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INDEXED COVERAGES FOR INDIVIDUAL CONTRACTS

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1. Philosophical Questions

   (a) practicality of a company going on the inflation risk.

   (b) Can high investment performance overcome inflation and still give a reasonable "real" rate of return?

   (c) description of the indexes themselves. Are they flawed? Should they be changed?

   (d) legal and regulatory obstacles to indexed coverage. How can they be overcome?

2. History of Indexed Coverage

   (a) in the U.S., Canada, and other countries.

   (b) To what extent have companies been willing to "go on the inflation risk".

   (c) indexed coverage for life insurance and disability income.

   (d) lessons learned from various experiments with indexed coverage.

3. Possibilities for the Ideal Fully-Indexed Permanent Life Insurance Plan

   (a) design.

   (b) pricing.

   (c) acceptability to the public and field forces.

MR. HAROLD B. LEFF: To begin with, let's define what the inflation risk is for individual life insurance. From the point of view of death benefits, it is a loss in purchasing power of the death benefits, while from the point of view of cash values, it is a loss in purchasing power of the cash value.

Companies have generally accepted only the death benefit risk in return for payment of additional fixed premiums or additional pricing margins. Examples of this are:

   (1) The use of dividends to buy a combination of paid-up additional insurance plus yearly renewable term insurance to maintain the real value of death benefits.

(ii) A guarantee that death benefits will increase to match CPI increases (up to a maximum of 10% to 15% per year) over a 5-year period, with premium rates sufficiently higher than for the comparable level benefit plan.

(iii) The right to purchase additional insurance (term or permanent) at an additional premium, without evidence of insurability.

Companies generally use inside limits of various types to protect themselves against severe anti-selection which would surface in the event of total economic chaos. Some may limit any inflation adjustment in one year to no more than 15%, while others may limit the cumulative adjustment to 200%. As an additional protection against anti-selection, most companies limit the number of times a policyholder can decline an offered increase.

Now let's consider the more difficult question of protecting cash values against inflation. Certain policies have been available for a number of years providing this protection, as well as death benefit protection, but this generally requires original age additions. The policyholder would pay the proportionately higher premium (recognizing the increased coverage) plus the reserve increase. The cash value maintains its purchasing power only with the additional policyholder payments, but the cash value continues to earn interest only at the guaranteed nonforfeiture interest rate of 4% or 5%, or in the case of participating insurance, the dividend rate of 7% or so. The policyholder falls further and further behind. It is a very complex policy design, which is not easily understood by most salesmen and policyholders. Combined with the unattractiveness of more than proportionate increases in required premium payments, this product has not generated much enthusiasm.

In order to provide real cash value protection without additional policyholder premium payments, the company would have to guarantee that today's cash value will never lose its purchasing power. This would require a near risk-free investment with a yield that would equal or exceed the rate of inflation. In addition, the insurer would have to be able to deduct for federal income tax purposes such credited interest in its entirety. Let's consider different kinds of investments to see whether any of the traditional types of insurance company investments meet such requirements.

Chart 1 compares the annual yields on selected investments to the annual change in the Consumer Price Index for each year since 1970. I have chosen common types of insurance company investments. Looking at each of these asset categories, we find that 13-week U.S. Treasury Bills (representing short-term money market instruments) fell short of matching the rate of inflation beginning in 1974, although the gap has narrowed in recent years. Yields on these assets are also affected by monetary and fiscal policy established by the Federal Reserve and U.S. Treasury, and hence, these short-term assets might not track the CPI closely should government or fiscal policy dictate otherwise.

Considering 5-year Government bonds as being representative of intermediate term fixed income securities, they fell short in 1974-5 and again in 1979-80.

Moody's index of long-term bonds fell short in 1974, 1979 and 1980. However this index is representative of yields on newly purchased long-term bonds, and is not indicative of the yields on an accumulating portfolio of such assets. The yield on such a portfolio would, of course, have been considerably lower than the new money yields for much of this period.

The Standard and Poor's 500 common stock index fell significantly short in 1973-1975 and again in 1977-78.

Prices for new single family homes (chosen to be broadly representative of real estate values,) outperformed the CPI in all years except 1970, 1974 and 1980.

Some observations on this table seem appropriate. Over the period 1970-1980, both the S & P 500 Index and new single family home prices each produced cumulative returns which exceeded the cumulative CPI change. However, the correlation in any one year is not so favorable. Look at the stock index change of - 18.43% for 1974 vs. a CPI change in that year of 11%, or the new home price change of 2.5% in 1980 (attributable at least in part to the restrained demand due to record high mortgage interest rates) vs. a 13.5% CPI change.

Looking back over this period, stocks seem to have been a very appropriate investment to match the CPI over the long run, in spite of the unfavorable impressions which have emerged regarding the inability of equity products to match the CPI. This may be one of the reasons why Variable Life seems to have suddenly emerged as an attractive permanent insurance product over the past year or two, with two major life insurers issuing substantial volumes of VLI.

While there does not appear to exist in the United States today a risk-free investment to match the inflation rate on a year by year basis, common stocks and real estate seem to have performed well over the past 10-year period.

Thus far, we've been talking about insurance benefits and cash values, and investment yields keeping up with inflation. I'd like to discuss the Consumer Price Index for a few minutes to establish what it represents and how it is calculated so we know what we're trying to keep up with.

The Consumer Price Index (CPI), is a pure price index based on a fixed market basket of goods and services. Most people consider the CPI and the rate of inflation to be synonymous.

As to the actual calculation of the CPI, the market basket is based on 1972-3 spending patterns. Among the many criticisms of the CPI as a measure of inflation, the two most publicized are that it reflects outdated spending patterns, and that it gives undue weight to the components measuring housing and new car prices and interest rates. The CPI does not reflect substitution effects - i.e., if people begin to eat chicken because steak is too expensive, the CPI nevertheless continues to reflect the price of steak. Also, the CPI does not reflect greater benefits or improved productivity as an offset to greater price. For example, automobile tires today cost approximately 5 times what they did

in 1935. However, today's steel belted radial has an expected lifetime of about 40,000 miles, while the 1935 tire lasted about 7,500 miles. While the cost per mile fell by roughly 10%, the CPI actually reflected an increase in tire prices. As still another example, pocket calculators were only included in the CPI after their price had fallen by about 90%. Another failing of the CPI is that it is based on prices charged to urban consumers only, representing roughly 80% of the population.

The criticism leveled at the CPI because of its treatment of housing, car prices and interest rates represents more than an academic exercise.

