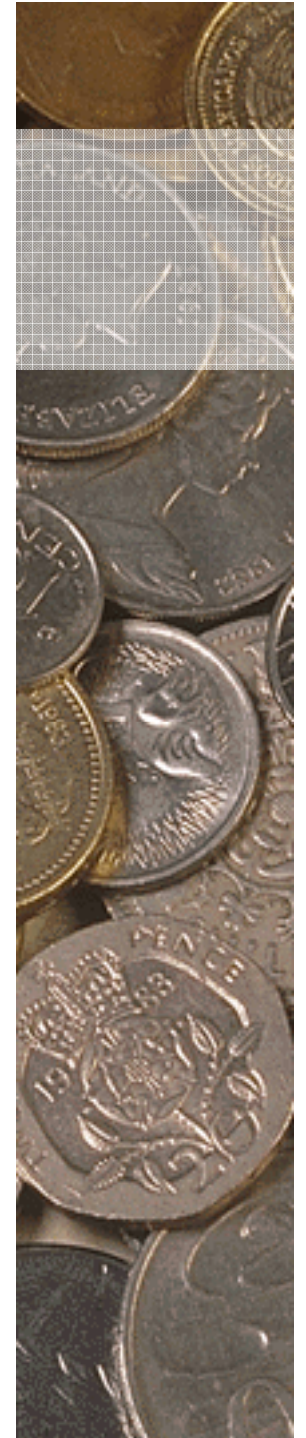# Price Rigidity in Saint Lucia :
Evidence from CPI Data

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Introduction

- The period of inflation, boosted by rising energy and food prices which preceded the global economic downturn caused renewed interest in issues of inflation and price determination

- Policy makers in the Caribbean have been concerned about the impact of persistent inflation on the quality of life of the people especially on the poor and indigent

- Research conducted in the Caribbean has focused on the macroeconomic determinants of inflation, rather than detailed micro analysis of price rigidity and price formation.

Objective of the Paper

- The paper aims to determine whether prices are generally rigid in Saint Lucia

Description of the Data Set

- St. Lucia CPI data respects the international standard classification of individual consumption expenditures formerly (COICOP)

- CPI data collected from survey of living conditions or household budget survey

- The CPI for Saint Lucia is based on price information collected for 6,123 item varieties including 1,945 unique item varieties

- The current CPI dataset includes 12 item divisions (2 digits), 34 item groups (3 digits), and 64 item classes (5 digits).
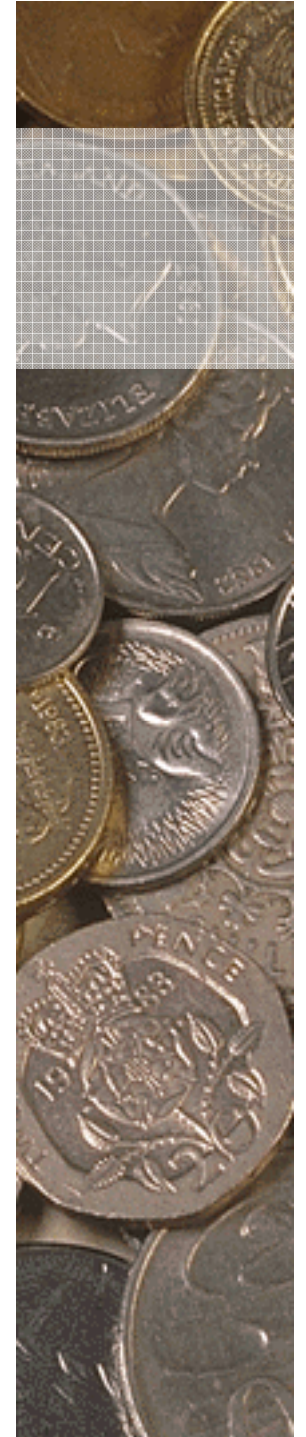
Description of the Data Set …

- The CPI for Saint Lucia was revised in 2009 and utilizes **January 2008 as the base period.**

- The study utilizes data from the old dataset which includes ten (10) divisions (2 digits) and 41 item groups (3 digits), for the period April 2002-December 2007.

