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PRICE AND VOLUME MEASURES OF INSURANCE SERVICES

Invited paper submitted by Federal Statistical Office of Germany*

General remarks

1. One thing, all national accounts statisticians surely agree to in respect of my subject are two statements formulated by Peter Hill (1998): “ The treatment of insurance is one of the more complicated parts of the SNA” and “ It (the SNA1993) does not offer any guidance as to how to measure changes in the prices of insurance services”. Here we are. What now?

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It is obvious, that one can measure the price and volume of insurance services if one at least has an idea, what insurance services are and how to measure them at current prices. But even measuring the value of insurance services at current prices is difficult. It is conceptually difficult as different views on the insurance business as a whole are possible. It is technically difficult, as business accounting of insurance enterprises is complex and deviates from that of other industries.

2. I will neglect attempts to measure the value of insurance services as the sum of “administrative costs”. This approach, one can also call it “Government approach”, was proposed by Soeren Broderon (1986). I will also neglect approaches which focus on the actual (not contingent) claims of the insurance policy holders. An example of this view is Hempell’s (1967) essay with the programmatic title: “Claims – The End-Product of Insurance”. With the first solution, the “Government approach”, it is hard to explain why insurance enterprises make profits. With the second solution, it is hard to explain what insurance policy holders receive and for what they pay for, if no accident occurs.

3. The two alternative approaches, I want to deal with are:

- the “Intermediation approach” or traditional National Accounts approach, where only a part of the insurance premium is treated as remuneration for the services of the insurance enterprises; and
- the “Ruggles approach” (1982), where the whole insurance premium in principle is treated as the price of such services.

Mark Sherwood (1999) calls the first option “Concept 1” and the second “Concept 2”.

4. I would like to treat these two approaches separately. Let me start with the philosophy behind and explain the calculation rules for current and constant prices. I treat them separately although we will see some convergency at the end, especially as far as the calculations at constant prices are concerned.

Intermediation approach

5. “Nomen est omen”, in National Accounts, insurance enterprises are classified in Sector S12 which is officially called “Financial Corporations” but unofficially the term “Financial intermediaries” is widely spread for the whole sector. From this point of view, insurance corporations organise the community of insurance policy holders. They provide an intermediation service between the policy holders by pooling the risks of them and they are remunerated for their organising ability. They have nothing to do with the risks themselves. Typically for this are Bernstein and Geehan (1988): “Insurance firms do not bear the risks of their purchasers, they pool the risk”.

6. The intermediation approach has a long history. “Insurance premiums “ as Stone (1947) says,

“represent purchases of services only to a small extent and are principally a form of provision for contingencies”. I can imagine, that this generation of national accounts statisticians had in mind a special legal form of insurance companies. Jaszi (1958a) and others explicitly dealt with “mutual life insurance” and other mutual insurance companies. Such mutual insurance organisations are defined by the fact, that the “insurance policy holders” are at the same time the owners of this institution, i. e. not only profits but also losses are shared between these policy holders/owners. Given this “mutual insurance companies” as a model, it seems likely that the work of the staff is treated as an “organization”. But the experience of Triplett and Bosworth (2000) was the following:” Although there are insurance companies with the word “mutual” in their names, there is very little evidence that they act as cooperatives on behalf of the policyholders”. I will come back to this point later.

7. From the OEEC System (1952), where insurance is only mentioned in a footnote, to the SNA 1993 the rules for calculating insurance output were refined. Some of the main points of these refinements should only be mentioned here: provisions for life and non-life insurance, accrual principle for premiums or claims and holding gains. The intermediation concept in principle was backed and/or described by many discussants: Lutgart van den Berghe (1981), Schiltz (1987), Vanoli (1988) Bos (1994) and Hill (1998). The concept is popular also outside the narrow circle of national accounts statisticians: for productivity analysis (Hirshon and Geehan (1977), for Balance of Payments Statistics since its 5th edition (1993) and for the new European Harmonised Consumer Price Index (HCPI), where at least the weight of the insurance item is determined by this concept.

8. In its latest version (SNA 1993 par. 6.139 and 6.140) the calculation is as follows:

	(a)	Total actual premiums earned
plus	(b)	Total premium supplements (mainly property income on the investment of insurance technical reserves)
minus	(c)	Total claims due
minus	(d)	Changes in actuarial and reserves for with-profit insurance
=		Value of the output of insurance services

9. Note SNA par. 6.138: “ All changes in insurance technical reserves referred to in (a), (c) and (d) are measured excluding any nominal holding gain”. The paragraphs (a) to (d) are explained in the SNA in detail.

10. At least now, it becomes clear, why deflating the value of the insurance service charge is difficult. Our standard procedure requires an output or turnover which can be split into a price and a volume component. None of these components can be recognized in this formula.

11. However, the Task Force “Price and Volumes: Financial Intermediation (NACE J)”, which was set up by Eurostat in 1999 and chaired by Roger Akers during its three meetings, was instructed to find a solution. In this context, one should know that Eurostat took the initiative to harmonise the GDP calculations at constant prices some years ago. This Task Force was part of the realisation of this initiative. The result of this project can now be read in the Eurostat - “Handbook on Price and Volume Measures”. For the concrete work in the several Task Forces Eurostat specified some preconditions. Among them was a classification of deflation methods (European Union, 1998).

12. I give a very short version:

- A-category: ideal
- B-category: tolerated (less appropriate price indices and volume measures)
- C-category: forbidden (input methods, indicators not related to output, overall Consumer Price Index).