Chart 2 shows the impact of new homes and new car prices and interest rates on the CPI over the period 1973-1980. As indicated, the CPI excluding these three items is substantially lower than the published CPI, especially for 1979 and 1980.

There are several other measures of inflation which are routinely available. One is the implicit price deflator for the Gross National Product (GNP). The GNP deflator is based on a wider range of newly produced domestic goods and services in the consumer, business, and government and construction sectors. The weights, besides being different from those underlying the CPI, are more responsive. While GNP deflator treats housing more realistically, it does not directly reflect interest rates, nor does it reflect prices of used goods such as used cars and homes. Because of the inclusion of the government and construction sectors, it is probably too broad a measure for consumer cost of living adjustments.

Another available index is the implicit price deflator for Personal Consumption Expenditures (PCE). The various weights underlying the PCE deflator shift constantly to reflect changes in spending patterns, as is the case for the GNP deflator. Interest rates and housing costs are also treated similarly to the GNP deflator.

Furthermore, the PCE deflator covers the entire population, and reflects only personal consumption items. Thus, it might seem that the PCE deflator would be an excellent measure of consumer costs. However, it is frequently revised after publication (as is the GNP deflator, also) sometimes substantially, making it undesirable for general consumer use.

Chart 3 shows the three price measures I have been discussing - the CPI and the GNP and PCE deflators from 1970-1980. The CPI values are also shown after removal of the housing, car and interest rate components. Note that the most significant discrepancies among the indices appear for 1979 and 1980, primarily attributable to the significantly different treatment of the housing and interest rate components.

The final area I'd like to address is legal and regulatory obstacles to indexed coverages. As far as fixed general account contracts are concerned, there is no Securities and Exchange Commission (SEC) involvement, historically or currently threatened. Most of the individual states have generally been receptive to policies providing indexed benefits although Alabama and Mississippi have been a problem for certain types of coverages. Some states have begun to question certain indexed products, such as where a company guarantees to credit interest at a rate

determined by an outside index, such as 13-week Treasury bills. The key question here is whether companies should be required to set up "interest deficiency" reserves? It will probably be necessary for the actuary to demonstrate sufficient matching of asset and liability cash flows to avoid onerous additional reserve requirements.

As to variable indexed contracts, SEC filing and registration are required, expense loads are limited, and other burdensome restrictions would be applicable. In addition, an indexed variable life policy would have to comply in most states with the NAIC Model VLI Regulation, which currently necessitates (among other required provisions) a fixed level premium for life.

In summary, the insurance industry has come a long way in designing products to cope with inflation in the last 10 years. Just as in the early stages of its conceptualization, variable life insurance seems like it may be the "best" inflation hedge of all to protect both death benefits and cash values from erosion. However, a more meaningful measure of the "cost of living" is needed. To the extent that inflation breeds more inflation through indexed payments such as Social Security, this step is vital. Various proposals have been made for such an index, but none have yet been accepted. Recently, suggestions have been made that a percentage of the CPI increase, such as 85%, be used to index certain payments. Lastly, we must continue to educate the public about the ravages of inflation, and the importance of protecting insurance benefits against its effects. Remember, it was not very long ago that a $25,000 policy was considered a fairly large amount policy, and that is the current <u>average</u> size policy issued by Metropolitan.

CHART 1

AVERAGE ANNUAL RATES OF RETURN ON SELECTED INVESTMENTS

	13 Week Treasury Bill	5 Year Government Bond	Moody's Composite Bond Yield	Effective Yield On S&P 500 Stocks*	Percent Change In Median Sales Price of a New Single-Family Home	Corporate Annual Percent Change in Consumer Price Index
1970	6.39%	7.37%	8.51%	11.07%	-8.6%	5.9%
71	4.33	5.77	7.94	21.24	7.7	4.3
72	4.07	5.85	7.63	13.94	9.5	3.3
73	7.03	6.92	7.79	1.46	17.8	6.2
74	7.84	7.80	9.03	-18.43	10.5	11.0
75	5.80	7.77	9.57	8.31	9.5	9.1
76	4.98	7.18	9.01	22.17	12.5	5.8
77	5.27	6.99	8.43	0.92	10.4	6.5
78	7.19	8.32	9.06	3.08	14.1	7.7
79	10.07	9.52	10.12	16.17	12.9	11.3
1980	11.43	11.48	12.75	20.25	2.5	13.5
Cumulative Change						
1970-1980	104.9%	*	*	144.2%	152.0%	125.0%

*Cumulative total not meaningful due to impact of changes in interest rates on market values.

CHART 2

HOW CONSUMER PRICE INDEX DISTORTS
"TRUE" LIVING COSTS

Year	CPI % Rise All Items	Home Price Effect	Mortgage Effect	New Car Effect	CPI % Rise Less 3 Items
1973	6.2	.12	.43	.002	5.65
1974	11.0	.45	.89	.11	9.65
1975	9.1	.73	.80	.16	7.41
1976	5.8	.30	.37	.12	5.01
1977	6.5	.66	.63	.21	5.00
1978	7.7	.97	1.31	.30	5.12
1979	11.3	1.39	2.16	.29	7.46
1980	13.5	1.44	3.37	.28	8.41
1981 (annual rate through June)	8.5	-.04	2.20	.35	5.99

Source: Research Institute of America

CHART 3

SELECTED PRICE MEASURES
(Annual Percent Changes)

Implicit Price Deflators:

	Consumer Price Index	Gross National Product	Personal Consumption Expenditures	Consumer Price Index Adjusted to Eliminate Home Prices, Mortgage Rates and New Cars*
1970	5.9%	5.4%	4.6%	N.A.
1	4.3	5.0	4.3	N.A
2	3.3	4.2	3.6	N.A.
3	6.2	5.7	5.7	5.65%
4	11.0	8.7	10.0	9.65%
1975	9.1	9.3	7.7	7.41
6	5.8	5.2	5.1	5.01
7	6.5	5.8	6.0	5.00
8	7.7	7.3	6.9	5.12
9	11.3	8.5	8.9	7.46
1980	13.5	9.0	10.2	8.41

N.A. = Not Available

*Based on Research Institute of America figures

MR. RICHARD L. MUCCI: At my company, the Paul Revere Life Insurance Company, the major product line is disability income insurance. As a result, I have principally dealt with the issues raised by this panel today in the context of disability income coverages. However, through the kind help of Mr. Bragg and some reading under my belt, I am prepared to comment on the life insurance aspects of these issues. Many of my comments will be culled from Mr. Bragg's not yet published monograph "The Endeavor to Protect Against Inflation".

