

Using Insurance Claims Data in the Medical Price Indexes

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Using Insurance Claims Data in the Medical Price Indexes

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Disclaimer

- The views and opinions are those of the authors and are not those of the BLS (all authors) or the CEA (Matsumoto).
- No change in BLS methods will be made on the basis of the results presented.



Related Work

- Prior BLS work on using claims data
 - ▶ May be feasible, but would require more \$
- Dunn, et al. (2012 *Health Services Research*)
 - ▶ Create price and expenditure indexes using MarketScan data
- BEA Healthcare Satellite Account
 - ▶ Use claims data to supplement MEPS in constructing disease based expenditure indexes

Current Pricing Method

- Consumer Expenditure Survey – expenditure on the different categories of goods and services (called entry level items (ELIs)).
- TPOPS – used to select providers.
- Field worker selects the items at the provider.
- Provider is asked to price the identical service in future months.
- Price is the total price (allowed charge).



Storm on the Horizon?

- Declining response rates in the household surveys
- Declining cooperation among providers
 - ▶ Sample sizes decreasing and the cost per usable price quote is increasing
- Is the sample truly representative? - of services, of providers, of payers, and geographically

Challenges of Using Claims Data

- Data Lag
- Size of data
- Price variation within an “identical” product
- Only observe price if the service occurs within the month
- Representativeness and implications for manual price collection



Benefits of Using Claims Data

- Increased sample size
 - ▶ Potentially publish additional indexes
- Improve representation of private insurers in the data
- Potentially replace manual data collection



Pilot Project

- Data from a single insurer in a large MSA.
 - ▶ Sample of providers (10 hospitals and 25 physicians) and services (10 per hospital and 5 per physician)
 - ▶ 2 years of monthly prices
 - ▶ Physicians – service defined as CPT code
 - ▶ Hospitals – service defined as a DRG (inpatient) or CPT (outpatient) code

Methods

- Price Relative:

$$R_{\{t,t-1\}} = \frac{\sum_{\{j \in ELI\}} \frac{W_{\{j,0\}} P_{\{j,t\}}}{P_{\{j,0\}}}}{\sum_{\{j \in ELI\}} \frac{W_{\{j,0\}} P_{\{j,t-1\}}}{P_{\{j,0\}}}}$$

- Weights: Quantity (fixed), Expenditure (fixed), hybrid: Weight providers by expenditure (fixed) and calculate a weighted price within provider using quantity weights (variable)

Methods

- Compare with the CPI and MarketScan for the same city and time period.
- Blended index: create all-payer index by combining insurance data with CPI price quotes.
- Lagged indexes to simulate longer lag times.



