

Term insurance plus separate investment – a financially prudent choice over endowment assurance – a prospective product design aimed at influencing stakeholder behaviour and thereby contributing to sustainable growth & development: a study based in India

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Abstract: Life Assurance is a form of risk management used to hedge against the risk of loss of life. Thus, it should not be confused with investment, although it often is. As a result, plans that come with the combined benefit of insurance and investment (endowment assurance plans) are extremely popular. But people buying such plans don't understand that they are not getting the best of both worlds by buying a hybrid product (that combines assurance with investment). Instead, they end up getting a product that is neither a good investment, nor a good assurance.

The purpose of this study is to formulate a methodology for evaluating returns on endowment assurance policies and to locate potential alternatives to investment in an endowment assurance policy for maximizing the return on investment along with the assurance of a better life cover. The study also sheds light on the long term macro-economic implications of investment in an endowment assurance policy vis-à-vis the proposed alternatives. Finally, it recommends measures that can be undertaken to unleash the true potential of life insurance sector in contributing to the country's economic growth & development in a manner in which pursuit of private gain by all the individual stakeholders can lead to social good by ensuring that scarce resources of the country is utilized in the most efficient possible manner.

Keywords: Expected internal rate of return on life insurance policy, Alternative to investment in an endowment assurance policy, Need-based selling, Long term macro-economic implications of choosing alternative of term insurance plus a separate investment over endowment assurance, Unleashing the true potential of life insurance sector in contributing to the economic growth & development of the country.

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I. PREFACE

“India’s life insurance industry is the world’s largest, currently carrying nearly 360 million policies and growing at about 12-15 per cent per year. But insurance penetration—a premium as a percentage of GDP—has remained low and has fallen, and even though insurance density—measured as the per capita premium of the population—has been rising, it remains low.” – Shekhar Shah, Director-General, National Council of Applied Economic Research (NCAER).¹

Even after being the world’s largest market for life insurance, the country’s life insurance penetration is a meagre 2.76% (2017) compared to a global life insurance penetration of 3.33%. Also, the country’s life insurance density stands low at USD 55.0 (2017) against global life insurance density of USD 353.²

¹ Source – First paragraph of ‘Preface’ of National Council of Applied Economic Research’s (NCAER’s) Post-launch Survey Report of IRDAI’s Insurance Awareness Campaigns (2010-2015)
(Source Link - <http://www.policyholder.gov.in/uploads/CEDocuments/Insurance%20Awareness%20Survey%20Report.pdf> & <http://www.policyholder.gov.in/uploads/CEDocuments/Postlaunch.pdf>)

² Source – International Comparison Of Insurance Penetration and International Comparison Of Insurance Density, pages – 159 and 160 respectively, Annual Report 2017-18, Insurance Regulatory And Development Authority Of India.
(Source Link - https://www.irdai.gov.in/ADMINCMS/cms/Uploadedfiles/english_hindi_annual%20report%202018%20webcopy.pdf)

REASON BEHIND SUCH LOW LIFE INSURANCE PENETRATION AND DENSITY

The major reason for this can be identified by the lower level of economic resources as well as lower level of awareness and education amongst the uninsured.

[National Council of Applied Economic Research's (NCAER's) Post-launch Survey Report of IRDAI's Insurance Awareness Campaigns (2010-2015) shows that 12.4% of respondents in rural India and 9.4% respondents in urban India still give "Can't say" as an answer to the question "What is Insurance?".

NCAER's Pre-launch Report of Insurance Campaign shows – 49.0% of insured households and 40.1% of uninsured households consider getting "Bulk return in future" as a benefit of life insurance; 19.3% of insured households and 15.8% of uninsured households consider life insurance as means for providing them financially for their "Daughter's marriage" in future; 18.6% of insured households and 11.1% of uninsured households think of buying life insurance as source for providing them financially for their "Children's education" in future ; 11.9% of insured households and 5.3% of uninsured households even consider "Tax benefits" as the primary reason to take up life insurance.

The condition seems to have got worse as NCAER in its Post-launch Survey Report of IRDAI's Insurance Awareness Campaigns (2010-2015) states that "At the all-India level, 69 per cent of the insured and 58 per cent of the uninsured households think of life insurance as savings for the future." However a decline in the proportion of households that mentioned tax benefits, savings for children's education and savings for a daughter's marriage as a benefit of life insurance has been registered and reported in NCAER's Post-launch Survey Report of IRDAI's Insurance Awareness Campaigns (2010-2015).

NCAER's Pre-launch Report of Insurance Campaign also states that around 38% of the uninsured households consider insurance products as "too expensive" while 23% of the uninsured households feel that insurance is "not very important" when asked the reason for not taking a life insurance policy. However the perceptions about insurance being "too expensive" and "not very important" have shown a decline of about 19% and 2% respectively in the Post-launch Survey Report mentioned above.

The Post-launch Survey Report also states that about 6.5% of the households believe that there is inadequate value on maturity, while 70% of the uninsured households are of the opinion that insurance is only for the rich.]*

This paper does not attempt to recommend measures for tapping the untapped Indian life insurance market, rather it attempts to open discussion on some crucial issues now largely treated by silence.

It does not aim to question why is the majority of Indian life insurance market yet to be tapped (At least 75% of Indian population, or at least 988 million Indians do not have life insurance³), rather it questions – for that part of the market that stands tapped, is it tapped the right way? Also, keeping in mind the buffet of life insurance policies that the insurers offer (As of March 31, 2018, there were 776 life insurance products – 587 individual products and 189 group products – to choose from in the Indian life insurance market⁴ -> Do we really need this many variations? Is offering such a large variety helping in increasing the reach and spread of life insurance?), it questions are we really tapping it the right way?

It does not question why majority of Indians are yet to be insured (At least 75% of Indian population, or at least 988 million Indians do not have life insurance³), rather it questions – for the ones who are virtually

* *Source* – National Council of Applied Economic Research's (NCAER's) Pre-launch Report of Insurance Campaign (<http://www.policyholder.gov.in/uploads/CEDocuments/Insurance%20Awareness%20Survey%20Report.pdf>) and National Council of Applied Economic Research's (NCAER's) Post-launch Survey Report of IRDAI's Insurance Awareness Campaigns (2010-2015) (<http://www.policyholder.gov.in/uploads/CEDocuments/Postlaunch.pdf>)

³ *Source* – Bloomberg Quint – (<https://www.bloombergquint.com/business/988-million-indians-do-not-have-life-insurance.amp#referrer=https%3A%2F%2Fwww.google.com&tf=From%20%251%24s>)

⁴ *Source* – Moneycontrol – (<https://www.moneycontrol.com/news/business/economy/do-we-really-need-776-life-insurance-products-2553753.html>)

insured on paper, are they truly insured the right way? Are they adequately covered? (According to the leading global reinsurer Swiss Re, an average working person is assured of only 8% of what may be required to compensate for the financial loss after the death of an earning member³) Are they satisfied with the amount of coverage they have? (A study conducted by Max Life Insurance Company Limited and a Market Research firm Kantar IMRB states that more than half of the respondents covered under the study (53%) felt that their cover is insufficient⁵) Are they not underinsured?

It does not question what percentage of market is yet to be served, rather it questions – for those who are virtually served, aren't they underserved? (A study conducted by Max Life Insurance Company Limited and a Market Research firm Kantar IMRB states that the overall India Protection Quotient (IPQ) – a metric based on various factors including awareness and ownership of life insurance, level of preparedness for future uncertainties and the level of preference for pure protection plans which measures the degree to which an individual feels protected from uncertainties on a scale of 0 to 100 – stands at 35, which is quite low⁵)

It does not aim to lay down recommendations on 'How should life insurance companies acquire new business?', rather, keeping in view that customer retention costs about 80% lesser than acquiring new customers⁶, it questions – for those customers whom life insurance companies have successfully acquired (by incurring high customer acquisition costs), are they able to retain them with the same level of success? (Mr. Mahesh Patwal⁷, a Mumbai based accounting professional, who started his career in 2007, made his first investment in a pension plan and an endowment policy in 2007. Frustrated by low returns generated by his policies, he surrendered both the policies in 2015 and got back Rs.102000 against Rs.129000 which he had invested. He is not the only one to do so. There are thousands like him who blindly buy insurance policies only to terminate them prematurely. India has one of the worst persistency figures when it comes to life insurance. For some companies the 61st month persistency was as low as around 5% in 2014-15.[The country's life insurance persistency ratio – a measure of the total business that the insurance company is able to retain in a financial year without policies being lapsed or premium amount being lost to other insurers i.e., the percentage of the insurer's total insurance policies that remain in force without being lapsed or in simple terms, the percentage of all the written policies that are renewed by the insured annually – remains low at an average of around 65% (for Financial Year 2016-17; for Financial Year 2017-18 the figure is 69%) for the 13th month against a global average of around 90% and at an average of around 34% (for Financial Year 2016-17; for Financial Year 2017-18 the figure is 35%) for the 61st month against a global average of around 65%.⁸].)

REASON FOR LOW PERSISTENCY RATIO

A.) There are numerous reasons with the most important being the lack of need based selling. As shown by the LexisNexis study with regard to life insurance persistency, there is an overall dissatisfaction and lack of trust amongst customers about the insurance policies they are buying, they don't believe that they have invested their money in the right product, and thus they are weary of renewing their policies. (Also, this points to a trust deficit in the way insurance is sold and information is given, contributing to an insurance awareness gap.) Customer segmentation along with needs-based analysis is critical in ensuring that right product is sold to the right customer, and this can help in minimizing lapsation.

⁵ Source – Moneycontrol – (<https://www.moneycontrol.com/news/india/only-21-of-life-insurance-holders-have-term-insurance-survey-3566111.html>) and The Economic Times – (<https://economictimes.indiatimes.com/wealth/insure/only-21-of-life-insurance-policy-holders-have-term-insurance-survey/articleshow/68079476.cms?from=mdr>)

⁶ Source – Aegon Life Insurance Company Limited – (<https://www.aegonlife.com/insurance-investment-knowledge/life-insurance-india-persistency-ratio/>)

⁷ Source – Economic Times (ET) Bureau – (<https://economictimes.indiatimes.com/tdmc/your-money/are-you-buying-insurance-blindly-find-out/tomorrowmakersshow/52938672.cms>)

⁸ Source – Asia Insurance Review – (<https://www.asiainsurancereview.com/News/View-NewsLetter-Article/id/42119/Type/eDaily/India-Life-policy-persistency-ratios-remain-low>, Aegon Life Insurance Company Limited – (<https://www.aegonlife.com/insurance-investment-knowledge/life-insurance-india-persistency-ratio/>), Livemint – (<https://www.livemint.com/Opinion/kaAilbVwX90mFe0dyi8pkM/Data-insights-can-improve-life-insurance-persistency.html>), Table 27 – Persistency of Life Insurance Policies (Based on Number of Policies), page – 119, Handbook On Indian Insurance Statistics 2016-17 (<https://www.irdai.gov.in/ADMINCMS/cms/Uploadedfiles/irda%20handbook%202016-17.pdf>) and Sl. No. 27 – Persistency_of_Life_Insurance_Policies, Handbook On Indian Insurance Statistics 2017-18 (https://www.irdai.gov.in/ADMINCMS/cms/frnGeneral_Layout.aspx?page=PageNo3729&flag=1)

Keeping in view the low persistency ratio with lack of need based selling being quoted and a tendency to confuse insurance with investment being identified as a major reason for the same, the paper questions aren't the customers being sold a Have-To buy policy, rather than a Want-To buy policy? (LexisNexis study with regard to life insurance persistency shows that a large proportion of consumers are unsure if they've been sold the correct life insurance policy for their needs⁶, and hence are not convinced to renew it.) Are the products cost effective? Are the products affordable? Are they designed to match the needs perfectly? (NCAER's Pre-launch Report of Insurance Campaign & NCAER's Post-launch Survey Report of IRDAI's Insurance Awareness Campaigns (2010-2015) shows that a large proportion of respondents consider insurance as "too expensive" a product to be purchased.* Because of the high costs associated with insurance around 70% of uninsured are of the opinion that insurance is only for the rich.* -> Reason for such an opinion is that a majority of Indians are not aware of the various kinds of life insurance products [designed to suit their needs] that are available in the market and as a consequence they are not able to relate their needs with the correct kind of life insurance policy available in the market. Fact – A great proportion of Indian population fail to differentiate between insurance and investment.* The post launch survey report shows that around half of the households do not even know about term insurance policies.* A study conducted by Max Life Insurance Company Limited and a Market Research firm Kantar IMRB also shows that close to 53% are unaware of term insurance and its benefits.⁵)