The need and demand for so-called "Inflation-Proof" products has increased substantially over the last ten years. Essentially, these are products of our environment. Double digit inflation over the last several years coupled with a high average inflation over the last ten years has increased the need for insurance products which guard against the inflation risk. A contributing factor is the public attitude that things will not get significantly better in the near future. As a result, the public feels that high inflation is not a short term problem but, rather, a long term dilemma which must be dealt with.

Since the insurance buying public is tuned in to the risks of inflation and its accompanying erosion of insurance benefits, products that deal with inflation have marketability in today's environment. Our public demands protection of purchasing power whether it be cash values, death benefits, or income replacement benefits. The prospect for an insured to leave his beneficiary with an inflation eroded benefit is unsatisfactory to the public. In addition, the risk of a long term disability to a highly motivated wage earner, inadequately covered by inflation eroded disability benefits, is frightening.

Inflation is a world wide problem and inflation-resistant products in countries other than the United States are required. In the United Kingdom there has been a tremendous development of "unit-linked" individual life insurance policies. These insurance policies are tied to the performance of an investment fund. One of the first variable life insurance contracts was issued in 1956 in Holland. Everything about the contract was in "units", and not in guilders.

I think many of us are aware of the high inflation rate that is prevalent in Israel. In that country, life insurance is fully linked to the cost-of-living index. This is true for both premiums and face amounts. This policy fits in nicely with the fact that, often, interest rates in Israel are also linked in the same way. For years the Finnish companies offered policies which were actually linked to a cost-of-living index. It seems that they were, at that time, able to link investment returns to that index. Italy and Norway are other countries where individual life insurance contracts have been linked to inflation indices.

In Canada the development of inflation-resistant products has been similar to the United States. Variable life insurance has been developed and sold in the Canadian marketplace. In addition, I am also aware of one company in Canada which is offering index-linked coverage. North America Life Assurance Company has had both indexed term insurance and an indexed permanent policy since 1969.

In many of the countries I have alluded to here, social insurance disability benefits are also indexed for inflation after disability

commences. To the extent that the social programs base disability benefits on current average wages, there is an implicit inflation adjustment prior to disability.

In the United States one of the early attempts to build an inflation-resistent product was the development of variable life insurance in the late 60's. The two major companies which were involved with this development were New York Life and The Equitable Life Assurance Society of the United States. With variable life insurance, death benefits, endowment proceeds, and cash surrender benefits vary according to the performance of a "separate account" of investments. It was felt, at that time, that investment in common stock was the best way to maximize performance. Of course, that was the late 60's, and today we know the pitfalls of that philosophy.

Another problem with variable insurance is the severe regulatory restraints placed on this product. Both federal and state authorities became very active in the regulation of variable life insurance. The Securities and Exchange Commission along with the state insurance authorities have made the following major requirements on variable life insurance:

1. The agent has to have a special variable products license from the state; these licenses involve special examinations;

2. The company must be "registered" with the Securities and Exchange Commission; and

3. Specialized reports must be given to both the SEC and the state, at least annually.

According to the Life Insurance Fact Book, by the end of 1979, over $380 million of variable life insurance was in force in U.S. companies. The sales of this form is specifically authorized in 48 states. The amount of variable life insurance in force is pale in comparison to the $325 billion of ordinary life insurance purchased in 1979.

In the last several years because of the high interest yields available in the money markets, interest-sensitive products have become more popular. One of the most interesting developments in this area is the influx of the Universal Life type policies into the marketplace. With this product the cash values are adjusted depending upon the performance of an investment fund with the death benefit remaining level and paid for by deductions from the cash value fund.

These products do not specifically protect the insured against inflation. Inflation is not the driving force behind benefit increases, but rather investment performance determines cash values and benefits. In designing these products our industry hopes it will keep up with inflation but there is no guarantee that investment performance will be satisfactory. At the very least this performance may be irregular from year to year which will disturb the confidence of the insurance-buying public. There are a number of life and disability income coverages which are linked to inflation. These products explicitly use the consumer price index as the means to estimate the erosion of purchasing power. As Mr. Leff so ably pointed out, the CPI may not be the best index to use. However, it is used almost exclusively by the products currently available.

There are two major types of policies which index life insurance benefits. These are policies where the company is not on the inflation risk and those where the company does assume the inflation risk. In the area where the inflation risk is borne by the policyholder and not the company we have the following products:

1. Cost of Living Insurance Rider - This rider provides "Annual Renewable Term" coverage sufficient to keep the total death benefit in line with increases in the Consumer Price Index. The policyholder pays for this additional coverage at attained age rates. There is a small minimum on the rider amount and usually the additional coverage cannot be greater than the original face amount for the policy. This rider is renewable to a specific age, like age 65, and there are conversion privileges.

2. Consumer Price Index Whole Life Policy - On each anniversary, an Index Addition is added which will cause the total death benefit to increase in proportion to the CPI change. The company may reserve the right to limit index additions. Additional level premiums are at the attained age rate for each Index Addition. Since each death benefit increase is treated as a new issue at a new attained age level premium, there are separate cash values for each Index Addition. There is usally a maximum age after which no further increases in death benefits will be made.

3. Participating Permanent Plan with Dividend Option Tied to the CPI - This plan has a special dividend option known as the Cost of Living Option. Under this option dividends are used to buy one-year term insurance so that the total death benefit is proportionately increased in accordance with the CPI change. The total increase under this option cannot exceed the face amount of the original issue. If the dividend in any year is more than enough to pay the term insurance, the excess goes into an accumulation option. When the dividend is insufficient to pay the additional coverage, the necessary additional premium is withdrawn from the accumulation account. If the accumulation account is depleted, additional benefits are purchased to the extent possible.

4. The Policy with Ab-Initio or Original Issue Reform - When the CPI increases, all policy values on this permanent plan of insurance are proportionately increased. The face amount, premiums, non-forfeiture values, and future dividend entitlements all increase by the same proportion. This transaction creates a "shock increase" in the cash value. The policyholder must pay for this by either drawing down paid up dividend additions or in cash. In one example which has come to my attention, the upper limit for the face amount increases is the amount in force during the previous year plus the lesser of 6% of such amount or 10% of the amount originally issued.

