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Measuring Financial Services related to Insurance – Challenges

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Abstract

Financial services dealing with insurance activities are not explicitly charged for by the financial corporations and thus cannot be observed for an individual consumer. The output of these services is thus measured indirectly as per recommendations of latest international Standard, the System of National Accounts (SNA), 2008. In supply - use balancing exercise for the Non-life Insurance services as a product, the reconciliation is achieved by allocating output of these services to industries and/ or final consumers using appropriate indicator.

This paper discusses the conceptual aspects of measurement of output of all types of insurance services, in particular the Non-Life Insurance services and their uses by the insurer industries and final users and related issues. Such insurance corporations mainly provide intermediation of transfers between policy holders and insurance companies. Problem of supply-use imbalance arises from the convention of taking non-life insurance premiums payable by the enterprises and household policy holders into account while estimating intermediate consumption and final consumption. The imbalance can be overcome if the premiums/ insurance charges payable by the industries and household policy holders are replaced by the allocated insurance service output (imputed insurance service charges) as is expected in the Supply Use Table reconciliation exercise.

The current practice in the Indian national accounts of taking premiums paid as an intermediate input of the industry using non-life insurance service is examined critically for the supply use imbalance that results. Weaknesses in the current practice and plausible solution of the problem are discussed.

Key words: System of National Accounts, Imputed Non-Life Insurance Service Charges, Transfer Payments, Premium Supplements, Adjusted Claims, Supply Use Imbalance, Reconciliation in SUT

1. Introduction

The 2008 System of National Accounts (SNA) considers financial institutions as financial corporations. Financial institutions associated with Insurance are classified into following five types: (i) Non-life Insurance, (ii) Life Insurance and Annuities, (iii) Reinsurance, (iv) Social Insurance Schemes, and (v) Standardized Guarantee Schemes. Each one further categorized into public, national private and foreign controlled units. This paper discussed various issues related to measurement of output, value added, etc. of the financial

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services related to insurance of all types, mainly focusing on non-life insurance since such services pose supply use imbalance in the current Indian national accounts.

Financial services are not explicitly charged for by the financial corporations and thus cannot be observed for an individual consumer. The output of these services is measured indirectly (imputed service charges) as per the recommendations of latest international Standard, the 2008 SNA. The services provided by the financial corporations are mainly of two kinds, viz.: (i) intermediation of funds between lenders and borrowers, as carried out by the banks and (ii) intermediation of transfers between policy holders, as done by insurance companies.

It may be noted that all insurance companies are involved in both risk management and liquidity transformation which is the prime function of financial institutions. Such schemes lead to redistribution of funds, which are recorded in the SNA in either the secondary distribution of income account or the financial account.

In what follows the paper discusses the concept and measurement including computation method of output of Non-Life Insurance services, and other insurance services, which is in fact the imputed service charge for the insurance services and their uses. Then discussed are the supply and uses of non-life insurance services and their reconciliation in the Supply and Use Table (SUT). Current practice of recording non-life insurance service uses in the Indian national accounts statistics is discussed emphasizing on the supply-use imbalance that occurs in the process. Possible working way outs/ solution to overcome the problem of supply-use imbalance are mentioned. Other types of insurance services namely: Life Insurance and Annuities, Reinsurance, Social Insurance Schemes, and Standardized Guarantee Schemes are also discussed.

2. Non-Life Insurance Services

2.1. Measurement of Output of NLI Service

A corporate enterprise rendering Non-Life Insurance (NLI) service accepts a premium from a client and holds it until a claim is made or the period of the insurance expires. The insurance enterprise invests the premium and earns investment income which is termed premium supplement. The insurance enterprise sets the level of the actual premiums to be such that the sum of the actual premiums plus the investment income earned on them less the expected claim will leave a margin that the insurance enterprise can retain. This margin represents the output of the NLI service. Within the System of National Accounts (SNA), the output of the insurance industry is determined in a manner intended to mimic the premium setting policies of the insurance corporations.

It is important to note that the concept of output of Non-life insurance (NLI) service has been changing over revisions of SNA. As per 1968 SNA, the output of NLI service was measured as excess of actual premiums over claims during the accounting period. The method of measuring the output of NLI service recommended in 1968 SNA was changed in 1993 SNA. Income from the investment of insurance technical reserves was considered to be earnings of the policy holders which were repaid to the insurance agencies as ‘premium supplements’. The latest international Standard, the 2008 SNA recommends computation of service charge/ output of NLI service as the difference of Actual Premiums plus Premium supplements and Adjusted Claims.