- We also utilize price data for the period April 1984 to December 2008, using the new rebased CPI.

Empirical Studies on Price Rigidity

- Baudry et al (2004)
- Alvarez et al (2005)
- Bils and Klenow (2004)
- Herrmann (2005)
- Gouvea (2007)
- Kovanen (2006)
- Craigwell et al (2009)

Methodology

- The paper examines:
  - an evaluation of the frequency of price changes
  - duration of price spells
  - symmetry of price changes

Methodology:
Frequency of Price Changes

- The frequency of price changes F_i attempts to examine how often the price quote for a particular product changes when compared to the full sample of price records or quotes.

- It is therefore the ratio of observed price record changes to the total number of price quotes.

- Prices are considered rigid when the frequency of price changes is relatively low and when average price spells are long
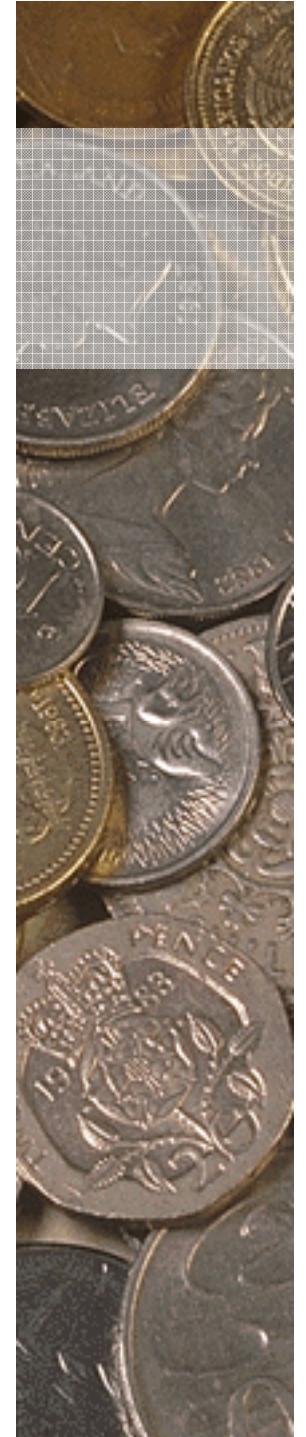
Methodology:
Duration of Price Spells

- A price spell is defined as the time interval between two price changes.

- It can be shown that for large samples the average duration of a price spell can be computed as the inverse of the frequency of a price change.

$$D = 1/ F_i$$

- When we assume that prices are set in a time continuous manner, the average duration of a price spell is given as follows;

$$D_{average} = 1/ \ln (1-F_i)$$
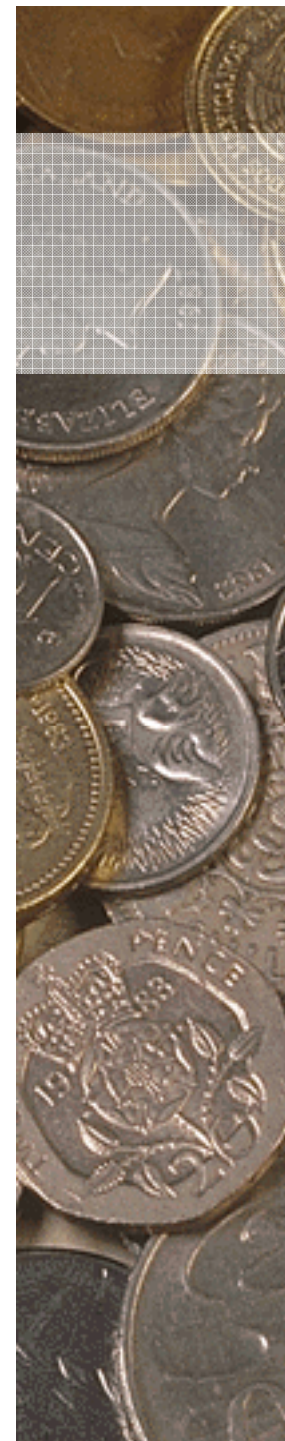
$$D_{median} = \ln (0.5)/ F_i$$

Methodology: Symmetry of Price Changes

- The symmetry between price increases and decreases is given by computing the share of positive prices changes in total number of price changes and comparing that to the share of negative price changes in total number of price changes.

