Direct Insurance Carriers Services in Canada

Output, Turnover and Pricing Considerations in the Development
of a Services Producer Price Index

26th Voorburg Group Meeting
Newport, South Wales, UK
September 19-23

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Introduction

- Statistics Canada is currently developing a Services Producer Price Index (SPPI) for *Direct Insurance (Except Life, Health and Medical) Carriers* (52412).

Definition of the Service Being Collected

Risk Pooling/Net Premiums

- The policy holders retain the risk.

- The Service being provided is the administrative duties associated with managing the risk pool.

- Output is measured by net premiums :

Output = (Premiums + Investment Income) – Claims

Risk Assuming/Gross Premiums

- The Insurance Provider assumes the risk.

- The service being provided is the assumption of risk from the policy holder.

- Output is measured by gross premiums:

Output = Premiums + Investment Income

Standard Classification and Structure

- NAICS Classification: *Direct Insurance (Except Life, Health and Medical) Carriers* (52412).

- Disaggregated into six 6-digit sub-industries.

NAICS	Name	Enterprise Count	QFS Sample Count
524121	Direct General Property and Casualty Insurance Carriers	201	51
524122	Direct Private Automobile Insurance Carriers (excludes public carriers)	23	5
524123	Public Automobile Insurance Carriers	9	-
524124	Direct Property Insurance Carriers	43	5
524125	Direct Liability Insurance Carriers	10	1
524129	Other Direct Insurance (Except Life, Health and Medical) Carriers	334	11
Total	**Direct Insurance (except health, life and medical) Carriers**	**620**	**73**

Standard Classification and Structure

- NAPCS Classification: *Other Non-Life Insurance Products* (524002)
- This NAPCS is disaggregated into three main product codes:

Health and Accident Insurance (524002.1)

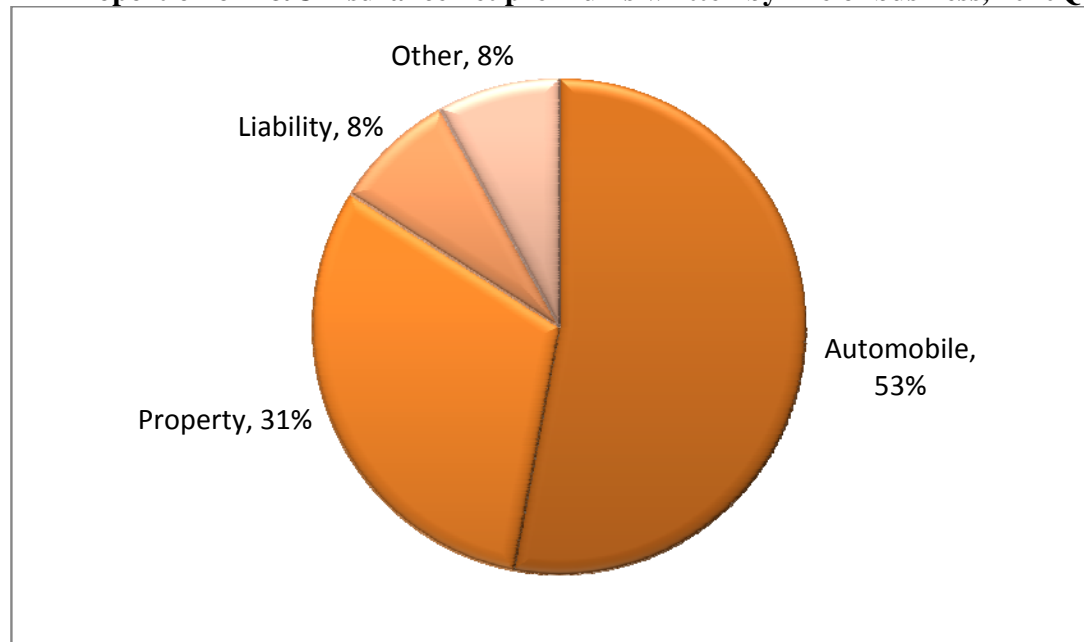*Surety Bond and Property & Casualty Insurance Products* (524002.2)