Life Insurance in India "continues to be a push product"⁴. "Life insurance is sold, not bought"⁹. "The households are seen to be buying policies mostly on the advice of insurance agents."* (NCAER's Post-Launch Survey Report of IRDAI's Insurance Awareness Campaigns (2010-2015) shows that at an all-India level, about half of the households [51% in urban areas and 47% in rural areas] have taken a life insurance policy on the advice of insurance agents. Dependence on agents gets further exacerbated in the fact that in 61% of the cases, the agents [in 51% of the cases in the presence of the household member, and in remaining 10% of the cases, in their absence] have filled the insurance proposal on behalf of the policyholder. Also, as mentioned by nearly 67% of the rural households and 70% of the urban households, insurance agents are the most preferred option as a means for buying a life insurance policy. Only one-third of the households have taken the decision on their own.* Only if a household purchases an insurance policy voluntarily, it implies that the household is well aware of the need and importance of insurance and its benefits. Aimed at studying about patterns in the Indian insurance sector, a survey conducted by LexisNexis Risk Solutions also shows that about 76% of customers solely depend on insurance agents to learn about the products available in the market.⁶)

Given that majority of Indians are not aware about the true need and importance of life insurance and are not able to relate what they want with what the available life insurance policies have to offer and given that insurance agents play the most significant ground-role in educating them about insurance, about various types of insurance policies available in the market and also help them in connecting their needs with the appropriate policy from among the variety available in the market, why do we still have such poor life insurance persistency? Why do we come across cases where the policyholders are not willing to renew their policies, feeling that they have not been sold the right kind of policy considering their need and economic status? Why do 6.5% of households do not buy life insurance as they believe that there is inadequate value on maturity*? Why nearly half of the insured feel that their cover is insufficient⁵? Why an average working person is assured of only 8% of what may be required to compensate for the financial loss after the death of the earning member³? Why a large proportion of Indian population continues to consider insurance as "too expensive"*? Why do they feel that insurance is only for the rich?

The answer to all these questions probably revolves around the fact that there is absence of need based selling followed by the tendency of customers to confuse insurance with investment; probably the ones insured but not satisfied have not purchased (rather they have not been sold) the right kind of policy, probably because they confused insurance with investment and failed to identify their protection and growth needs separately; probably the ones considering insurance as expensive and a product only for the rich are not aware of the different types of policies available in the market (probably they are not aware of term assurance – the cheapest among all the types available).

Given that in India life insurance continues to be a push product with the insurance agents being responsible for sale of majority of policies, who is responsible for the absence of need based selling? Who is responsible for not selling the right type of insurance policy? Who is responsible for not spreading awareness

⁹ Source – Open Minds, Swiss Re – (https://openminds.swissre.com/stories/1454/?utm_campaign=5ae722c38cf2c26340001b93&utm_content=5b3a6075ea1aac122c0224b6&utm_medium=smarshare&utm_source=linkedin)

about all (specifically term assurance) the types of policies? One might feel that the insurance agents are responsible. But are they the only ones to be held responsible? No.

If an insured is not satisfied with the policy s / he owns, s / he is the first one to be held responsible. Remember the principle of 'Caveat Emptor' – Buyer Beware – buyer alone is responsible for checking the quality and suitability of goods before a purchase is made. However given the complex concept of insurance as it appears to mass, with insurance agents being entrusted with the task of introducing, educating and helping the uninsured to identify the correct policy which is in line with the needs of the prospective policyholder, an agent should be responsible for selling the right or wrong kind of policy to the customer and not the customer herself / himself. Remember agents get commission for the sale of insurance policies. Led by private motives to earn more & more, even if it comes at the cost of selling a wrong (no-need) policy, agents aim to sell those policies which would fetch them the highest commission and not the ones which they actually regard correct for the prospective policyholder keeping in view the needs and financial condition of the prospective policyholder (A 2011 field study found that insurance agents tend to market products that maximize their own well-being regardless of whether the product being marketed is suitable for the customer or not³). However if we dig a little deeper, we realize that these agents are not the only one to be blamed. Remember they too have families; they too aspire to earn a living. So they aspire to earn more & more, just as I, you or anyone else does. So now it must be the insurance companies offering such poor products who deserve to be blamed. But again remember the owners of these companies also desire to earn and there's nothing wrong in doing so. So what is it that goes wrong? Is it the Actuaries who make such policies responsible? Or is the regulator, IRDAI responsible? It is not a single individual, group or entity that deserves to be blamed, but it's the group (customers, insurance agents, insurance companies, actuaries, IRDAI) at large that deserves to be blamed, for, each one of us contribute and are responsible for this pathetic situation of life insurance in India.

This paper poses a question to the community at large – Are we (customers, insurance agents, insurance companies, actuaries, IRDAI) doing our duty the right way?

The paper does not attempts to definitively resolve the host of issues it raises, rather by treating some of the major issues by handling implications arising from a new approach to insurance and investment, it hopes to open discussion and invite suggestions on some of these crucial issues now largely treated by silence.

II. SCOPE OF THE STUDY

Insurance covers are meant for use by people to cover themselves against risk of a contingent, uncertain loss. Life assurance policy is meant for providing cover against the risk of loss of life, but most often it is looked at as an investment strategy that would help create a wealth for the people succeeding the insured. But on study it could be comprehended that most often insurance does not provide any wealth creation strategy. The fear of not being able to provide the dependents financially after death of the earning member, and not the opportunity to salvage a positive transaction from an uncertain future negative situation, should persuade the people to opt for life assurance policies.

The study proposes an alternative to insurance covers that would help earn higher returns along with a better life cover with similar amount of premium. In due course of recommending such alternatives, the study formulates methodology for evaluating returns on endowment assurance policies offered for sale in India – which forms the rationale for choosing such alternative. Also, the study focuses on long term macro-economic implications that adoption of such alternatives by population at large would have on the economic growth and development of India.

The scope of this study is confined to the category of individual life assurance products offered for sale by life insurance companies registered in India.

This paper is the outcome of an inclusive study performed and hence some of it's observations may not hold good in certain cases. Also, in view of the inherent nature of investment opportunities & insurance policies floating in the market, alternatives may not be practically available for some cases – especially those with a smaller policy value.

The study was completed around March 2019.

III. LITERATURE REVIEW

1. **Ferrari (1968)**, analyzed the provocative proposition of substituting investment in life assurance policy with a program of term assurance and separate investment, using the approach of an expected rate of return equivalent, i.e., the rate of return net of taxes and investment expenses that one would expect from a separate investment fund plus term assurance over some duration, taking into account the probability of persisting in either scheme and the time value of money, and concluded 'Buy term and invest the difference.', because term life assurance is the least expensive type of life assurance and leaves money free for other investments, any day fetching a higher rate of return, as compared to investment in whole life or endowment assurance policies.

2. **Kutty (2001)** brings out the fact that the growth of insurance industry in India is achieved not only through penetration among one-segment of population i.e., the formal sector (middle class) but also the pattern of expectations in the informal sector (lower class) that helps in the sufficient spread of life insurance. The author has cited many cases of India, one being the author's own survey of 75 rural policyholders conducted in Trichur district of Kerala in 1999, and concluded that majority of the respondents are concerned with specific savings needs (i.e., majority of them considered life insurance as an safe avenue for investment wherein they can invest their savings in form of premiums) and only a small number of people were concerned with general needs (i.e., only a few of them recognized the need for taking up an life insurance policy as a means for protection against the risk of a contingent, uncertain loss).

3. **Sahu et al (2009)**, conducted an exploratory study using survey method to analyze the buying behavior of consumers towards life assurance services and to evaluate the factors/covariates underlying consumer's perception towards investment in life assurance policies. Based on a sample of size 150, Item to Total Correlation was applied to check the internal consistency of the questionnaire and compared with standard value 0.1590 (If the computed value is found less than standard value then factor/covariate is dropped and will be termed as insignificant). For covariate "Investment in life insurance is more secure than stock market", the computed correlation value was 0.376874 (which is greater than the standard value 0.1590), revealing the fact that in Indian market "Investment in life insurance is more secure than stock market" as a covariate has a statistically significant impact on buying behavior towards life insurance policies.

4. Based on study of 154 MBA students, **Connor (1996)** confirms that attraction to insurance is not explained by risk reduction or expected internal rate of return and suggests that this attraction is caused by the investment appeal of insurance. The fact that people are attracted by the opportunity to salvage a positive transaction from an uncertain future negative situation, is justified by the increased demand and popularity for endowment policies (insurance-cum-investment products) and statistically significantly lower demand for term assurance policies (pure insurance products). In fact, in their effort to increase sales, both public and the private sector are focusing on making innovative endowment policies which can yield positive returns on investment. Though this study was not conducted in India, its result can be taken as a representative of misconception that people across that globe have to confuse insurance with investment.

5. Using life history data from a host of European countries to investigate the role of life insurance investment in shaping individual's attitudes towards participation in stocks and mutual funds and other risky investments, **Cavapozzi et al (2013)** found that in most European countries life insurance has played a key role in household investment portfolios, to the extent that it has often been the first 'asset' ever purchased. Supporting the notion that life insurance policies play an educational role in financial investment, study shows that people are first concerned with avoiding unacceptable adverse scenarios (that one may encounter by investing in stocks and mutual funds i.e., risky investments) by purchasing low risk investments, such as life insurance policies, and then invest in riskier assets, such as stocks and mutual funds, to obtain higher economic returns, again bringing out the bitter truth that people consider insurance as a means for safe/risk free investment, rather than a means for protection against the risk of a contingent, uncertain loss. Again though this study was not conducted in India, its result can be taken as a representative of misconception that people across that globe have to confuse insurance with investment.

IV. RESEARCH OBJECTIVES

✚ To identify the reasons behind current state of life assurance in India with a view to suggest recommendations for improving the same.

- ✚ To devise a metric for evaluating returns generated on investment in an endowment assurance policy a view to analyze the performance of such policy.
- ✚ To find out the reason behind poor performance of endowment assurance policies.
- ✚ To throw light on the available potential alternatives to investment in an endowment assurance policy.
- ✚ To analyze the impact of adoption of the alternative strategy in contributing to improve the current state of life assurance in India
- ✚ To determine the long-term macroeconomic implication of replacing investment in an endowment assurance policy with the suggested alternative on the economic growth and development of the country.
- ✚ To suggest recommendations for implementation of the proposed alternative strategy.

V. RESEARCH METHODOLOGY

Data

This study is based on secondary data collected from various sources. Life assurance policy's details and specifications have been collected from official portals[#] of DHFL Pramerica Life Insurance Company Limited, SBI Life Insurance Company Limited, IndiaFirst Life Insurance Company Limited & brochures issued by these companies with regard to their products; Details regarding interest rates offered by State Bank of India on fixed deposits (with effect from 28-11-2018) and saving bank deposits (with effect from 31-07-2017) have been collected from official portal[#] of State Bank of India; Data on Mortality rates have been collected from Mortality Table[#], 'Indian Assured Lives Mortality (2006-08) Ult.' published by Institute of Actuaries of India with concurrence of IRDAI vide it's letter dated 20th February 2013 [effective from 1st April, 2013] for use in pricing and valuation of life assurance policies.