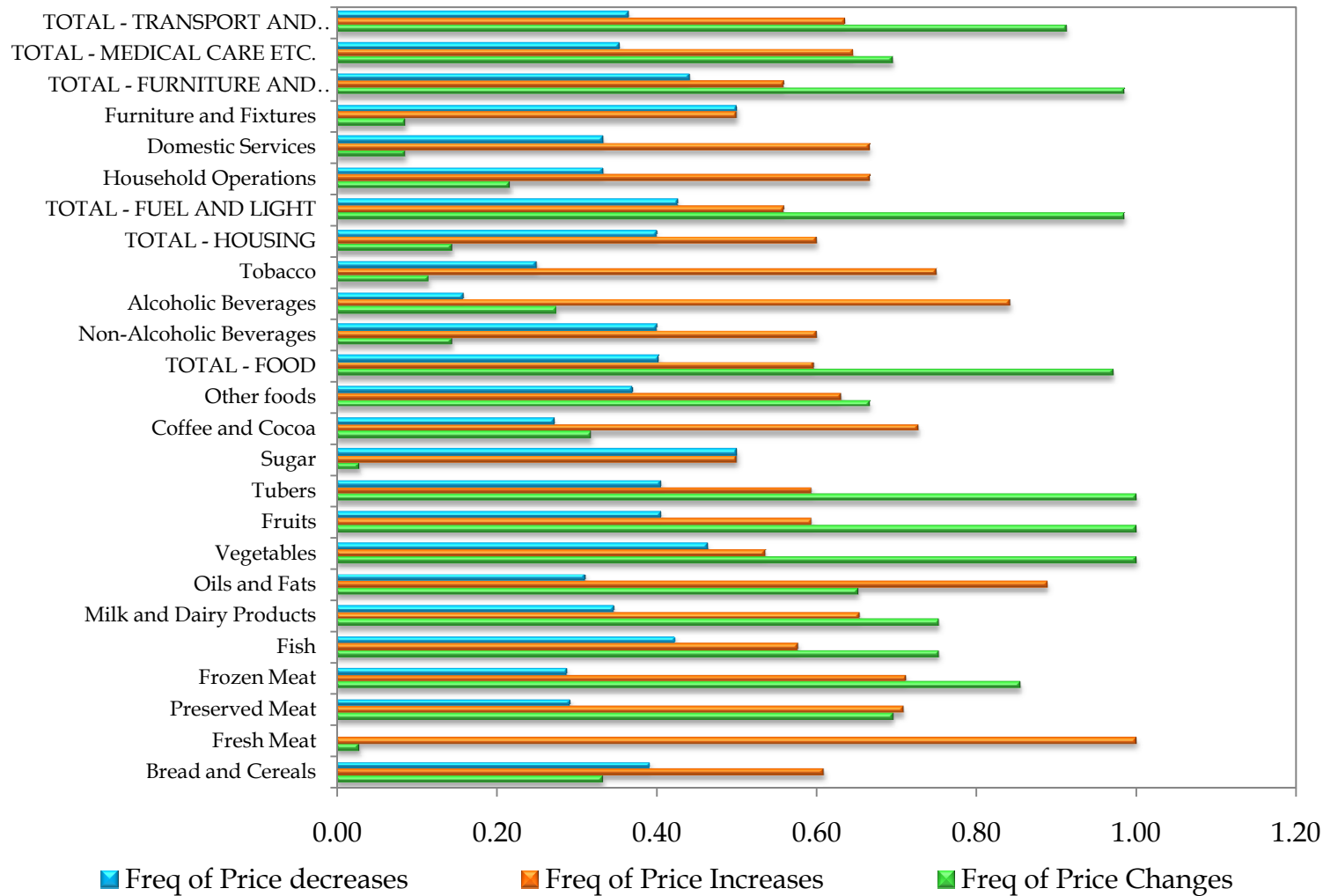$$P^I = N^I / TF$$

$$P^D = N^D / TF$$

Results:
Data Set I: April 2002-Dec. 2007

	Weights in the CPI	Frequency of Price changes	Duration of Price Spells	Frequency of Price Increases	Frequency of Price Decreases	Average Price Increase	Average Price Decrease
Food	467.51	0.97	0.28	0.60	0.40	2.76	2.66
Vegetables	72.84	1.00	-	0.54	0.46	13.47	-13.42
Fruits	47.85	1.00	-	0.59	0.41	10.24	14.63
Tubers	19.35					11.11	11.90
Fuel and light	44.95	0.99	0.24	0.56	0.43	2.86	1.76
Housing	135.34	0.14	6.39	0.60	0.4	4.48	-0.04
Furniture & household	57.71	0.99	0.24	0.56	0.44	2.79	-1.76
Transport & Com.	63.48	0.91	0.41	0.63	0.37	1.97	1.64
Medical care	22.78	0.70	0.84	0.65	0.35	1.85	1.26

Frequency of Price changes for Product Groups (2002-2008)

■ Freq of Price decreases	■ Freq of Price Increases	■ Freq of Price Changes

Categories (top to bottom):
TOTAL - TRANSPORT AND..
TOTAL - MEDICAL CARE ETC.
TOTAL - FURNITURE AND..
Furniture and Fixtures
Domestic Services
Household Operations
TOTAL - FUEL AND LIGHT
TOTAL - HOUSING
Tobacco
Alcoholic Beverages
Non-Alcoholic Beverages
TOTAL - FOOD
Other foods
Coffee and Cocoa
Sugar
Tubers
Fruits
Vegetables
Oils and Fats
Milk and Dairy Products
Fish
Frozen Meat
Preserved Meat
Fresh Meat
Bread and Cereals

X-axis: 0.00 0.20 0.40 0.60 0.80 1.00 1.20

Symmetry and Duration of Price changes (2002-2008)

