

CONTRIBUTION N° 61

C. F. T. : COMPUTERIZED FINANCIAL TOMOGRAPHY

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TOMOGRAPHIE
FINANCIERE
INFORMATISEE

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RESUME

Cet article traite du concept et de l'histoire de la planification financière - entendue comme partie intégrante du processus de vente d'assurances. L'auteur trace un parallèle avec la technique de la tomographie médicale par scanner et met en évidence l'importance de l'approche "médecine préventive" dans le domaine des assurances. Il insiste sur l'utilisation de la technologie pour mettre en oeuvre cette méthode et donne des exemples.

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SUMMARY

The paper examines the **concept** and history of financial planning, as an integral part of the insurance selling process. The author draws a parallel with **medical** scanning, and **emphasises** the importance of the "preventive medicine" approach in the insurance field. The use of technology to implement this approach is **stressed**, and examples **given**.

It **seems** fair to assume that the participants in this conference are, by nature of their affiliation with AFTR, in some way connected with, or interested in, the financial aspects of **actuarial** work. The **importance** of financial planning, for both the **consumer** and the insurance **company/broker**, is therefore a topic relevant to us all.

There can be no doubt that insurance touches the lives of almost everyone in today's society. Insurance exists because of the problem of **economic** loss, and if we accept **Websters definition** of loss as "unintentional parting with something of value", we can see economic loss as unintentional parting with something of monetary value. Arguments about losses related to trade, for example, may be **traced** back as far as 2250 B.C, and are regarded as the earliest forerunners of insurance. By **contrast**, the concept of death as a cause of **economic** loss has been significant for a much **shorter period of time**.

The **first** examples of contracts resembling life insurance were based on rough estimates of chance, to the extent that France and The Netherlands banned life **insurance** as illegal wagering until the period of the French Revolution. Gradually, however, tools developed to provide a more **scientific** basis, with death records being kept in England from the **17th** century. The English insurance industry leapt into respectability in 1884 when a law was passed stating that insurance could be taken out only by a person **who** had "an insurable interest". There can be no doubt that everyone has an insurable interest in **his/her** own life, and **that** the legal availability to insure **one's** own life, and name the beneficiary, was **the foundation** stone of modern day life **insurance** policies, and thus **the** starting point of actuarial science.

Today, the **concept** that death is a frequent cause of **economic** loss, in terms of both the immediate and future **needs** of surviving dependants, is widely accepted. Nevertheless, compared with other fields of insurance, many people **find** it **difficult** to grasp the economic **significance** of a **person's** life, as opposed, for example, to the obvious value of property, cars **etc**. In a recent **study**¹, it **was** found that the **majority** of clients who consulted professional financial planners in the States were underinsured for life

¹ Bacon et al. "Long Term Catastrophic Care : A Financial Planning Perspective" 1989

insurance (55.7 % of the sample were **underinsured** in this area, with 33.2 % **adequately** covered, and 11.2 % overinsured), as opposed to automobile insurance (11.0 % underinsured, 85.9 % adequately covered, and 3.3 % over insured).

This **consumer attitude** supports the popular saying in the life insurance industry - "Life insurance is sold, it's not bought" and explains the major investments made by insurance companies in motivating the public to buy **adequate amounts** of life insurance.

In order to attract the public, innumerable life **insurance** plans are offered, by many different companies. **While** a life insurance company may aim to provide the client with a product that meets his requirements, commercial interests are **naturally** foremost in their strategy, and a plan's marketing appeal, and thus its potential for **generating profits** must be of prime importance. Selling life insurance has, for many members of the public, acquired a rather **unsavoury** reputation, with salespeople seen as smooth - **talking** and persuasive individuals, taking advantage of moments of emotion **or stress**, such as those brokers **who** target maternity wards. While this stereotype is doubtless unfair to the majority of the profession, the principal aim of the life insurer or broker has certainly been to awaken the client's interest in life insurance, and then **persuade** him to buy a policy, a task surely made easier at a time when a life event has **just** taken place. In an article in 'Money Maker'², for example, life insurance was described as "a **knee - jerk** response to having children".