Results



Figure 1A. Physicians' Services
Insurer Indexes, Insurer Outliers Removed

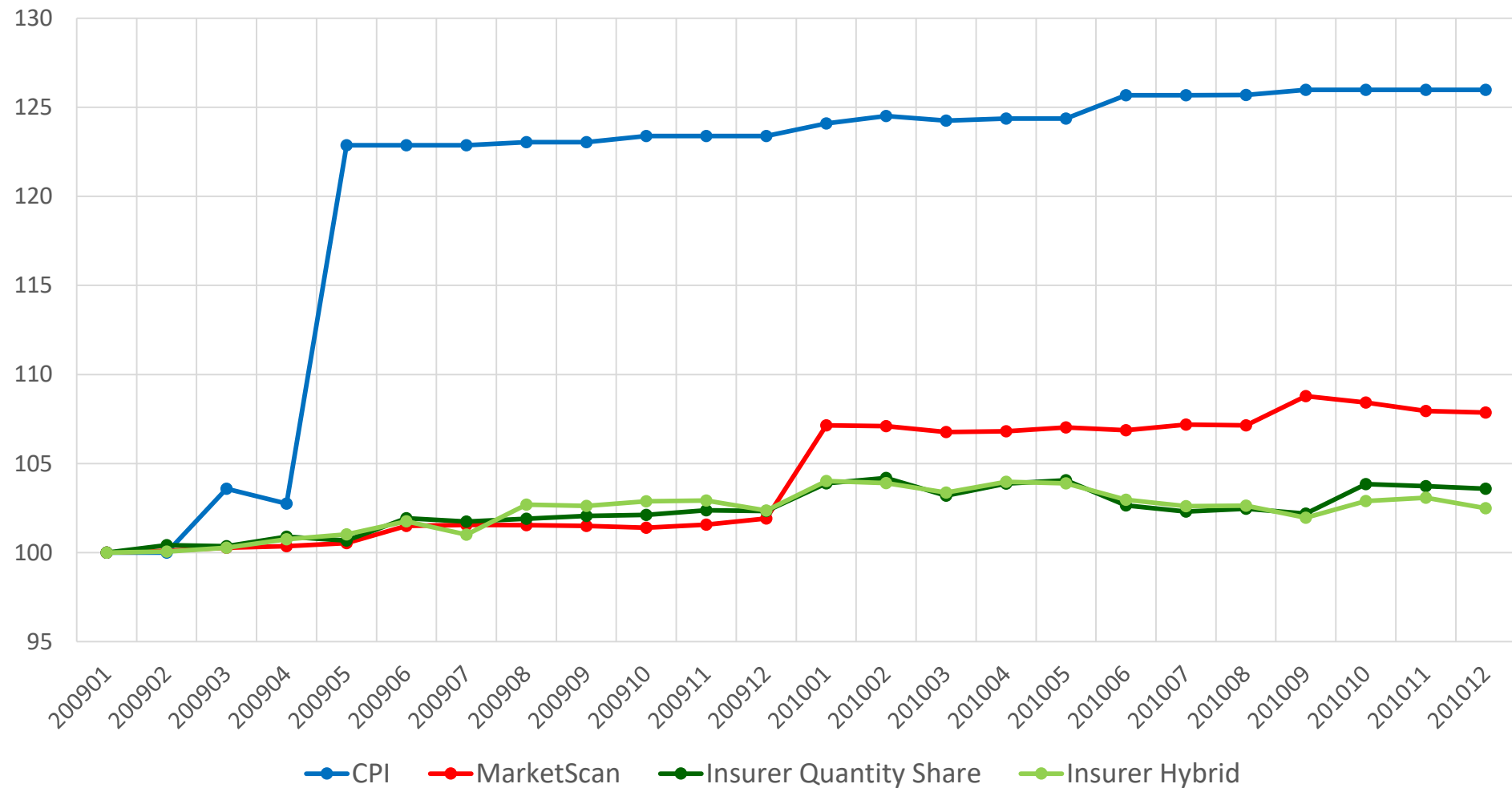