- Average price increase for all items is 7.9 compared to 4.6 avg. price decrease
- For the food sub index avg. increase of 2.8 roughly close to avg. decrease of 2.7
- Price spells are of short duration especially in food index
- Highest price spells noted for price controlled items (meat, sugar 34 months), domestic services and housing
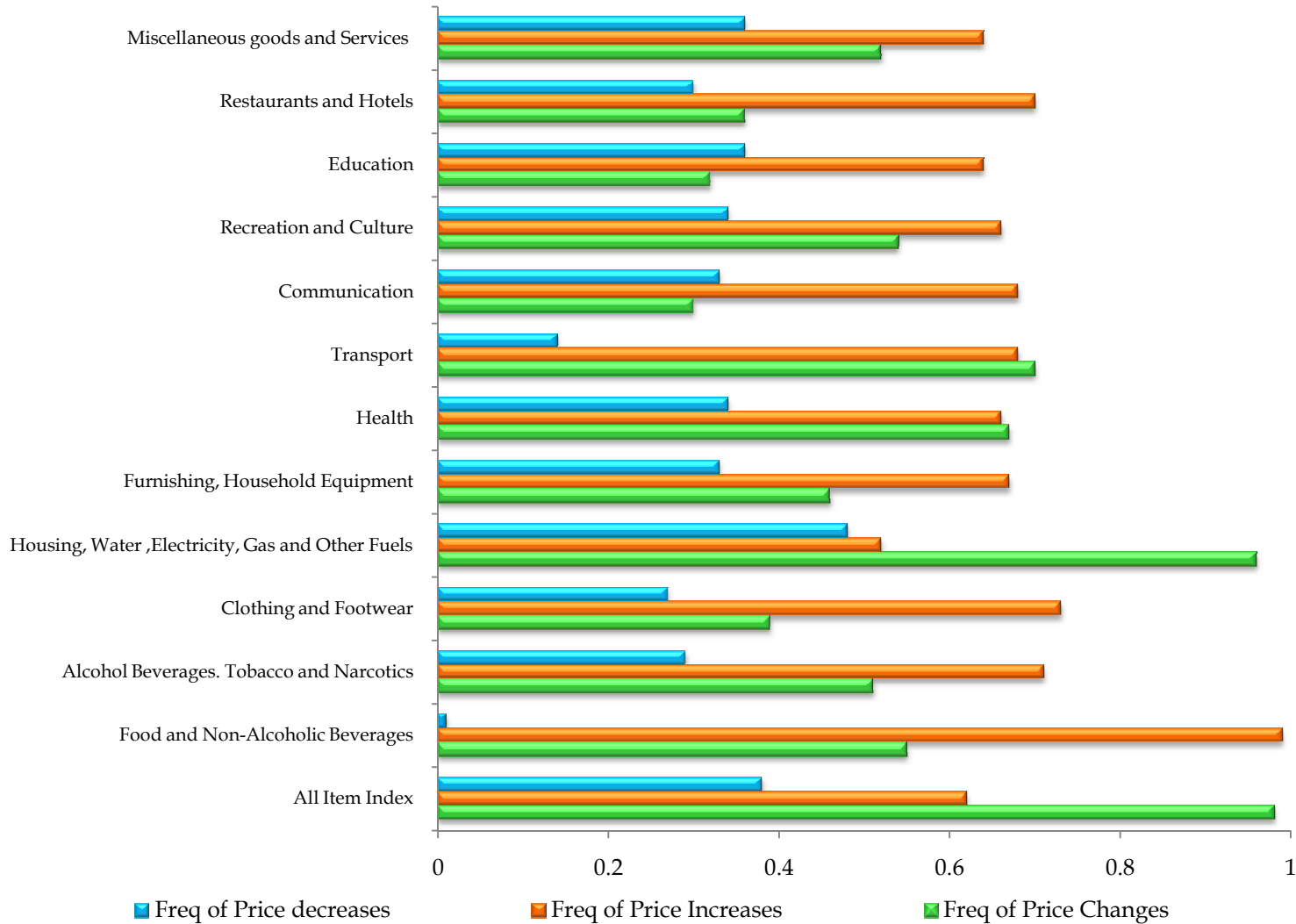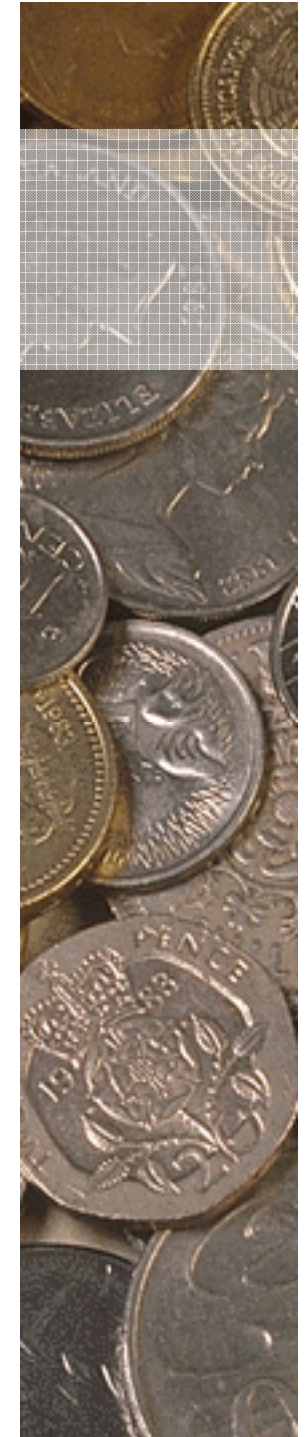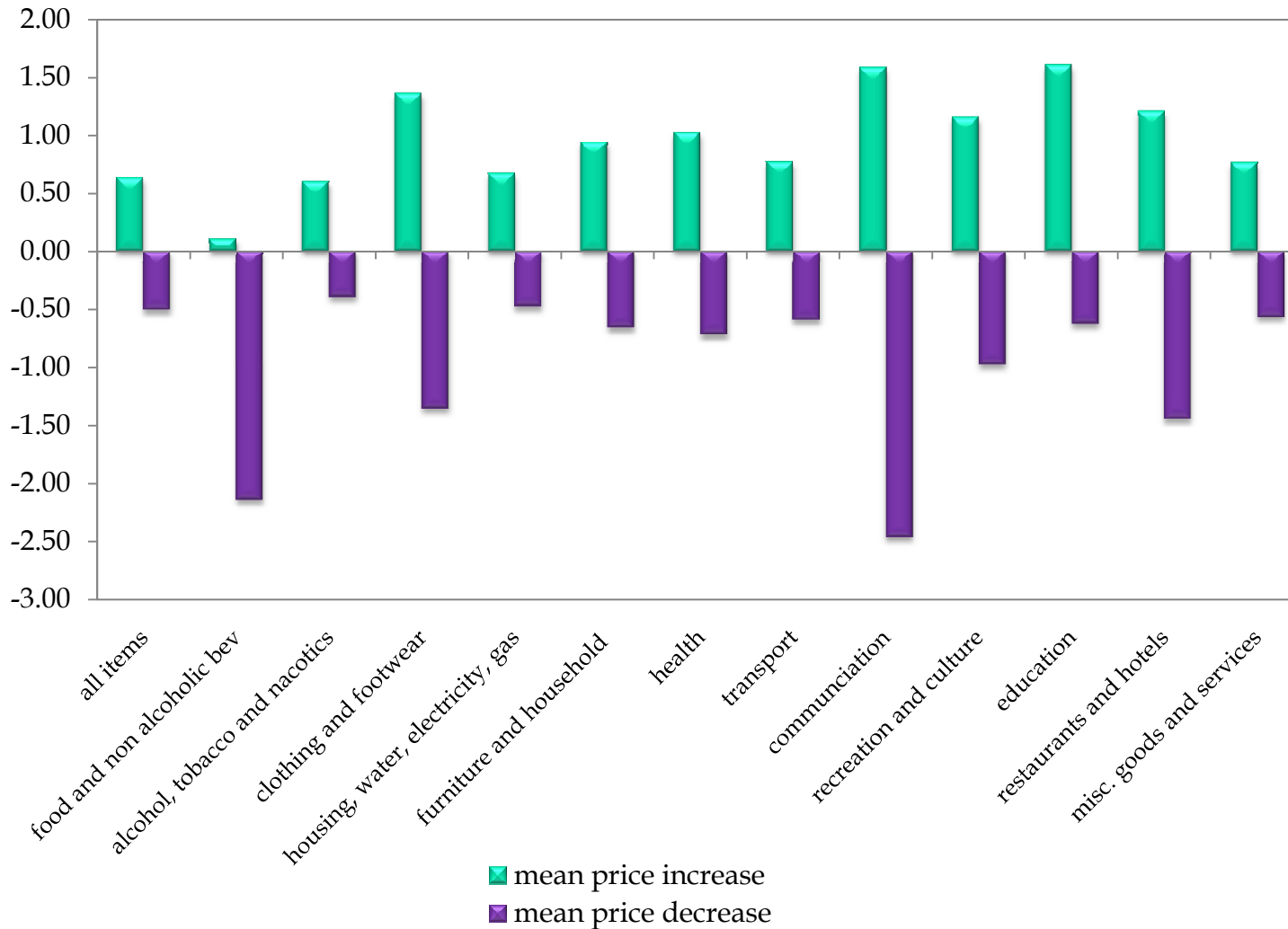
Results:
Data Set II: April 1984-Dec. 2008

