

# Charting the Cost of a Nutritionally-Adequate Diet in Uganda, 2000-2011

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# Introduction

*Do high food prices pose a threat to healthy diets in Uganda?*

- In 2007-2008 Uganda experienced sharp rises in prices of key staples
- Concerns linger about the potential deleterious effects of higher prices on food security, especially for poor households and net buyers
- When prices increase, households choose cheaper sources of calories; these are often inferior in terms of nutrients
- Reductions in diet quality and diversity have serious consequences for the nutrition and health of pregnant women, infants and young children

# Introduction cont'd

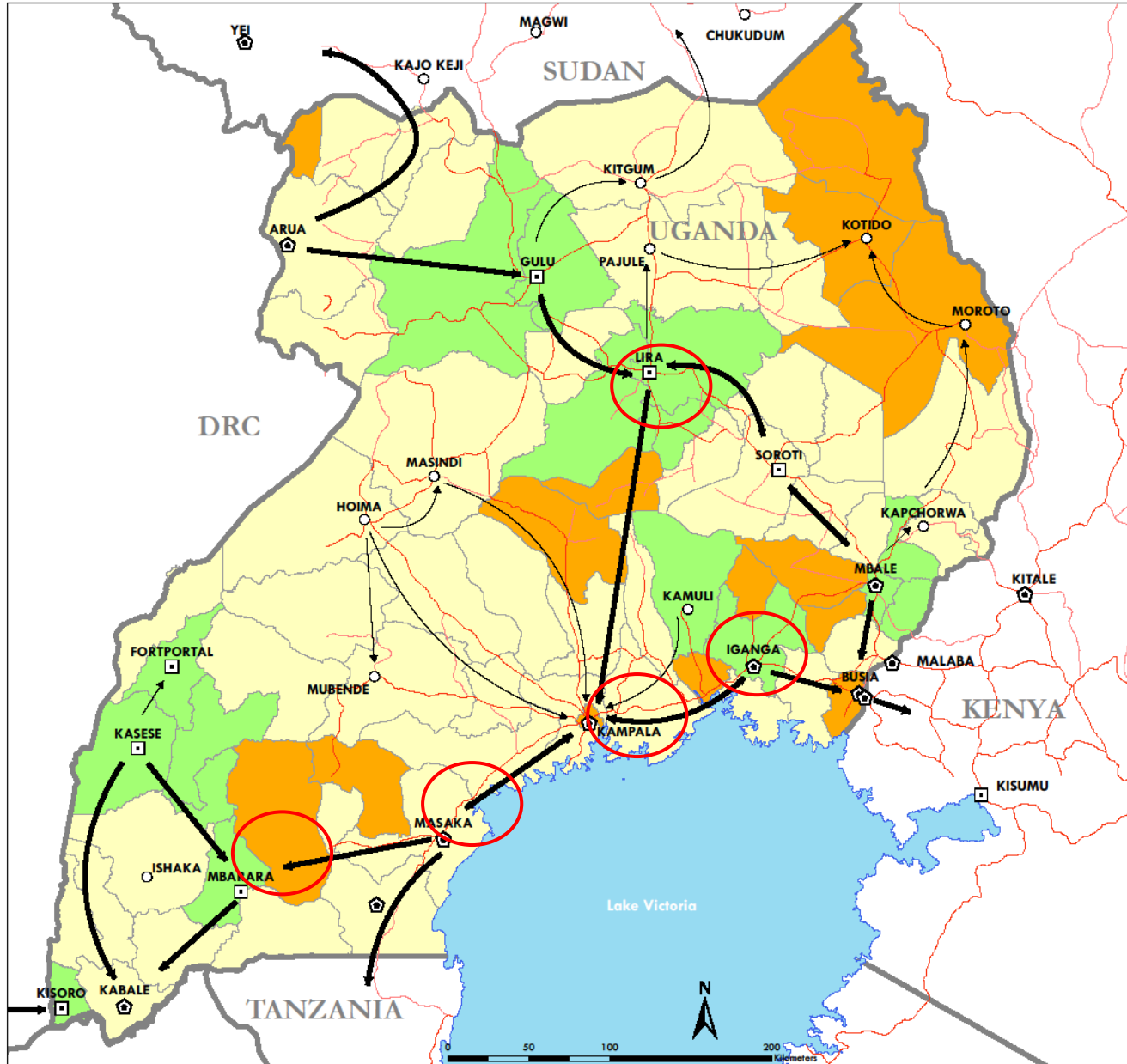
*Nearly two thirds of Ugandan households are net buyers of staple foods*