5. The Adjustable Life Policy - Adjustable life generally provides for the insured to reform his policy periodically. The insured can increase or decrease the face amount or premium, and modify the plan of insurance. Evidence of insurability is required for increases in death benefit, and changes are essentially made on an attained age premium basis. Automatic cost of living increase agreements have been

built into some of these policies. Under these provisions, an insured can increase the face amount in proportion to the increase in the CPI automatically, without evidence of insurability. This increase can occur periodically and is handled in the same way as any other increase. There may be limits on the maximum increase and the maximum age at which the increase can occur under this provision. One company provides for the automatic cost of living feature to terminate if any increase is refused.

This completes my brief overview of the group of policies which index benefits according to the CPI where the insurance company does not assume the inflation risk. However, the next group of policies I will address are those where the company does assume the inflation risk.

1. Cost of Living Term Policy with Level Premiums - This benefit is usually attached to a permanent plan of insurance. With this provision an additional term benefit is added to the policy whenever the CPI increases. The term expires at the end of a stipulated, fairly short, period. Some examples are two years, five years, and ten years for the term period. Renewal and conversion privileges may be added. Since these term periods are short, it is considered safe not to have a limit on the total increase in benefits. The original premium for this coverage remains fixed but is higher than "Fixed Dollar" coverages in order to provide for the inflation risk assumed. Several companies have recently introduced a product like this.

2. The Cost of Living Family Income Term Insurance Benefit - This provision is essentially a 20 year family income rider where the monthly benefit increases proportionate to the CPI. These increases take place prior and subsequent to the insured's death. There could be small cash values at some durations under this rider. Premiums are level for 20 years. Apparently this rider has been successful; it is one of the more popular riders issued by the Life Insurance Company of Georgia. It may be attached to any "Fixed Dollar" permanent plan or to the cost of living policy.

3. The Cost of Living Policy - This contract is a non-participating whole life policy under which the death benefit increases on each policy anniverary in proportion to the increase in the CPI, subject to a maximum, which is double the original face amount. There is a so-called "ratchet clause" which prevents decreases in the face amount in the situation where the CPI decreases. To measure changes in the CPI, the index is looked at 3 months before issue and 3 months before each anniversary to permit timely calculations. Premiums are level for the life of the policy. Cash values are fixed at issue and determined by the "Change of State" method as outlined in a paper by John M Bragg and David A. Stonecipher entitled "Life Insurance Based on the Consumer Price Index" published in Volume XXII of the Transactions. The change of state method produces a cash value which is the largest of the set of possible minimum values. It does not produce a maximum value, since there are many ways of producing larger values. The cash values under this method exceed the original face amount at high durations, but the death benefit is always at least equal to the cash value.

This is the Cost of Living Policy which the Life Insurance Company of Georgia developed in 1968. This company continues to sell this policy, however, sales account for only a small percent of the total. Perhaps the high premiums associated with this coverage were prohibitive. In addition, the acceptance and understanding of the agents may have been lacking. I am sure that Jim Brooks can comment more fully on this policy's limited success.

In summary, the development of indexed life insurance contracts has not been very successful. Generally, these products do not satisfy the needs of the consumer; that is, assumption of the inflation risk by the insurer at a reasonable cost. Perhaps our industry will formulate better responses to this challenge in the future.

MR. JAMES C. BROOKS, JR.: I think you should know at the outset that my company, the Life Insurance Company of Georgia, has, since 1968, had on the market certain ordinary Life Insurance products which are tied to the Consumer Price Index. I have been asked to share with you some thoughs on the possibilities for the "ideal" fully-indexed permanent life insurance plan.

You have already heard the excellent remarks of my fellow panel members on some of the philosophical questions and some of the history of indexed coverages. It is appropriate to have these remarks as background for my comments on the "ideal" plan. An article appeared in the June 16, 1980 issue of Fortune magazine entitled "Cost of Living Insurance Costs Too Much." In commenting about the life of Georgia level premium, fixed cash-value, indexed Whole Life Plan currently on the market, the writer stated "...in truth, the premiums are so high initially that it might make more sense for the buyer to purchase twice as much coverage to begin with." In commenting about other types of plans on the market where the premiums do rise as the benefit increases, the same article noted: "If the death benefit in a given year is hiked 10% because of inflation, the premium will rise by more than 10% simply because the buyer is a year older." The article concludes by noting that "So far, no U.S. insurer has tried to market insurance that is indexed in all respects."

Though we might want to take issue with some of these statements, I believe the overall substance is valid. Also, to my knowledge, there is still no company in the U.S. with the ideal plan on the market. I feel there is a real need and an actuarial challenge to respond to this concern. Let me share with you some important lessons I believe we have learned at Life of Georgia from our experience so far with indexed coverages:

1. The public wants inflation-resistant products and is willing to pay for them.

2. The public wants savings which are protected against inflation as well as death benefits so protected.

3. Something must be done to lower the initial premium outlay relative to traditional fixed-dollar plans.

4. Extensive training of the field force is necessary to encourage sales of indexed coverages. Some measure of indexing commission earnings would go a long way in this regard.

I believe the ideal, fully-indexed plan can provide the solution to all of these concerns. Let's pin down what we mean by the ideal plan design. I am talking about a permanent life insurance plan with all death benefits, surrender values, endowments, etc., as well as premiums varying with a suitable cost of living index. The fully indexed plan is the perfect answer to the endeavor to protect life insurance, including its savings element, against inflation. It seems to me to do a better job for the consumer than other approaches tried in the past such as selling more fixed dollor coverage or guaranteed purchase options tied to the CPI. Both of these latter alternatives have the disadvantage of premiums based on the attained age, which was referenced in that Fortune magazine article. In addition, the ideal plan with premiums tied to the index has an advantage from the agent's standpoint; escalating premiums can enhance the agent's future income. From the company's point of view, they can help protect against general expenses that increase with inflation.

Well, can this ideal plan be brought into existence in the market place? Although time does not permit a review of his remarks here, those of you interested in an excellent discussion pertinent to this question might review a paper by Charles Greeley of the Metropolitan entitled "The Life Insurance Product in an Inflationary Economy." This paper is in the Transaction of the 19th International Congress of Actuaries, Oslo, 1972. Mr. Greeley presented an excellent discussion on the possibilities of sharing the risk of inflation among several parties including government, life insurance companies, and life insurance policyholders. As the policyholder's share of the risk, I suggest that he be forced to accept reasonable maximum limits on the benefits of the ideal plan - such as double or triple the initial amount. The same upper limit would also apply to the escalating premiums.

In summary, then, the ideal plan, with reasonable limitations, is feasible. Today's high investment yields will pay for a good part of it. The policyholder will pay for the rest and be willing to do so. I will have more to say on policyholder acceptance later.