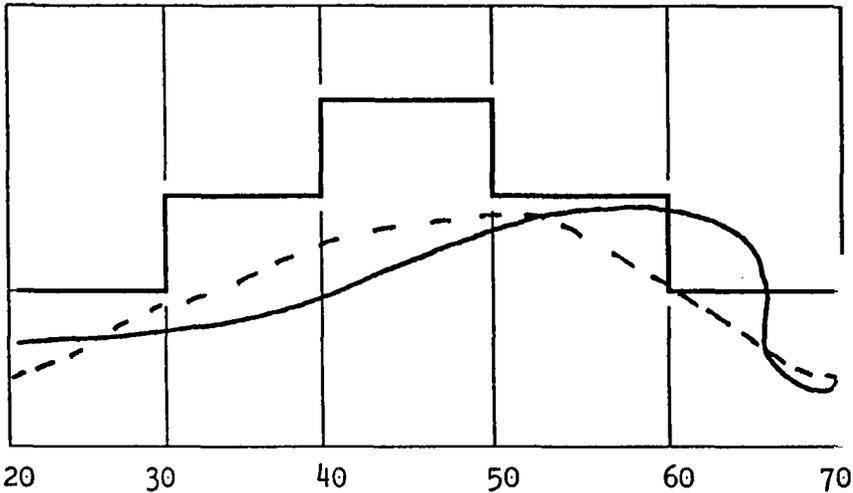
My contention, however, is that this approach is now out - **dated**, and **does not** serve the true interests of the consumer. If we **consider** the way that approaches to medicine have developed over the years, we can see a parallel with our own field. Enlightened physicians are **being** drawn more and more to the ideas of preventative medicine, and while **the** saying "**prevention** is better than cure" may have become somewhat cliched, the philosophy behind it is truer than ever. The rapid development of medical technology has speeded the path of preventative medicine, as has the fact that, through exposure to the media, the consumer himself is becoming more **educated** and aware of the possibilities available to him. The insurance equivalent may be known as the "economic physician", who is able to scan **the** client's financial situation in **the** same way as the medical physician **scans** his **physical** one. **Thus**, while **the** medical physician may recommend diet or exercise plans **as** part of an overall approach **to** prevent certain disease, so the **economic** physician may prescribe particular **insurance** or investment plans, in order to prevent future 'disease' or 'decay' of the **client's** financial structure. In addition, as technology has **revolutionised** the medical field, with **equipment** such **as** **computerised** tomography (CT) or Electronic magnetic resonance (EMR) available for sophisticated scans, so the insurance field must continue to exploit **the** developing technology, **to provide** a **computerised financial** tomography.

In order to provide our equivalent of preventative medicine, I believe that we must **concentrate** on **the** principle of financial planning, and must base **our** **philosophy** on **the** fact that only after a **full** analysis of the needs of each client may life **insurance** fulfill its greatest potential for that individual.

² Lew, ~~Harry~~ "Your Financial Plan for the 90's" *Money Maker* June / July 1989

There can be no doubt that technology is our greatest ally in trying to realise this. Historically, since computers were first introduced into the commercial sector, insurance, an industry that has always been both information and labour intensive, has been a prime example of the efficient use of information technology. It has been estimated that automation can cut paper storage by 75%, eliminate 5 - 7% of errors that result transcription by hand, and significantly reduce the turn around time for delivering policies, endorsements and bills? These advantages, together with the fact that cheaper mini and microcomputers are becoming powerful enough to take over many of the tasks previously performed only by mainframes, should encourage us to use electronic processing available today to create sophisticated systems capable of the 'computerised financial tomography', or in - depth financial analysis, needed as the first stage of our own version of preventative medicine.