- This underscores the importance of food prices as a driver of food insecurity
- High food prices are widely perceived as undermining food security and slowing progress towards achieving **SDG2** goal of ending all forms of malnutrition by 2030

# Empirical approach

*Formulate and solve a series “least cost” diet problems using:*

- Data on prices of staple foods
  - Food Net and Fit Uganda, 28-40 commodities, 20 markets, Sept 1999 to Dec 2011
  - Prices deflated using monthly CPI and converted to price per 100 gram portions
- Recommended Dietary Allowances (RDAs) for adults aged 19-50 years
- Food Composition Table (FCT) for central and eastern Uganda
  - Harvest plus
  - FCT nutrient composition data are in per 100 grams and standard recipes



### Key Market Centres

- Retail
- Wholesale
- △ Assembly
- ◻ Retail & Wholesale
- ⊗ Assembly & Wholesale
- 🏠 Assembly, Wholesale & Retail

### Beans First Season

- 🟢 Major Production / Surplus
- 🟡 Minor Deficit
- 🟠 Major Deficit
- ⚪ No Data
- ⚪ Not Applicable

### Trade Flow

- ➡ Large Flow
- ➡ Small Flow

### Road Types

- Main Roads
- Minor Roads
- ⋯ Railways

⚪ Districts

🟦 lakes



# Linear programming model

$$\text{Minimize } C = \sum p_j \times f_j$$

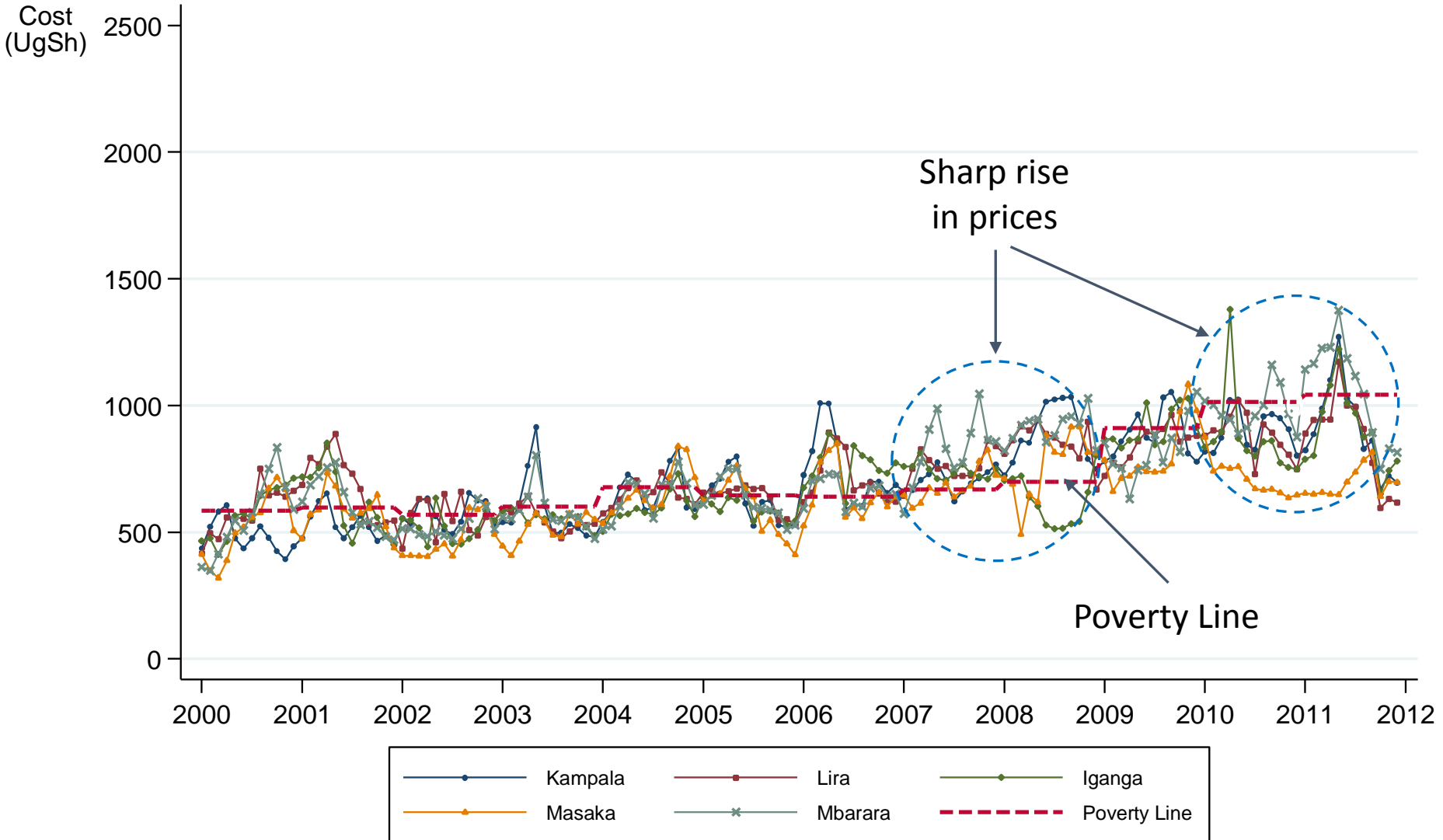
subject to

$$\sum a_{ij} \times f_j \geq R_i \quad \leftarrow \text{RDA's}$$
$$f_j \leq M_j \times \sum f_j \quad \leftarrow \text{Food habits}$$

- $C$  total daily cost of diet
- $f_j$  amount of  $j$ th food
- $R_i$  nutritional requirement for  $i$ th nutrient
- $a_{ij}$  nutritional composition  $j$ th food for  $i$ th nutrient
- $M_j$  maximum portion size for the  $j$ th food