Output of NLI service = Actual Premiums + Premium supplements - Adjusted Claims where, the 'adjusted claims' is the expected claims computed using appropriate models based on past experience and future expectations. The level of claims made on non-life insurance policies varies from year to year and there may be exceptional events that might cause a high level of claims in certain years. Since measurement of output of non-life insurance should not be affected by the volatility of the occurrence of the risk, the adjusted claims instead of actual claims is considered in the measurement of output of NLI service. Generally the insurance companies set the level of premiums on the basis of their own estimation of the likelihood of claims. For this reason, the 2008 SNA recommends use of adjusted claims in the calculation of output of NLI service. The figure for adjusted claims may be derived statistically in an expectations approach based on previous experience of the level of claims. The 2008 SNA further recommends that in considering the past history of claims payable allowance must be made for the share of these claims that are met under the terms of the direct insurer's reinsurance policy, if any.

For computing adjusted claims the 2008 SNA also recommends an alternative equalization approach using information from the accounts of the insurance corporation that could be adopted with ease. This approach determines an equalization provision, which is an adjustment to reflect the variations in claims from one year to another. It may be noted that in either of the approach adopted, the adjusted claim figure approximates the expected level of claims. It is understood that in Indian national accounts statistics the equalization approach of computing adjusted claims has been adopted in the new series of national accounts with base year 2011-12. Adjusted claims in the Indian national accounts statistics is computed as

Adjusted Claims = Claims *and surrenders + Interest paid + Net accruing liability +Bonus for policy holders + changes in equalization provision*

The gross value added (GVA) of NLI service is computed from the estimated output of the NLI service explained above by subtracting the intermediate consumption of the non-life insurance companies.

2.2. Supply and Use of NLI Service

Supply of NLI service in the economy is the sum of domestic output of the service and imports of the service purchased from non-resident units during the period. The supply of the NLI service is required to be reconciled in the Supply Use Table (SUT) framework (See Annex for details of SUT) for its uses. Reconciliation of supply and use of all products in the economy is necessary as per 2008 SNA to have the balanced GDP of the economy obtained from production approach and used as income for compiling the sequence of accounts.

As regards use of the NLI service, the insurance service consumed by the policy holder alone needs to appear in industries using the service as intermediate consumption, to Households final users as final consumption and exports. These services consumed by industries, households and exports, however, cannot be computed at individual level since that would require knowledge of premium supplement and adjusted claims components. The premium supplement and adjusted claims are possible to compute only at overall level of the insurance service provider, the corporates that provide the service in the economy.

When premiums paid is taken as the NLI service charge that is an item of intermediate consumption in an industry A, the GVA of industry A is under estimated to the extent the premium paid has a component of net income which is considered a transfer payment to the service provider as per 2008 SNA. On the other hand, when premiums paid by a household is taken as the NLI service charge that is an item of final consumption, Household Final Consumption Expenditure is over estimated to the extent the premium paid has a component of net income which is considered a transfer payment to the service provider as per 2008 SNA (Discussed in detail in another sub-section). Similarly when premiums received from a non-resident unit for the purchase of non-life service is taken as export of the service, export is overstated.

In view of the problem of estimating NLI service charges at individual enterprise/industry level and final use of households and exports, it would be fair if premiums paid are not considered as intermediate consumption of consuming industries/ final use and the supply side estimated output of NLI service is allocated to consuming industries as intermediate consumption and final uses using an appropriate indicator which may be taken as the sums insured. If premiums paid for buying NLI service is taken as intermediate consumption/ final consumption there would be supply-use imbalance as well as GVA under estimation of the industries using the non-life insurance service. The problem persists when estimates of supply and use of the service are not reconciled in SUT framework.

2.3. NLI Service: Reconciliation in SUT

The output of NLI service (*service charges)* on the supply side, according to 2008 SNA, is obtained as Actual premiums earned *plus* premium supplements *minus* 'adjusted' claims incurred. The supply-side aggregate, compiled at the macro-level could be reconciled to the use side in the SUT framework by allocating the service charges to different consuming industries as intermediate consumption and to Households final user as final consumption expenditure and exports. The allocation of total service charges, the output of the service could be allocated using an appropriate indicator like amounts insured by the entity.