13. It was clear from the very beginning of the Task Force that we would not be able to find an A-method. So, the Task Force focused on volume measures. Two variants were advocated: a detailed approach (Jan Eefting/Netherlands) and a global approach (Germany). In the Dutch approach, a series of specific volume indicators is weighted together and used for updating the output of the base year. The global approach imputes, that volume development of insurance services can be measured by using the deflated benefits to the policy holders. Benefits in this context mean the total of claims due and change in insurance technical reserves. The appropriate price index used for deflating depends on the specific sort of risk. For car-insurance for example the price index for car repairs is used. Short and sweet: both methods were classified as B-methods and finally accepted.

Ruggles approach

14. Even before the Ruggles (1982), the idea of treating the whole insurance premium as a remuneration for a service was put into the world. In 1958 George Jaszi (Jaszi, 1958b) criticised Cohen and Gainsbrughs:..., if they feel that premium and claim transactions should appear as components of income and expenditure in the national accounts, I would ask them to frame a satisfactory definition of income and expenditure that includes these transactions”.

15. In the FISIM debate, Brent Moulton (Moulton, 2001) has asked the question “ Is risk-bearing an unpriced service?” One can sever this question from the special context and ask it generally. There are three groups of authors who answer in the negative: risk bearing is a service and has a price like other services. One can find such supporters in the insurance science, economic theory and national accounts, in the U.S and in Europe, especially in Germany. Like the former scientists, they, too, have in mind a special kind of

insurance enterprises. But these are not mutual companies but normal stock companies. Such stock companies bear the risk of their policy holders, at least the remaining “ruin probability” after all reinsurance transactions.

16. Mark Sherwood (Sherwood, 1999) consequently has another starting point than the organising ability: “The starting point for a measure of the nominal value of output is the value of the amount of risk assumed by the company plus the administrative costs of assuming the risk”. And he feels backed by others: “..., it should be noted that Diewert (1995) used utility theory in order to define the output of the industry. He defined output as the improvement in utility due to the availability of insurance- the increase in utility measured as the difference between the post- and pre-insurance utility levels.” and “ Diewert suggested a measure of the nominal value of output based upon premiums that is consistent with the measure put forth by Denny (1980), Ruggles (1982) and Hornstein and Prescott (1991 a and b). Triplett and Bosworth (2000) joined this view: “ A major implementation problem with the risk-pooling insurance model (the national accounts convention for insurance) arises out of the fact that the insurance business does not function the way this model suggests.”

17. The German discussion, as far as the insurance science is concerned, is controlled by Farny (originally 1965). He defines the activity of insurance companies as: “Production of insurance protection”. And this protection is remunerated by the premium. The whole discussion was described by Mordi (1987).

18. From a macro economic point of view Sinn (1986) classifies risk-bearing as a “factor of production”. He argues that more “risk-bearing” enables a higher level of production, which is decisive for its classification as a factor of production. He illustrates this thesis by the role of the marine insurance in the Venetian economy. Generalising his considerations one can say, that there is a need to avoid risks, which classifies “risk bearing” as a useful and scarce good. Or, if one sees it in a mirror: risk is a negative good.

19. Negative goods such as “dust” are not unknown in economic theory and the exoneration of them has a positive price (Henderson, H. and Quandt, R., 1973). I really do not want to call on Peter Hill, but if “ The owner of a good derives some economic benefits from owing it, in contrast to a “bad” which has a negative exchange value” (Hill, 1999), why should not exist a “negative” service like “risk – assumption”.

20. I would like now to turn back to the issue of calculating insurance services in real terms. Sherwood again investigates two alternatives: deflating the nominal value with an output price index or extrapolating the base period nominal value of output. He condemns the first alternative, as the premium actually paid by the policy holder (and which is used in CPI) does not include the returns on investments on technical reserves. By the way, the price concept including these returns on investment, in best German, is called “cash flow underwriting”. So, he decides to use a volume indicator. In his words:” The extrapolator would equal the deflated value of the funds available to cover risk. ... The funds available to cover risk are the nominal value of output less administrative costs. The deflator would be constructed as weighted price indexes for

replacement of capital goods, repair services”. This is nothing else but the “global approach” I have mentioned above.

Concluding comment

21. Let me summarise the main points. There are two alternatives to deal with the output calculation of insurance companies at current prices. Concept 1 applies the “intermediation approach”, concept 2 treats (in principle) the premium as the price for the service provided by the insurers. It seems fruitless to me, to decide what is right and what is wrong. The intermediation approach fits mutual companies (as long as they really act on behalf of their policyholders), the Ruggles-approach more to profit orientated stock companies. However, the weights between mutual insurance companies and insurance companies organised as stock companies have changed dramatically in the last few decades, at least in Germany.

Table 1. Number of insurance companies by legal form in Germany

Insurance Companies	Mutual Companies	Stock Companies
1955	244	106
1999	90	272

Source: Statistisches Taschenbuch der Versicherungswirtschaft 2001.

22. So, it is not surprising that concept 2 has gained more supporters in the course of time.

23. As far as the calculation in real terms is concerned, there is a wide agreement that direct price indexes are unsuitable and a “volume indicator” is, though not ideal, acceptable.

24. In order to mention them, Fixler and Zieschang (2000) accepted in their “ Price Indices for Financial Services”, a similar solution for banks, although only as second best solution.

25. I hope I have been able to give you some information about specific aspects of the recent discussion about “ Price and volume measures of insurance services”. But the question at the end is still the same as at the beginning: Here we are. What now?

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