- Official Portals:-

- DHFL Pramerica Life Insurance Company Limited – (<https://www.dhflpramerica.com/LifeInsuranceProduct/DHFL-Pramerica-Life-Future-Secure-Plan>)
- SBI Life Insurance Company Limited – (<https://www.sbilife.co.in/en/individual-life-insurance/traditional/smart-guaranteed-savings-plan>) & (<https://www.sbilife.co.in/smart-guaranteed-bro>)
- IndiaFirst Life Insurance Company Limited – (<https://www.indiafirstlife.com/individual-insurance-plan/term-plan/life-plan>)
- State Bank of India – (<https://www.sbi.co.in/portal/web/interest-rates/domestic-term-deposits>)
- Institute of Actuaries of India – ([http://www.actuariesindia.org/publication/IALM-Mortality_Tables_\(2006-08\)_ult%20.pdf](http://www.actuariesindia.org/publication/IALM-Mortality_Tables_(2006-08)_ult%20.pdf))

Methodology

The study has been undertaken to evaluate the decision of investing in insurance-cum-investment products like endowment plans on the basis of **Expected Internal Rate of Return**; and to find an alternative strategy to investment in endowment plans with a view to maximize the return on investment along with being assured of a better life cover. **Excel spreadsheets** have been used for computation of Expected Internal Rate of Return. The Internal Rate of Return on an investment or project is the 'annual effective rate of return' that sets the Net Present Value of all cash flows from the investment equal to zero. Expected Internal Rate of Return is the 'annual effective rate of return' which sets the Expected Present Value of cash inflows equal to Expected Present Value of cash outflows.

VI. INTRODUCTION

A good financial plan should be made keeping it mind the need for both insurance & investment, while the former provides security, the later enhances it. How about having a single product that provides both? Good. But what if it comes at the cost of a compromise in the quality of either or both? Does the answer remain the same? Definitely no. (Eh! Quality? What does that mean in insurance & investment? Essentially it means the whether the product provides the adequate amount of insurance cover and comes with reasonable return on

investment.) Here we make an attempt to evaluate the quality one such product (endowment assurance) which caters to fulfill the dual objective of insurance & investment. Also, we try to locate potential alternatives to such product which can act as a replacement for the traditional endowment plans, with a view to maximize the return on investment along with the assurance of a better life cover.

INEVITABLE NEED FOR INSURANCE & INVESTMENT

We live in a world of uncertainty. We hear of trains colliding; floods destroying entire communities; earthquakes that bring grief; young people dying suddenly. These events make us anxious and afraid. But why? The reason is simple. Firstly they are unpredictable; if we can anticipate and predict an event, we can prepare for it. Secondly, such unpredictable and untoward events are often a cause of economic loss and grief. What brought insurance into being was popular concern for future uncertainty. Man wanted to protect their hard earned property from risk of loss due to uncertain future and this simple requirement was given a shape with the introduction of insurance based on the idea that a community can come to the aid of individuals who are affected by such events, by having a system of sharing and mutual support. The only principle was to make good the loss to the extent possible. You need insurance to ensure that you have a guarantee of compensation for some financial loss that you might incur due to any untoward event which might occur in the uncertain future.

Now that we know the need for insurance, does it mean we should use the entire amount that we save for the purpose of taking up an insurance policy, leaving nothing for investment? Obviously no. The need for insurance can never be strong enough to outweigh the need for investment. Means even investment is important. But why? If neither the thought of entering into an arrangement that would assist you financially in meeting your future goals, nor does the idea of growing your hard earned money convince you to make an investment considering the risk associated with it, remember keeping your money in your pocket and not using it prudently to make an investment is like playing pick-pocket with yourself, given the eroding nature of inflation that acts to deplete the purchasing power of money. Remember Rs.10 a year before does not have the same purchasing power as Rs.10 today; also Rs.10 today won't be the same as Rs.10 a year later. Does that mean your money isn't safe even in your pocket? No. Considering the eroding effects of inflation in deteriorating the purchasing power of money you need to invest your money to ensure that the real value of your money does not deplete.

VII. INSURANCE-CUM-INVESTMENT V/S INSURANCE PLUS INVESTMENT

Insurance is a form of risk management primarily used to hedge against the risk of a contingent, uncertain loss. However this seems quite different than what most of Indians conceive insurance – a tax saving instrument and an avenue for investment* – to be.

Failing to realize that life assurance is not there to make us rich when we are alive, rather it's there to ensure that our dependents don't have to face a financial set back when we are not there, a large proportion of Indian population continue to invest in hybrid products or insurance-*cum*-investment products like endowment plans (Updates on a study and India Protection Quotient (IPQ) survey conducted by Max Life Insurance Company Limited and a market research firm Kantar IMRB (as on February 21, 2019) shows that only one out of five life insurance policyholders have term insurance in urban India [i.e., only around 21% of urban life insurance policyholders have term insurance]. It also states that close to 53% are unaware of term insurance and its benefits⁵. NCAER's Post-launch Survey Report of IRDAI's Insurance Awareness Campaigns (2010-2015) also states only around half of the households know about term insurance policies*.) which provide neither a good assurance, nor a good return on investment.

In fact term assurance is the only type of life assurance that defines the true meaning of insurance / assurance as it provides financial cover to the beneficiaries (dependents of assured) against the risk of loss of life of the assured during the term of the policy with nothing payable if the assured survives to the end of the term of the policy. Sounds quite logical as well, for, if the assured does not die during the term of policy than no loss has been incurred by the dependents of the assured and thus there is no need for compensation by the

insurance company. However, most of Indians think of this as they might end up incurring a loss in case they survive to the end of the term because they will get nothing in return of the premiums that they paid during the term of the policy, failing to realize that by taking up a term plan (which is statistically significantly cheaper than an endowment plan) they can actually secure their dependents by arranging for them assurance of an 'adequate' finance (which is several times of the sum assured under endowment plan) which the beneficiaries shall receive, should the assured die during the term of the policy; and at the same time invest the balance left after payment of premium under term plan elsewhere so as to maximize the return on investment. Rather people tend to think that they should buy an assurance (endowment assurance) which guarantees payment of an amount which is at least equal to the amount of premium that they pay into that plan so as to ensure that they don't lose anything (in monetary terms), failing to realize that by taking up an endowment plan, neither are they able to provide their dependents with security of an 'adequate' finance (because sum assured under an endowment plan is very small as compared to a term plan), nor are they left with money at their disposal (because endowment plans are expensive as compared to term plans) to invest elsewhere. This choice of taking up a term insurance policy and investing the balance (amount left after payment of premium of term insurance policy) elsewhere constitutes insurance *plus* investment.

Given the poor quality of insurance-*cum*-investment products, the paper identifies the strategy of insurance *plus* investment as a potential alternative to investment in insurance-*cum*-investment products with a view to maximize the return on investment along with assurance of a better life cover.

Not clear on how the proposed alternative can fetch higher returns? Well than consider this example:

The fact that one needs to pay a premium of around Rs.35000 p.a. for 15 years for a 15 year endowment plan¹⁰ that provides a cover of Rs.600000 and a premium of around Rs.2100 p.a. (only) for 15 years for a 15 year term plan¹¹ that provides the same life cover of Rs.600000 leads us to contemplate about the reasons for such difference in the premiums. The reason is very simple – the extra premium of Rs.32900 p.a. (Rs.35000 – Rs.2100) is being charged to compensate for certainty of payment under endowment assurance, i.e., to compensate for survival benefit; bringing to the forefront that the cost for the death benefit of Rs.600000 is only Rs.2100; and the balance Rs.32900 is being charged for the purpose of making investments.

Now if the insurance company earns 10% return on investment of this extra premium of Rs.32900 p.a., than it will definitely pass on a benefit of less than 10% (say 7%) to its policyholders. Do these policyholders really want to forego this 3% return on investment? No. Don't they want to decide where their premium of Rs.32900 should be invested? They do. Aren't they capable of earning more than 10% return on investment? They are. But do they have the liberty to do so? No.

If instead of being lured by certainty of payment under an endowment insurance, if one chooses to take up the 15 year term plan that provides the same life cover of Rs.600000 and invests the difference (Rs.32900) elsewhere then s / he can increase her / his returns enormously as having an option to invest elsewhere implies greatest control over one's money and potential to earn highest returns as one invests herself / himself, through the brokerage of her / his own choice, rather than through a life assurance policy. Under the alternative strategy, unlike endowment assurance, one's investment performance won't be tied to the life insurance company's financial performance, and s / he won't be limited to the investments that the insurance company offers (Remember life insurance companies have to invest the premiums received in accordance with stringent investment regulations of IRDAI¹²). To add on, one does not have to forego the 3% (10% - 7%) return on investment that one had to under an endowment insurance policy.

¹⁰ Source – Benefit Illustration of IndiaFirst Maha Jeevan Plan issued to a female life aged 35 last birthday. Actual amount of Regular Premium payable every year exclusive of GST is Rs.34632. For sake of simplicity of explanation it has been rounded off to Rs.35000.

¹¹ Source – Benefit Illustration of LIC Anmol Jeevan II issued to a female life aged 35 last birthday. Actual amount of Regular Premium payable every year exclusive of GST is Rs.2088. For sake of simplicity of explanation it has been rounded off to Rs.2100.

¹² Source – Insurance Regulatory and Development Authority of India (Investment) Regulations, 2016 – (https://www.irdai.gov.in/ADMINCMS/cms/frmGeneral_Layout.aspx?page=PageNo2934&flag=1) & ([http://www.actuariesindia.org/\(S\(2rh2cl55ua352455iufrem2q\)\)/syllabus/IRDA%20\(Investment\)%20Regulations%202016.pdf](http://www.actuariesindia.org/(S(2rh2cl55ua352455iufrem2q))/syllabus/IRDA%20(Investment)%20Regulations%202016.pdf))

ROLE OF INSURANCE AGENTS IN LOWERING THE RETURNS GENERATED ON AN ENDOWMENT ASSURANCE POLICY

Remember a part of premium gets paid as commission to the insurance agents (in case the policy is bought with the help of an agent) and so agents want to sell endowment assurance over term assurance with a view to maximize their commission income. Although the maximum permissible commission as a percentage of premium is higher for term assurance than for endowment assurance****, the amount of commission that an agent withdraws on sale of an endowment assurance is much more than that in case of a term assurance because of the huge gap in premium. (35% of Rs.35000 is more than 40% of Rs.2100). Also, the amount of premium that the company receives after payment of agent's commission has a significant role in determining the amount of cover and return offered on investment in an endowment policy. Let's get this clear with the help of following example:-

For a company which sells a term assurance policy with a life cover of Rs.600000 featuring a single premium of Rs.2100 (hypothetical), it gets Rs.1260 (Rs.2100*60%) after payment of agent's commission of let's say 40%. So now the company actually provides a cover of Rs.600000 at a net premium (net of agent's commission) of just Rs.1260. Balance Rs.32900 lying with the customer can be fully utilized for the purpose of investment.

However if the same company sells an endowment assurance policy with a life cover of Rs.600000 featuring a single premium of Rs.35000 (hypothetical), it gets only Rs.22750 (Rs.35000*65%) after payment of agent's commission of let's say 35%. Hence, it has only Rs.22750 to provide you with a same cover along with investment. Now that we know that it actually requires a net premium (net of agent's commission) of Rs.1260 to provide a cover of Rs.600000, we can easily calculate the amount of money which it uses for the purpose of making investment. This comes to Rs.21490 (Rs.22750 received – Rs.1260 required for providing the cover). It means that the amount which actually gets invested is Rs.21490, which is far less than Rs.32900, the amount that the customer can invest if s / he decides to take up a term assurance policy with the same amount of cover.

The fact that the amount of money that actually gets invested in case of an endowment policy is less than that in case of the alternative also serves to explain the lower returns generated in case of investment in an endowment policy.

**** Source – Insurance Regulatory And Development Authority Of India (Payment Of commission Or Remuneration Or Reward To Insurance Agents And Insurance Intermediaries) Regulations, 2016, Pages – 14 & 15, Schedule – I, Life Insurance – Reg 5(b) – https://www.irdai.gov.in/ADMINCMS/cms/frmGeneral_Layout.aspx?page=PageNo3032&flag=1

In aid to this qualitative (theoretical) explanation upon difference between insurance-*cum*-investment & insurance *plus* investment and to identify the rationale for choosing the right plan we move on to compute returns on such products in the section to follow.

INSURANCE-CUM-INVESTMENT PRODUCT ANALYSIS

To decide upon whether investing in an endowment policy (with a term of say 'n' years) is a good decision for fulfilling the dual objective of insurance and investment, we calculate the Internal Rate of Return (IRR) that one would *expect* to obtain from investment in an endowment policy.

