

# The Sustainability of Canadian Provincial Government Health Spending: An Expenditure Category Approach

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# Outline

- Introduction
  - Recent trends in government health expenditure
- What is health expenditure sustainability
  - Concept and measures
  - Evidence on total government health spending
- An expenditure category approach
  - Some health care expenditures are more sustainable than others

# Introduction

Recent Trends in Government Health Expenditure

# Trends in Provincial Government Health Expenditure

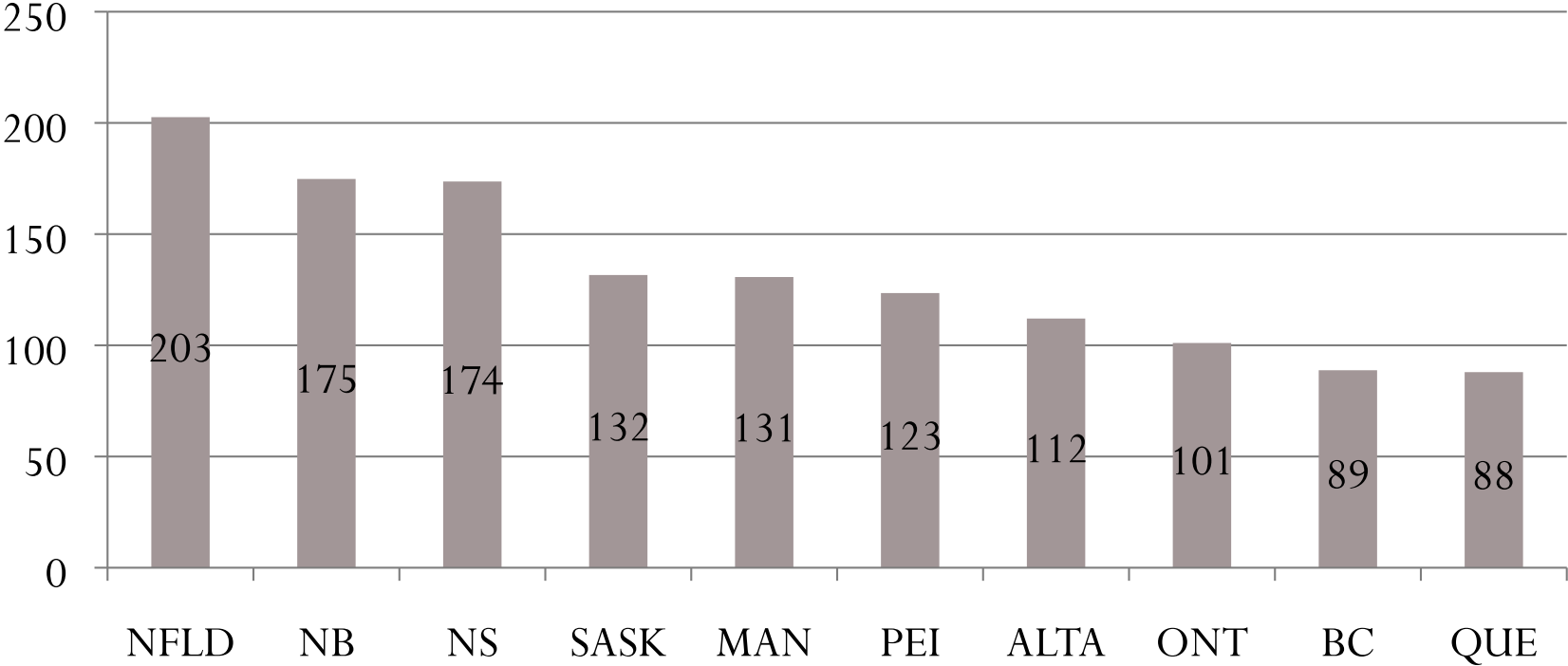
- Recent trends show an acceleration in the expenditure curve
- Rising share of provincial government budgets devoted to health





# Increases Also Depend on Province

**Ranked Percent Growth in Real Per Capita  
Provincial Government Health Expenditures:  
1975-2009**



What is health expenditure  
sustainability?