For now, let us turn to the technique which is key to the sound pricing and reserving of the ideal plan. That technique is the "Index Accumulation Method" for developing reserves and cash values. It was described in detail in a paper by J. M. Bragg and David A. Stonecipher entitled, "Life Insurance Based on the Consumer Price Index," published in Volume XXII of the Transactions. My next remarks draw heavily upon that paper. At the heart of the method is a new contingency, in addition to mortality and interest to be recognized in the calculation of reserves and cash values. That contingency, heretofore not explicity allowed for under our Standard Valuation and Non-Forfeiture Laws, is the future behavior of the inflation index.

You must first picture the traditional fixed-dollar Whole Life policy with the usual reserves and cash values. Now, suppose the policy is forced to follow the index which is increasing. At a given duration, there will be a sudden strain in the reserve or cash value because of the increase in

the face amount caused by the increasing index. The Index Accumulation Method takes care of this strain by providing for a pure endowment at each duration in an amount equal to the strain at that duration, assuming inflation is the same as originally estimated. If inflation is different from the original valuation assumption, then a "gain or loss from inflation" arises. This is exactly analagous to the gain or loss from mortality which emerges differently from the valuation assumption.

The pure endowments I have just mentioned are actually provided by a series of premiums which themselves vary with the index in the case of the ideal plan. So, you can visualize a separate premium to provide for the indexed benefits, and a corresponding separate set of reserve and cash value factors associated with the pure endowments. Incidentially, the expense allowance in cash value calculations will necessitate the use of an equivalent level amount of insurance which would be calculated based on the valuation inflation assumption chosen.

To summarize, then, from a conceptual standpoint, the Index Accumulation Method can be viewed as separating the ideal plan into two components. The first component consists of the rates, values, and reserves for the traditional fixed-dollar Whole Life plan expressed per $1,000 of attained face amount. The second component consists of the premiums, reserves, and cash values for the fund which provides for the sudden strains caused by the index changes. These are expressed per $1,000 of original face amount. It is this second component that makes it possible to turn the traditional Whole Life plan into the fully-escalating ideal plan.

The pure endowments, premiums, and values associated with the second component will be very small in the case of the fully-escalating plan. In fact, with an upper limit of, say, double of the index increases, the Component Two Values can often be negative as we shall see in a moment. This is conceptually logical, since there will be no further strain increases and no pure endowments beyond the point at which the index has doubled. However, the premiums to provide for the pure endowments are payable over the entire lifetime of the insured.

In practice, the two components would very likely be combined for policy form purposes, since the policyholder need not be concerned with "components" and would probably only be confused by them. The combining can be accomplished by dividing the Component Two Values by the assumed face amount at each duration and adding them to the Component One Values so as to arrive at one set of rates, values, and reserves expressed per $1,000 of attained face amount. This has particular advantage where some Component Two Values are negative since these can, and should be, offset against the positive Component One Values.

Now let's look at an example of cash values determined by the Index Accumulation Method. Here is a table of values for the fully-indexed Whole Life plan issued to a male age 35 last birthday.

CASH SURRENDER VALUES FOR WHOLE LIFE INSURANCE

ISSUE AGE 35 LAST BIRTHDAY

Benefits and Premiums escalating with Index -- 58 CSO 5 1/2%

Inflation at 6% Per Year - Maximum of Double

Duration	Component I C.S.V. (escalating)	Component II C.S.V. (fixed)	Combined C.S.V. (escalating)
0	$ - 28	$ - 21	$ - 49
1	- 18	- 20	- 37
2	- 8	- 19	- 25
3	2	- 18	- 13
4	13	- 17	- 1
5	25	- 18	12
6	36	- 19	23
7	49	- 21	35
8	61	- 24	46
9	74	- 29	57
10	87	- 36	67
11	101	- 45	77
12	115	- 56	87
13	129	- 55	102
14	144	- 54	117
15	159	- 53	133
16	175	- 52	149
17	191	- 51	166
18	207	- 50	182
19	223	- 49	199
20	240	- 48	216

These values are based on the 1958 CSO Table, 5 1/2% interest, and assume inflation of 6% per year. The plan illustrated here does not impose an upper limit of double on the index increases. Recall that the Component One values are the same as those for a traditional fixed-dollar plan. Also note the negative Component Two Values and the effect of combining these with Component One in the last column. I should point out that, with an upper limit on the index increases as in this example, the cash values per $1,000 will be smaller with a higher assumed inflation rate.

Well, now that we have a sound method of reserving and calculating cash values, what about pricing? You have heard some remarks from Harold Leff on the question of whether high investment performance can overcome inflation and still give a reasonable "real" rate of return.

In calculating gross premiums, it is recommended that numerous scenarios of interest and inflation patterns be tested. Certainly, today's high interest yields coupled with the high current inflation, would be one such scenario.

In other respects, pricing is really very straightforward and not too different from that for traditional products. Once an inflation assumption is picked, then all reserves, values, and benefits are determinable as well as the nature of the premium escalation. Persistency assumptions will be included, and, incidentally, may be somewhat better than comparable fixed-dollar plans based on our experience at Life of Georgia. Mortality is probably similar to comparable traditional Ordinary Life plans. General expense factors should probably include an inflation assumption for unit maintenance expenses, and the planned commission scale should, of course, be recognized. Profit margins can be included according to any of the various methods traditionally followed based on our own company's practices.

As a final word on pricing, the currently popular "indeterminate premium" approach for non-participating contracts could have application in pricing the fully-indexed ideal plan as well. This would result in even lower initial premiums.

Let's look at some examples of some estimated gross premiums based on a $10,000 policy size.

WHOLE LIFE ESTIMATED GROSS ANNUAL PREMIUMS

PER $1,000 (BASED ON $10,000 POLICY)

WITH CASH VALUES BASED ON THE INDEX ACCUMULATION METHOD

	Issue Age 25	Issue Age 35	Issue Age 45
Low Inflation (3%)			
Fixed Dollar	$13.39	$19.05	$28.30
Life of Georgia Cost of Living Policy	21.75	31.14	47.30
Moderate Inflation (6%)			
Fixed Dollar	11.48	15.94	24.19
Indexed benefits -- initial indexed premium	12.74	17.91	26.84

This table shows premium rates typical of the traditional fixed-dollar non-participating Whole Life plans in the market around 1967, the time when most companies were first adopting the 1958 CSO table. This was a time of fairly low inflation and interest rates and cash values were generally based on a 3 1/2% interest rate. It also shows the premiums rates for Life of Georgia's Cost of Living policy that was introduced to the market around that time with level premiums, cash values fixed at issue, and escalating face amount. The next segment shows premium rates that might be more typical of products introduced around 3 years ago with cash values based on 5 1/2% interest. This segment includes the ideal fully-indexed plan with escalating premiums. All these premiums are based on a cash value interest rate of 5 1/2% , inflation of 6% per year, and a pricing interest rate of 8% for the first 10 years, 7% for the next 10 and 6% thereafter. The indexed plans have a maximum on benefits and premiums of double the initial amount.