Figure 1B. Physicians' Services
Insurer Indexes, All Outliers Removed

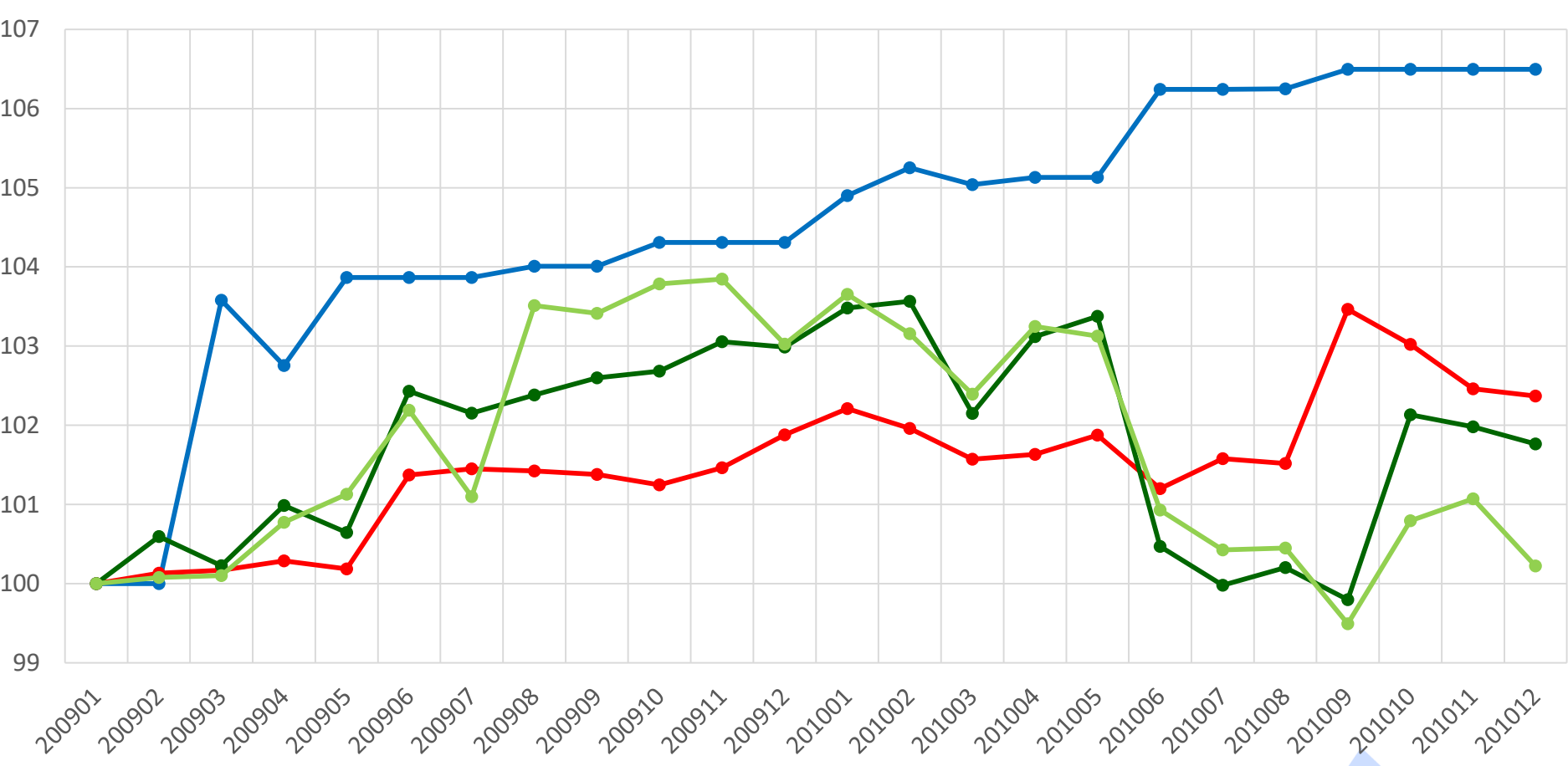