# Defining Sustainability

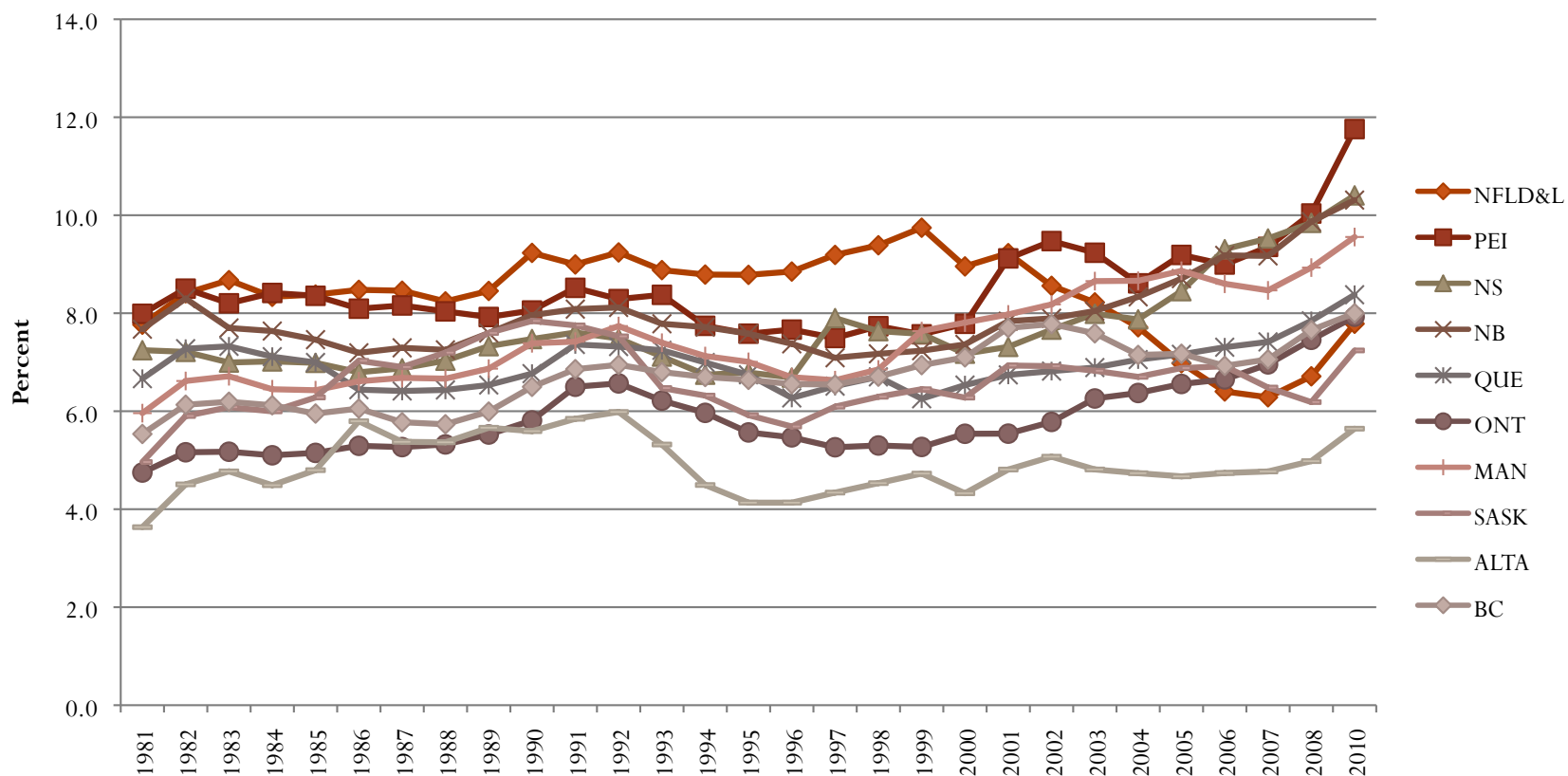
- Sustainability a term with many dimensions:
  - Maintaining a quality health care system
  - Fair access to health care
  - Being able to pay for equitable access and quality
  - *Fiscal sustainability* means having the money to pay for what you want to do both at present and in the future
- Marchildon et. al., (2004: 3)  
“the sufficiency of resources over the long term to provide timely access to quality services that address Canadians’ evolving health needs.”
- Fiscally sustainable health spending is where the health needs of all members of the population both current and future can be met with current tax and expenditure settings.

# Measures

- Is H/GDP ratio rising?
- Is H/G ratio rising?
- Compare expenditure growth rates ( $h$ ) to resource base growth measures ( $r$ ):
  - Growth of real per capita provincial government health expenditures
  - Growth of real per capita income
  - Growth of real per capita total provincial government revenues
  - Growth of real per capita federal cash transfers
- If  $h > r$ , there is a sustainability problem.