I would make the following observations about this table:

1. You can see immediately how much more affordable the ideal, fully-indexed plan is than the Cost of Living Policy Life of Georgia has been selling. No wonder it has met with limited success!

2. The most ideal plan with indexed benefits and premiums generally has lower initial premiums than the traditional fixed-dollar plans used to have.

3. The most ideal plan is even quite affordable compared to recently priced traditional plans. At age 35, for example, the initial premium of $17.91 is only about 12% higher than the $15.94 premium for the traditional plan.

4. The higher the inflation rate assumed, the lower the premiums for the indexed plan. This is because of the higher interest rates used for both premiums and cash values and because, as noted earlier, Component Two Values under the Index Accumulation Method are lower for higher inflation rates.

By way of closing, let me turn again to the question of feasibility of the ideal plan and its likely acceptance by the public. Here, I would make the following final observations:

1. The use of the Index Accumulation Method will present some definite state filing problems under existing non-forfeiture laws. It is nevertheless believed that the method provides a sound basis for funding the obligations assumed, provides equitable non-forfeiture values, and conforms with the Standard Valuation and Non-Forfeiture Laws. The inflation rate assumed would be filed with the policy as part of the Basis of Values.

2. The ideal plan can be priced to be affordable to the consumer as compared to fixed-dollar alternatives.

3. Agents will have to be thoroughly trained and sold on the idea of a fully-escalating plan.

4. Consumers are willing to accept escalating premiums in return for a low initial premium. This is especially true for those in the middle income market of, say, $15,000 to $30,000 incomes. In March of this year, Life of Georgia conducted some market research to test the reaction of potential buyers to various Whole Life types of plans. This was by way of "Focus Group" discussions. The indexed Whole Life plan was favorably received. Two predominant comments were made. One, the indexing should not be arbitrary but rather limited to some real measure of purchasing power such as the Consumer Price Index. Secondly, a feature whereby the policyholder could stop the increase in both benefits and premiums was favored, thereby freezing the plan at the then attained level of benefits and premiums.

I have enjoyed this opportunity to share these thoughts with you today. I hope we have stimulated some interest in this area, as I believe we have a real opportunity to provide a valuable service to the public here.

MR. MUCCI: I would like to make an abrupt change from life insurance to health insurance. Let us turn our attention to various cost of living features contained in disability income insurance products. The two very popular features developed in recent years are the Cost of Living Indemnity adjustment provision and the Indexed Earnings provision.

If an insured suffers a serious disability, the monthly benefits which become payable will eventually lose much of their purchasing power as inflation continues. This could be very disappointing, if not disastrous, for a policyholder who felt that his or her disability coverage was sufficient. As a result of this need, Cost of Living Indemnity Riders were developed. Basically, these riders provide for periodic increases, usually once every year of disability, in the monthly benefit payable. Some of these riders are not index linked. In other words, they provide for a constant percentage increase in benefits regardless of the change in the CPI. In this situation the company is partially on the inflation risk because, if inflation is not as great as the guaranteed increases, over-insurance will result. On the other hand, the policyholder assumes a certain portion of the inflation risk, because if inflation runs ahead of the guaranteed increases, benefits will become inadequate.

Another popular form of this rider, one where the insurer is on the inflation risk, adjusts monthly benefits on a periodic basis according to changes in CPI. These riders can have a yearly maximum on the increase or an aggregate increase limit which will not allow adjustments to exceed a specific compound rate of growth. In the latter case, for example, if the specified rate of growth is 6%, a particular year's increase may exceed 6% if previous years averaged less than 6%. This provision is sometimes referred to as a "catch-up" feature. In addition, both the index-linked and non index-linked rider usually have a maximum increase of double the original indemnity at time of disability. These riders are funded by a level premium at the issue age rate.

The Indexing of Pre-disability Earnings is a provision contained in the so-called "Residual" type of disability policy.

The residual policy provides for a partial benefit if the insured returns to work on a part-time basis. The partial or residual benefit is determined by calculating a loss of earnings based on current earnings in the particular month subtracted from an average earnings figure calculated for the one or two years prior to the date of disability. One can readily see that during a long-term partial disability claim, without any increase in activity by the claimant, inflation will increase the current monthly earnings, and thus result in a reduction in benefits. To protect the claimant from this situation, the pre-disability earnings average will be indexed in proportion to the CPI change. Like the Cost of Living Indemnity Rider there are indexing clauses which guarantee an increase in the pre-disability earnings without regard to changes in the CPI.

The indexing provision is included in the cost of living rider or built into the base policy and is generally designed to be consistent with the Cost of Living Rider. There is usually no explicit charge for this provision but it is rather implicitly included in the cost of living indemnity premium or base policy premium.

The aforementioned cost of living features will take care of the claimant's loss of purchasing power after the point of disability. However, what about the need of the insured to keep coverage up to date with his or her increasing income prior to any disability. Of course, there are guaranteed insurability riders available with restricted option amounts. Nevertheless, the option amounts are exercised at attained age rates and usually run out at a fairly early age. As a result, the insured must bear the inflation risk and he or she hopes that the option amounts are adequate. The industry has not effectively found a solution to this coverage update problem. Perhaps in my discussion of the ideal full-indexed disability income policy, we may find some ideas to help deal with this need.

A disability income policyholder needs to protect his or her benefits from the loss of purchasing power during a period of inflation. The two major segments of this protection are coverage updates necessary to keep benefits in line with rising incomes prior to disability, and the need to protect benefits from inflation subsequent to disability. The industry has responded to the latter requirement quite effectively over the last few years. However, there still exists a serious need for a more effective means of periodically updating a policyholder's disability coverage prior to the point of disability.

I will attempt to briefly summarize my thoughts on a product which could satisfy the requirements stated above. For discussion purposes, I will refer to this product as the "ideal" fully-indexed disability income policy.

The ideal policy should automatically index coverage in proportion to the Consumer Price Index every year. Since a smaller percentage of gross income is insured as the level of income increases into the higher tax brackets, it may be necessary to index at a rate which is a constant percentage of the CPI change next year. For example, the policy might increase coverage at one-half the rate at which the CPI increases.