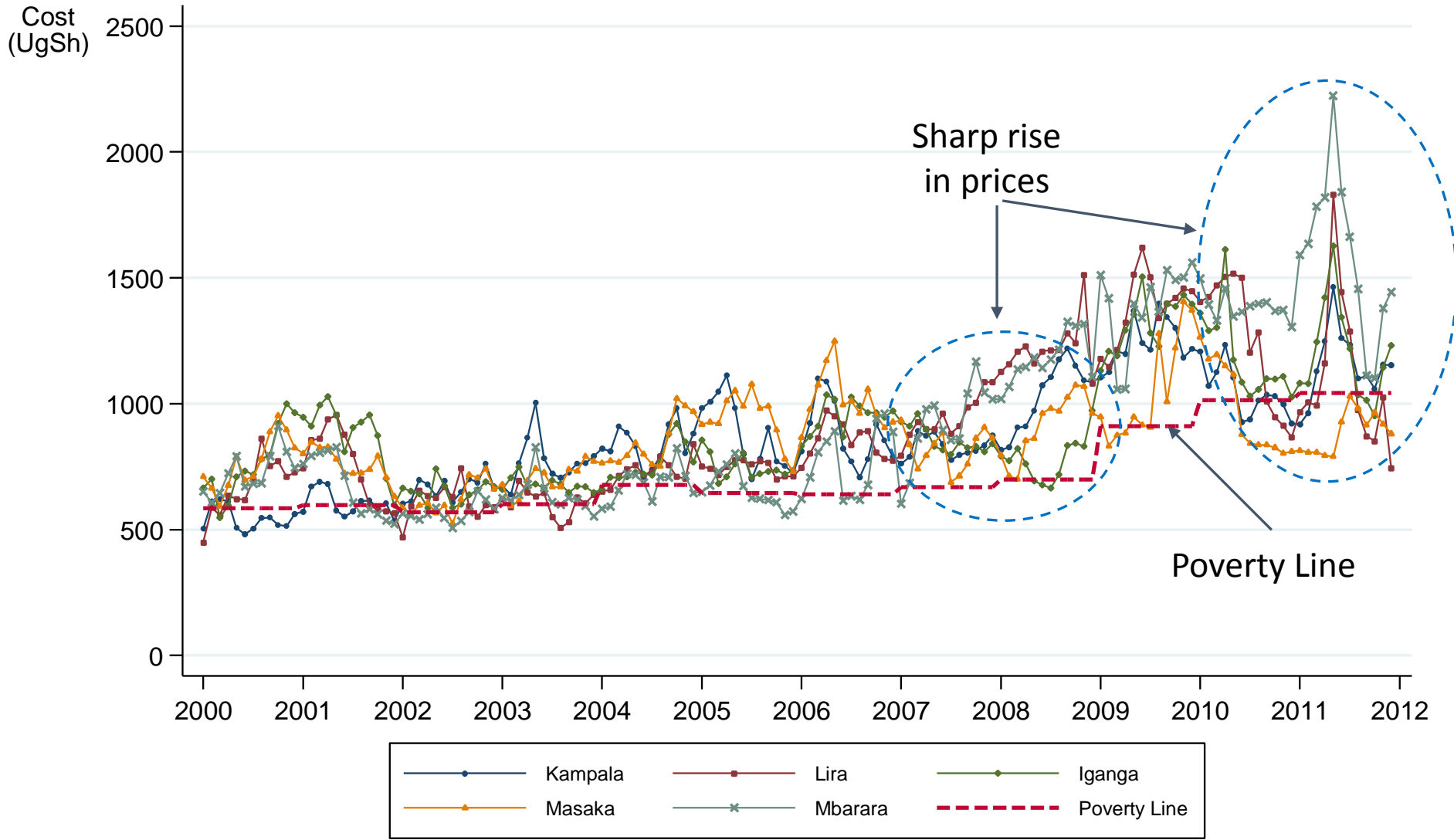
Problem solved for each month and market over 144 time steps.

# Least Cost -- Basic Diet (Woman)



Note: World Bank's global poverty standard of \$1.25 a day, PPP conversion factor, GDP (LCU per international \$) 2000-2011