	Weights	Freq of Price Changes	Avg Duration of Price Spells	Median Duration of Price Spells	Freq of Price Increases	Freq of Price decreases	Avg Price Increase	Avg Price Decrease
All Item Index	100	0.98	0.26	0.18	0.62	0.38	0.63	-0.51
Food and Non-Alcoholic Beverages	25.02	0.55	1.27	0.88	0.99	0.01	0.11	-2.14
Alcohol Beverages. Tobacco and Narcotics	6.52	0.51	1.39	0.96	0.71	0.29	0.60	-0.40
Clothing and Footwear	1.65	0.39	1.99	1.38	0.73	0.27	1.36	-1.36
Housing, Water ,Electricity, Gas and Other Fuels	17.36	0.96	0.31	0.21	0.52	0.48	0.67	-0.48
Furnishing, Household Equipment	3.31	0.46	1.62	1.12	0.67	0.33	0.94	-0.66
Health	3.96	0.67	0.91	0.63	0.66	0.34	1.02	-0.72
Transport	16.39	0.70	0.84	0.58	0.68	0.14	0.77	-0.60
Com.	12.54	0.30	2.85	1.98	0.68	0.33	1.58	-2.47

Frequency of Price Change by Product Group (1984~2008)

Categories (top to bottom):
- Miscellaneous goods and Services
- Restaurants and Hotels
- Education
- Recreation and Culture
- Communication
- Transport
- Health
- Furnishing, Household Equipment
- Housing, Water ,Electricity, Gas and Other Fuels
- Clothing and Footwear
- Alcohol Beverages. Tobacco and Narcotics
- Food and Non-Alcoholic Beverages
- All Item Index

X-axis: 0, 0.2, 0.4, 0.6, 0.8, 1

Legend:
- ■ Freq of Price decreases
- ■ Freq of Price Increases
- ■ Freq of Price Changes

Average Price Increase/Average Price Decrease (1984-2008)

Chart showing mean price increase and mean price decrease for various categories.

Categories (x-axis): all items, food and non alcoholic bev, alcohol, tobacco and nacotics, clothing and footwear, housing, water, electricity, gas, furniture and household, health, transport, communciation, recreation and culture, education, restaurants and hotels, misc. goods and services