To limit the risk of this provision, a company may wish to have a yearly maximum on the increase or some type of overall aggregate maximum. In addition, to control the risks of early retirements, it may be necessary to have an older age cutoff. Age 55 might be an appropriate point to terminate the automatic indexing.

I am not quite sure how it could be done contractually, but the insurance company needs some type of protection in this product from the individual whose income is not increasing as fast as the CPI and in fact may be decreasing. Wording in the policy would be necessary to accommodate the situation where the insured's income does not parallel the CPI. This wording might be quite difficult to formulate, but it or some form of insurable income validation would be required to prevent severe overinsurance. Perhaps this product should only be marketed in the more select occupations so that the problems with flat or declining incomes could be avoided.

As far as indexing benefits after the date of disability, contractual language along the lines of what is available today in the so-called Cost of Living Riders would be appropriate. In addition, pre-disability earnings should also be indexed in residual policies. When the period of disability ends, the insured would retain the increases in benefits which occurred during disability. In fact, the automatic coverage updates would begin again after recovery and, maybe, following a waiting period of six months. Of course, the formula to index benefits after disability should be consistent with the formula used to increase coverage prior to disability.

Premiums would proportionately increase with the CPI or in the same proportion as the benefits are increased, if less, premiums could be quoted on a non-cancellable or guaranteed renewable basis. Fortunately, there are no cash value problems to worry about in disability income coverages. Policy reserves could be calculated using a similar theoretical approach along the lines of the "Index Accumulation Method", as outlined in the Bragg and Stonecipher paper.

In pricing this policy, different inflation scenarios should be examined. An important consideration in this analysis is the investment assumption.

Assumed investment income should be consistent with the inflation assumption. This is especially important in disability income coverages because much of the benefits are deferred in the calculation of a disabled life annuity. I have not had the opportunity to do some sample pricing studies on this type of product. The investment income in the high inflation scenarios may help to keep the price reasonable, but it may turn out that the premiums for this coverage are still quite high and not competitive.

It would also be necessary to provide a method under which the insured could increase coverage on an ad hoc basis, in addition to automatic changes. A rider, very similar to the currently available guaranteed insurability riders, would be required. This provision would allow the policyholder whose income is increasing much faster than the rate of inflation, to periodically adjust disability income coverage. Perhaps the insurance company could review the insured's income and coverage every two

or three years and make any ad hoc increases which may be necessary. The insured will not have to supply evidence of medical insurability, but must be passed through financial underwriting for the extra coverage. The attained age premium would be used for the additional ad hoc increase in coverage. Of course, this new issue would also include the automatic cost of living provision, and would be issued on the same basis as the original policy.

To control the risk of antiselection, the company may want to terminate the ad hoc increase provision if any increase is refused by the insured. However, a maximum on each increase may not be needed. The application will be financially underwritten and incomes which increase faster than the rate of inflation usually signal that the insured does not have any serious medical impairment. The same reasoning may justify extending the ad hoc increase provision to age 65.

This concludes my brief sketch of the "ideal" fully-indexed disability income policy. The challenges confronting any company which tackles this type of product are great. Nevertheless, the consumer may readily accept this product as one which satisfies his or her needs most efficiently. The rewards in the marketplace for the company which develops it may be substantial.

MR. JOHN M. BRAGG: I would like to ask Mr. Leff to tell us something about Metropolitan's experience with indexed policies. I think you have been on the market for several years haven't you Harold?

MR. LEFF: Yes, we first introduced Cost of Living benefits at Metropolitan in 1974. These benefits were provided by a rider available with whole life policies issued for $10,000 and over. The cost of the rider was $1.00 per year per $1,000 of whole life insurance. The rider provided that the face amount plus additional rider amounts, which I'll define in a minute, would match the increases in the CPI. The rider stipulated that the annual dividend on the whole life policy would purchase a combination of paid-up additional whole life insurance plus yearly renewable term insurance in the proper amounts. If a dividend were insufficient to purchase enough additional insurance, a supplementary whole life policy could be purchased without evidence of insurability to make up the difference, and the rider would resume providing additional insurance plus yearly renewable term insurance.

As you can gather, even the simplified description of the rider which I just presented is quite involved. Few of our sales representatives understood it; certainly, they did not understand it well enough to explain it to a prospect. In addition, there was little financial incentive to add this rider -- a first-year commission of $.55 per $1,000 plus a few renewals of $.10-$.15 per $1,000. In fact, there is a financial disincentive for the sales representative since, in the absence of the rider, it would be easier to demonstrate the need for an additional policy several years after issue paying 55% on a more substantial premium. Finally, there was a lack of home office promotion of the rider. Its introduction coincided with an overall policy portfolio revision, with new plans and rates, a setback for females, new minimum limits, etc., and it got lost in the shuffle.

Consequently, it is no surprise that between 1974 and 1980, we issued a total of 4,400 cost of living riders, an average of 650 riders per year, or perhaps 1/4% of 1% of the policies eligible for its inclusion.

In early 1981, we introduced a new cost of living term policy and rider. Both provide for purchase of additional amounts of one-year term insurance at participating rates specified in the contract, so that the total amount of insurance coverage keeps pace with inflation. The term policy is available with whole life policies of $10,000 and over. The additional premium payments caused by the inflation-induced term coverage generate new commission payments to the sales representative at regular term insurance commission rates.

In addition, extensive home office promotion, consumer advertising and training for the new products was conducted.

After only 7 months, we have issued over 2,200 cost of living term policies and over 14,000 cost of living term riders (perhaps 10%-15% of eligible policies). We attribute this quantum improvement in sales to the simplified policy design, the incentive for the sales representative in the form of automatically generated deferred commission payments, and our promotion efforts.

MR. BRAGG: Metropolitan's experience with this is just about the same as that of Life of Georgia and several other companies. Indexed coverage does not represent a large share of the market and yet a lot of it is sold. I feel that the Industry has not yet found the way to do this right. There is much evidence that the public wants it, and we should keep trying to develop a practical product. I think they spent several years trying to develop the automobile before Henry Ford came along. Another thing that all the companies have found is this: some agents sell a great deal of the product while other agents do not sell it at all.

MR. LEFF: At Metropolitan, of the 4400 riders we sold over that 7 year period, approximately 1,000 were sold by one sales rep. He made it a practice to include it in every single whole life sale. It was an additional selling feature. It was especially useful in competitive situations since very few companies could match it. Psychologically, it was an additional incentive for the applicant to take out the product and presumably it would increase in value to the client over the years, making it a little bit less subject to replacement from the benefits being inadequate.