Throughout his lifetime, an individual usually goes through a number of stages, and it is possible to draw up a general projection of income and needs in thid various stages⁴ :



Marriage 1st & 2nd child	Home insurance Furniture Credit Savings	Childrens education Investment Children leave		Social security
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—— Housing - - - Needs & Wants — Income

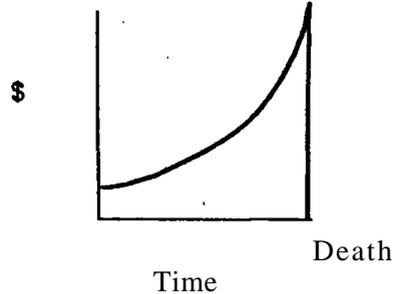
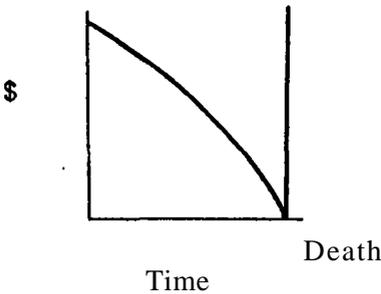
³ Roberts, Kathryn "The Paper - Free Ideal : Reliance Bites the Bullet" Best's Review, January 1981

⁴ Burda, Edward "Consumer Finance" 1979

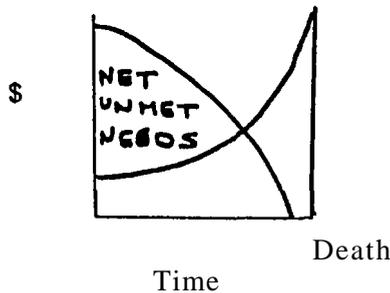
It can be seen that **most families** have the greatest need for a **insurance** at the **time** when their financial **means** are lowest. E.g. **For** two parents with **two children**, the **period** when the second child is born is **the period** of the greatest need, **and** in such a **case**, the death of the breadwinner will **cause** financial problems for **at least 18 years** (or until the second child **becomes** independent financially). As the household develops, **assets grow**, and by **the time** the parents are in their **fifties**, and the children leave **home**, the **needs** to be catered for in the event of death are much less. **This trend** may be also represented in graph **format** as follows :

A : **Decreasing Needs** over Time

B : **Increasing Assets** over **Time**



C : **A + B** combined, to show the period of **unmet family needs**



While this general model applies to **most families**, the **need** for a more specific **financial** plan still applies. One of **the** reasons that **needs** analysis is an effective method of selling life **insurance**, is that instead of saying of a **policy** that it is the **"best"** policy around, the **insurer** or **broker** looks more closely **at** the individual to tailor the **optimal** policy in each case.

In order to do **this**, any **computerised** financial planning **system** must request **certain** key **information** from the client. **The** amount of life **insurance** that will be required in **case** of death may be **summarised** as "Financial **Needs** less Available Assets", and such a calculation will be made as if the client were to die immediately.

The most basic **information** must include details of the family situation, the **age** of the client, and any dependants who will still require **support** in the event of **the** client's **death**. Eg. :

FINANCIAL PLANNING ————— PERSONAL DETAILS-1

CANDIDATE NAME: Smith Tom

DATE OF BIRTH: 15/09/56 SEX (M/F): M

MARITAL STATUS:& Married

CHILDREN (Y/N): Y

PARTNER NAME: Smith Jane

DATE OF BIRTH: 03/02/58

PERMANENT INCOME SOURCE (Y/N): Y

DEPENDANTS (NOT INCLUDING CHILDREN) (Y/N): Y

1-01

FINANCIAL PLANNING ————— PERSONAL DETAILS- 2

CHILDREN

	NAME	D. O. B.	SUPPORT ENDS
1.	<u>Julie</u>	<u>17/08/84</u>	<u>22</u>
2.	<u>Adam</u>	<u>19/11/87</u>	<u>22</u>
3.	<u>_____</u>	<u>___/___/___</u>	<u>---</u>
4.	<u>_____</u>	<u>___/___/___</u>	<u>---</u>
5.	<u>_____</u>	<u>___/___/___</u>	<u>---</u>

DEPENDANTS

	NAME	YR. OF BIRTH	DEATH EVENT - CONTINUE SUPPORT
1.	<u>Smith John</u>	<u>1916</u>	<u>Y (Y/N)</u>
2.	<u>_____</u>	<u>---</u>	<u>---</u>

1-02

This information will enable the system to compute the family's needs over a number of different periods, usually defined by the time each child will become self - sufficient. Other essential factors will also be taken into account, including whether or not the spouse would continue working following the death of the insured, and any special events for which large sums of money will be required in the *future*, such as a private education, university fees, weddings etc.

