

U.S. Producer Price Indexes for Non-Life Insurance NAICS 524111 & 524126 (ISIC 6512)

David Friedman

Assistant Commissioner for Industrial Prices &
Price Indexes

US Bureau of Labor Statistics
26th Voorburg Group Meeting
Newport, South Wales
20 September 2011



Agenda

- Definition of service being priced
- Pricing unit of the service
- Market conditions & constraints
- Classification/publication structures
- Pricing methods
- National accounts & measurement issues
- Quality adjustment
- Results

Definition of service being priced

- Two non-life insurance industries – Direct Health & Medical; Direct Property & Casualty
- Primary output is assumption of risk and financial intermediation
- Policy underwritten by insurer represents unique output – transfer of risk of financial loss from policyholder to insurer

Pooling vs. Assumption of Risk

- Pooling approach: Insurer as intermediary between policyholders – collects premiums & disburses them to claimants (Premiums less claims)
- Transfer approach: Insurers assume risk from policyholders – collects premiums & invests to offset premium payment, i.e. assumes risk
- US PPI uses the latter definition

Pricing unit of service

- Operational definition is premium plus rate of return on investment

Price = Premium (1+r), where r is annual or monthly return on invested portion of premium

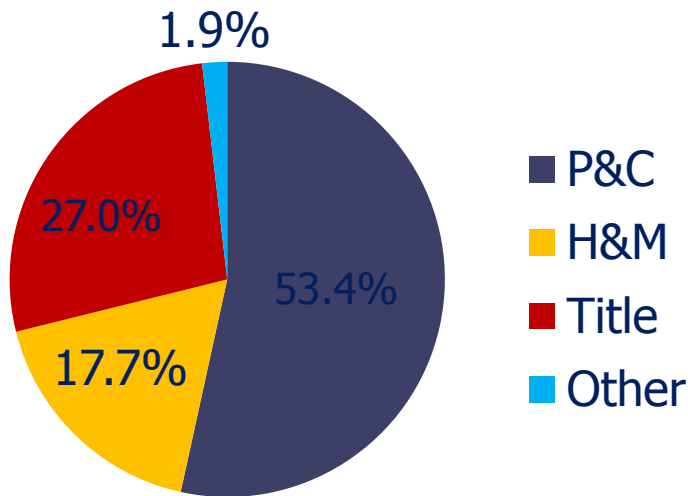
- Variation for mutual insurance companies

Price = Premium (1+r) - Dividend

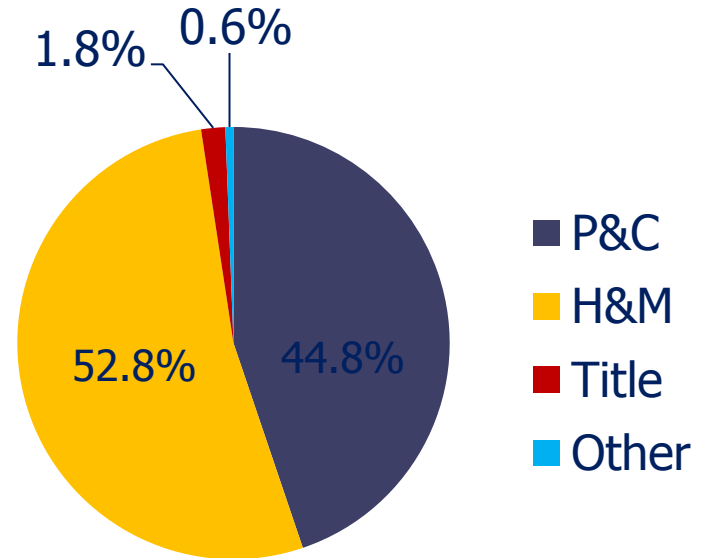
Market Shares

(Source: 2007 Economic Census)

