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A NOTE ON THE GAP BETWEEN TARGET AND EXPECTED UNDERWRITING PROFIT MARGINS

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1. INTRODUCTION

Dr. Venezian's paper provides a simple yet powerful result: the traditional actuarial pricing method produces an expected underwriting profit margin that is lower than the target margin. This will not be avoided by an unbiased projection of losses; as long as there is uncertainty in that projection, the results follow.

This uncertainty in the projection of loss costs is *parameter risk*. The loading in rates for *profit and contingencies* should reflect the parameter risk assumed by the insurer, at least in the *contingencies* part. Unfortunately, an appropriate loading for parameter risk is usually not susceptible to an easy statistical measure. Dr. Venezian's theorem leads to a natural method for quantifying that loading. This review uses that method to calculate a contingencies loading for workers compensation rates.

The reviewer is aware of the controversy surrounding Dr. Venezian's result, and has read Sholom Feldblum's review [1] several times. Mr. Feldblum does not refute the statistical theorem

$$\mathrm{E}\left[\frac{1}{X}\right] \geq \frac{1}{\mathrm{E}[X]} \tag{1}$$

for positive-valued random variable X, but points out that the correct way to combine the loss ratios of several individual policies is not to take a straight average but to aggregate them; i.e., add all the losses for the numerator and all the premiums for the denominator. This is equivalent to a weighted average of loss ratios. If, as in Feldblum's example, the many policy loss ratios encompass the complete distribution of projection errors, there is no projection error left. The variance in loss ratios by policy is irrelevant.

This reviewer would not be so quick to dismiss Venezian's result. The theorem can still be applied to loss ratios that cannot be aggregated. For sake of this discussion, the reviewer has had to decide when a loss ratio must stand on its own. Individual company calendar quarter loss ratios, for instance, do not hold much actuarial relevance. Nevertheless, they seem to generate a fair amount of discussion in financial markets and among carriers. The reviewer has selected a one policy year statewide loss ratio as having enough actuarial and financial relevance to stand on its own. The bureau estimates and files a (pure) premium level change by state each year. In order to realize a certain underwriting return on premium, admitting that the filed loss rates are an estimate, we wish to determine how they should be loaded for profit and contingencies.

Alternatively, the analysis could be done by grouping states or years, which would result in a smaller, but non-zero, load. Larger companies can combine a few states before calculating results, but there are many companies writing in one or two states that cannot afford this luxury: Parameter risk affects the bottom line results.

2. DEVELOPMENT OF ALGEBRA FOR ANALYSIS OF RATE LEVEL UNCERTAINTY

As each renewal date approaches, the actuaries must choose a single estimate of the needed rates in the ensuing year. In workers compensation, the indicated rate change is estimated as a projected ratio of loss to premium at current level, divided by the permissible loss ratio, or PLR. Once a rate change is approved, the actuaries can revise their projected loss ratio to reflect the actual rate change. When the year is complete, and the actual premium is reported, projected losses, or PRJ, are calculated by extending that premium by the revised projected loss ratio.

The emerged actual losses for the year are a random variable ACT, with some unknown expected value TAR so that E[ACT] = TAR. The quantity name TAR is used to evoke Stephen Philbrick's article on credibility [2]. Philbrick likened the estimation of an unknown parameter such as TAR to target shooting. The value of ACT varies around TAR because of the random nature of the process, the process variance. At any time before maturity, the exact value of ACT is unknown and must be estimated by actuaries.

PRJ is also a random variable, the outcome of a stochastic process called ratemaking, based on data subject to errors, formulas subject to assumptions, and debate prejudiced by politics. For purposes of this exposition, we assume the loss projection is unbiased, thus E[PRJ] = E[ACT] = TAR.

We define a random variable X by:

$$X = \frac{\text{PRJ}}{\text{TAR}}.$$

So

$$\text{PRJ} = \text{TAR} \bullet X. \tag{2}$$

X is a positive-valued random variable, with non-zero variance. By its definition, $\mathrm{E}[X] = 1$.

As stated by Dr. Venezian,

$$\mathrm{E}\left[\frac{1}{X}\right] \geq \frac{1}{\mathrm{E}[X]} = 1$$

for any positive valued random variable X with unity mean. Except in some degenerate cases, strict inequality will obtain. (The variable X here is the same as Venezian's $1 + X$.)