Other Direct Insurance Products (524002.3)

Standard Classification and Structure

Property and Casualty Insurance Premiums by Line of Business

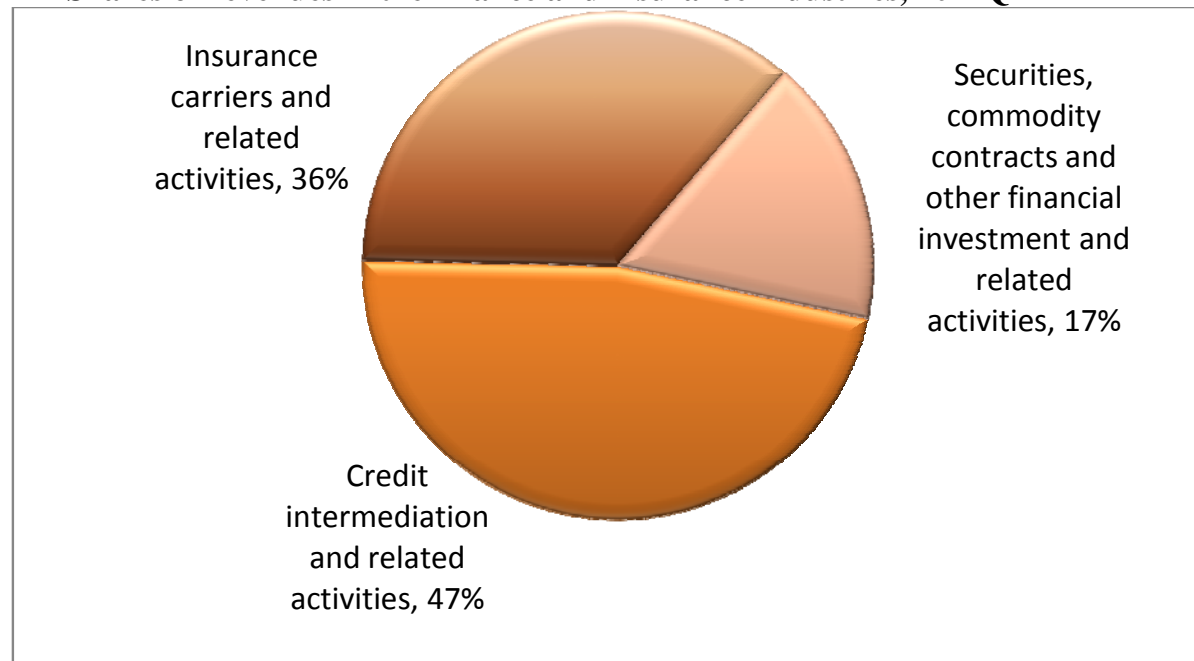**Proportion of P&C insurance net premiums written by line of business, 2010Q4**

Other, 8%

Liability, 8%

Automobile, 53%

Property, 31%

Source: OSFI – Premiums and Claims Data

Market Condition and Constraints

Size of the Industry

Shares of revenues in the finance and insurance industries, 2011Q1

Insurance carriers and related activities, 36%

Securities, commodity contracts and other financial investment and related activities, 17%