**Establishments
(Total=25,560)**



**Revenue
(Total=\$952.5 billion)**



Special Market Conditions or Constraints

- Nature of insurance groups
- PPI reassigns premiums based on line of insurance, not type of company, for purposes of index weighting
- Impact on sampling
- Price components available from headquarters
- Gaps filled with data from National Association of Insurance Commissioners

Classification Structures

- Use NAICS definitions
 - ▶ 524114, Direct Health & Medical Insurance Carriers
 - ▶ 524126, Direct Property & Casualty Insurance Carriers
 - ▶ Most closely compares to ISIC 6512, though US does not produce PPIs for title insurance (NAICS 524127) or other non-life direct insurance (NAICS 524128)
- US includes accidental death & dismemberment in the life insurance industry; no NAPCS codes for freight insurance or travel insurance

National accounts & measurement issues

- BEA uses a different definition in National Income and Product Accounts, consistent with 2008 SNA:

$$\text{Price} = \text{Premiums} (1+r) - \text{Claims}$$

- PPI decided not to adopt this model because our research indicated assumption of risk is appropriate definition of output for this service from the producer's point of view
- Publish separate index that measures only premium changes which BEA uses

Pricing methods

- Two pricing options
 - ▶ Policy & policyholder characteristics remain “frozen” over time – use current charges applied to policy characteristics
 - ▶ Actual policy followed over time
- Most respondents price “frozen” policies but some use the alternative – use whichever is easiest for them as long as can provide info needed by US PPI

Adjusting for inflation-sensitive characteristics

- Periodic adjustments made to property & casualty “frozen” policies to hold inflation-sensitive characteristics constant
 - ▶ Valuation of property insured or risk (business assets, receipts, gross sales, payroll, etc.)
 - ▶ Valuation of repair or replacement
 - ▶ Do not adjust for liability coverages/limits; deductibles/coinsurance

Pricing characteristics

- Anniversary or renewal month
- Annual or monthly premium
- Dividend rebate
- Rate of return
- Coverage amount/limits
- Deductible/coinsurance
- Specific risks or perils covered
- Past loss experience
- Valuation of property insured or risk

Publication structure for Health & Medical

524114	Direct health and medical insurance carriers
524114P	Primary services
5241141	Medical service plans
524114101	Comprehensive medical service plans
52411410101	Group managed care medical service plans
52411410102	Group fee-for-service medical service plans
52411410103	Individual comprehensive medical service plans
524114103	Non-comprehensive medical service plans
52411410301	Dental service plans
52411410302	Supplemental Medicare service plans
52411410303	Other medical service plans
5241142	Health insurance
524114SM	Other receipts

Publication structure for Property & Casualty

524126	Direct property and casualty insurance carriers
524126P	Primary services
5241161	Private passenger auto insurance
5241262	Homeowners insurance
5241263	Commercial auto insurance
5241264	Non-auto liability insurance
524126402	Medical malpractice insurance
524126403	Product liability and other non-auto liability insurance
5241265	Commercial multiple peril insurance
5241266	Workers compensation insurance
5241267	Other property and casualty insurance
524126SM	Other receipts

Quality adjustment: Risk Change

- Critical is ability to identify and adjust for changes in risk
- Suitable cost data available for changes in explicit endogenous risk factors such as removal of lifetime maximums for a health insurance policy
- Changes that go beyond scope of policy negotiations such as increased incidence of theft or severe flu season require outside data to distinguish short-term vs. long-term changes in risk