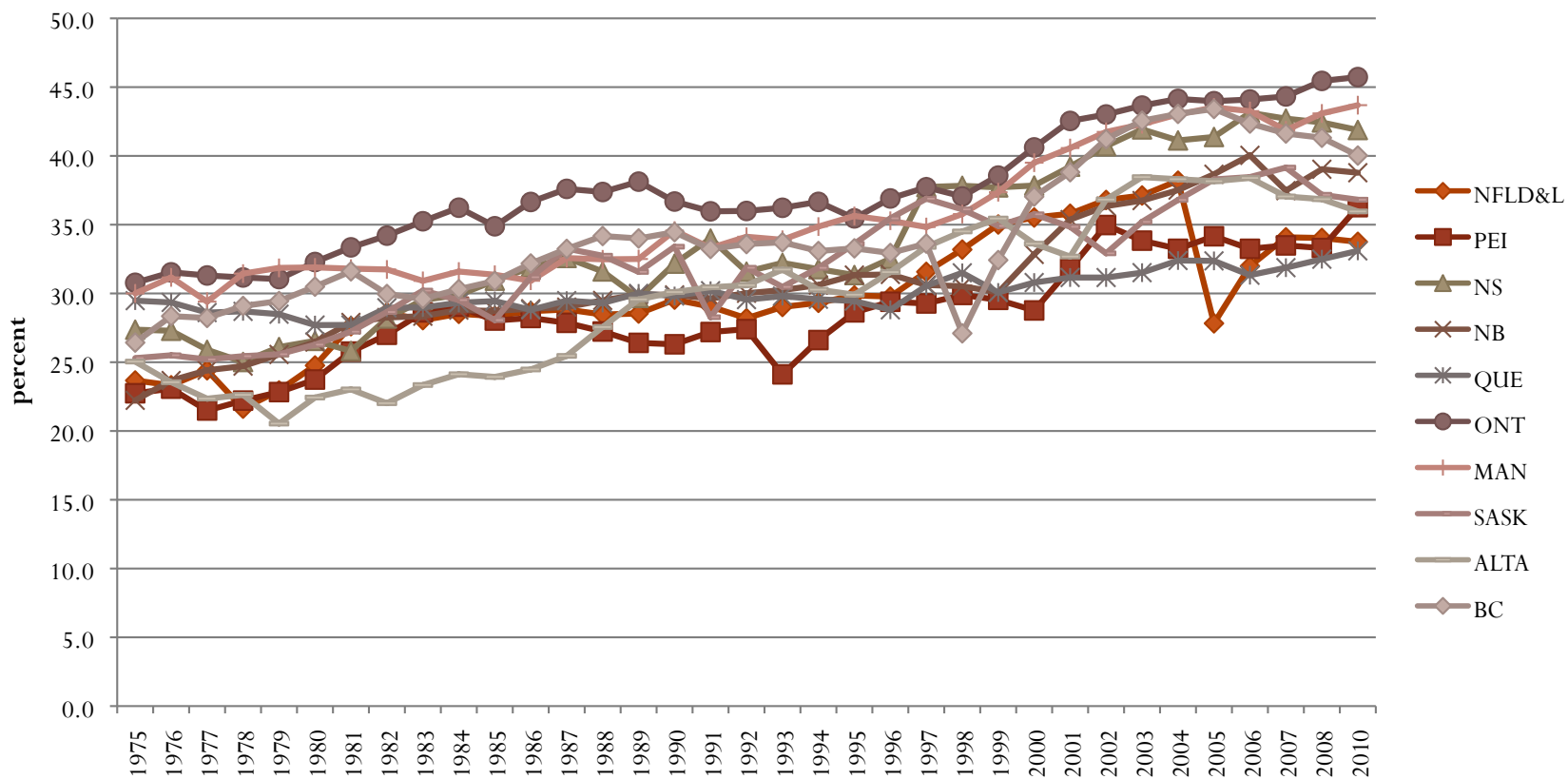
# Rising share of GDP

## Provincial Government Health Spending as a Share of GDP: 1981-2010



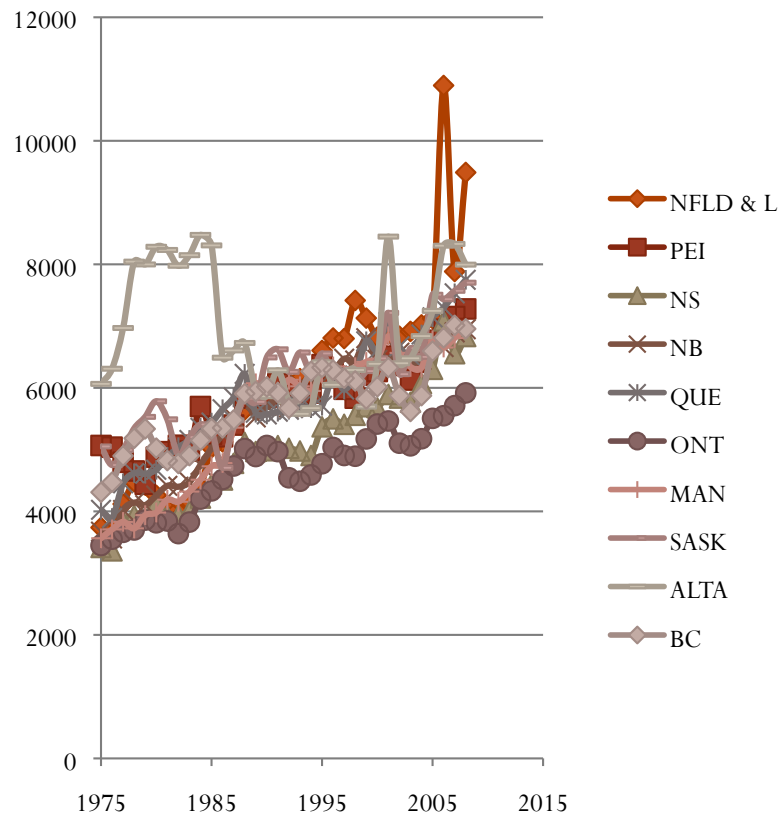
# Rising share of government spending

## Provincial Government