A new method for price and volume measurement of non-life insurance services for the Dutch national accounts

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Abstract. This paper presents a new method for calculating price and volume change for non-life insurance services in the Dutch national accounts. The previously used direct service method leads to inconsistent behaviour of nominal value and production volume, which is caused by the inclusion of actual claims in both components. In the new method, 'products' are characterised by type and size of insured risk. Counting units of production consist of bundles of insurance activities aimed at covering risk per time unit, instead of single activities. Policies are chosen to represent these counting units for five types of insurances. Nominal value is expressed in terms of expected loss (risk) and expected investment income, which are both linked to premiums. Volume increases at low yearly rates between 2006 and 2009 (0.52 percent on average), while nominal value shows a faster increase (up to 5 percent). Sensitivity analyses suggest limited effects of missing data on volume indices, which are hardly affected as well by different model choices for nominal value. CPI-deflated value indices indicate that some volume change could be missing due to possible shifts in risk within product groups. As the results of the previous method were volatile, one of the main conclusions is that the choice of production concept has greater effects on the results than other methodological choices. An extension of the ideas to life insurances and pensions is currently being studied.

Keywords: Property-casualty insurances, national accounts, SNA, nominal production value, investment income, risk, Laspeyres volume index, counting measure, sensitivity analysis.

1. Introduction

It is widely recognised that the insurance industry is one of the most difficult parts of the national accounts to deal with. This is reflected by the literature on the measurement of prices and quantities for insurance services. There are different views on what the insurance industry actually produces, while there is a range of different definitions regarding the nominal value of production (Schwartz and Fox, 2008; Sherwood, 1999; SNA, 1993; SNA, 2008).

Two main concepts of production have been proposed for insurance services. The first is described by Sherwood (1999) as "the activities carried out by the industry to maintain the capacity for pooling risks". This view is supported by Hirshhorn and Geehan (1977, 1980). An example of an 'activity-based' approach is the so-called "direct service method", which considers the acquisition of new policies, administration of policies and the handling of claims as separate 'products' (Eurostat, 2001, pp. 95-96).

The second concept of production is described by Sherwood (1999) as "the assumption of (a certain quantity of) risk". Amongst others, Denny (1980) and Hornstein and Prescott (1991) support this concept. Denny (1980) argued that the output of the insurance industry is the quantity of risk shifted to the industry by those who purchase insurance. Policy holders and the industry contract for an amount of risk coverage, not for the performance of certain activities.

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