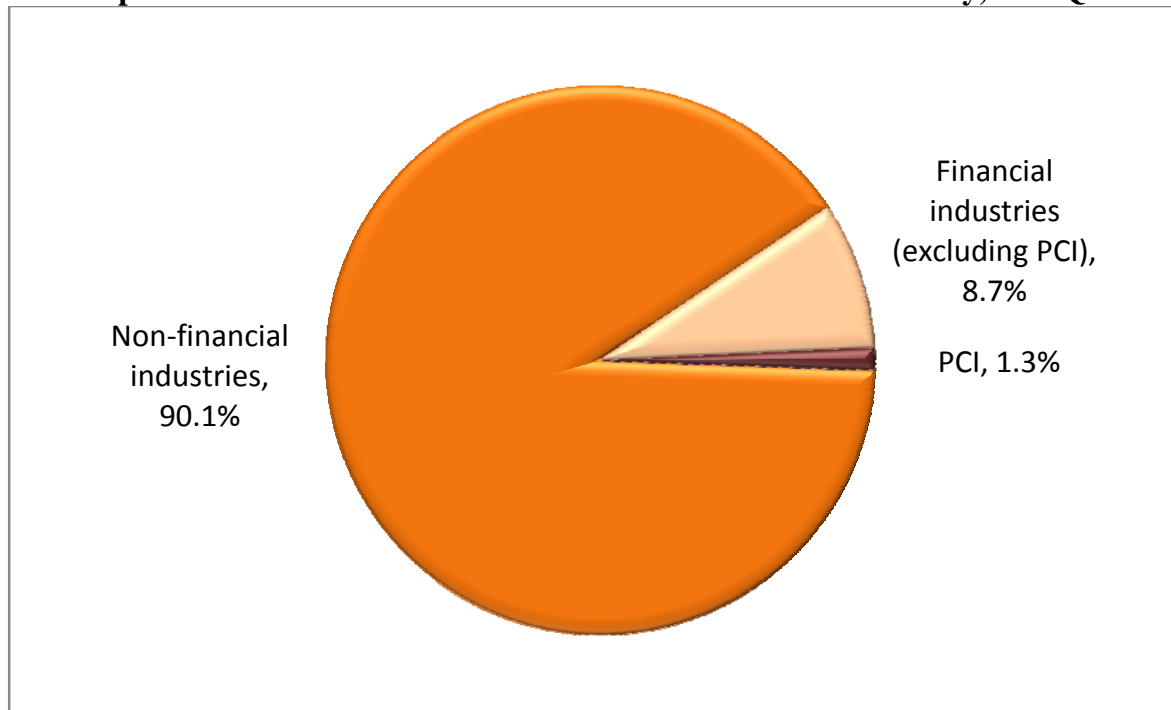Credit intermediation and related activities, 47%

Source: CANSIM table 187-0001

Market Conditions and Constraints

Size of the Industry

Proportion of P&C insurance revenues in the Canadian economy, 2011Q1

Non-financial industries, 90.1%

Financial industries (excluding PCI), 8.7%

PCI, 1.3%

Source: CANSIM table 187-0001

Market Conditions and Constraints

Regulations and Special Conditions

- Federal Regulator: Office of the Superintendent of Financial Institutions (OSFI).

- Provincial Regulators

- The Insurance Bureau of Canada

Reporting and Record Keeping Practices

- OSFI Requirements
    - GAAP Disclosures
    - Canadian Institute of Chartered Accountants (CICA) Handbook Compliance
    - Risk Management Reporting

Turnover

The Quarterly Financial Statistics Program

- Collects data used to measure the financial position and performance of incorporated businesses by industry aggregations (income statement, balance sheet).

- Provides measure of financial holdings and transactions in the CSNA sector accounts.

- QFS F8 collects data on premiums and claims for six major lines of business in the Canadian Property and Casualty Insurance industry.

Special Considerations

- QFS was designed to measure financial position and performance with financial statements and an accounting framework in mind.

- QFS data is not completely aligned with the output concept.
  - Enterprise vs. Establishment level data
  - Secondary activity of the enterprise

Price Measurement

Two approaches to pricing the output of the insurance industry are being investigated, under a "Risk-assuming" model (excluding claims).