Important point to be noted for the reconciliation exercise is that the amounts of insurance service charges allocated to various consuming industries and final uses is not in addition to the existing entries which would be appearing if the premiums paid was taken as the intermediate consumption of consuming industries and final use of Households and/ or exports.

2.4. Current Practice in Indian National Accounts Statistics

In the Indian National Accounts Statistics, the current practice is to take entire amount of premiums paid for purchase of NLI service as intermediate consumption of the consuming industry, particularly the manufacturing and services industries. For example over the years, the GVA estimates of the registered sector manufacturing from Annual Survey of Industries are computed with the entire amount of non-life insurance payment included in the intermediate consumption. In the Follow-up enterprise surveys of the Economic Censuses for capturing un-registered/ unorganised manufacturing, trading and all services, except construction, the premiums paid for the purchase of non-life insurance service is included in the Input Block and considered as intermediate consumption of the enterprise. This is also included in intermediate consumption in the production account of non-departmental commercial undertakings (enterprises). Besides recently, the Goldar Committee Report (2015) [Final Report of the Sub-Committee on Private Corporate Sector including PPPs, GOI, MOSPI, CSO, NAD]that assessed the usability of MCA21 data to generate National Accounts Statistics for the corporate sector recommends considering non-life insurance expenses ('premiums', 'insurance charges' and 'insurance costs') payable reported in MCA21 data as intermediate consumption. Thus in the estimation of GVA by production approach of various industries consuming non-life insurance service, the GVAs are under estimated to the extent the premiums paid has a component of net income which is considered a transfer payment to the service provider as per 2008 SNA.

Another observation in the current practice of compiling Indian national accounts with respect to agriculture sector is that most of it (except operation of government irrigation system) is in the nature of unorganised or household institutional sector where the gross value added is obtained for various crops adopting production approach making use of relevant Cost of Cultivation Studies/ Farm management studies for estimating input structure. In the estimated input structure obtained from these studies, there is no explicit item of expenditure on purchase of insurance service. However on the supply side it is noticed that the Agricultural Insurance Company of India Limited (AIC) commenced its business in the Indian economy since 1st April 2003. The AIC has several products like: Pradhan Mantri Fasal BimaYojana (PMFBY), Restructured Weather Based Crop Insurance Scheme, Unified Package Insurance Scheme, National Agricultural Insurance Scheme, Bio - Fuel Tree / Plant Insurance, Cardamom Plant & Yield Insurance, Potato Crop Insurance , Pulp Wood Tree Insurance Policy, Rain Fall Insurance Scheme For Coffee (RISC) – 2011, Rubber Plantation Insurance , Varsha Bima / Rain Fall Insurance, Weather Insurance (RABI), and Coconut Palm Insurance Scheme. All products of the AIC clearly are the crop insurance service provided to the agriculture industry spread all over the country. Thus since 2003-04 onwards when AIC commenced business, whereas in the estimated output of NLI service, the services of AIC are fully included in the use side there is no presence of the service purchased, thus amounting to over estimation of GVA of agricultural industry to the extent the crop insurance service charges incurred by the farmers.

In the estimation of Private Final Consumption Expenditure (PFCE) of NLI service, the current practice followed in the Indian national accounts statistics is the commodity flow approach where the output of the service is estimated strictly as per recommendations of 2008 SNA as premiums earned *plus* premium supplements *minus* ‘adjusted’ claims incurred of all non-life insurance companies. Then PFCE for the item of NLI service is obtained from the estimated output of the service by knocking out the intermediate consumption estimated using input-output ratio from latest available Input Output Table and adjustments made for exports and imports. Thus PFCE of NLI service appears more close to the concept of insurance service consumed, though not exactly as is based on assumed past norms of intermediate consumption which would be premiums paid and considers export of the service that is taken as the premiums received from the non-resident units. In short here as well there is a case of supply-use imbalance in so far as NLI service is concerned in the present scenario of Indian national accounts statistics.