Following Venezian's logic, to assure realization of the profit provision, rates should be multiplied by the factor $\mathrm{E}\left[\frac{1}{X}\right]$; or, alternatively, the PLR (in the original filing) should be divided by $\mathrm{E}\left[\frac{1}{X}\right]$. This adjustment should be made after the target profit provision is established using cost of capital and/or other economic evidence.

In practice, the loading would be an element added to the provision for expenses, tax and profit (the complement of the PLR). To develop that loading, define a new target loss ratio, PLR$'$. Then:

$$\mathrm{PLR}' = \frac{\mathrm{PLR}}{\mathrm{E}\left[\frac{1}{X}\right]}$$

$$= \frac{\mathrm{PLR}}{1 + \left(\mathrm{E}\left[\frac{1}{X}\right] - 1\right)} \cong (\mathrm{PLR})\left[1 - \left(\mathrm{E}\left[\frac{1}{X}\right] - 1\right)\right]$$

$$= \mathrm{PLR} - \mathrm{PLR}\left(\mathrm{E}\left[\frac{1}{X}\right] - 1\right).$$

The element added to expenses is then $\mathrm{PLR}\left(\mathrm{E}\left[\frac{1}{X}\right] - 1\right)$. It will be largest when the uncertainty in the projected loss costs is greatest; that is, when the *parameter risk* is greatest.

3. ESTIMATION OF THE CONTINGENCY LOADING

To estimate parameters of the distribution of X for workers compensation statewide rate level indications, the reviewer has assembled reported financial data comprising eight policy years' loss ratios for twenty-six states. These loss ratios are developed to ultimate as of the latest evaluation at 12/31/92.

For each state and policy year, there is also a projected loss ratio based on an analysis of rate indications and approvals as described in Section 2. Weighted averages must be taken in cases where rate changes occur at other than January 1.

The general approach is to compare the actual emerged losses by policy year with those projected at the time of rate level approval. The projected losses are the product of a projected loss ratio and earned standard premium. The quotient, projected losses divided by actual losses, will be used as a sample estimate of the random variable X. This requires several assumptions documented below. From the many samples, statistics of the distribution of X are derived.

Exhibit 1 displays two of twenty-six states' data used in this estimation. Calculations progress from left to right, across the page in the usual fashion. The reader should anticipate the eventuality of looking (down) through the pages (through the states) to calculate statistics pertaining to all states in each policy year. The notes below explain each column.

1) Policy years 1984 through 1991 are used.

2) Standard premium shown is as actually earned.

3) Projected Loss Ratio is that actually expected given the rate filing approval.

4) The Projected Loss, PRJ, is a product of Actual Standard Premium (2) and the loss ratio expected after the rate change (3).

5) Incurred Loss is as of the latest evaluation, developed to ultimate. This is a best estimate of ACT. We will be using ACT as an estimate of TAR.

6) The ratio (4) ÷ (5) is the ratio of the *projected* to *actual losses* (which is also a *ratio* of loss ratios to on-level premium). PRJ/ACT is an estimate of the random variable PRJ/TAR $= X$ defined above. The denominator, ACT, is an estimate of the underlying targeted losses, TAR. This estimate is subject to two principal errors—process variance and error in the estimated development to ultimate. The process variance we may safely disregard as small using the following logic:

The emerged losses ACT in Column 5 vary around some true expected value TAR_y (by year y) due to process variance. Ignoring estimation error for a moment, variance of PRJ/ACT will be greater than the variance of PRJ/TAR, but by an insignificant amount. We can estimate the variance of $L = \mathrm{ACT}/\mathrm{TAR}$ using risk modeling concepts. It has a relatively small variance.

Assuming frequency and severity are independent,

$$\mathrm{Var}[L] = \mathrm{Var}\left(\frac{\mathrm{ACT}}{\mathrm{E[ACT]}}\right) = \frac{\mathrm{E}[y]\mathrm{Var}[z] + \mathrm{Var}[y]\mathrm{E}[z]^2}{\mathrm{E}[y]^2\mathrm{E}[z]^2}, \quad (3)$$

where y is the claim count and z is the severity random variable. So:

$$\begin{aligned}\mathrm{Var}[L] &= \frac{1}{\mathrm{E}[y]}\left[\frac{\mathrm{Var}[z]}{\mathrm{E}[z]^2} + \frac{\mathrm{Var}[y]}{\mathrm{E}[y]}\right] \\ &\cong \frac{1}{\mathrm{E}[y]}[36 + 2],\end{aligned}$$

using reasonably conservative estimates of the variance components. (If these were doubled, it would not change the conclusion that process variance is relatively small.) Then

$$\mathrm{Var}[L] = \frac{38}{100{,}000} = .0004,$$

where 100,000 is clearly a low estimate of expected claim count in almost any state.