The current income of the family is also included, together with pension details, and living expenses, E.g. :

FINANCIAL PLANNING		ANNUAL INCOME	
		SELF	SPOUSE
BASIC EARNED INCOME		<u>20,000</u>	<u>15,000</u>
REGULAR OVERTIME		_____	_____
BONUS/COMMISSION		<u>300</u>	_____
INVESTMENT INCOME		_____	<u>500</u>
STATE PENSION		_____	_____
STATE BENEFITS		_____	_____
PRIVATE PENSION		_____	_____
OTHER _____		_____	_____
TAX RATE (%)		27	<u>23</u>

2-01

FINANCIAL PLANNING		EXPENSES	
TOTAL AVERAGE MONTHLY EXPENSES:		<u>22000</u>	
RENT/MORTGAGE	<u>500</u>		
FOOD	<u>300</u>		
CLOTHING	<u>100</u>		
TRANSPORTATION	<u>300</u>		
SCHOOL FEES	<u>200</u>		
HEALTH	<u>100</u>		
LEISURE/HOLIDAYS	<u>300</u>		
INSURANCE			
OTHER _____			

3-01

It is also important to take into account current assets and liabilities, plus the year that any liability (e.g. bank loan, hire purchase) will be paid up. As far as assets are concerned, the system will differentiate between the actual value of an asset, and the income it may bring in (e.g. selling a second house, or renting it out), as well as asking the client to decide whether each asset would be liquidated in the event of death, disability or retirement. E.g.

FINANCIAL PLANNING		ASSETS & LIABILITIES				
ASSET	CURRENT VALUE	CURRENT INCOME	EXPECTED ASSET YEAR	LIQUIDATION IN CASE OF RETIR.	DISAB.	DEATH
1. <u>Second Home</u>	<u>40K</u>	<u>250</u>	_____	<u>Y</u>	<u>N</u>	<u>Y</u>
2. _____	_____	_____	_____	___	___	___
3. _____	_____	_____	_____	___	___	___
4. _____	_____	_____	_____	___	___	___
TOTAL CURRENT VALUE:		<u>40K</u>				
LIABILITY	MONTHLY PAYMENT	YR.	LIABILITY ENDS			
1. <u>Car Loan</u>	<u>100</u>		<u>1995</u>			
2. _____	_____		_____			
3. _____	_____		_____			

4-01

The required information may be taken from the client either in the form of a questionnaire which is later entered into the system, or during a face - to - face interview with the broker and the computer. In addition to data such as that detailed above, the advantage of the computer as a tool for such financial analysis is that it may easily take into account such variables as expectations of inflation, yield on investments etc. The system may be designed so as to be based largely on external parameters, thus allowing changeable factors, such as interest rates and social security benefits, to be altered as required and automatically included in the final analysis.

Once the analysis has been carried out, the client will receive a detailed summary of the financial position of his family, in the event of his death, and also in the event of accidental death and retirement. The total needed per month is calculated, based on the family's living expenses, cost of education, repayment of loans etc., and this is set against their projected income, including any pension, social security, existing life insurance, spouse's wages, realisation of assets etc. These calculations are made for a number of separate periods, depending on the number of children, loans to be paid back etc. Each time a child becomes self - sufficient, or a loan is paid up, the appropriate

percentage is deducted from the **total** monthly requirement. In short, the client *can see* at a glance just how much income is **lacking** in order to cover all **the** needs of each period, or even how much excess income will be available. In this way, the **amount** of life **insurance** required may be **calculated** to cover the **unmet needs**, and the **optimal** policy for each client's circumstances may then be generated.