Figure 2. Hospital Services
Insurer Indexes, Insurer Outliers Removed

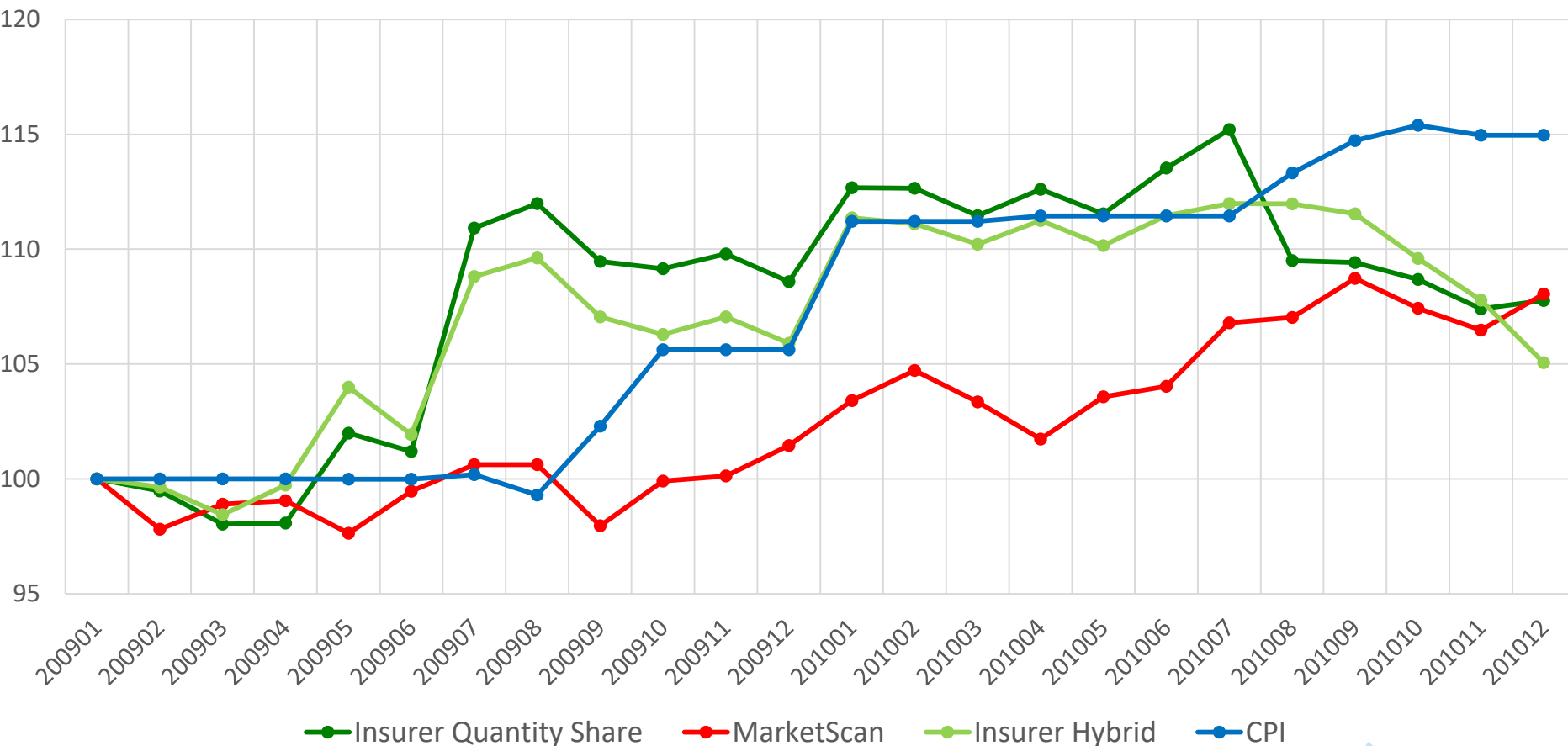


Figure 3. Physician Services