# Least Cost -- Constrained Diet (Woman)



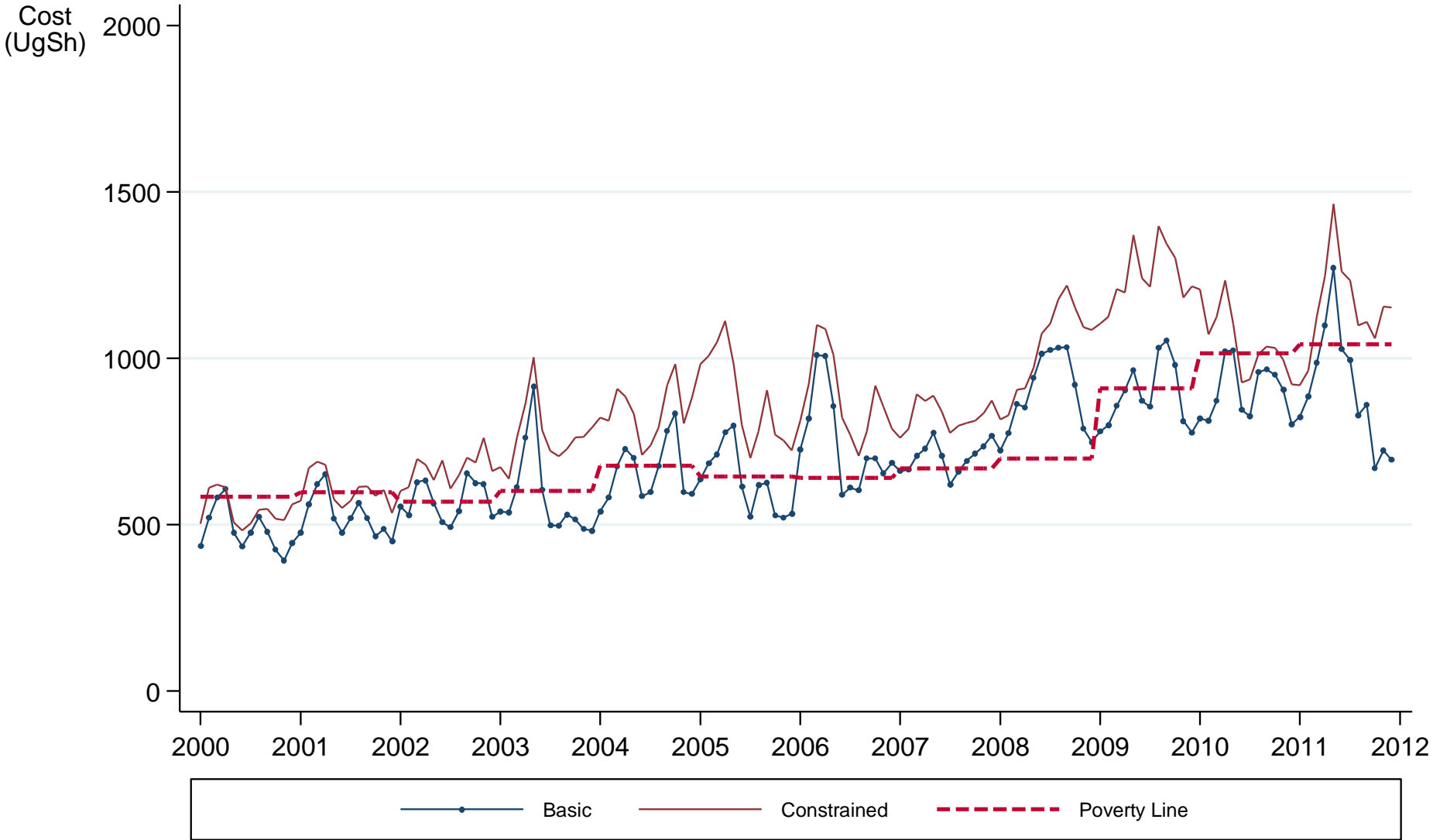
Note: World Bank's global poverty standard of \$1.25 a day, PPP conversion factor, GDP (LCU per international \$) 2000-2011



# Annual cost growth rates of least cost diet

	Districts/markets				
Diet	Kampala	Lira	Iganga	Masaka	Mbarara
<i>Basic (RDA)</i>					
Man	5.92	4.17	4.51	3.61	6.13
Woman	6.06	4.33	4.71	3.84	6.25
<i>Constrained (RDA &amp; food habits)</i>					
Man	6.49	6.77	4.70	2.99	8.91
Woman	6.63	7.04	4.86	3.09	9.17

# Least Cost – Comparison Basic vs Constrained Diet (woman)



Note: World Bank's global poverty standard of \$1.25 a day, PPP conversion factor, GDP (LCU per international \$) 2000-2011

# Conclusion

- The cost of the basic diet follows the poverty line for most years, but is above it during most periods and was well above the poverty line during 2007-2008
- The cost of the habit-constrained diet exceeds the poverty line for most years and the gap grew wider between 2007 and 2011
  - Coincides with period of sharp price rise
  - Accounts for food habits of households
- The cost of the basic diet has grown at an annual rate of 3.6 to 6.3 percent over the period examined

# Conclusion cont'd

- The findings highlight the importance of food prices to overall nutrition
- We see spatial heterogeneity in diet costs across Uganda

## ***The results underscore the importance of:***

- Developing and supporting interventions that raise the purchasing power of the poor
- Increasing nutrition education and outreach aimed at helping people make good food choices to achieve dietary diversity at the least cost

# Acknowledgements



Thank you!

Please direct questions and comments  
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