Calculation Methodology

From policyholder's point of view, the annual premiums that s / he is required to pay denotes cash outflow and the death/survival benefit that s / he will receive denotes cash inflow. The only certain cash flow is cash outflow at time 't = 0' in terms of premium that s / he needs to pay at policy inception (i.e., at the time of purchasing the policy). As complete future lifetime of this life is a random variable, all the cash flows other than the cash outflow at time 't = 0' are uncertain because the occurrence of cash flows at any future time 't' depends upon the status of life (alive/dead) at that time 't', i.e., the occurrence of any future cash flow is associated with

a probability which in turn depends upon the probability of life being in a specified state (alive/dead). **Hence, the methodology used for analyzing the decision to invest in an endowment policy is based on the value of Expected Internal Rate of Return.**

To calculate this we use q_x , the probability that a person aged 'x' exact will die before reaching exact age 'x+1', and p_x , the probability that a person aged 'x' exact is found alive at exact age 'x+1', such that $p_x + q_x = 1$ (Law of Total Probability) because state occupied by a life at any future time 't' can be modelled using a Two State Markov Model with the states being 'alive' and 'dead'. We use the values of q_x as given in IALM (2006-08) Ult. [Indian Assured Lives Mortality (2006-08) Ult.], published by the Institute of Actuaries of India for use in pricing and reserving of life assurance policies offered for sale in India. These rates are computed using data from large experiences (observation of large samples) by following a fully parametric approach (an approach used for estimating crude rates) followed by an attempt to Graduate these rates so as to ensure that these rates vary smoothly with age and the financial quantities (premium, reserves etc.) computed using these rates are a smooth function of age because any irregularity in these financial quantities is hard to justify to clients.

For calculating the expected cash outflow (expected premium) at any future time 't' we multiply the amount of premium to be paid at time 't' with the probability that the life is found alive at that time 't'. Similarly for computing the expected death benefit at any future time 't' we multiply the death benefit that the nominee would receive at time 't' (due to policyholder's death in the 'tth' policy year) with the probability of life dying in the 'tth' policy year (which is equal to the product of probability that the life aged 'x' exact survives to exact age 'x + t - 1' and probability that the person aged 'x + t - 1' exact dies before reaching exact age 'x + t'); and for computing expected survival benefit at any future time 't' we multiply the survival benefit that the life would receive at time 't' (if the life survives to exact age 'x + t') with the probability that a life aged 'x' exact will survive to exact age 'x + t'. Expected cash inflow at any time 't' is computed as the sum of expected death benefit at time 't' and expected survival benefit at time 't'.

Then we calculate the expected net cash flow at time 't' (for all $t = 0, 1, 2, 3, \dots, n$) as the difference between expected cash inflow at time 't' and expected cash outflow at time 't'. Now we proceed to calculate the Expected Internal Rate of Return (Expected IRR) which is the unique value of interest rate 'i' at which Expected Present Value of Net Cash Flow (or Present Value of Expected Net Cash flow) is equal to 0.

Assumptions underlying the Calculation Methodology:

- ✚ We assume that the death benefit is payable at the end of year of death.
- ✚ We assume premium is paid as soon as it falls due, i.e., there is no grace period for payment of premiums.
- ✚ We assume future mortality behaviour to be the same as that experienced in past.
- ✚ We assume a single decrement model with death being the only decrement.

The calculation methodology is based on the Basic Modeling Principle – 'All models are wrong. Some models are useful.'

Now we apply this methodology to compute returns on some randomly chosen endowment assurance policies.

DHFL Pramerica Life Future Secure Plan¹³

DHFL Pramerica Life future secure plan, a non-linked non-participating endowment life insurance plan comes with following features:-

1. It provides life cover for the entire policy term.
2. On Survival of Life Insured to Maturity date, Base Sum Assured plus Accrued Annual Guaranteed Additions will become payable. The maturity benefit would at least be equal to the total premium paid for all age/Premium Payment Term (PPT)/premium combinations. Premium paid for this purpose will be the total premiums paid till date.
3. During the Policy Term, a Policy will be eligible for Annual Guaranteed Addition provided the Policy is in force. Annual Guaranteed Addition will be expressed as a percentage of cumulative Annualized Premium paid and is dependent on the Premium band. The following bands are based on Annualized Premium paid:

Premium Band	Annualized Premium		Premium Paying Term		
	From	To	7 Years	8 Years	10 Years
Band 1	24,000	36,000	5.75%	6.25%	6.75%
Band 2	36,001	60,000	6.25%	6.75%	7.25%
Band 3	60,001	120,000	6.75%	7.25%	7.75%
Band 4	120,001	and onwards	7.25%	7.75%	8.25%

Note - Annualized Premium shall be the premium payable in a Policy Year chosen by the Policyholder, excluding the underwriting extra premium and loadings for modal premium, if any

4. On death during the term of policy, the Company will pay lump sum benefit equal to Death Sum Assured and Accrued Annual Guaranteed Additions, where Death Sum Assured will be highest of :-

- i.) 11 times of Annualized Premium
- ii.) Guaranteed Sum Assured on Maturity
- iii.) 105% of all the premiums paid till the date of death
- iv.) Absolute amount assured to be paid on death which is equal to Base Sum Assured

Note - Guaranteed Sum Assured on Maturity is equal to Base Sum Assured

Policy Specifications¹³:

Age at Entry*	Minimum: 90 Days, subject to minimum age at maturity 18 years Maximum: 55 Years	
Maturity Age*	Minimum: 18 Years Maximum: 67 Years	
Policy Term	12, 14, 16, 18 or 20 Years	
Premium Payment Terms	Premium Payment Term Options (Years)	Policy Term (Years)
	7	12 and 14
	8	14 and 16
	10	18 and 20
Annual Premium	Minimum Annual Premium: Rs.24,000 Maximum Annual Premium: Subject to Board approved underwriting policy	
Premium Paying Mode	Yearly, Half Yearly, Quarterly and Monthly	
Base Sum Assured	Minimum: `1,17,601 Maximum: No Limit, subject to underwriting	
* Age as on last birthday		

¹³ Source – Product Brochure of DHFL Pramerica Life Future Secure Plan – (https://www.dhflpramerica.com/UserFiles/File/DHFLPramericaLifeFutureSecurePlan_Brochure.pdf)

Sample Specifications¹⁴:

We consider a female life aged 35 last birthday who has not consumed tobacco in last 5 years. She wishes to buy this policy with a Base Sum Assured of Rs.255619 and a policy term of 12 years with a yearly premium payment option under limited pay scheme. For her the premium is Rs.44976 per year payable at the beginning of each year for first 7 years. The annual guaranteed addition rate is 6.25% p.a.

Using the methodology described above we find that the Expected Internal Rate of Return for this policy (where 'n = 12' years) is 3.78%; detailed calculations for the same are as under:

DHFL Pramerica Life future secure plan											
Policy Year	Age(x)	Time 't'(End of t th year)	q _x ²	p _x ¹	Premium at time 't'	Total Premiums paid till time 't'	Survival Benefit at time 't'	Death Benefit at time 't'	E(Outflow) at time 't' = E(premium) at time 't'	E(Inflow) at time 't'	E(Net Cashflow) at time 't' = E(Inflow)-E(Outflow)
	35	0	0.00128	0.99872	44976	44976			44976		-44976
1	36	1	0.00136	0.99864	44976	89952		497547	44918	638	-44280
2	37	2	0.00145	0.99855	44976	134928		503169	44857	682	-44175
3	38	3	0.00155	0.99845	44976	179904		511602	44792	738	-44054
4	39	4	0.00167	0.99833	44976	224880		522846	44723	807	-43916
5	40	5	0.0018	0.9982	44976	269856		536901	44648	890	-43759
6	41	6	0.00196	0.99804	44976	314832		553767	44568	991	-43577
7	42	7	0.00214	0.99786	0	314832		573444	0	1113	1113
8	43	8	0.00235	0.99765	0	314832		593121	0	1255	1255
9	44	9	0.00259	0.99741	0	314832		612798	0	1421	1421
10	45	10	0.00287	0.99713	0	314832		632475	0	1615	1615
11	46	11	0.0032	0.9968	0	314832		652152	0	1841	1841
12	47	12					432712	671829		424450	424450
EXPECTED IRR											3.78%

DEATH BENEFIT		MATURITY BENEFIT				SUM ASSURED ON DEATH			
Death Benefit at time 't' = SAD + Accrued GA		1.Basic SA	GA at time 't'	2.Accrued GA till time 't'	Maturity Benefit at time 't' = Basic SA +Accrued GA	1.Basic SA	2.11 Times of Annualised Premium	3.105% of sum of premiums paid till death	SAD at time 't' = Max of 1,2,3
497547			2811	2811		255619	494736	47224.8	494736
503169			5622	8433		255619	494736	94449.6	494736
511602			8433	16866		255619	494736	141674	494736
522846			11244	28110		255619	494736	188899	494736
536901			14055	42165		255619	494736	236124	494736
553767			16866	59031		255619	494736	283349	494736
573444			19677	78708		255619	494736	330574	494736
593121			19677	98385		255619	494736	330574	494736
612798			19677	118062		255619	494736	330574	494736
632475			19677	137739		255619	494736	330574	494736
652152			19677	157416		255619	494736	330574	494736
671829		255619	19677	177093	432712	255619	494736	330574	494736
NOTES									
1	p _x - probability that a person aged 'x' exact will survive for at least one more year								
2	q _x - probability that a person aged 'x' exact will die within one more year								

¹⁴ Source – Benefit Illustration of DHFL Pramerica Life Future Secure Plan issued to a female life aged 35 last birthday in line with other details mentioned under 'Sample Specifications'.

POLICY DETAILS		ABBREVIATIONS	
Basic SA	255619	SA - Sum Assured	
Premium	44976	SAD - Sum Assured on Death	
PT	12 years	PT - Policy Term	
PPT	7 years	PPT - Premium Payment Term	
GA	6.25% p.a.	GA - Guaranteed Additions	

SBI Life – Smart Guaranteed Savings Plan¹⁵

SBI Life – Smart Guaranteed Savings Plan, a non-linked, non-participating endowment plan has the following features:-	
1. It provides life cover for the entire policy term.	
2. % of Guaranteed Additions (GAs) on the cumulative basic annual premiums paid, as on the end of any policy year:-	
If Yearly Premium (In Rs.)	% of GA
15000-29000	5.5%
30000-75000	6%
Note - Basic premium is premium excluding any tax.	
3. On maturity it pays basic sum assured plus accrued Guaranteed Additions (GAs)	
4. On death during the term, "Sum Assured on Death" along with accrued GAs will be payable to the beneficiary. Sum Assured on Death is higher of :-	
i. Basic Sum Assured	
ii. 10 times the annualized premium	
iii. 105% of total premiums paid till date of death	

Policy Specifications¹⁵:

Age** at Entry	Min.: 18 Years	Max.: 50 Years
Maximum Age** at Maturity	65 Years	
Policy Term	15 Years	
Premium Payment Term	7 Years	
Premium Frequency	Yearly	
Premium (in multiples of Rs.1000)	Min.	Max. (Per Life Limit)
	Rs.15000	Rs.75000
Sum Assured	Depends on the premium chosen	
** Age as on last birthday		

Sample Specifications¹⁶:

We consider a female life aged 35 last birthday who has not consumed tobacco in last 5 years. She wishes to buy this policy with a Basic Sum Assured of Rs.212100 and a policy term of 15 years with a yearly premium payment option under limited pay scheme. For her the premium is Rs.30000 per year payable at the beginning of each year for first 7 years. GA is given @ 6%.

Using the methodology described above we find that the Expected Internal Rate of Return for this policy (where 'n = 15' years) is 4.78%; detailed calculations for the same are as under:

¹⁵ Source – Product Brochure of SBI Life – Smart Guaranteed Savings Plan – (<https://www.sbilife.co.in/smart-gauranteed-bro>)

¹⁶ Source – Benefit Illustration of SBI Life – Smart Guaranteed Savings Plan issued to a female life aged 35 last birthday in line with other details mentioned under 'Sample Specifications'.