 Combined Indexes, All Outliers Removed

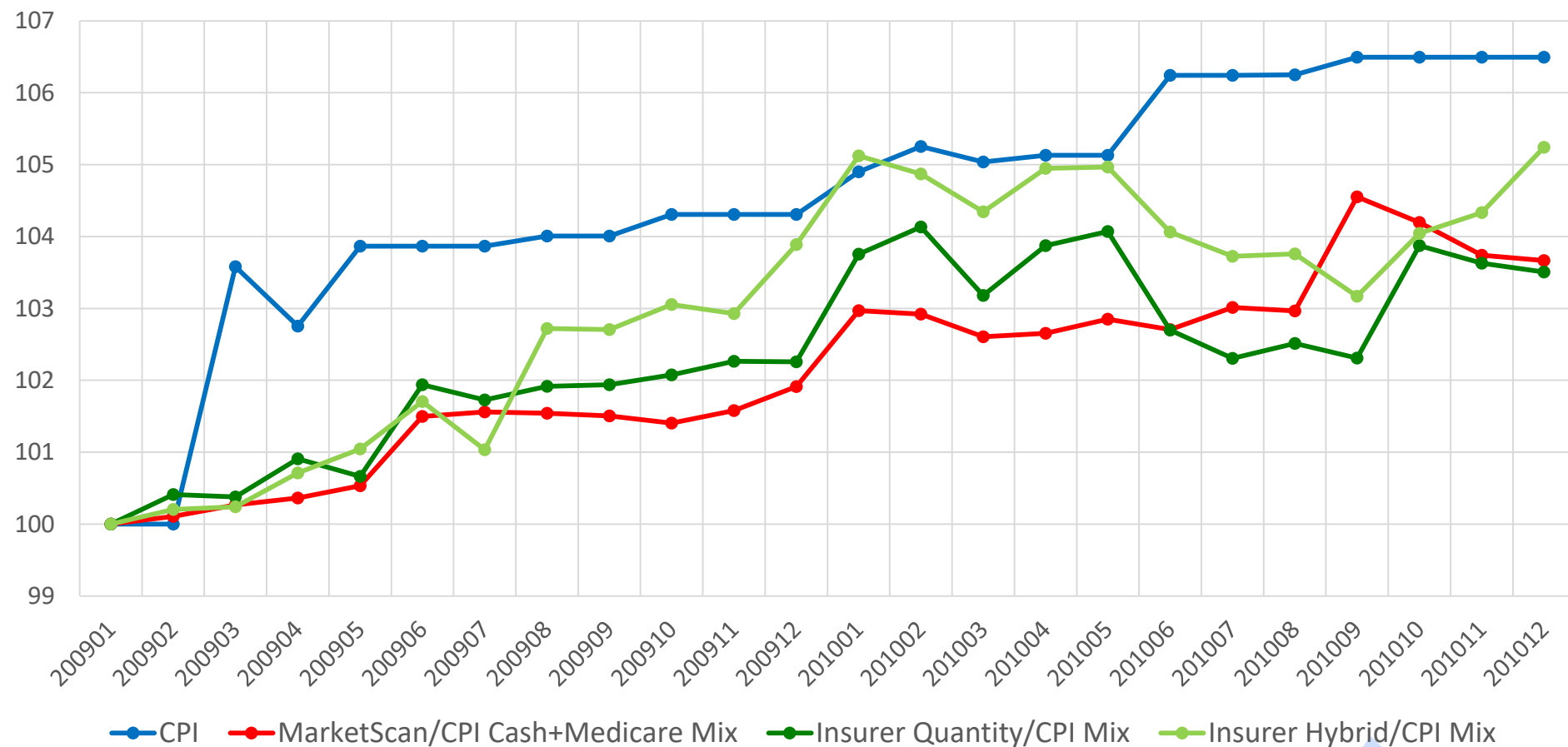
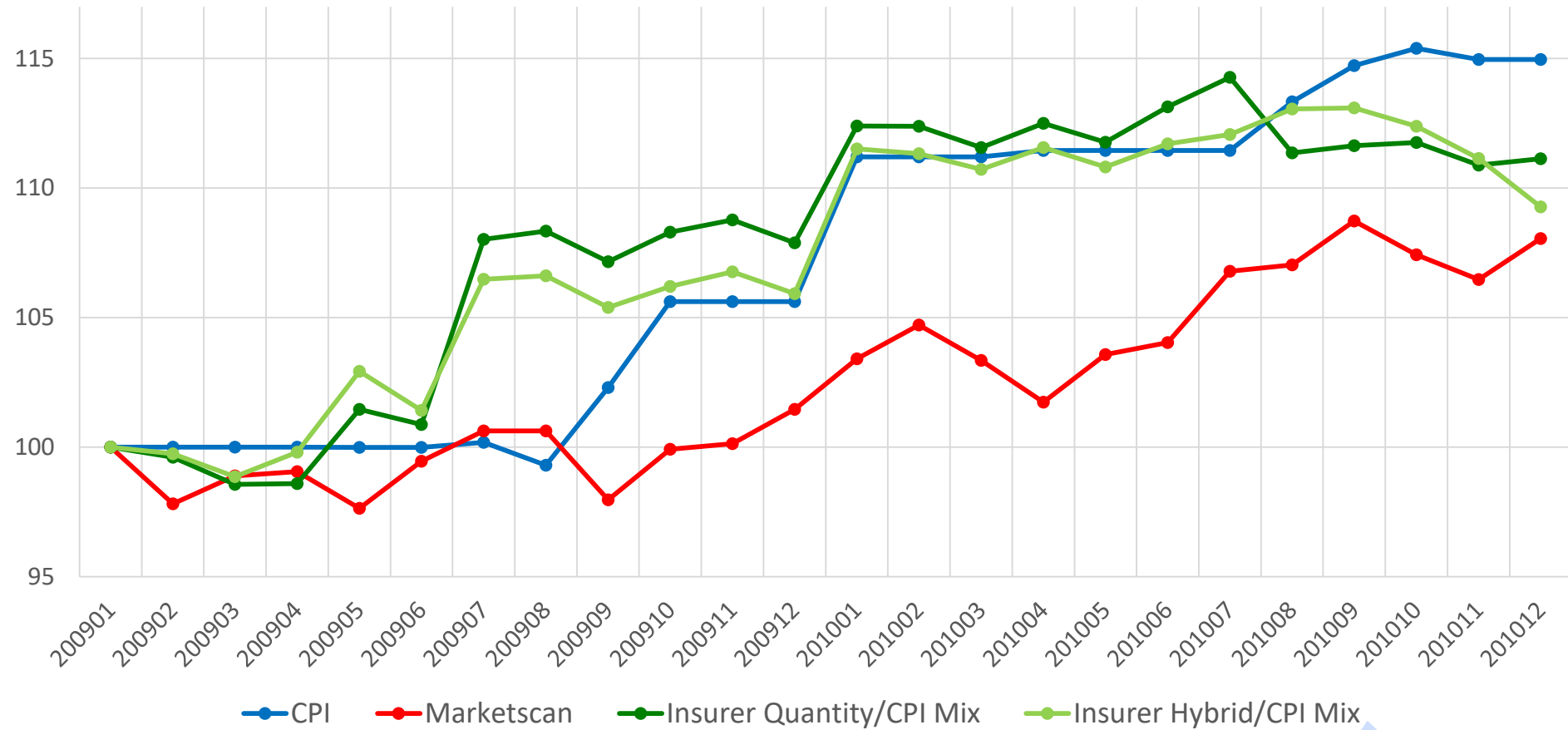