MR. BRAGG: I know that one company in Canada, (The North American Life in Toronto) has had this on the market since 1969 and they have the same story. There is enough of it sold to indicate that there is a genuine desire for it; some agents really push it, while others do not.

MR. LEFF: When we developed our most recent rider that we issued early this year we faced the question: should we make it available as an option at an additional premium, or should we automatically include it in every

whole life sale? The key here is that the policyholder has the option of turning down that increase on the first anniversary and to the extent that a large portion of those policies would turn it down, you would be left with a pretty heavy expense on deleting that particular provision. We were concerned that a small proportion of our total sales would actually be willing to pay the additional premium on that first anniversary.

MR. BROOKS: I might just comment that we (at Life of Georgia) do have an annual renewable term policy that we issue automatically where there is a cost of living benefit. The increase in the premium is based on the advancing age as well as the escalating face amount. We provide two things. We provide the option or a means of electing to have it issued without the cost of living feature. Very few sales, practically none as a matter of fact, elect to have the thing without cost of living and furthermore we have very few that exercise the option to freeze the increases. It has been interesting to see that when it is automatically included even though you give them the right to opt to freeze the increases later on, we have had very few elect to do that. We don't have very many sales at older ages, however, where the increase in premium could be substantial.

MR. ANDREW F. BODINE: I am fully convined that the annual renewable term is the way this can be handled and not only would it work for life and disability insurance, but for medical expense insurance and just about anything you wanted it to. What it needs is a new look by the insurance industry. With inflation being as bad as it is, the old concept of a level premium, although it developed to overcome a certain problem, maybe isn't as desirable as it used to be. Maybe a return to some blending of annual renewal term with level premium or maybe even total annual renewable term is what is in the future for our industry to cope with all of these problems.

MR. LEFF: I would like to agree. Certainly that was one of the things that we considered. We tried to do both things by coming up with an annual renewable term product with a built-in cost of living feature and also this optional rider available with whole life insurance. Both of these products presume increasing premiums over the years and it is left up to the policyholder to decide whether or not he is willing to pay for it. With the trend toward term insurance and graded premium whole life, the high upfront premium that you would need in order to cover the inflation risk, forced us to conclude it would be a real problem in making any significant number of sales.

MR. JAMES W. SNELL: Have any of you handled the potential reinsurance problem as far as trying to convince the reinsurers that there is no problem?

MR. BROOKS: We have not really had a problem in convincing our reinsurers to accept this cost of living escalation. The only product we have that involves a significant amount of reinsurance is the yearly renewable term plan and our reinsurers have accepted this. We are not on the risk in the plan except to the extent of loss of insurability. We do not build in an extra premium for the fact that this cost of living feature is without regard to insurability.

MR. LEFF: With the products we are selling at Metropolitan we have set maximum issue limits so that even after the maximum inflation benefits have been added for the policy we have not exceeded our retention limits. We have not tried to seek out any reinsurance. I would suspect that would probably be reasonably receptive to it.

MR. BRAGG: There are two camps to indexing coverage. One camp believes the way to go is provide more term insurance, at the time the inflation index goes up, at the then attained age rate. Then there is the other school which believes that we are in the business of providing permanent insurance and should try to avoid the attained age higher cost, by prefunding. That is what the index accumulation method is all about.

MR. MUCCI: I think that is an important point. With the product that we discussed today, the premium will not increase more than the rate of inflation. Under the ART approach you would have increased face amount in addition to a higher attained age premium which would cause an increase to the policyholder substantially more than what the inflation rate shows.

MR. ROGER S. MOON: What about the possibility of using a Universal Life type of approach? If we were to see that in connection with a guaranteed inflation index related type of increase of insurance, the prospect could prefund the cost of inflation to the degree that he chose. Either not at all, or at some level assumed rate of inflation would seem to have potential for satisfying needs in a variety of ways. I wonder if any of the panel members have considered that approach.

MR. BRAGG: I would be in favour of a Universal Life design in which the amount of life insurance increases with the index. That would just be a minor modification of the Universal Life approach. As you know, this is again a matter of term insurance being bought (or charged against the investment account) at the attained age rates.

MR. MUCCI: In this morning's session it was mentioned that a common feature of Universal Life's policies is this cost of living adjustment. In addition, it would seem to match well with the fact that during a period of high inflation the excess interest credited to the account would be higher also to pay for the additional benefits. It might be a nice enhancement to a Universal Life type policy.

MR. BRAGG: I have tried to look at investment returns since 1950 (more than a 30 year period) in an attempt to discover whether investment returns will overcome inflation. This is a very good question for those who are interested in Universal Life; it is also a very good question for those who are interested in permanent plan index related coverage, because we try to fund these permanent type policies through the high investment return that is presumably available when inflation is high. I personally have been very interested in trying to see what the investment return has been like in relation to inflation. This past 30 year period can be divided into two periods rather arbitrarily. There is the period 1950 through 1967. I call that the period of tolerable inflation, in which the average inflation rate was 2.6%. The average interest yield on long term bonds was 4.4% and the average stock performance was 15.9%. (It is rather interesting that the stocks did so extremely well.) Now the second period is a period of intolerable inflation 1968 - 1980. The average inflation rate was 6.3%. The average interest yield on long term bonds was 6.5% and

the average stock performance was 8.3% including dividends plus capital appreciation. Overall, for the whole 30 years put together, the inflation rate was 4.2%, average interest yield on bonds was 5.4% and the stock performance was 12.7%. From this I conclude that stocks do better than bonds over the long run in overcoming inflation. However, they are quite contrary! The good stock performance does not coincide with the high inflation! I think Mr. Leff brought this out. In other words when you have high inflation the stocks do not do too well. It is when you have low inflation the stocks do well!

What everybody wonders about is: what is the real rate of investment return after inflation on a typical portfolio mix? Based on these figures, I finally arrived at a rule of thumb: investment earnings over the long run (provided they are untaxed) will cover inflation and give a real rate of return of 1 1/2%. This real rate of return, by the way, is not the investment rate minus the inflation rate. I think the general public probably believes that if you have a 12% inflation rate and a 15% earnings rate you've got a 3% real rate of return. Well it is not quite that way. When you go through the mechanics of it, it turns out you need 15.4% interest (untaxed) to achieve 3% real rate of return, if the inflation rate is 12%.

What I have more or less concluded as a rule of thumb is that you can get 1 1/2% real rate of return in the long run provided the investment income is not taxed.