Health Spending as a Share of Program Spending: 1975-2010

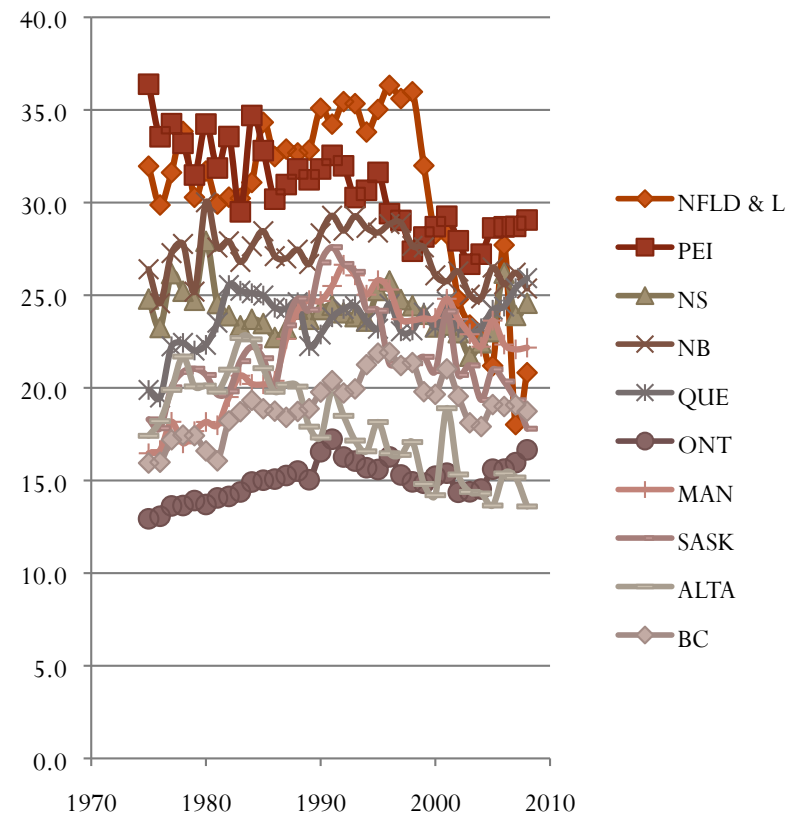


# Is It Simply A Revenue Problem?

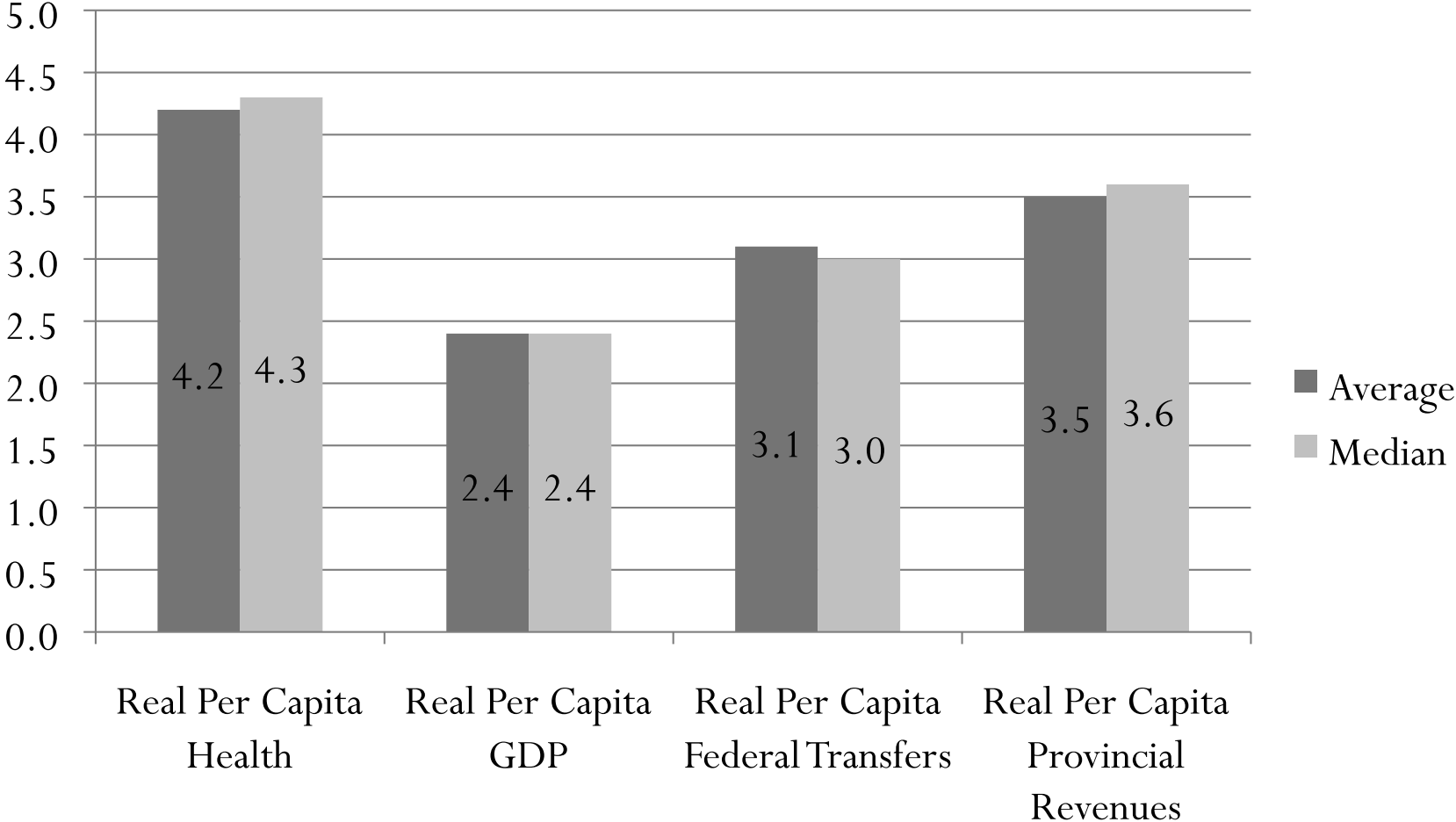
## Real Per Capita Provincial Government Revenue(1997\$)