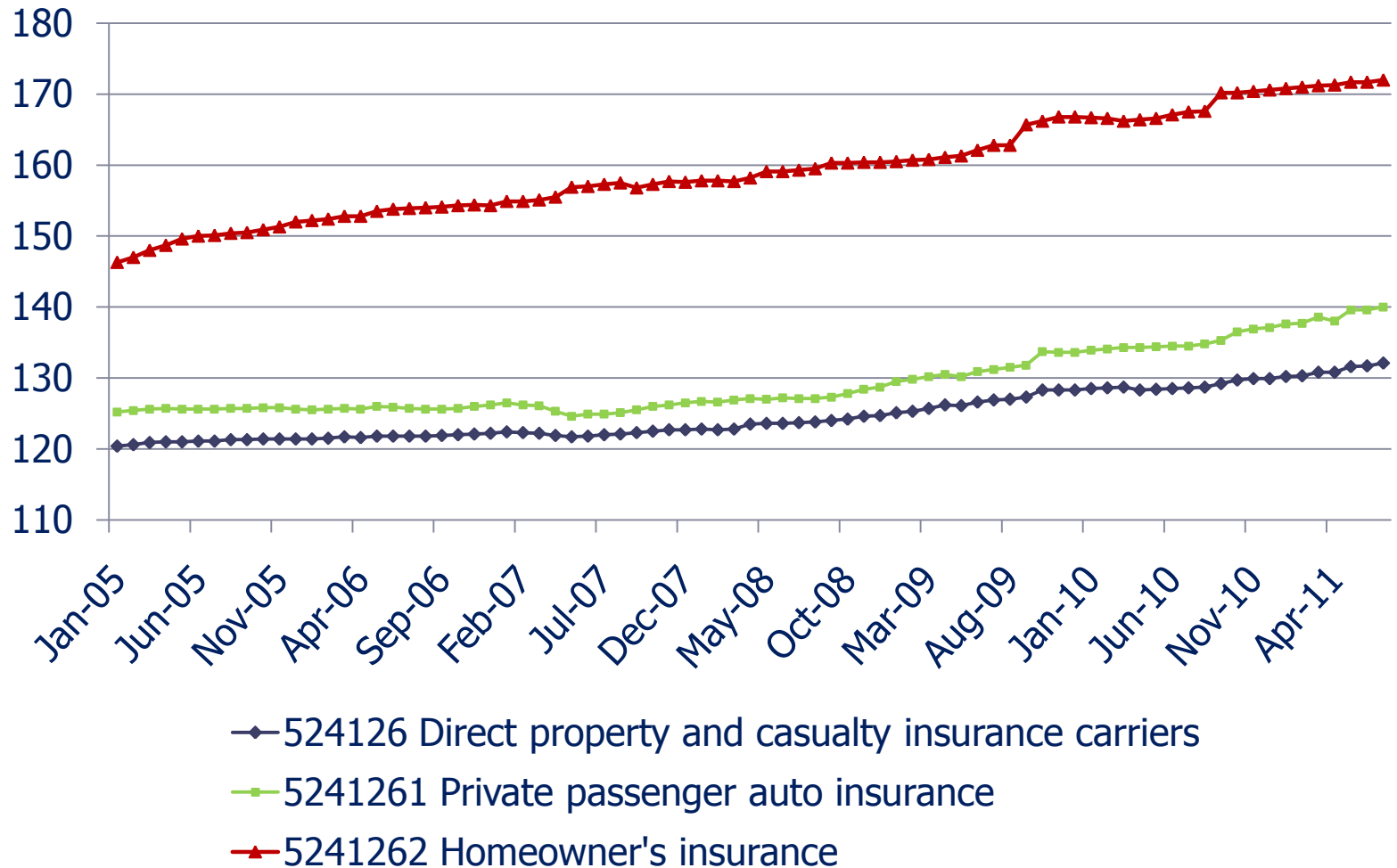
QA for Private Passenger Auto Insurance

- Assess risk change with valuations from the Insurance Services Office (ISO)
- ISO assigns autos to risk categories called “symbol groups”
- PPI obtains value of risk change for every auto for which we have a policy being priced in the index; we use values to explicitly quality adjust when an auto moves into a different symbol group