Term insurance plus separate investment – a financially prudent choice over endowment ..

SBI LIFE – SMART GUARANTEED SAVINGS PLAN											
Policy Year	Age(x)	Time 't' (End of t th year)	q _x ²	p _x ¹	Premium at time 't'	Total Premiums paid till time 't'	Survival Benefit at time 't'	Death Benefit at time 't'	E(Outflow) at time 't' = E(premium) at time 't'	E(Inflow) at time 't'	E(Net Cashflow) at time 't' = E(Inflow) - E(Outflow)
	35	0	0.00128	0.99872	30000	30000			30000		-30000
1	36	1	0.00136	0.99864	30000	60000		301800	29962	387	-29575
2	37	2	0.00145	0.99855	30000	90000		305400	29921	414	-29507
3	38	3	0.00155	0.99845	30000	120000		310800	29878	449	-29429
4	39	4	0.00167	0.99833	30000	150000		318000	29831	491	-29341
5	40	5	0.0018	0.9982	30000	180000		327000	29782	542	-29240
6	41	6	0.00196	0.99804	30000	210000		337800	29728	605	-29123
7	42	7	0.00214	0.99786	0	210000		350400	0	680	680
8	43	8	0.00235	0.99765	0	210000		363000	0	768	768
9	44	9	0.00259	0.99741	0	210000		375600	0	871	871
10	45	10	0.00287	0.99713	0	210000		388200	0	991	991
11	46	11	0.0032	0.9968	0	210000		400800	0	1131	1131
12	47	12	0.00357	0.99643	0	210000		413400	0	1294	1294
13	48	13	0.00398	0.99602	0	210000		426000	0	1483	1483
14	49	14	0.00444	0.99556	0	210000		438600	0	1699	1699
15	50	15					363300	451200		352304	352304
EXPECTED IRR											4.78%

DEATH BENEFIT	MATURITY BENEFIT				SUM ASSURED ON DEATH				
	Death Benefit at time 't' = SAD + Accrued GA	1. Basic SA	GA at time 't'	2. Accrued GA till time 't'	Maturity Benefit at time 't' = Basic SA + Accrued GA	1. Basic SA	2. 10 Times of Annualised Premium	3. 105% of sum of premiums paid till death	SAD at time 't' = Max of 1,2,3
301800		1800	1800			212100	300000	31500	300000
305400		3600	5400			212100	300000	63000	300000
310800		5400	10800			212100	300000	94500	300000
318000		7200	18000			212100	300000	126000	300000
327000		9000	27000			212100	300000	157500	300000
337800		10800	37800			212100	300000	189000	300000
350400		12600	50400			212100	300000	220500	300000
363000		12600	63000			212100	300000	220500	300000
375600		12600	75600			212100	300000	220500	300000
388200		12600	88200			212100	300000	220500	300000
400800		12600	100800			212100	300000	220500	300000
413400		12600	113400			212100	300000	220500	300000
426000		12600	126000			212100	300000	220500	300000
438600		12600	138600			212100	300000	220500	300000
451200	212100	12600	151200	363300		212100	300000	220500	300000

POLICY DETAILS		ABBREVIATIONS	
Basic SA	212100	SA	Sum Assured
Premium	30000	SAD	Sum Assured on Death
PT	15 years	PT	Policy Term
PPT	7 years	PPT	Premium Payment Term
		GA	Guaranteed Additions

NOTES	
1	p _x - probability that a person aged 'x' exact will survive for at least one more year
2	q _x - probability that a person aged 'x' exact will die within one more year

We see that the Expected Internal Rate of Return from investment in an endowment policy ranges quite low at 3.78% for DHFL Pramerica Life future secure plan and at 4.78% for SBI LIFE – Smart guaranteed savings plan (for the randomly chosen sample); This is quite very low, certainly not the best bet for investors. Hence, we can conclude that taking up an endowment policy is not a good insurance-*cum*-investment decision. In fact an endowment policy is neither a good investment, nor a good assurance as the sum assured under an endowment policy is too low to be justified by the high annual premiums charged by the assurer. Of course, it is convenient to have just one product that takes care of everything (investment and assurance), but convenience should not result in sacrifice of the very reason why the product is being purchased – investment (for returns) and assurance (for cover).

Now that we are convinced that buying an endowment policy is not really a good insurance-*cum*-investment decision, we search for an alternative which would maximize the return on investment along with assuring the life of a better (higher or financially larger) life cover. Any alternative which fetches a higher expected internal rate of return along with assuring the life of a better life cover would be a better investment *and* assurance decision.

INSURANCE PLUS INVESTMENT PRODUCT ANALYSIS

We now consider a term assurance policy (IndiaFirst Life Plan in our example) which provides a better life cover in terms of higher sum assured and is still statistically significantly cheaper than an endowment policy of the same term; such that the balance (premium for endowment assurance policy – premium for term assurance policy) can be profitably invested elsewhere {Fixed Deposit Account, Recurring deposit Account, Savings Deposit Account, Mutual Funds, Equity Linked Savings Scheme (ELSS), Public Provident Fund (PPF), Equity, Debt. etc. – (in a Fixed deposit Account [FD a/c] maintained with State Bank of India [SBI] in our example)} to maximize the return on investment.

We now evaluate returns (Expected Internal Rate of Return [Expected IRR]) from insurance *plus* investment products corresponding to each of the insurance-*cum*-investment product discussed in the previous section.

Calculation Methodology

From policyholder's point of view, the annual premiums and yearly deposits in FD a/c, denotes cash outflow; the death benefit and the amount received from bank by the nominee of the policyholder in case of policyholder's death during the term of the policy or balance that the policyholder might receive [withdraw (subject to being in state 'alive') from bank at the end of term of policy] denotes cash inflow. The only certain cash flow is cash outflow at time ' $t = 0$ ' in terms of premium that s / he needs to pay at policy inception (i.e., at the time of purchasing the policy) and amount deposited in FD a/c at the beginning of 1st policy year. As complete future lifetime of this life is a random variable, all the cash flows other than the cash out flow at time ' $t = 0$ ' are uncertain because the occurrence of cash flows at any future time ' t ' depends upon the status of life (alive/dead) at that time ' t ', i.e., the occurrence of any future cash flow is associated with a probability which in turn depends upon the probability of the life being in a specified state (alive/dead).

To calculate the Expected Internal Rate of Return we use the values of q_x , the probability that a person aged ' x ' exact will die before reaching exact age ' $x+1$ ', and p_x , the probability that a person aged ' x ' exact is found alive at exact age ' $x+1$ ', as given in IALM (2006-08) Ult. [Indian Assured Lives Mortality (2006-08) Ult.], published by the Institute of Actuaries of India for use in pricing and reserving of life assurance policies offered for sale in India.

For calculating the expected premium at any future time ' t ' we multiply the amount of premium to be paid at time ' t ' with the probability that the life is found alive at time ' t '. Similarly for computing the expected amount deposited in FD a/c at any future time ' t ' we multiply the amount to be deposited at that time ' t ' with the probability that the life is found alive at time ' t '. On similar lines expected death benefit at any future time ' t ' has been calculated by multiplying the death benefit that the nominee would receive at time ' t ' (due to policyholder's death in the ' t^{th} ' policy year) with the probability of policyholder dying in the ' t^{th} ' policy year (which is equal to the product of probability that the life aged ' x ' exact survives to exact age ' $x + t - 1$ ' and probability that the person aged ' $x + t - 1$ ' exact dies before reaching exact age ' $x + t$ '). Similarly expected amount received from the bank by nominee of policyholder at any time ' $t < 14$ ' has been calculated by multiplying the amount receivable at that time ' t ' with the probability of the policyholder's death in the ' t^{th} ' policy year; the expected amount received from the bank by the policyholder herself at time ' $t = 14$ ' has been

calculated as product of amount receivable at that time 't' and the probability of policyholder surviving till exact age 'x + t'.

Expected cash inflow at any time 't' is computed as the sum of expected death benefit at time 't' and expected amount received from bank at time 't'. Expected cash outflow at any time 't' is calculated as the sum of expected premium paid at time 't' and expected amount deposited in bank account at time 't'. Then we calculate the expected net cash flow at time 't' (for all $t = 0, 1, 2, 3, \dots, 14$) as the difference between expected cash inflow at time 't' and expected cash outflow at time 't'. Now we proceed to calculate the Expected Internal Rate of Return (Expected IRR) which is the unique value of interest rate 'i' at which Expected Present Value of Net Cash Flow (or Present Value of Expected Net Cash flow) is equal to 0.

Assumptions underlying the Calculation Methodology:

- ✚ We assume that the death benefit along with balance in the bank account is payable at the end of year of death.
- ✚ We assume premium is paid as soon as it falls due, i.e., there is no grace period for payment of premiums.
- ✚ We assume a deterministic (fixed) interest rate model for interest rates offered on savings bank deposits.
- ✚ We assume future mortality behaviour to be the same as that experienced in past.
- ✚ We assume a single decrement model with death being the only decrement.

The calculation methodology is based on the Basic Modeling Principle – 'All models are wrong. Some models are useful.'

We now evaluate returns (Expected Internal Rate of Return [Expected IRR]) from insurance *plus* investment products (also referred to as 'portfolio' / 'portfolio of term insurance plus separate investment' in later part of the paper) corresponding to each of the insurance-*cum*-investment product discussed in the previous section.

VIII. PREPARING ALTERNATIVES

Before we begin our quest to locate relevant term assurance policies, make sure we keep a note of following details of the endowment assurance for which we wish to prepare alternative:-

- 1) Policy Term
- 2) Premium Payment Term
- 3) Premium Payment Frequency/Mode
- 4) Amount of Premium
- 5) Benefits under the policy – Amount receivable on death (at any point of time) during the term of the policy and amount receivable on survival to the end of the term.

Now, to figure out the alternative, we search for a term assurance with the same policy term, and *preferably* with the same premium payment term and premium payment frequency/mode, keeping in mind that the amount of benefit receivable under the alternative (Term Assurance plus Separate Investment) should, in any case – be it death during the term or survival to the end of the term, not be less than that receivable under the endowment assurance for which the alternative is being prepared.

Even if the premium payment frequency/mode under both the cases are not the same, alternatives can be prepared, however care needs to be taken for the complexities that arise out of a more frequent premium payment option in computation of the expected internal rate of return.

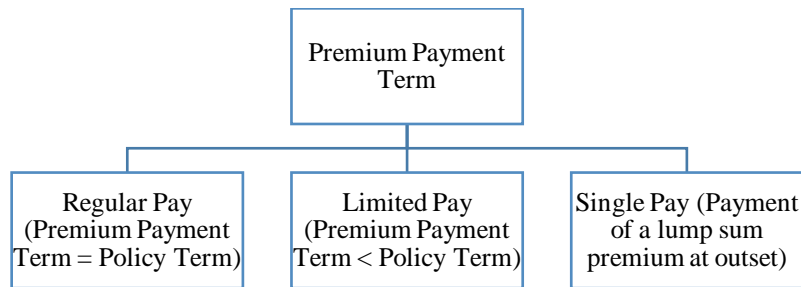
Also, in case the premium payment term under the alternative > premium payment term in case of endowment assurance, adjustments must be made for withdrawing money from the investment periodically to provide for payment of premium under the term insurance after expiry of premium payment term under the corresponding endowment policy. (Remember the entire idea of preparation of alternative aims to provide higher returns entangled with better assurance from an *equal* outlay of funds at exactly same points of time.

Term insurance plus separate investment – a financially prudent choice over endowment ..

Hence, if the premium payment term under the alternative exceeds the premium payment term under the corresponding endowment, the policyholder cannot be asked to pay the premium out of her / his pocket at any point of time after expiry of premium payment term under the corresponding endowment policy. Rather adjustment has to be made to withdraw money from the investment to provide for premium under the alternative)

In case premium payment term under the alternative < premium payment term in case of endowment assurance, then after expiry of premium payment term under the term assurance, the amount which the policyholder would have paid as premium under the endowment plan, had s / he invested in one, would now get invested in its entirety.