Legend:
- mean price increase
- mean price decrease

Magnitude of Price Changes April 1984-to December2008
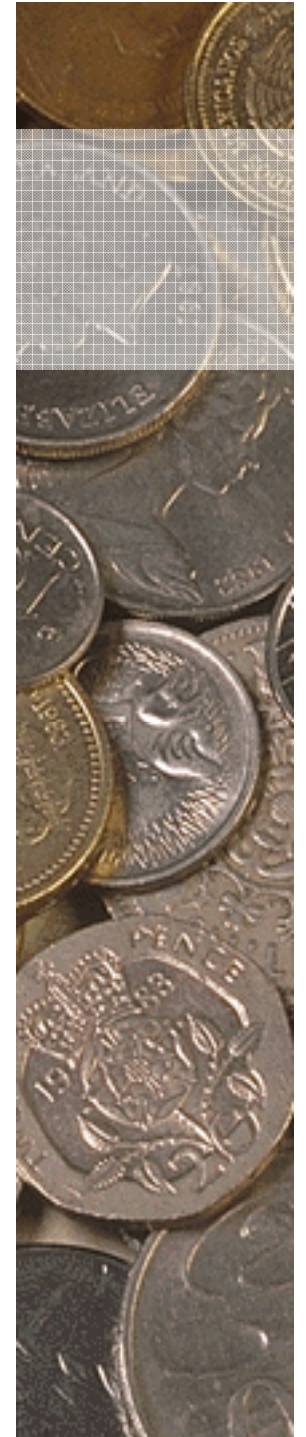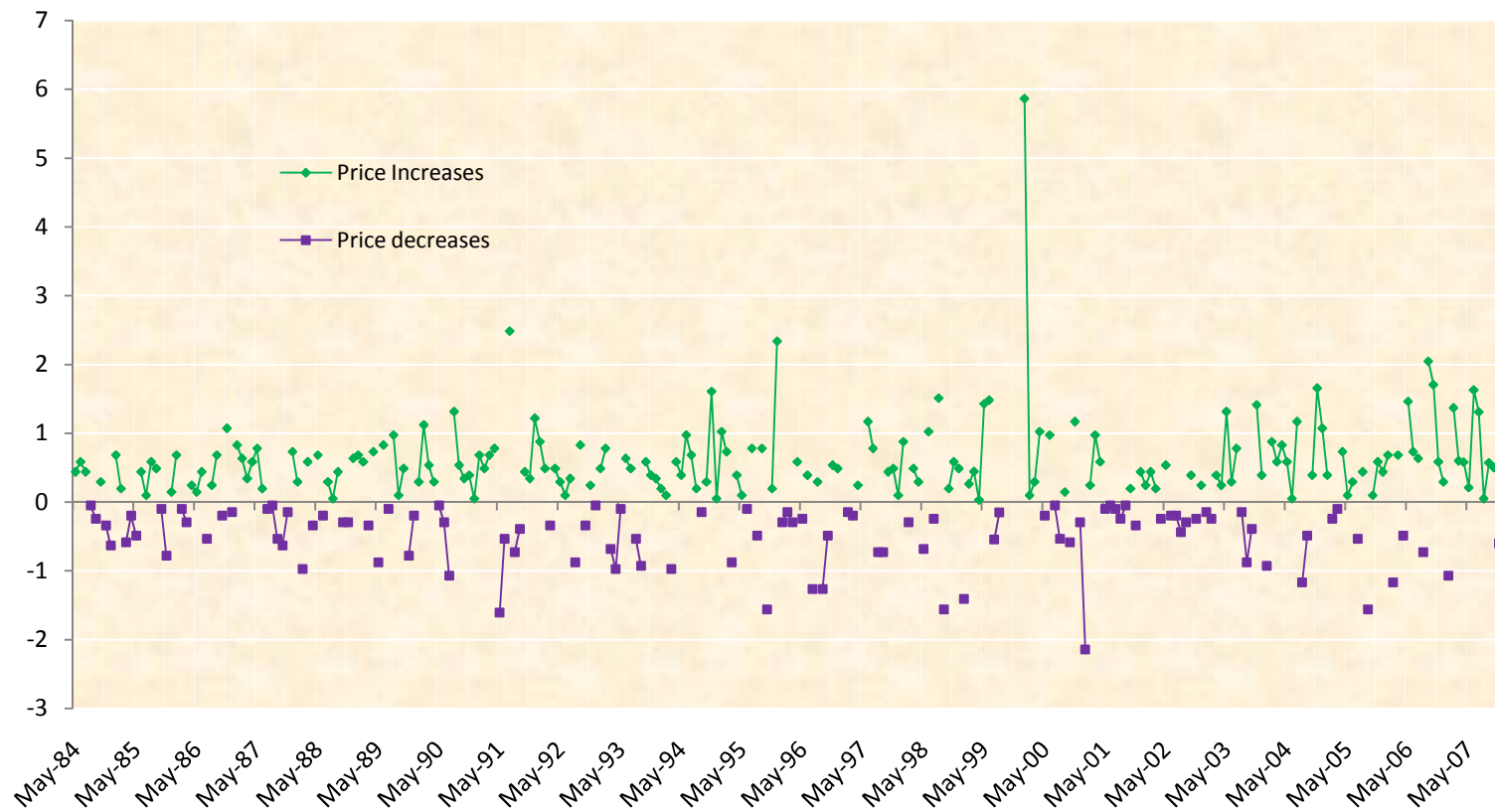
Conclusion

- Data points to a reasonable level of price flexibility in Saint Lucia

- Prices are more flexible in the food, fuel and light and transport sub indices

- Prices in services tend to be more sticky

  - e.g. Hotels, restaurants, education

- Greater rigidity observed for items not purchased on an everyday basis

- Some asymmetry in pricing- more price increases than decreases