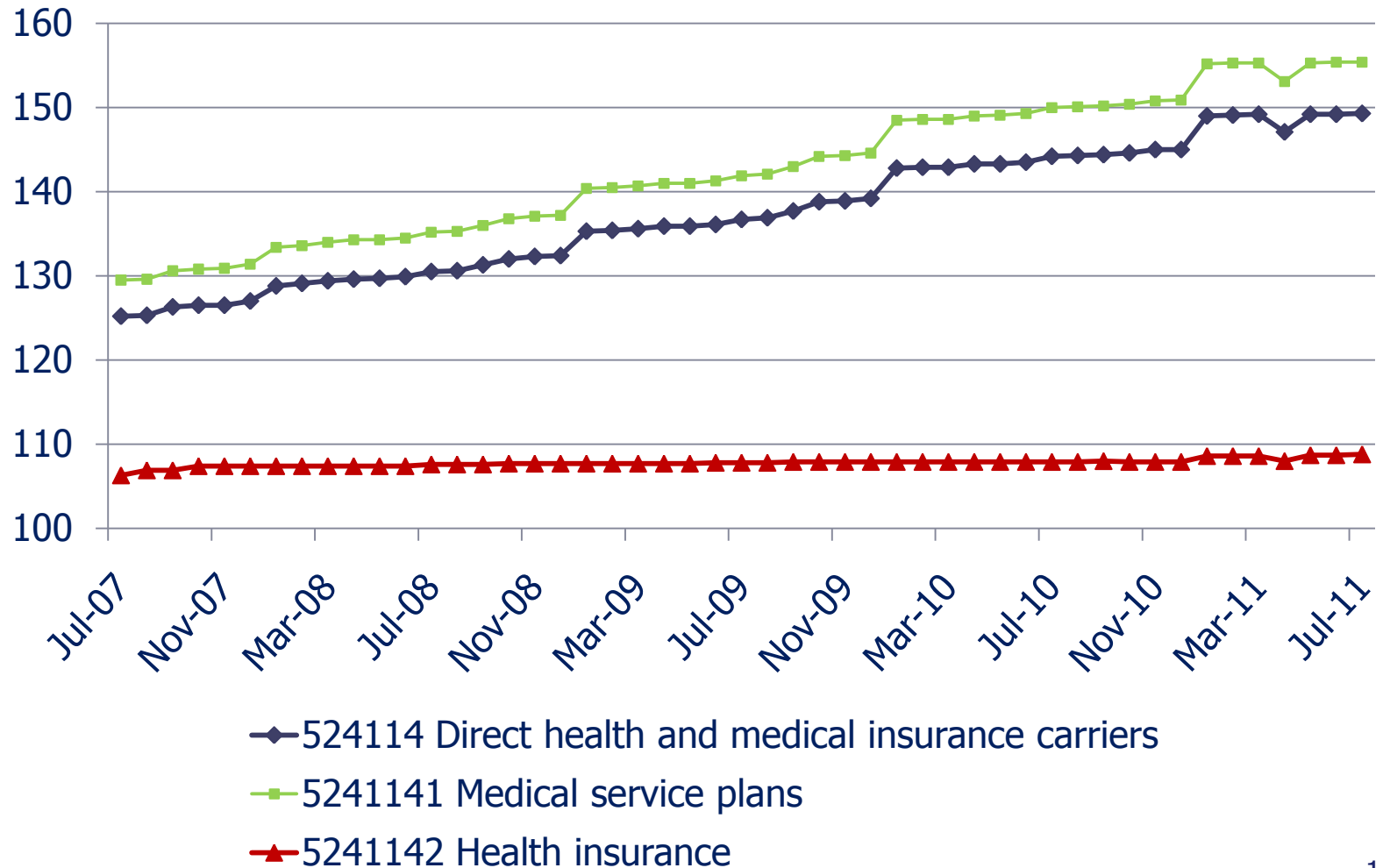
Quality adjustment: New item bias

- Item bias concern especially prevalent for “frozen” pricing method as policy may no longer be representative over time
- Can also occur when following an actual policy if general population has changed preferences or policy represents small portion of company’s business
- Item bias minimized by more frequent resampling; capture of coverage changes during repricing

Results I: Property & Casualty



Results II: Health & Medical



Contact Information

David Friedman & Deanna Bathgate

Producer Price Index Program

Friedman.David@bls.gov

Bathgate.Deanna@bls.gov