2.5. Supply Use Imbalance of NLI Service - Possible Solution

If the supply and use of all products including NLI service are reconciled in the SUT exercise as an integral part of the compilation of balanced GDP and sequence of income accounts, the problem of supply use imbalance pointed out above would disappear. However at present the SUT has still not been implemented in the system to derive the balanced GDP and even when implemented there would be a time gap of 2 to 3 years in the compilation of SUT reconciled estimates of GDP and annual release of national accounts statistics.

Thus there is a need to make a correction in the overall GDP under estimation to the extent the non-life insurance premiums paid by various manufacturing and service industries for the purchase of insurance service (inter industry use) has a component of net income which is considered a transfer payment to the service provider as per 2008 SNA, to be exact, the difference of actual premiums paid and insurance service consumed. At total economy level insurance service consumed is equal to the insurance service output and is estimated as (Actual Premiums + Premium Supplement – Adjusted Claims). The inter-industry use and final use of NLI service can be obtained through allocation from the estimated output of insurance service using appropriate indicator which may be sums insured or premiums received by the service provider. It may be noted that the intermediate use and final use of NLI service obtained by allocation of output of insurance service as mentioned above should replace the existing entries (the premiums paid) and not added over and above the existing entries. In respect of agriculture sector, since 2003-04 and onwards the input structure needs to be revised to take into account the intermediate consumption of crop insurance service purchased. Thus when SUT reconciled estimates are introduced in the Indian national accounts, the problem of supply-use imbalance of the NLI service and many other products would get resolved and under estimation of GVA of manufacturing and services on account of taking premiums paid as inputs and also over estimation of GVA of agriculture industry for not including NLI service charges would get resolved.

However, as there would be some time gap of 2-3 years in the preparation of SUT and release of national accounts, for this inter-veining period the problem of underestimation of manufacturing and services sectors GVA on account of taking the NLI service charge as premiums paid can be resolved by taking adjusted premiums as inputs instead of current practice of taking premiums paid. Where, adjusted premiums could be obtained from premiums paid multiplied by an adjustment factor which would be *(Output of NLI service / Premium received)* that can be computed at overall level from the annual accounts of the NLI companies and adjusted claims which would be required for estimating output. Further, for the period when annual accounts of the NLI companies are not available and exact adjusted premiums cannot be computed, there we may manage by computing approximate/ tentative adjusted premiums by taking the premiums paid multiplied by an adjustment factor estimated from the past data.

2.6. Non-Life Insurance Service: Related flows in Sequence of Accounts

The non-life insurance domestic output or service charges on the supply side, according to 2008 SNA, is obtained as Actual premiums earned + premium supplements - ‘adjusted’ claims incurred. The service charges constitute purchases of insurance services by the policyholders and are recorded as intermediate or final consumption, as appropriate. In other words the sum of actual premiums payable and the premium supplements is divided between two types of transactions. The first is the value of the output of non-life insurance, which is shown as either consumption (intermediate or final) or export of the non-life insurance services. The second is net premiums earned by the insurance corporations.

Net Premium= actual premiums earned + premium supplements - insurance service consumed by policyholders

The service charges constitute purchases of insurance services by the policyholders and are recorded as intermediate or final consumption, as appropriate.Important point to note is that only the net premiums (of non-life insurance) constitute current transfers and are recorded in the secondary distribution of income account. Besides the settlement of a non-life insurance claim is treated as a current transfer to the claimant and needs to be recorded in the secondary distribution of income account.

Entries of Output, Investment income, Net premiums, Insurance claims, Change in Technical Reserves, and Difference between Actual claims and 'Adjusted' claims relating to non-life insurance service transactions appear in various accounts as under

*Value of output t*in Production Account of Insurance Corporation, in Production Account of domestic enterprises as Intermediate Consumption, in Use of Income Account of Households as Household Final Consumption Expenditure, in Goods and Service Account of the policy holders of Rest of the World (RoW) Account as Exports

Investment *income* in Primary income Account under both Resources and Uses for Insurance Corporation, and under Resources for Households and RoW

Net premiums in Secondary distribution of Income Account as Resources for Insurance Corporations and Uses for Households and RoW

Insurance claims in Secondary distribution of Income Account as Uses for Insurance Corporations and Resources for Households and RoW

Change in Technical Reserves is unearned premiums *plus* outstanding claims of Insurance Corporation; it appears in Financial Account as Change in Liabilities of Insurance Corporations and Change in Assets of domestic and RoW policy holders

Difference between actual claims and 'adjusted' claim is treated as current transfer in Secondary distribution of Income Account as Resources for Insurance Corporations and Uses for Households, other sector and ROW

3. Life Insurance and Annuities

3.1. Concept of the services

In a life insurance policy, many small payments are made over a period of time and either a single lump sum or a stream of payments is made at some pre-agreed time in the future. There is little conditionality involved in life insurance, usually the fact that a payment will be made is certain but the amount may be uncertain.