## Provincial Revenue to GDP (%)



# Canadian Provincial Growth Rates: 1965-2008



# Criticisms of this approach to sustainability

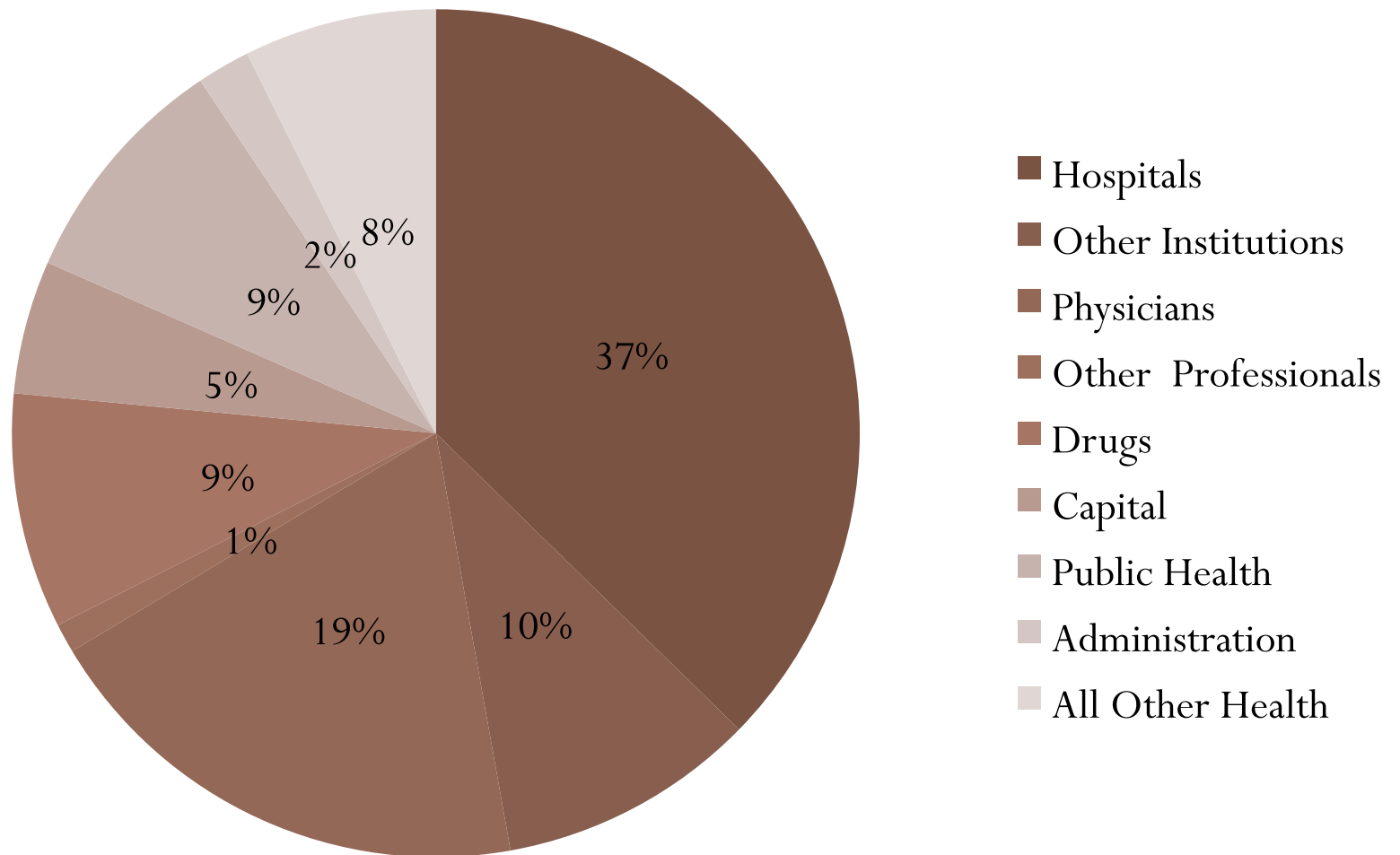
- Figures for 1965-2008 include the first decade of public health care: atypical – upward spending bias due to start-up
- Only looks at provincial government health spending from a total perspective – one needs to break the spending down by categories as well as province.
- The best answer to the question of whether Canadian health care spending is sustainable is:

“It depends”

