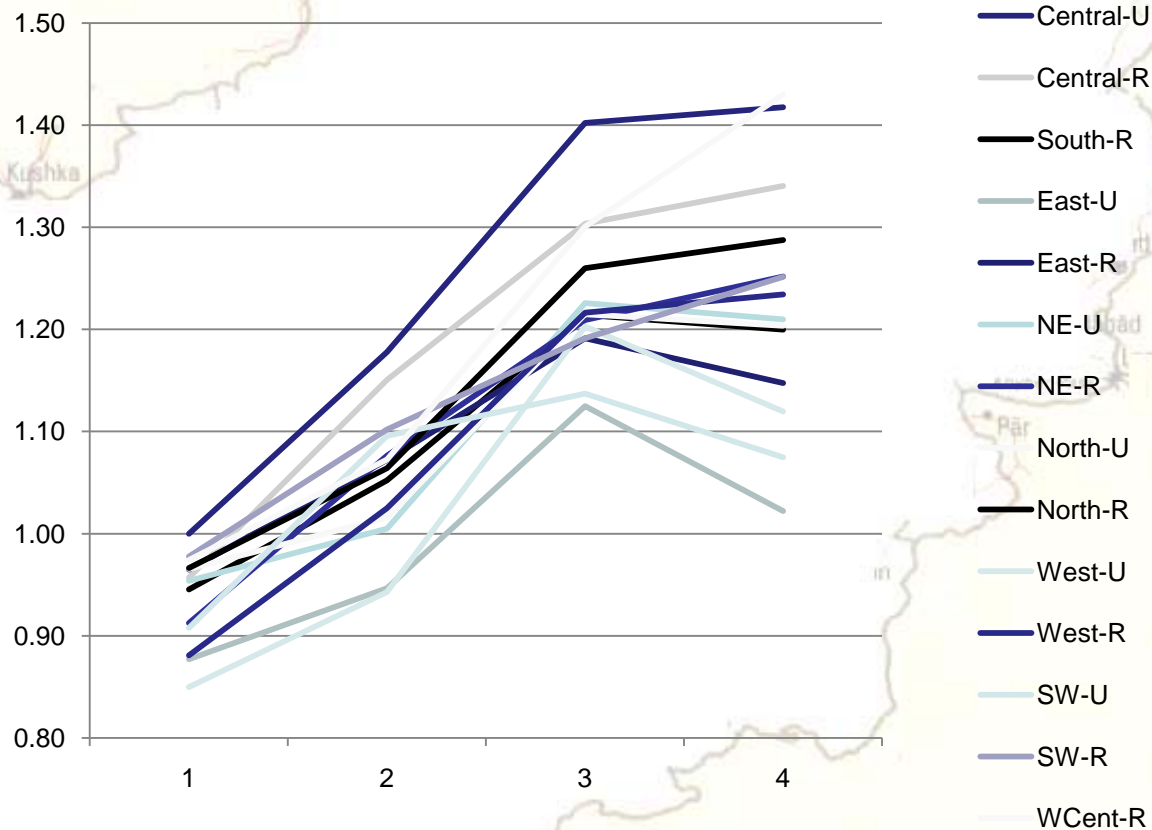


# Price index – food component

## Choices made for food price index

- Laspeyres price index at the regional and quarter level
  - Reference basket: average quantity of items consumed by households in the bottom half
  - 14 regions: divided 8 NRVA regions (Central, NE, North, West, CentHighland, East, SE, SW) by urban and rural areas. Some regions do not have urban areas.
  - Quarters: 1<sup>st</sup>: Asad –Aqrab 1386, 2<sup>nd</sup>: Qaws – Dawa 1386, 3<sup>rd</sup>: Hoot 1386-Sawar 1387, and 4<sup>th</sup>: Jawza – Sunbula 1387
  - Food prices used were from those faced by households in the bottom half of distribution

# Food price index



- All food consumption are rescaled to 1<sup>st</sup> quarter of Central-Urban region

# Price index – non food

- Main problem: lack of price data.
  - Cannot use food prices rose by a larger magnitude than non-food.
  - Solution: use CPI data for nonfood
- CPI data: collected only from 6 major urban areas
- Use the CPI to deflate nominal non-food to fall 2007
- Adjust for spatial price differences with the first quarter values of food's price index

## Temporal deflator for non-food

Quarter	Temporal Deflator
1	1
2	1.030
3	1.025
4	1.076



# Share of consumption expenditure by PCE quintile (%)

	Food	Non-food	Durables	Rent
1st (poorest)	66	27	2	6
2	63	30	2	5
3	59	33	2	6
4	54	37	3	7
5th (richest)	45	39	4	12
<b>All</b>	<b>53</b>	<b>35</b>	<b>3</b>	<b>8</b>

# Total Consumption

per capita, monthly, price adjusted to quarter 1, central urban region

Percentiles		Smallest		
1%	533	193		
5%	749	200		
10%	894		Observations	20,543
25%	1183		Sum of Weights	24,931,594
<b>50%</b>	<b>1,652</b>		<b>Mean</b>	<b>1,938</b>
75%	2343		Std. Error Mean	15
90%	3188		Variance	1,531,374
95%	3987	28958		
99%	6548	30677		
		Largest		

# Comparison of two surveys

- More items were added both non-food and food items.
- For non-food, The number of items was expanded from 13 in 2005 to 41 items in 2007/08.
  - The additional items were both disaggregated items as well as completely new items.
- For food items, more food items were added to accommodate the nature of NRVA 2007/08 that is a year round survey.
  - Food groups that do not contribute to calories but are often used by households—such as salt and spices--were also added.
- Old food items can form a basis for comparison (core items).

	NRVA 2005	NRVA 2007
Sample size	30,000 HH	21,000 HH
Number of food items	64	91
Number of non-food items	13	41

# Comparable food items

- NRVA 2005 poverty analysis used 64 food items
  - Form a core items for poverty comparison between 2005 and 2008
- A few of the core items from NRVA 2005 have comparability issues but impact is marginal
  - Apricot: not in NRVA 2007
  - Orange: explicitly listed more fruit names in citrus group in 2007
  - Disaggregation
    - Milk: NRVA 2007 has both powdered milk and fresh milk, 2005 listed only milk
    - Yoghurt: NRVA 2007 has both yoghurt and curd, 2005 listed only yoghurt

# Comparability analysis

A faint, light-colored map of Iran serves as the background for the slide. It shows the country's borders and some internal regional divisions. Labels for cities like Tehran, Isfahan, Shiraz, and Zabol are visible in small text.

- These items account for a very small fraction of total food expenditures
  - Orange and apricot account for only 0.7 percent of food expenditure
- Use food expenditure to compare poverty between 2005 and 2007
- Caloric intake can also be used

# Comparability of non-food

- Overall issues
  1. Changes in questionnaire format
    - a) Energy: from usage types to fuel types
    - b) Yearly items: ask 12-month exp directly
  2. Disaggregation of old items
- Items affected
  - Only 1 out of 11 items (in 2005) are directly comparable
- Conclusion: the items and questionnaire format had changed so much that non-food expenditure will not be used for poverty comparision

end