In the easiest manner alternative can be prepared by classifying the endowment policies on the basis of premium payment term as under:-



The alternative can then be made by ensuring the following:-

- 1) Premium payment term for Term insurance \leq premium payment term for Endowment Assurance
- 2) Benefit under endowment assurance \leq Benefit under alternative.

The second point stated above usually gets satisfied by default given numerous reasons which adversely affect the returns generated on an endowment policy.

Also, care needs to be taken to ensure that the amount of outlay under the alternative (premium of term assurance plan plus amount invested) should be exactly equal to that under the corresponding endowment policy.

However, with an exception to the condition of equal outlay and equal policy term, rest are not necessities, alternatives can be prepared even without following these.

Now that we know how to prepare alternatives, we move on to prepare some for the endowment policies discussed in the previous section. Also, we now evaluate returns (Expected Internal Rate of Return [Expected IRR]) from insurance *plus* investment products (also referred to as 'portfolio' / 'portfolio of term insurance plus separate investment' in later part of the paper) corresponding to each of the insurance-*cum*-investment product discussed in the previous section.

Insurance Plus Investment product corresponding to DHFL Pramerica Life Future Secure Plan

IndiaFirst Life Plan¹⁷

IndiaFirst Life Plan, a non-participating pure term insurance has the following features:-

1. On survival to the end of the term, nothing is payable.
2. On death during the term of the policy the nominee gets the sum assured. Death benefit will be more than 105% of all the premiums paid at any point of time.

Policy Specifications¹⁷:

Min age at entry	18 years		
Max age at entry	60 years		
Max age at maturity	70 years		
Term of the plan	Regular Premium	Single Premium	
	5-40 years	5-40 years	
Min Sum Assured	Rs. 100000		
Max Sum Assured	Rs. 500000000		
Premium frequency	Monthly, half-yearly, yearly, one-time		

Alternative 1 – Prepared with a view to maximize the proceeds receivable on survival to the end of the term.

Sample Specifications¹⁸:

For a female life aged 35 last birthday, who has not consumed tobacco in last 5 years, who wishes to buy DHFL Pramerica Life Future Secure Plan with a Basic Sum Assured of Rs.255619, GA of 6.25% p.a. and a policy term of 12 years with a yearly premium payment option requiring her to pay Rs.44976 per year at the beginning of each year for first 7 years, we propose an alternative strategy to buy IndiaFirst Life plan (a term assurance policy) with a Sum Assured of Rs.500000 and a policy term of 12 years with a single premium payment option requiring her to pay Rs.15175 at the time of taking up the policy; and to deposit the balance Rs.29801 (Rs.44976 – Rs.15175) at the beginning of first year and Rs.44976 at the beginning of 2nd, 3rd, ..., 7th year in a one year Fixed Deposit (FD) Account (a/c) maintained with State Bank of India (SBI) which will earn interest @ 6.80% per annum (p.a.) compounding quarterly for a term of one year; and to deposit the proceeds received from the FD a/c at the end of each year, together with the amount to be deposited at the beginning of each year, into a FD a/c at the beginning of subsequent year. We further assume that the policyholder withdraws the entire balance from the FD a/c at the end of 12th year (if the policyholder is then alive).

We find that the Expected Internal Rate of Return for this portfolio is 6.62% which is more than the Expected Internal Rate of Return in case of investing in DHFL Pramerica Life Future Secure Plan. The calculation of Expected Internal Rate of Return from the portfolio is shown below:

¹⁷ Source – Product Brochure of IndiaFirst Life Plan – (<https://www.indiafirstlife.com/documents/1742962/340906d1-021f-4079-9cb5-2fa70a336660>)

¹⁸ Source – Benefit Illustration of IndiaFirst Life Plan issued to a female life aged 35 last birthday in line with other details mentioned under ‘Sample Specifications’.

Term insurance plus separate investment – a financially prudent choice over endowment ..

IndiaFirst Life Plan								SBI Bank Deposit							E[Net Cashflow] at time 't' = H+O-G-J
Policy Year	Age(x) at time 't'	Time 't' (End of t th year)	q _x ²	p _x ¹	Premium at time 't'	E[Outflow] at time 't' = E[Premium] at time 't'	E[Inflow] at time 't' = E[Death Benefit] at time 't'	Amount deposited in FD a/c at time 't'	E[Outflow] at time 't' = E[Amount deposited] at time 't'	Death Benefit at time 't' = AV at time 't' of deposits made till & excluding time 't'	Survival Benefit at time 't'	E[Death Benefit] at time 't'	E[Survival Benefit] at time 't'	E[Inflow] at time 't' = E[Death Benefit] + E[Survival Benefit]	
	35	0	0.001282	0.998718	15175	15175		29801	29801						-44976
1	36	1	0.001358	0.998642			641	44976	44918	31880		41		41	-44236
2	37	2	0.001447	0.998553			678	44976	44857	82217		112		112	-44068
3	38	3	0.001549	0.998451			722	44976	44792	136065		196		196	-43874
4	39	4	0.001667	0.998333			771	44976	44723	193669		299		299	-43653
5	40	5	0.001803	0.998197			829	44976	44648	255292		423		423	-43397
6	41	6	0.001959	0.998041			895	44976	44568	321212		575		575	-43098
7	42	7	0.00214	0.99786			971			391731		760		760	1731
8	43	8	0.00235	0.99765			1058			419056		887		887	1945
9	44	9	0.002593	0.997407			1160			448287		1040		1040	2199
10	45	10	0.002874	0.997126			1276			479556		1224		1224	2501
11	46	11	0.003197	0.996803			1411			513007		1448		1448	2859
12	47	12					1565			548791	548791	1718	535646	537364	538929
Expected IRR															6.62%
1	p _x - probability that a person aged 'x' exact will survive for at least one more year														
2	q _x - probability that a person aged 'x' exact will die within one more year														

PLAN DETAILS	
IndiaFirst Life Plan (Term Plan)	
Death Benefit	500000
Policy Term	12 years
Premium Payment Mode	Single Pay
Premium Payment Term	~
Premium	15175
SBI Fixed Deposit Account	
Nominal Annual Interest Rate	6.80% p.a for term =
Annual Effective Interest Rate	6.98% 1 year
DHFL Pramerica Life future secure plan (Endowment Plan)	
Policy Term	12 years
Premium Payment Mode	Limited Pay
Premium Payment Term	7 years
Premium	44976 p.a.

Alternative 2 – Prepared with a view to maximize the proceeds receivable on death during the term.

Sample Specifications¹⁸:

For a female life aged 35 last birthday, who has not consumed tobacco in last 5 years, who wishes to buy DHFL Pramerica Life Future Secure Plan with a Basic Sum Assured of Rs.255619, GA of 6.25% p.a. and a policy term of 12 years with a yearly premium payment option requiring her to pay Rs.44976 per year at the beginning of each year for first 7 years, we propose an alternative strategy to buy IndiaFirst Life plan (a term assurance policy) with a Sum Assured of Rs.3350000 and a policy term of 12 years with a single premium payment option requiring her to pay Rs.44321 at the time of taking up the policy; and to deposit the balance Rs.665 (Rs.44976 – Rs.44321) at the beginning of first year and Rs.44976 at the beginning of 2nd, 3rd, ..., 7th year in a one year Fixed Deposit (FD) Account (a/c) maintained with State Bank of India (SBI) which will earn interest @ 6.80% per annum (p.a.) compounding quarterly for a term of one year; and to deposit the proceeds received from the FD a/c at the end of each year, together with the amount to be deposited at the beginning of each year, into a FD a/c at the beginning of subsequent year. We further assume that the policyholder withdraws the entire balance from the FD a/c at the end of 12th year (if the policyholder is then alive).

Term insurance plus separate investment – a financially prudent choice over endowment ..

We find that the Expected Internal Rate of Return for this portfolio is 7.25% which is more than the Expected Internal Rate of Return in case of investing in DHFL Pramerica Life Future Secure Plan. The calculation of Expected Internal Rate of Return from the portfolio is shown below:

IndiaFirst Life Plan								SBI Bank Deposit								E[Net Cashflow] at time 't' = H+O-G-J
Policy Year	Age(x) at time 't'	Time 't' (End of t th year)	q _x ²	p _x ¹	Premium at time 't'	E[Outflow] at time 't' = E[Premium] at time 't'	E[Inflow] at time 't' = E[Death Benefit] at time 't'	Amount deposited in FD a/c at time 't'	E[Outflow] at time 't' = E[Amount deposited] at time 't'	Death Benefit at time 't' = AV at time 't' of deposits made till & excluding time 't'	Survival Benefit at time 't'	E[Death Benefit] at time 't'	E[Survival Benefit] at time 't'	E[Inflow] at time 't' = E[Death Benefit] + E[Survival Benefit]		
	35	0	0.001282	0.998718	44321	44321		655	655						-44976	
1	36	1	0.001358	0.998642			4295	44976	44918	701		1		1	-40623	
2	37	2	0.001447	0.998553			4543	44976	44857	48863		66		66	-40248	
3	38	3	0.001549	0.998451			4835	44976	44792	100384		145		145	-39813	
4	39	4	0.001667	0.998333			5168	44976	44723	155500		240		240	-39315	
5	40	5	0.001803	0.998197			5553	44976	44648	214460		355		355	-38740	
6	41	6	0.001959	0.998041			5996	44976	44568	277532		497		497	-38075	
7	42	7	0.00214	0.99786			6503			345005		670		670	7173	
8	43	8	0.00235	0.99765			7090			369070		781		781	7871	
9	44	9	0.002593	0.997407			7769			394814		916		916	8685	
10	45	10	0.002874	0.997126			8552			422354		1078		1078	9631	
11	46	11	0.003197	0.996803			9455			451814		1275		1275	10730	
12	47	12					10487			483330	483330	1513	471752	473265	483752	
Expected IRR															7.25%	
1	p _x - probability that a person aged 'x' exact will survive for at least one more year															
2	q _x - probability that a person aged 'x' exact will die within one more year															

PLAN DETAILS	
IndiaFirst Life Plan (Term Plan)	
Death Benefit	3350000
Policy Term	12 years
Premium Payment Mode	Single Pay
Premium Payment Term	~
Premium	44321
SBI Fixed Deposit Account	
Nominal Annual Interest Rate	6.80% p.a for term =
Annual Effective Interest Rate	6.98% 1 year
DHFL Pramerica Life future secure plan (Endowment Plan)	
Policy Term	12 years
Premium Payment Mode	Limited Pay
Premium Payment Term	7 years
Premium	44976 p.a.

Insurance Plus Investment product corresponding to SBI Life – Smart Guaranteed Savings Plan

IndiaFirst Life Plan¹⁷

IndiaFirst Life Plan, a non-participating pure term insurance has the following features:-

1. On survival to the end of the term, nothing is payable.
2. On death during the term of the policy the nominee gets the sum assured. Death benefit will be more than 105% of all the premiums paid at any point of time.

PLAN DETAILS	
IndiaFirst Life Plan (Term Plan)	
Death Benefit	302000
Policy Term	15 years
Premium Payment Mode	Single Pay
Premium Payment Term	~
Premium	10935
SBI Fixed Deposit Account	
Nominal Annual Interest Rate	6.80% p.a for term =
Annual Effective Interest Rate	6.98% 1 year
SBI Life Smart Guaranteed Savings Plan (Endowment Plan)	
Policy Term	15 years
Premium Payment Mode	Limited Pay
Premium Payment Term	7 years
Premium	30000 p.a.

Alternative 2 – Prepared with a view to maximize the proceeds receivable on death during the term.

Sample Specifications¹⁸:

For a female life aged 35 last birthday, who has not consumed tobacco in last 5 years, who wishes to buy SBI Life – Smart Guaranteed Savings Plan with a Basic Sum Assured of Rs.212100 and a policy term of 15 years with a yearly premium payment option requiring her to pay Rs.30000 per year at the beginning of each year for first 7 years, we propose an alternative strategy to buy IndiaFirst Life plan (a term assurance policy) with a Sum Assured of Rs.1600000 and a policy term of 15 years with a single premium payment option requiring her to pay Rs.29520 at the time of taking up the policy; and to deposit the balance Rs.480 (Rs.30000 – Rs.29520) at the beginning of first year and Rs.30000 at the beginning of 2nd, 3rd, ..., 7th year in a one year Fixed Deposit (FD) Account (a/c) maintained with State Bank of India (SBI) which will earn interest @ 6.80% per annum (p.a.) compounding quarterly for a term of one year; and to deposit the proceeds received from the FD a/c at the end of each year, together with the amount to be deposited at the beginning of each year, into a FD a/c at the beginning of subsequent year. We further assume that the policyholder withdraws the entire balance from the FD a/c at the end of 15th year (if the policyholder is then alive).