Figure 4. Hospital Services
Combined Indexes, Insurer Outliers Removed



National Level Lag Analysis



Figure 9. Physician Services
National CPI/MarketScan Combined and Lagged

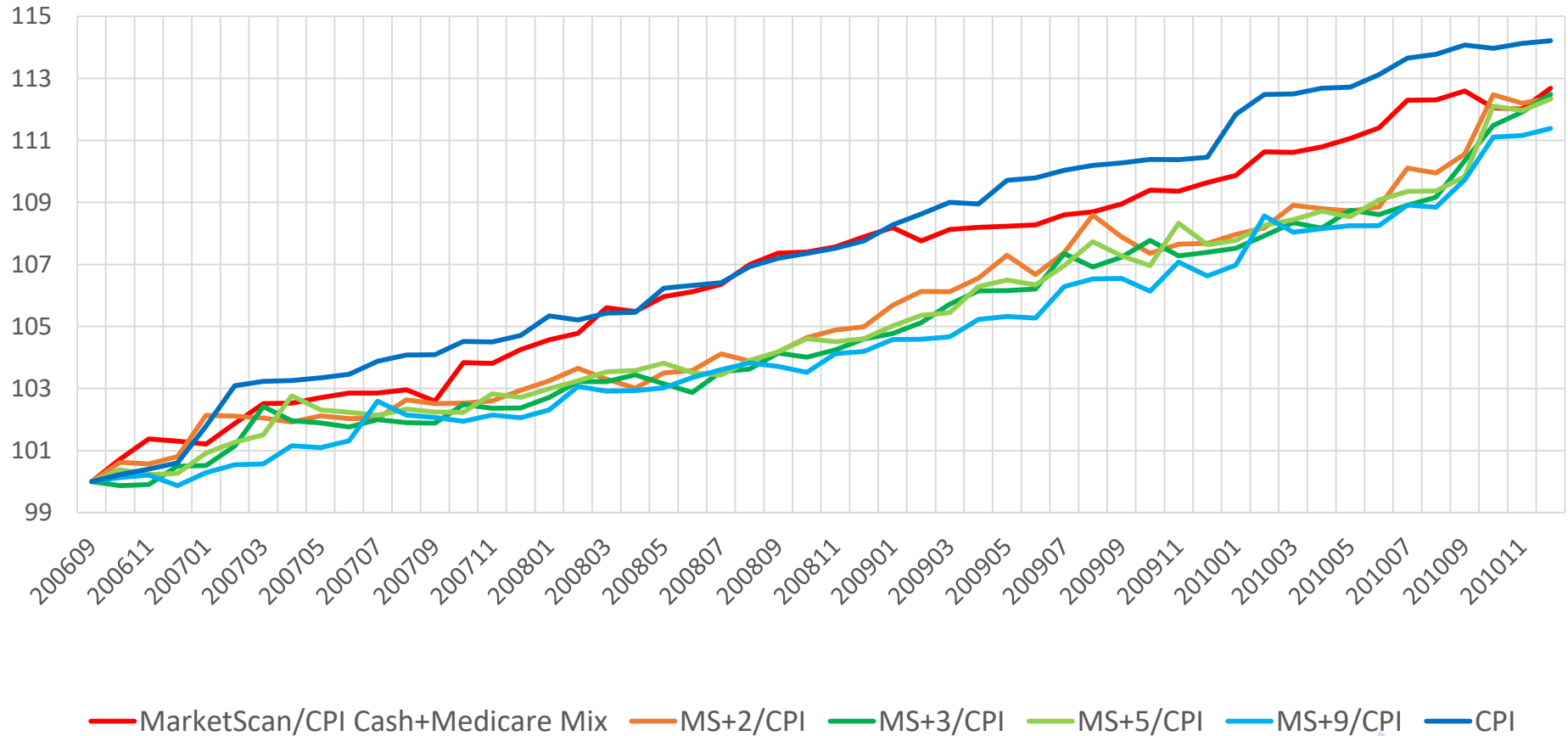
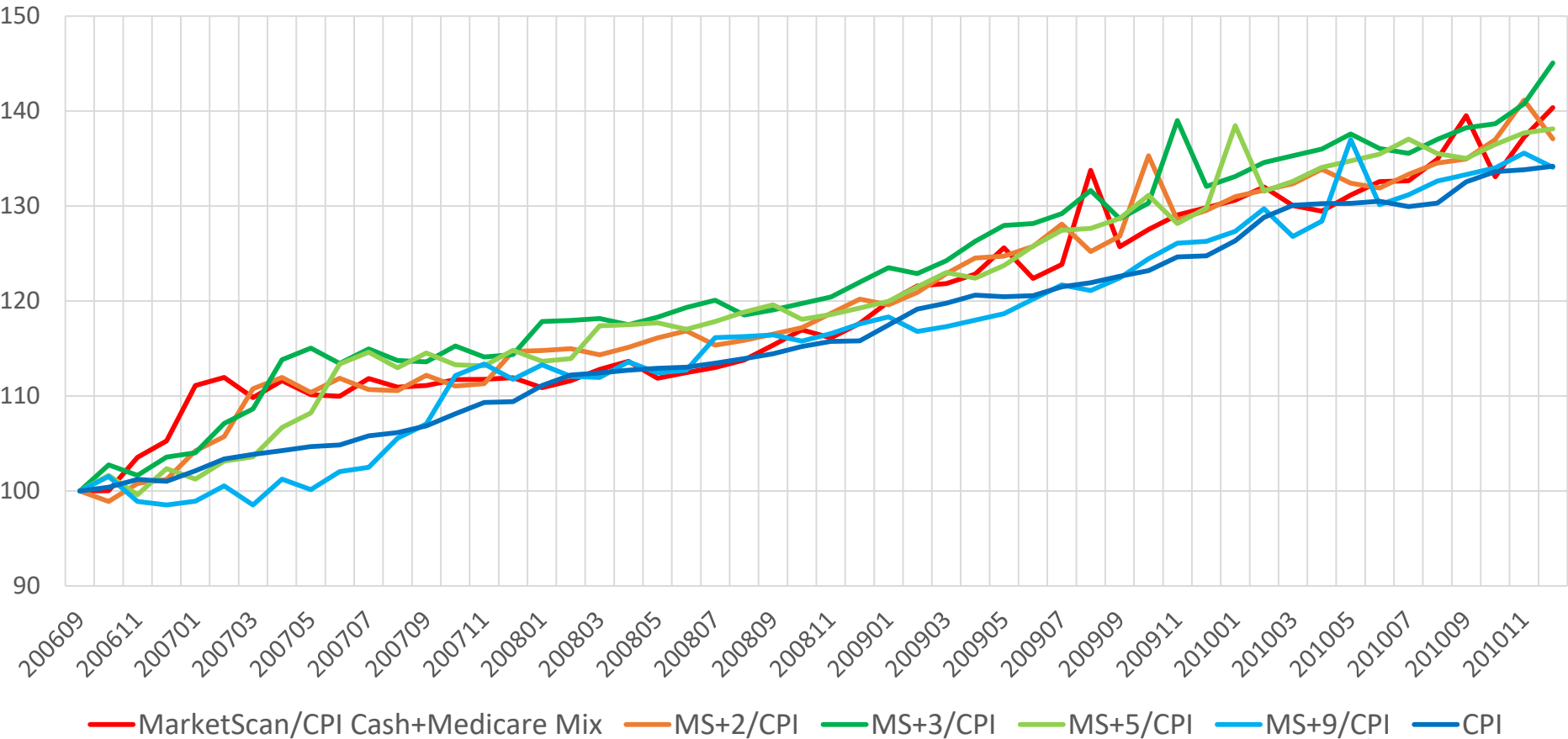


Figure 10. Hospital Services
Marketscan and CPI Combined and Lagged



Conclusion

- Using Claims data in the medical price indexes is feasible (short lag is not a problem)
- May need to control for additional price determining characteristics
- Need to know the insurance company in the claims data

Next Steps

- Purchasing data to conduct the analysis at a larger scale (national) for a longer time period (ideally 4 or 5 years)
- Additional controls, production issues
- Make a final recommendation



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