# An expenditure category approach

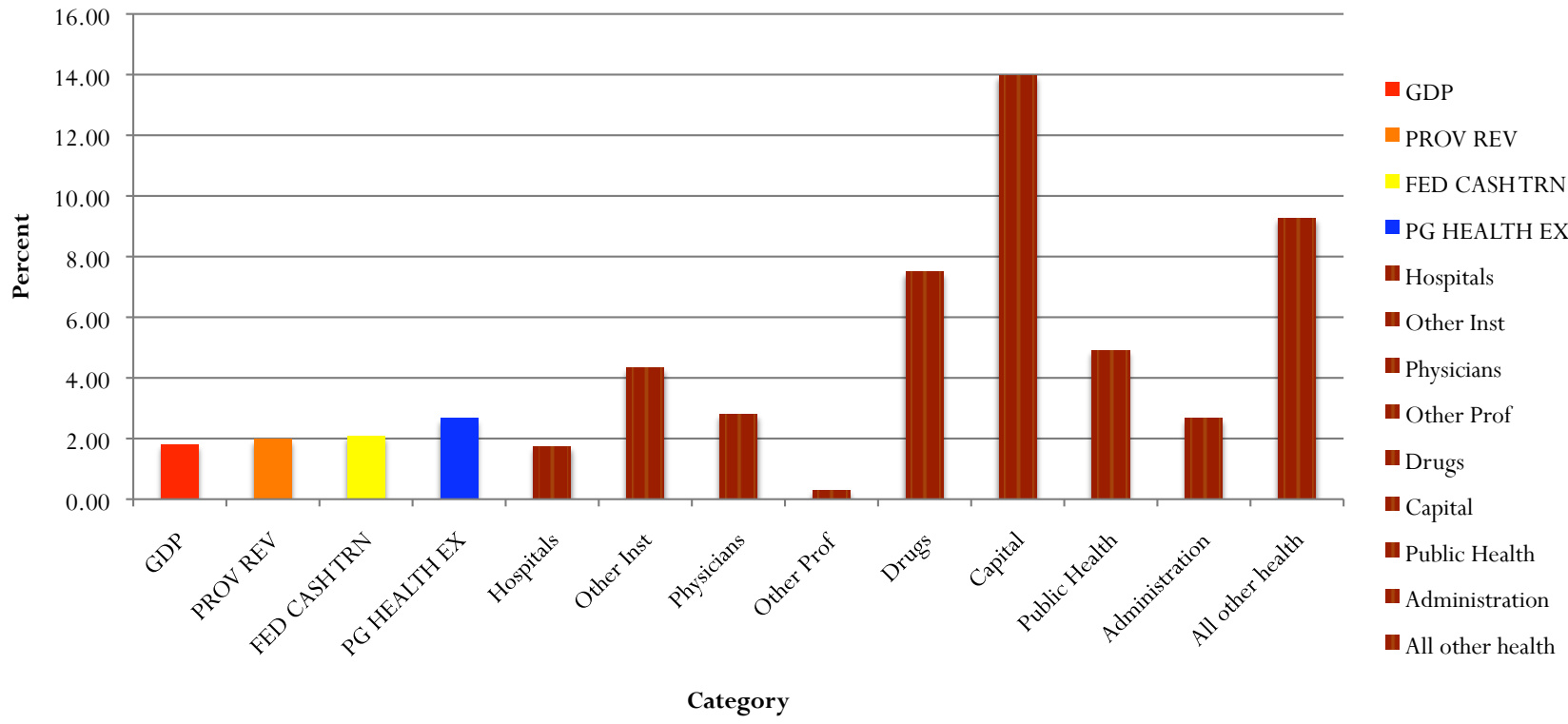


# Distribution of Public Sector Health Expenditures in Canada: 2010



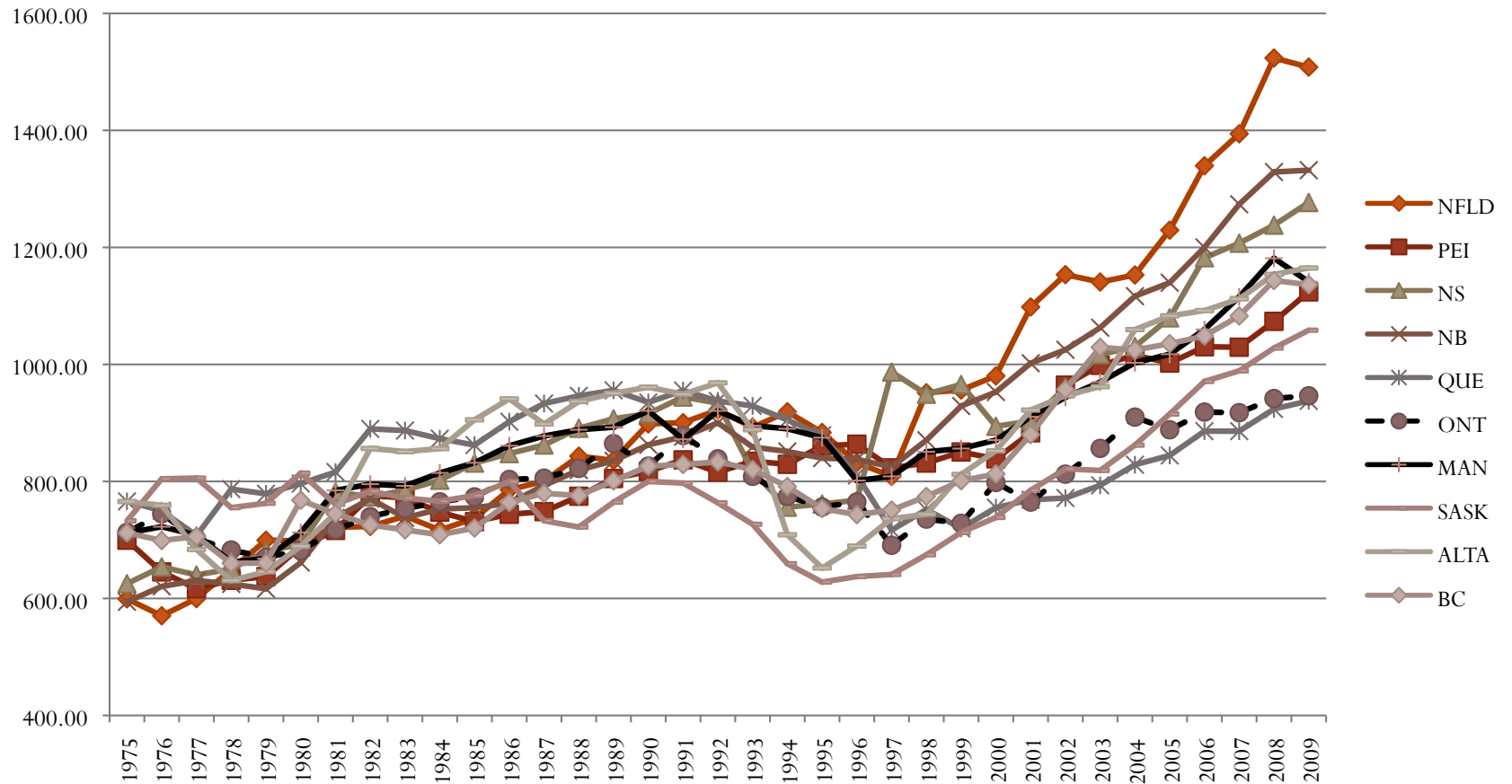
# Framing the Issue: Expenditure Category Approach

**Average Annual Growth Rates for Resource Indicators & Government Health Expenditures for Canada's Provinces: 1976-2008**