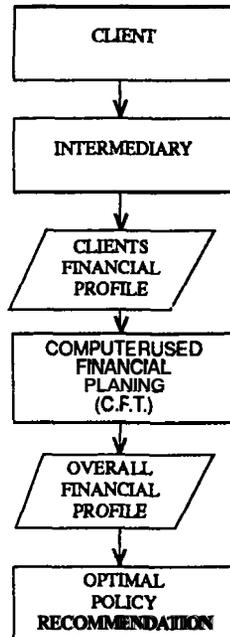
As well **as speeding** up the process of analysis, and clearly **delineating** the **financial** requirements of the client's survivors in the event of his **death**, **computerized** needs analysis also offers an aesthetic, flexible and professional **method** of providing the client with this information. Each client may receive a **personal** file, in which each member of his family is **referred** to by name, and which succinctly **sums** up **their** situation in the case of death, disability or retirement. Standard texts may, **of** course, be **incorporated** with ease, for example, defining the criteria used in the calculations. Finally, recommendations may be made regarding the size of fund **needed** to cover the financial requirements outlined. In this way, when the broker **begins** to discuss particular policies, it will be clear to the client how each possibility relates to his own situation - he is being sold the truth.

Based around this assumption, the life insurance broker of **the** near future will be able to sit with a client in the clients' home, using the technology of portable computers. The client remains relaxed in his own **environment**, and **sets** out the needs of himself and his family to produce a clear financial analysis. Only when this is completed, can a full picture of the future be set out, based on which the appropriate policy may be recommended. The use of on - line communications to the insurance company's own computer may enable the policy to be actually produced **on** the spot, **at** least in cases where no medical examination is required, and, in addition, the use of **computerised** life underwriting will further simplify the process.

Ideally, the life of each productive member of society should be insured for **an amount** equal to his economic value, as measured by the needs of those dependent on **him**. The term "productive" should not be **confused** with "wage earning", as the family **member** who looks after children and the house certainly has an **economic** value. This **type** of preventative **economic** planning should help to eliminate **situations** (or 'diseases') where money is just not available for an essential event, and **should** allow individuals to define and retain their standard of living. It should be possible, **and** should be **the** aim of those involved in the life insurance field, for each **consumer** to be covered to the extent **needed**. As actuaries, I would suggest that we are **responsible** for ensuring that no life policy is issued without the intervention of financial planning, and believe that the **process** for every client should follow the flow - chart on the next page.

A logical extension of this concept is to apply it also when income exceeds **needs**, that is, in the field of **banking** and investments. To produce a financial plan for **banking** clients can only **encourage** the **setting** of priorities for spending **a** investing **money**, and can **once** again be seen **as** preventive medicine, financial **cover** for the **future**. *Current* demographic trends indicate that financial planning for retirement will also be a potential growth area, 20% of 55 - 59 year old men take early retirement, which is double that in 1970⁵.

⁵ *Lew, Harry, Op. cit.*



To summarise, I **firmly** believe that the **financial** planning process should be an essential ingredient in the purchase of life insurance and investment plans, **and** that to omit this procedure is a fatal mistake. Modern technology provides us with the tools to implement this step, and it is the responsibility of all of us involved in the insurance **field** to exploit this technology to the full. The **implications** may be **seen** on two levels. On the micro level, the **consumer** is provided with the optimal solution **fa** his needs, and in **turn** with financial security. On the macro level, we, as actuaries, must be concerned about the financial security of those institutions that rely on actuarial knowledge and decisions. As the **consumer** becomes used to the i&a of planning for the future, more money is invested in insurance companies, and in **turn**, that money becomes invested in the **overall** economy, **thus** contributing to the **economic** security of the country. To **continue** our **comparison** with preventative medicine, each **consumer** may be **seen** as a part of the whole body of society. Only when each part is **looking** after it's own wellbeing can the body as a whole also be considered on the **road** to health.

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