Annuities are offered by insurance corporations and are a means for an individual person to convert a lump sum into a stream of payments in the future.

Whereas, NLI consists of redistribution in the current period between all policyholders and a few claimants, Life insurance mainly redistributes premiums paid over a period of time as benefits paid later to the same policy holder. Essentially life insurance premiums and benefits are financial transactions and not current transactions.

3.2. Measurement of output of Life Insurance service

The output of direct life insurance is calculated separately as:

Output = Actual premiums earned *plus* premium supplements *minus* benefits due *minus* increases (plus decreases) in actuarial reserves and reserves for with profits insurance.

If adequate data are not available for the calculation of life insurance according to this formula, an approach based on the sum of costs including intermediate costs, labour and capital costs plus an allowance for “normal profit” may be used.

It is important to note that premium supplements are more significant for life insurance than for non-life insurance. They consist of all the investment income earned on the reserves of the policy holders. The amount involved is earnings forgone by the policyholders by putting the funds at the disposal of the insurance corporation and are thus recorded as property income in the distribution of primary income account.

Benefits are recorded as they are awarded or paid. There is no need under life insurance to derive an adjusted figure since there is not the same unexpected volatility in the payment due under a life policy. It is possible for the insurance corporation to make robust estimates of the benefits due to be paid even years in advance.

Life insurance technical reserves increase each year because of new premiums paid, new investment income allocated to the policyholders (but not withdrawn by them) and decrease because of benefits paid. It is thus possible to express the level of output of life insurance as the difference between the total investment income earned on the life insurance technical reserves less the part of this income actually allocated to the policy holders and added to the insurance technical reserves.

3.3. Use of Life Insurance Service

As regards use of the Life insurance service output, since it is only for households the whole amount of output is considered as Household Final Consumption Expenditure or PFCE as the case may be. There is no issue of supply-use imbalance in so far as Life Insurance service is concerned.

4. Reinsurance

4.1. Concept

Just as an individual may limit their exposure to risk by taking out an insurance policy, so may insurance corporations themselves. Insurance between one insurance corporation and another is called reinsurance. However, insurance other than reinsurance is treated as direct insurance. Many reinsurance transactions are with specialized institutions in a few international financial centers. Reinsurers may also take out a further reinsurance policy. This practice is known as ‘retrocession’.

4.2. Measurement of Output of Reinsurance

The method of calculating the output of reinsurance is exactly the same as for non-life insurance, whether it is life or non-life policies that are being reinsured. However, because the primary motivation of reinsurance is to limit the direct insurer’s exposure to risk, a reinsurer deals with exceptionally large claims as a matter of normal business. For this reason, and because the market for reinsurance is concentrated in relatively few large firms, it is less likely that the reinsurer will experience an unexpectedly large loss than a direct insurer does, especially in the case of excess of loss reinsurance. The output of reinsurance is measured in a way similar to that for direct NLI service. However, there are some payments peculiar to reinsurance. These are commissions payable to the direct insurer under proportionate reinsurance and profit sharing in excess of loss reinsurance. Once these are taken into account the output of reinsurance can be calculated as:

Output of Reinsurance = Total actual premiums earned less commissions payable *plus* premium supplements *minus* both adjusted claims incurred and profit sharing

4.3. Use of Reinsurance Service

As regards the use of the Reinsurance service is concerned what has been said for NLI service in earlier section would naturally hold true. Thus if premiums paid by an enterprise is taken as the purchase value of reinsurance service, i.e., intermediate input, it would result in underestimation of the GVA of the enterprise/industry. To avoid supply use imbalance the output of reinsurance service need to be allocated to the user industries appropriately using amounts reinsured or premiums as indicators.