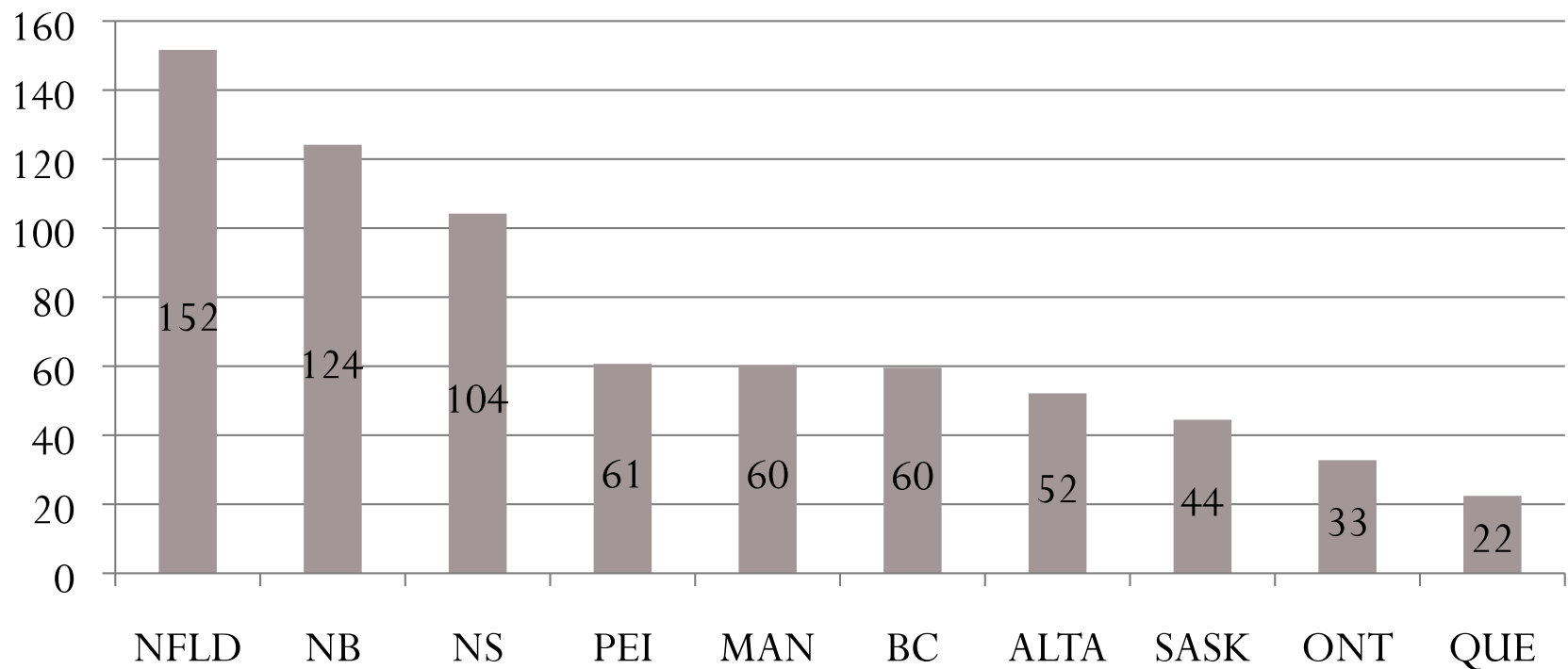
# Hospitals

## Real Per Capita Provincial Government Hospital Expenditure



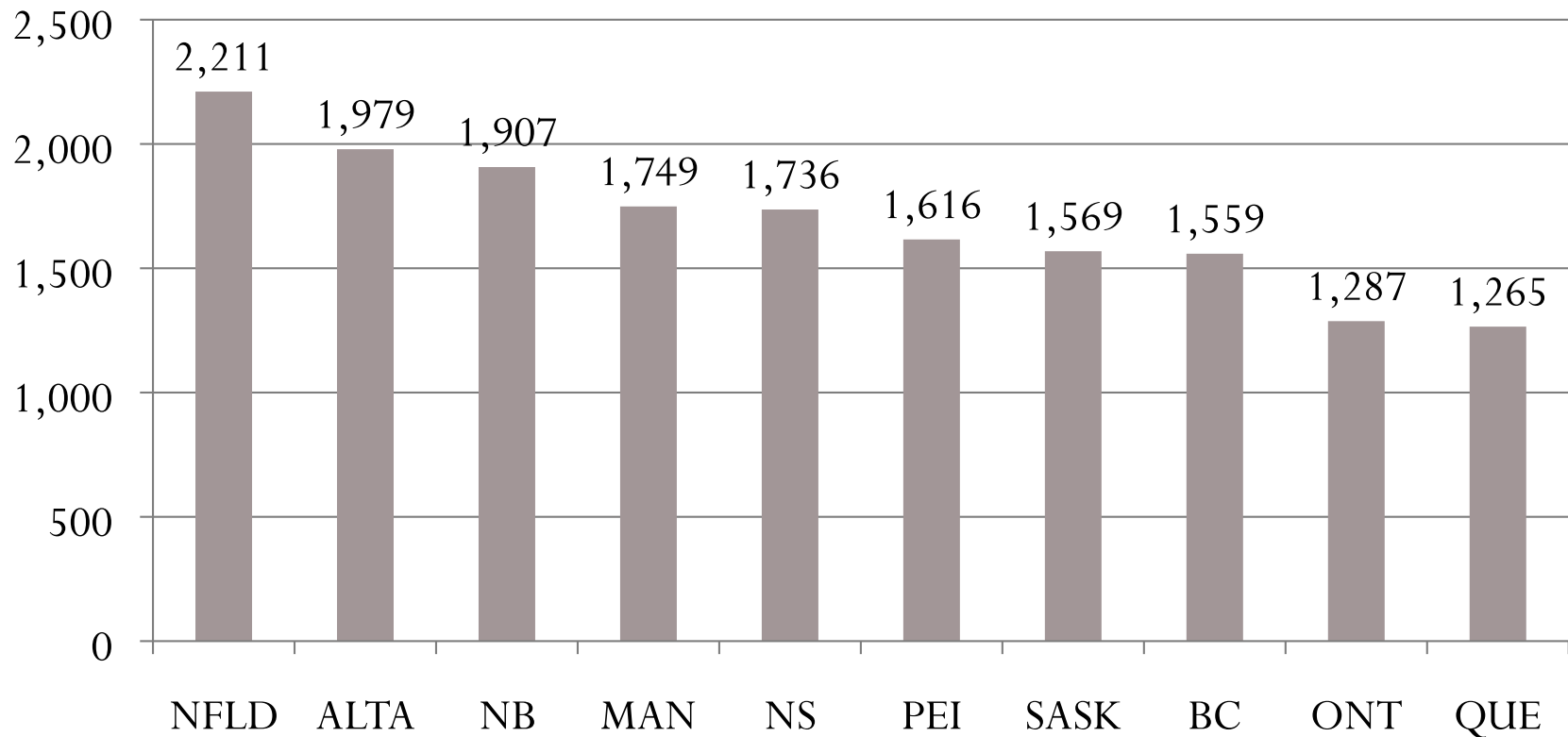
# Hospital Growth

## Ranked Percent Growth in Real Per Capita Provincial Government Hospital Expenditures: 1975-2009



# Ranked Hospital Spending

## Nominal Per Capita Provincial Government Hospital Spending (\$): 2010



# What are the key drivers for health expenditure by category?

- Regression approach
- Pooled provincial times series and cross-sections
- $H_{it} = f(z_{it})$
- $H_{it} = a_0 + a_1 Z_{1t} + a_2 Z_{2t} + a_3 Z_{3t} + \dots + a_n Z_{nt} + u_{it}$

# Dependent Variables

- Rhltpgc
  - Real per capita provincial government health expenditures in 1997 dollars. Deflated using the Government Current Expenditure Implicit Price Index.
- By Categories:
  - **rpghospc**, **rpgothinstc**, **rpgphysc**, **rpgothprofc**, **rpgdrugsc**, **rpgcapitalc**, **rpgpubhltc**, **rpgadminc**, **rpgothhltc**

# Independent Variables

y	Real per capita gross domestic product in 1997 dollars. Deflated using the Government Current Expenditure Implicit Price Index. $y(-1)$ denotes a one year lag.
t	Real per capita federal cash transfer revenues. In 1997 dollars, deflated using the Government Current Expenditure Implicit Price Index.
nfld	1 if Newfoundland, 0 otherwise.
pei	1 if PEI, 0 otherwise
ns	1 if Nova Scotia, 0 otherwise.
nb	1 if New Brunswick, 0 otherwise.
que	1 if Quebec, 0 otherwise.
ont	1 if Ontario, 0 otherwise.
man	1 if Manitoba, 0 otherwise.
sask	1 if Saskatchewan, 0 otherwise.
alta	1 if Alberta, 0 otherwise.
bc	1 if British Columbia, 0 otherwise.
p6574	Proportion of population aged 65 to 74.
p75	Proportion of population aged 75 or greater.
Rdebtintc	Real per capita provincial government debt interest.
Pop	Population.
yr	Year
epf	1 if Established Program Financing in effect (1977-1995), 0 otherwise.
cha	1 if Canada Health Act in effect (1984-2008), 0 otherwise.
chst	1 if Canada Health and Social Transfer in effect (1996-2004), 0 otherwise.
chtctst	1 if separate Canada Health Transfer and Canada Social Transfer in effect (2005-2008), 0 otherwise.



# Estimation Technique

- Very simple first approach
- Log-Linear model
- Ordinary Least Squares used on pooled time-series data

# Discussion of Results-1

- Time trend a major and significant positive influence for all categories except other institutions, public health and capital. Annual increases ranges from 1.6% (other health professionals) to 10.6%(drugs).