We find that the Expected Internal Rate of Return for this portfolio is 7.06% which is more than the Expected Internal Rate of Return in case of investing in SBI Life – Smart Guaranteed Savings Plan. The calculation of Expected Internal Rate of Return from the portfolio is shown below:

IndiaFirst Life Plan								SBI Bank Deposit						E[Net Cashflow] at time 't' = H+O-G-J	
Policy Year	Age(x) at time 't'	Time 't' (End of t th year)	q _x	p _x ¹	Premium at time 't'	E[Outflow] at time 't' = E[Premium] at time 't'	E[Inflow] at time 't' = E[Death Benefit] at time 't'	Amount deposited in FD a/c at time 't'	E[Outflow] at time 't' = E[Amount deposited] at time 't'	Death Benefit at time 't' = AV at time 't' of deposits made till & excluding time 't'	Survival Benefit at time 't'	E[Death Benefit] at time 't'	E[Survival Benefit] at time 't'		E[Inflow] at time 't' = E[Death Benefit] + E[Survival Benefit]
	35	0	0.001282	0.998718	29520	29520		480	480						-30000
1	36	1	0.001358	0.998642			2051	30000	29962	513		1		1	-27910
2	37	2	0.001447	0.998553			2170	30000	29921	32642		44		44	-27707
3	38	3	0.001549	0.998451			2309	30000	29878	67011		97		97	-27472
4	39	4	0.001667	0.998333			2468	30000	29831	103778		160		160	-27203
5	40	5	0.001803	0.998197			2652	30000	29782	143110		237		237	-26892
6	41	6	0.001959	0.998041			2864	30000	29728	185185		331		331	-26533
7	42	7	0.00214	0.99786			3106			230195		447		447	3553
8	43	8	0.00235	0.99765			3386			246252		521		521	3907
9	44	9	0.002593	0.997407			3711			263429		611		611	4322
10	45	10	0.002874	0.997126			4085			281804		719		719	4804
11	46	11	0.003197	0.996803			4516			301461		851		851	5366
12	47	12	0.003567	0.996433			5009			322489		1010		1010	6018
13	48	13	0.003983	0.996017			5570			344984		1201		1201	6772
14	49	14	0.004444	0.995556			6198			369048		1430		1430	7628
15	50	15					6888			394790	394790	1700	380730	382429	389317
Expected IRR															7.06%
1	p _x - probability that a person aged 'x' exact will survive for at least one more year														
2	q _x - probability that a person aged 'x' exact will die within one more year														

PLAN DETAILS		
IndiaFirst Life Plan (Term Plan)		
Death Benefit	1600000	
Policy Term	15	years
Premium Payment Mode	Single Pay	
Premium Payment Term	~	
Premium	29520	
SBI Fixed Deposit Account		
Nominal Annual Interest Rate	6.80%	p.a for term =
Annual Effective Interest Rate	6.98%	1 year
SBI Life Smart Guaranteed Savings Plan (Endowment Plan)		
Policy Term	15	years
Premium Payment Mode	Limited Pay	
Premium Payment Term	7	years
Premium	30000	p.a.

The two insurance *plus* investment products for each of the endowment policies discussed above are the two extremes of a unique kind of alternative. Depending upon the specific protection and growth needs of an individual, numerous alternatives can be prepared by varying the proportion of amount to be paid as premium for term assurance and the amount to be invested.

As stated earlier, this paper does not aim to prepare alternatives for all the endowment assurance policies available in the Indian market, rather it aims to design a methodology to do so.

IX. ALTERNATIVE TO INVESTMENT IN AN ENDOWMENT ASSURANCE POLICY

We see that the Expected IRR under the portfolio corresponding to each of the endowment plans discussed earlier is significantly higher than the Expected IRR for the endowment plans themselves. Also, the fact that taking up the portfolio provides both higher death benefits and higher maturity benefits than investment in an endowment assurance policy with exactly the same outlay shows that the portfolio of term insurance plus separate investment or the strategy of buying term assurance and investing the difference elsewhere is a potential alternative (and a financially prudent replacement) to investment in an endowment assurance policy.

This is in line with the conclusion drawn from the discussion on difference between insurance-*cum*-investment & insurance *plus* investment products in the earlier section.

Even though this alternative strategy of taking up a term assurance policy and investing the balance in a fixed deposit fetches higher expected internal rate of return and provides a higher death benefit and maturity benefit, it is certainly not the best alternative, because instead of depositing the balance left after payment of premium under term assurance policy in an account maintained with SBI which offers probably the lowest interest rates, if the life under consideration deposits the same amount in an account maintained with some other bank or with Indian post office, the expected internal rate of return would be even higher.

For a **conservative (risk – averse) investor** an even better alternative which can not only fetch higher returns but also give a numerous-times higher assurance protection compared to an endowment assurance policy (with a term of ≥ 15 years) would be to take up a low cost term assurance and invest the balance (left after payment of premium under term assurance policy) in a Public Provident Fund [PPF] (savings-cum-tax-saving instrument in India, introduced by the National Savings Institute of the Ministry of Finance in 1968) which at present (as of December 2018) is offering interest @ 8.00% per annum compounded annually (which is higher than the rate of interest earned on bank deposits). However, the fact that PPF has a minimum lock – in period of 15 years; premature withdrawals are allowed only from the start of 7th year; Public Provident Fund (Amendment) Scheme, 2016 regulating premature closure of PPF account after completion of 5 years for medical treatment of family members and for higher education of PPF account holder subject to an interest rate penalty of 1%, are other important factors which the investor might consider before deciding to invest in PPF.

For an **aggressive investor** having a moderate appetite for risk an even better alternative would be to take up a low cost term assurance policy and invest the balance (left after payment of premium under term assurance policy) in a good Equity Linked Saving Scheme [ELSS] (diversified equity schemes offered by

mutual funds in India) which can comparatively offer a much higher rate of return (which is, generally, directly proportional to the time horizon of investment) along with better life cover in terms of higher sum assured under the term assurance policy.

As even the poorest scheme (of depositing the balance left after payment of premium under term assurance policy in a bank account) of alternative strategy (taking up a term assurance policy and investing the difference elsewhere) has a higher expected IRR than investing in an endowment assurance policy, **‘Buying Term and Investing the Difference’** is certainly a financially prudent alternative to investment in an endowment policy.

Given that this strategy of term assurance plus a separate investment is a good alternative to traditional endowment plans, next question that crops up is what sort of term assurance should a person buy? Increasing (where the amount of death benefit keeps on increasing during the term), level (policy which offers safe benefit throughout the term) or decreasing (where the amount of death benefit keeps on increasing during the term).

Given the need of life insurance which exists to compensate any financial loss that the dependents might incur in case of untimely death of the earning member of family, best alternative would be to take up a decreasing term assurance with cover up to the retirement age and invest the balance left after payment of premium elsewhere. Remember as age increases, we move closer to our retirement and hence the amount of loss (insurable value of life i.e., the amount of income forfeitable because of death¹⁹) that the dependents might incur because of death of the earning member keeps on decreasing with passage of time. Also, once retired, death of such a person would not have any adverse financial implications as no one depends financially on her / him anymore. Hence, logically there is no need for life insurance after retirement. Need there is, for investment and not for insurance.

“Insurance at advanced ages is in fact not economically feasible. It only becomes marketable when so blended with investment that the operation of the insurance mechanism is totally obscured. But it is not economically feasible because of the plain facts of the mortality table.”¹⁹

In fact, “at advanced ages, any insurance contract become largely an investment and not an insurance device. It primarily involves not the sharing of risk, but rather the pooling of assets. And the assets are pooled in a complicated and expensive fashion that is neither sound insurance nor sound investment. It is not insurance with an incidental element of investment, but investment with an incidental element of insurance.”¹⁹

The mass market, in fact, needs little or no insurance after retirement. It may need savings, but these savings may take any form, of which insurance is only one alternative. Insurance to produce liquidity, tax advantages, and other incidental benefits is generally not a high priority in the mass market after retirement. What is needed is savings, and it is strictly an investment decision as to the form this savings should take.

Again, even this combination of a decreasing term assurance and separate investment might not be the best alternative, for what is best depends upon specific protection and growth needs of an individual along with her / his risk appetite. Rather than demonstrating mathematical and actuarial dexterity by attempting to find out the best alternative, this paper aims to develop the concept at issue, paving a path to show that there is a need and an opportunity to replace the tendency of investing in traditional endowment plans with the strategy of **‘Buying Term and Investing the Difference’**.

X. LONG TERM MACROECONOMIC IMPLICATIONS FOR THE COUNTRY

Alongside benefitting individuals at a microeconomic level, this alternative strategy of **‘Buying Term and Investing the Difference’** has also got certain long term macroeconomic implications for the country.

1) **Persistency Ratio** – Given lack of need based selling being cited as a major reason for low persistency ratio which arises because of the dis-satisfaction that a policyholder experiences when s / he realizes that the amount of cover provided by the policy is insufficient and that the returns generated on investment in such a policy is also very poor, the alternative strategy of **‘Buying Term and Investing the Difference’** based upon the approach of need based selling would surely help in improving the persistency rates as the customers will have a

¹⁹ Aponte, J. B., & Denenberg, H. S. (1968). A new concept of the economics of life value and the human life value: A rationale for term insurance as the cornerstone of insurance marketing. *Journal of Risk and Insurance*, 337-356.

free-hand in deciding the proportion of money that they want to use for purchasing a (adequate) life cover and the proportion they want to invest (which would generate better returns on investment) based upon their specific protection and growth needs. Remember the alternative is not only designed to match the needs perfectly but is also cost effective for the customers. Whereas purchasing an endowment assurance policy will only lead to lower life insurance persistency because of the default nature of the product due to which it comes with inadequate life cover entangled with poor returns on investment. Also, a low life insurance persistency can hinder the path of insuring the uninsured, because a policyholder who surrenders her / his policy or allows her / his policy to lapse prematurely out of dis-satisfaction and frustration would not speak good of life assurance and would thus discourage others from taking up a life assurance.

Needless it is to state how an improved life insurance persistency would positively impact the economic growth of country, given its potential to impact all the three stakeholders of life insurance: customer, agent and the insurance company.

An improved persistency would mean that consumers are religiously standing by their long term financial commitment associated with insurance which helps in improving the standard of living of people by giving them a mental satisfaction of life coverage. Given that an increase in life insurance persistency leads to higher revenue for the insurer, customers will benefit as they will get products at a cheaper rate if the insurer chooses to pass on a part of the additional benefit (which results from an improved persistency), which they definitely will in order to thrive in this highly competitive market.

For the agent an improved persistency would mean that they would not lose out on their renewal commission. Also, they will have an opportunity to deepen their relationships with customers.

Given that life insurers get new business after spending heavily on marketing, business development and payment of higher first year commissions, and that customer retention costs about 80% lesser than acquiring new customers⁶, customer retention would definitely be a more profitable venture compared to new customer acquisition. Also, an improved life persistency would mean higher profits (as customer retention for a long period is critical to earning a profit from customer life-time value), increased customer loyalty and reduced cost through economies of scale as for the ones (customer) who are satisfied with the policy would encourage others to take up a similar policy from the same company. Given that the key to sustainable profitability of life insurers is in reducing their operating expense ratios to low single digits, any increase in life insurance persistency will directly lead to a decline in the operating expense ratio. Remember lower the persistency ratio, the higher is the operating expense ratio and vice-versa.

2) **Return on Investment** – Contrasted with the alternative (requiring an exactly same outlay of funds), investment in an endowment assurance policy generates low return on investment for the policyholder. Needless it is to state that given an option to choose one from two plans, one offering higher return on investment and other offering lower return on investment, the one which fetches higher returns must be chosen as it not only generates higher return for the individual at a microeconomic level, but also encourages investment at a macroeconomic level and thus has a direct positive correlation (and causation) with the long term economic growth of the country.