5. Social Insurance Schemes

5.1. Types of Social Insurance Schemes

A social insurance scheme is one where a third party, usually an employer or the government, encourages or obliges individuals to participate in a scheme to provide benefits for a number of identified circumstances, including pensions in retirement. Social insurance schemes have much in common with direct insurance and may be run by insurance corporations. This is not necessarily the case, however, and there are special variations in how the payment of contributions (corresponding to premiums in the case of direct insurance) and benefits are recorded.

There are four different ways in which social insurance may be organized: (i) Some social insurance is provided by government under a social security scheme; (ii) An employer may organize a social insurance scheme for his employees; (iii) An employer may have an insurance corporation run the scheme for the employer in return for a fee; (iv) An insurance corporation may offer to run a scheme for several employers in return for any property income and holding gains they may make in excess of what is owed to the participants in the scheme. The resulting arrangement is called a multi-employer scheme. The output for each of these modes of running a social insurance scheme is calculated in a different manner.

Social security schemes are run as part of the operation of general government. If separate units are distinguished, their output is determined in the same way as all non market output as the sum of costs. If separate units are not distinguished, the output of social security is included with the output of the level of government at which it operates. Use of such services is mixed up with the government services and thus by concept the government uses its own services that it produces.

When an employer operates his own social insurance scheme, the value of the output is also determined as the sum of costs including an estimate for a return to any fixed capital used in the operation of the scheme. Even if the employer establishes a segregated pension fund to manage the scheme, the value of output is still measured in the same way. The use of such an insurance service output is allocated to the corporate that operates it for its employees. In such a situation the expenditure on production of the service need to be considered a part of the compensation of employees and not intermediate consumption.

5.2. Measurement of Output of Social Insurance Schemes

When an employer uses an insurance corporation to manage the scheme on his behalf, the value of the output is the fee charged by the insurance corporation. The fee which is the output of the insurance service need to be considered as intermediate consumption of the corporate that hired the insurance company to manage the scheme.

For a multiemployer scheme, the value of output is measured as for life insurance policies; it is the excess of the investment income receivable by the schemes less the amount added to the reserves to meet present and future pension entitlements.

6. Standardized Guarantee Schemes

6.1. Concept of Standardized Guarantee Schemes

In some circumstances a unit, possibly but not necessarily within general government, may offer numerous guarantees of very similar nature. One example is export guarantees and another is student loans. Because the guarantees are very similar and numerous, it is possible to make robust statistical estimates of the number of defaults the guarantor will have to cover and so these also are treated in a manner similar to direct non-life insurance.

6.2. Measurement of Output of Standardized Guarantee Schemes

If a standardized guarantee scheme operates as a market producer, the value of output is calculated in the same way as non-life insurance. If the scheme operates as a nonmarket non-market producer, the value of output is calculated as the sum of costs.

6.3. Use of Standardized Guarantee Schemes

As regards the use of the Standardized Guarantee Schemes service is concerned what has been said for NLI service in earlier section would also hold true. Thus to avoid supply use imbalance the output of Standardized Guarantee Schemes service need to be allocated to the user industries appropriately using amounts insured or premiums as indicators.

7. Concluding Remarks

i. For Financial services relating to Insurance the issues which still require review/ research for the purposes of national accounts statistics are the following
    - Estimation of expected/ adjusted claims
    - Estimation insurance service charges for various industries
    - Estimation of insurance service charges for households and non-residents
    - Capturing unorganised financial services associated with insurance
    - Regional estimates

ii. NLI service actual premiums payable plus premium supplement has two components- first the insurance service charge and second *net income* which is considered as transfer payment to the service provider as per 2008 SNA.

iii. When premiums paid for NLI service is taken as intermediate consumption it results in supply-use imbalance and GVA of industry using the insurance service is under estimated to the extent the premiums paid has a component of *net income*. Incidentally it is the position in the currently compiled Indian national accounts.

iv. SUT reconciliation would resolve imbalance and avoid under estimation of industries using NLI service and over estimation of PFCE.

v. To avoid over estimation of GVA of agriculture industry appropriate NLI service charge needs to be put in the intermediate consumption of agriculture industry. It is due to the appearance of Agricultural Insurance Company of India Limited in the economy.

vi. There is no supply-use imbalance issue for life insurance service

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