- Real per capita income is a positive and significant determinant of total provincial government health as well as the specific categories of hospitals, physicians, capital and administration.
- Real per capita transfers are a positive and significant determinant of total spending, as well as hospitals, other institutions, physicians and administration. However, transfers are negatively and significantly related to other professional health spending.

## Discussion of Results-II

- Population variable negative and significant effect on real per capita provincial government health spending for total health spending, hospitals, other institutions, physicians, administration and all other health. Economies of scale?
- Population is positive and significant for the categories of other professionals and public health where it appears that more people drives up per capita costs.

## Discussion of Results-III

- For hospitals, expenditures are positively and significantly related to the proportion of population aged 65 to 74 but negatively and significantly related to the proportion aged 75 years and over.
- Physicians will see an expenditure impact from the growing proportion of population aged 65 years and over but the effect of those aged 75 years and over is not statistically significant.
- Pattern of rapidly rising costs in the 65 to 74 year age category and then reductions with increases in the proportion aged 75 years and over also effects drugs and administration.

# Discussion of Results-IV

- Debt interest variable was negative and significant for total health spending, hospitals, physicians, drugs, and public health suggesting that the fiscal dividend from balanced budgets and lower interest rates was directed into health but specifically into these expenditure categories.

# Is Provincial Government Health Spending Sustainable?

- It depends...on:
  - Economic growth and its effect on per capita GDP and transfer payments
  - Provincial debt/fiscal situations
  - Population size
  - Policy responses to cost increases
  - Technological extension (and perhaps joint effects with aging?)
  - What province you live in:
    - Most sustainable: Ont, BC, Que
    - Least sustainable: Nfld, NB, NS
  - What category of health spending you are looking at:
    - Most sustainable: Hospitals, Physicians, Other Prof
    - Least sustainable: All other Health, Capital Drugs

Questions?