Given that an endowment assurance policy provides inadequate cover and poor return on investment, choice of investment in an endowment assurance policy by the population at large adversely effects the long term economic growth of the country. Remember a part of the endowment assurance policy's premium is used solely for the purpose of making investment by the life insurance companies and after charging for the service which they (company) provide to the policyholder by investing on their (policyholder) behalf, they pass on only a part of the return generated to the policyholder. The lower return on investment for the policyholder has its roots grounded in either of the following two cases:-

- i. Either the companies themselves are not able to generate generous returns on investment (which would result from inefficient use of capital i.e., money is not being employed/invested in the correct direction and is thus not being used at its fullest potential to generate returns) which justify lower returns for the policyholders who receive only a part of the entire return generated.
- ii. Or, the insurance companies are making efficient usage of capital leading to generous returns for them, but are passing on only a very small portion of it to the policyholders.

In either case policyholders continue to get lower return on investment which further discourages them from making any investments, and they are thus motivated to use their income for the purpose of consumption which results in an increase in demand (because the utility derived from current consumption made instead of investment is greater than the utility derived from low returns on investment generated which comes at a cost of deferring current consumption expenditure). This increase in demand at a national level accompanied by the lack of will to invest will lead to an increase in the aggregate demand to such an extent that the aggregate demand will soon exceed the aggregate supply by such an extent that it will either lead to unnecessary inflation (unnecessary inflation – a situation that can be avoided if people at large chose alternative over investment in an endowment assurance policy; remain motivated to invest because of generous returns generated on investment; the gap between aggregate demand and aggregate supply does not widens unnecessarily) which has certain potential negative implications for the economy at large, or it will lead to a marked increase in imports of the economy in an attempt to meet the excess of aggregate demand over aggregate supply which will further contribute to increase the balance of trade deficit (or to decrease the balance of trade surplus).

Choice of alternative over investment in an endowment assurance policy aids long term economic growth not only by encouraging investment at a national level, but also by improving the standard of living of people by giving them a mental satisfaction of life coverage by promoting the purchase of pure protection plans i.e., term assurance.

Also, it aids in financial inclusion of masses, for the choice of purchasing term assurance policy and investing the balance left after payment of premium in a bank account requires people to open bank accounts. Also, by promoting the purchase of most logical and the cheapest type of life assurance, it not only educates people about the need and importance of life assurance, but also aids in elimination of misconceptions like insurance is expensive and a product only for the rich, which further aids in convincing people of almost all economic backgrounds to purchase life insurance, thereby aiding in insuring the uninsured.

3) **Underinsurance** – According to the leading global reinsurer Swiss Re, an average working person is assured of only 8% of what may be required to compensate for the financial loss after the death of an earning member³. A study conducted by Max Life Insurance Company Limited and a Market Research firm Kantar IMRB states that more than half of the respondents covered under the study (53%) felt that their cover is insufficient⁵.

If people continue to invest in endowment assurance policies, the scenario won't change. This is because of the default nature of the product which strives to combine insurance with investment and end up providing an inadequate life cover at a very high cost. In case of an endowment assurance policy, an attempt to purchase the required amount of cover might cost one's entire income, and is thus economically not feasible. Whereas the choice of alternative over investment in an endowment assurance policy would definitely help in improving the condition as it provides scope for purchasing the required cover at an affordable cost by separating the elements of insurance and investment.

Needless it is to state that the country should aim not only to insure the uninsured, rather it should also ensure that for the ones who are insured, they must not be underinsured. Because if an individual takes up a life assurance policy but feels underinsured, than the entire objective of insuring/assuring her / him gets defeated as life assurance exists to provide guarantee of compensation for any financial loss that the dependents might incur in the untoward event of untimely death of the earning member of the family, thereby aiming to provide mental satisfaction to the assured that s / he has a provision to financially support her / his dependents in the unfortunate event of her / his untimely death.

XI. CONCLUSION AND RECOMMENDATION

Financial sector forms a significant driver of any economy, India is no exception to it. With recent government policy interventions of easing the FDI rules, establishing business units, payment bank licensing & other financial inclusion measures, the steadfast approach of strengthening the core of finance in the economy is clearly evident. Insurance forms an inept part of the investment in an economy. It exfoliates not only financial gains but also non-financial gains such as improving the living condition of people by giving them a mental satisfaction of life coverage. Even after being the world's largest market for life insurance, the country's life insurance penetration is a meagre 2.76% (2017) compared to a global life insurance penetration of 3.33%. Also, the country's life insurance density stands low at USD 55.0 (2017) against global life insurance density of USD 353².

The major reason could be identified by the lower level of economic resources as well as lower level of education and awareness amongst the uninsured. One of the significant issues associated with lower penetration is the lack of awareness & poor communication which majorly stems from ill-built products. For lack of knowledge, ample of measures are being undertaken such as radicle advertisement, boot camps, seminars, camps, etc., but still a major part gets missed out amidst all this, is the proper product. There needs to be adequate education on the part of people explaining what they are paying for, what is it that they are undertaking to get in return, how are they better off with such purchases & other such queries. It is when all these stands satisfied, will an informed consumer be ready and willing to make a buy decision of the insurance product. Hence, the attempt is to provide a transparent & straightforward strategy to customers which can encourage their insurance purchase decision; the attempt is to detach the two separate products, with different underlying benefits in such a manner that it doesn't cut down on consumer's interests. This paper undertakes to bifurcate the product with maximum benefits for all the underlying objective of life coverage through an appropriate term insurance plan & investment gain with a suitable financial instrument.

With India having one of the youngest populations globally with roughly 55% of its population under 45 years of age & the projected number is 70% for 2025, this is the best time frame where a good insurance product will provide hefty financial inclusion in the economy alongside improving the standard of living of people.

Policy Recommendations

Given the fact that majority of Indians continue to prefer (rather they are taught by insurance agents) investment in an endowment assurance policy over taking up a term assurance policy out of sheer misconception regarding the need of life assurance, and given the adverse effects that this poorly built product has, both for the individual at a microeconomic level and for the country at large, it is extremely important to take certain actions to prevent this and promote the alternative over investment in an endowment assurance policy.

Well, it might apparently mean loss for the insurance agents and also for the insurance companies in short term, but in the long run it would definitely prove to be beneficial for all. The agents and the companies need to understand that they should follow the concept of need-based selling and earn by increasing the sale of better-built policies aimed at satisfying the policyholder's needs in the most efficient manner (by increasing the volume of business) and not by selling relatively small quantity of poorly built products which fetch them higher commission / margins in the short term, but fail to satisfactorily fulfill the needs of policyholder's.

'The aim should not be to just sell a life assurance policy, rather it should be to sell the value of life assurance to those who need it.'

XII. SUMMARY OF FINDINGS

During the course of this study the author identified the following reasons for popularity of endowment assurance policies over term assurance policies:-

✚ **Inability to differentiate between insurance and investment** – Though both insurance and investment involve giving money to a financial service provider in exchange for a future benefit and to such extent work in a similar dynamic, the underlying object of both the products are different, former provides security whereas later enhances it. However most of people fail to differentiate between the two and end up mixing the two by buying insurance-*cum*-investment products because they consider term assurance as a relatively more risky investment than an endowment assurance.

✚ **Benefits of insurance being thought of as the need for insurance** – Just because insurance products offer tax benefits, does not mean that insurance exists only for offering tax benefits. Owing to lack of knowledge and awareness about the need for insurance on part of people, they fail to realize that insurance exists for providing cover against the risk of an uncertain, contingent loss and not merely for saving tax. To add on to their inability to differentiate between insurance and investment, for saving more tax they tend to buy expensive endowment policies (so as to get a higher tax deduction) as opposed to cheaper term assurance policies.

✚ **Role of insurance agents** – It is in the agent's interest to steer the customer's thoughts away from the cheaper term insurance policies and towards more expensive endowment policies. Insurance agents (primarily concerned with the commission they receive on sale of different policies, with the highest commission being paid in case of endowment and alike policies) never mentions term assurance on their own and even if one brings up the topic then immediately by using the phrase 'No Benefit', agents warn and misguide the customers by saying that the customer won't get anything back (against the premiums paid) in event of survival to the end of the term and as customers certainly don't want to do anything that carries 'No Benefit', agents veers the customer's thinking towards policies that supposedly carry a 'Benefit'.

This combination of factors – the business model of insurance selling (role of insurance agents) plus the insurance buyer's hunger for 'Benefit' accompanied with lack of proper education and awareness with regard to insurance – has resulted in a situation where a majority of unaware people are not thinking clearly about what insurance is, how it is different from investment and how they should best go about insuring themselves, or in other words what is it that they want. As customers fail to realize that life assurance exists not to make us rich while we are alive, rather it is there to ensure that our dependents don't have to face a financial set back when we are not there, they get convinced [and as guided (rather misguided)] by the agents, and end up buying hybrid products that combines assurance with investment (endowment policies) and offers a guaranteed return (no matter how low this return is). Of course, it is convenient to have just one product that takes care of everything. But convenience should not result in sacrifice of the very reason why the product is being purchased – investment (for returns) and assurance (for cover).

Further, the author identified the following reasons due to which the alternative strategy of 'Buying Term and Investing the Difference' fetches a higher Expected IRR than endowment policies:-

✚ **Greater potential to earn higher returns by virtue of investment of one's own choice** – After payment of premium under term assurance policy, the investor has an option to invest the balance elsewhere. Having an option to invest elsewhere implies greatest control over one's money and potential to earn highest returns as one invests herself / himself, through the brokerage of her / his own choice, rather than through a life assurance policy.

✚ **Reduced cost and larger investment** – Keeping in mind that agent's commission is higher (in monetary terms) in case of sale of endowment policies, by opting for a term assurance policy, one does not have to pay the high agent's commission associated with endowment assurance policies. As a result, the amount that gets invested under the alternative is greater than that under endowment assurance policies by the *amount of agent's commission as a percentage of that portion of premium which is used towards making investment*. Also, under the alternative, the policyholder does not have to forego the undisclosed commission charged by the insurance company (in case of endowment assurance policies) in return of service provided to invest on policyholder's behalf.

✚ **Wider scope for investment** – Under the alternative strategy, unlike endowment assurance, one's investment performance won't be tied to the life assurance company's financial performance, and s / he won't be limited to the investments that the insurance company offers. Hence, there exists a wider scope for investments which naturally increases the Expected IRR.

XIII. LIMITATIONS OF THE STUDY

- ✚ Time is a critical factor limiting this study.
- ✚ The study proposes an alternative only for traditional non-linked, non-participating endowment assurance policies.
- ✚ Calculations are based on certain set of assumptions.
- ✚ For the ease of understanding and simplicity, tax has been ignored.
- ✚ On account of lack of standard rates for events like suicide, accident, murder, policy withdrawal, policy surrender, policy lapse etc. and for sake of simplicity, policy revival, rider benefits, policy exclusions, and variables like loyalty additions, discount on premiums, reversionary bonuses and terminal bonus have been ignored (as the rate of bonus is not certain).

- ✦ Several features vital to the purchase of a life assurance policy like financial soundness of the company, company's reputation for dealing with policyholders, differences in policy provisions like suicide, loan facility etc. have not been incorporated in the metric proposed to evaluate returns on endowment assurance policy.

XIV. SCOPE OF FURTHER RESEARCH

- ✦ An inclusive study of various other types of types of life assurance policies in the market could be taken up.
- ✦ Adjustments for changes in mortality behaviour can be made; possibilities of suicide, accident, murder, policy withdrawal, policy surrender, policy lapse and policy revival could be captured; and variation in interest rates, policy exclusions, and variables like loyalty additions, discount on premiums, reversionary bonuses and terminal bonus can be accounted for by using various statistical tools and softwares.
- ✦ Financial soundness of the company, company's reputation for dealing with policyholders, differences in policy provisions like suicide, loan facility etc. can be analyzed. The impact of these can also be quantified and adjustments in the proposed metric can be made to account for such impact.
- ✦ Other potential avenues for alternatives to such insurance policies could be located.

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