- Model Pricing Approach
  - Model transaction approach recommended by OECD
  - Able to control characteristics of policy over time to achieve constant quality
  - Burden is high on respondents when initialization is carried out to determine "typical" service/policy provided
  - Over time model may not represent actual transactions any longer
- Unit Value Approach
  - Can be constructed using administrative sources or existing surveys with some minor changes
  - Assumes homogeneous products
  - Quality can be a factor if above not true
    - eg. For Auto , the distribution of drivers and their vehicles remain constant from year to year

Price Measurement

Various data sources have been used throughout the SPPI development work

- Property and Casualty Insurance Price Report – Private Passenger Auto
- CompuQuote
- Administrative data from OSFI
- Quarterly Survey of Financial Statements (F8)

Quality Adjustment

- Constant Vintage
- Distribution of Drivers and Vehicles

Price Measurement

Special Considerations for Pricing
- Evaluation of Standard vs. Definition
  - Generally the same by NAICS
  - Some divergence with accident and sickness
    - CSNA removes from life, health and medical and attributes to P&C
  - Direct General Property and Casualty Insurance Carriers (524121) and Other Direct Insurance (Except Life, Health and Medical) Carriers (524129)
    - Composed of a variety of business that do not fit into one of the other narrowly defined 6-digit sub-industries
    - Violates assumption of homogeneity of the unit value approach
- Model Pricing
  - Model policy does not necessarily remain representative over time
  - Requires updating of policy characteristics, high response burden at initialization stage
- Unit Value
  - Pure price change or quality?
  - OECD SPPI guidelines
    - Information asymmetry and price discrimination prevalent in insurance

Price Measurement

- Deflator
  - Ideal deflator would include premiums, claims and investment returns (net premiums approach)
  - Premiums alone deflator may be sufficient
    - Premiums are set based on an actuarial estimate of the probability of loss
      - Already incorporate beliefs of the insurance carriers about the future level of expected future claims
    - The expected investment returns of the carriers are already incorporated into the premium level
      - Reasonable to believe that insurance companies set premiums based on their expectations of future returns on reserves

Price Measurement

Lessons Learned and the Future Approach

- Business concentrated in auto and property

- Definition of output challenging

- Negative Output and the Use of Expectations
  - Fluctuation of claims and investment income could produce periods of negative output
  - Using expected values of claims and income could mitigate

- Response Burden and Respondent Attrition
  - Model price approach of PCIP Report imposed a high level of burden
  - Over time respondents dropped out leading to price fluctuation related to the sample size rather than actual price dynamics

- Favour unit value approach going forward
  - Administrative data (OSFI) or survey data (QFS)
  - Keeps response burden to a minimum

National Accounts Concepts and Issues Related to GDP

Unit of Measure for Output

- SNA 1993/2008 advocates the use of the net-premiums (risk pooling) approach to calculate insurance industry output.

- CSNA approach is compliant with SNA 1993.
    - Will meet the SNA 2008 guidelines by 2012

Output Compilation

- QFS data used to compile output for the Insurance Industry.

- Enterprise level data leads to some activities not being captured due to classification in a different industry.
    - An enterprise that is classified in the banking industry could engage in insurance activities that would not be captured in the insurance industry.

National Accounts Concepts and Issues Related to GDP

Current and Proposed Deflator

- CSNA uses double-deflation procedure to calculate constant-price value-added.

- CSNA uses an implicit price deflator.

  - Four categories of insurance are specified and deflated separately.

- The proposed deflator would be construct from premium data only.

  - Premium-based deflator sufficient as premiums set ex ante based on expectations of investment income and claims.

  - "the level of premiums is probably established so as to take into account the investment income earned on the policy reserves of the insurer" Lal (1990; pg. 6-7)

  - Premiums likely have an inverse relationship with (expected) investment returns

  - Increases in the premiums would then at least partially reflect the insurers' belief that investment income will be lower in the future

Evaluation of Comparability of Turnover and Output

- High level of comparability between output and turnover data.

- SPPI samples overlap exactly with the sample for the Turnover survey.

- Quality of information on the frame is high.

Conclusion

- Defining the output of the Insurance Industry is challenging

- Measuring the price of a "hard to define" output is no less daunting.

- Both the model pricing and unit value approach have been investigated for calculating an SPPI.

- Given the set of factors and constraints facing in Canada, at this point in time the unit value approach has emerged as the preferred method, however, research into the viability of both approaches continues.