The error in development to ultimate is probably more significant, but is at least of the same nature as error in the original projection. The basic quid pro quo for being unable to unravel this estimation error is that so much of the variance of the projection is eliminated in the next step.

7) Because this contingency loading is not a correction for bias in the projection of losses, the estimates in Column 6 have been normalized by state so that over the eight years in the sample, the average error of the projections is nil; i.e., the ratios average to unity. This effectively ignores a lot of parameter risk exhibited in the data, probably of a much greater magnitude than whatever parameter risk is introduced by the immaturity of the evaluations. Even after this adjustment, a significant amount of error remains, and we will try to estimate its distribution. Elements of Column (7) are sample estimates x_i of the variable X. The average over the eight years, which is now unity, is shown in the last row.

8) We have observed above that the loss projection process is a stochastic process, the result of multiple judgments. Most of these judgments are *factors*—factors for loss development, trend, law evaluations, etc. It is natural to use a lognormal distribution to model the results of such a process. With the goal of fitting a lognormal, we take logarithms $t_i = \ln x_i$ of the sample points x_i in Column 7 and square them. The t_i^2 will be used to estimate the parameter σ^2 of the lognormal distribution.

The ninth row shows the averages of each of the Columns 6, 7, and 8.

Since we are estimating the parameters of a distribution with mean of unity, we can require that $\mu = -\frac{1}{2}\sigma^2$, so that the lognormal mean will be unity. We must then estimate only the parameter σ^2 from the sample. The maximum likelihood estimate S^2 of the parameter σ^2 is given by the following:

$$S^2 = 2\left(\sqrt{1 + \frac{1}{n}\Sigma t_i^2} - 1\right). \tag{4}$$

This leads to by-state evaluations of S^2 in the tenth row. For each state, a contingency loading, $(e^{S^2} - 1) \bullet \text{PLR}$ is shown in the eleventh row. A better estimate of σ^2 is the calculation of S^2 across all the states for each year. This is calculated in the next to last column of Exhibit 2 using the respective elements of Column 7 from each state. The values of S^2 vary from 0.0036 to 0.0548 over the eight years in the study.

The statistic $S^2 = 0.0214$ calculated in the first half of Exhibit 2 uses all 208 $(= 26 \times 8)$ estimates of X in the exhibit. For the lognormal distribution of X with parameters $[-\frac{1}{2}\sigma^2, \sigma^2]$, $\mathrm{E}\left[\frac{1}{X}\right] = e^{\sigma^2}$. When $\sigma^2 = 0.0214$, $\mathrm{E}\left[\frac{1}{X}\right] = e^{0.0214} \cong 1.022$. This leads to a contingency loading of $\text{PLR}(1.022 - 1) \cong 1.5\%$, when the permissible loss ratio is 70%.

For the record, the second half of Exhibit 2 calculates a contingency loading when there has been no normalization of projection error. This is about 4%.

When the risk can be spread over more states the loading could be lower. It has also been suggested that the loss ratio should be aggregated over more years, and the loading thus reduced. As long as ratemaking is an inexact science, the loading should be non-zero.

REFERENCES

[1] Feldblum, Sholom, Discussion of Venezian: "A Note on the Gap Between Target and Expected Underwriting Profit Margin," *PCAS* LXXVII, 1990, pp. 42–95.

[2] Philbrick, Stephen W., "An Examination of Credibility Concepts," *PCAS* LXVIII, 1981, pp. 195–219.

EXHIBIT 1

PART 1

CALCULATION OF CONTINGENCY LOADING
STATE A

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			(2)*(3)		(4)/(5)	(6)/avg(6)	$(\ln(7))^2$
Policy Year	Standard Premium	Projected Loss Ratio	Projected Losses	Incurred Losses	Initial *X* Estimate	Balanced *X* Estimate	MLE Summand
1984	200,278,065	62.3%	124,773,234	175,356,228	0.7115	0.9216	0.0067
1985	256,463,153	61.9%	158,750,692	233,709,184	0.6793	0.8798	0.0164
1986	316,065,139	62.7%	198,200,656	262,386,482	0.7554	0.9784	0.0005
1987	358,210,729	63.8%	228,450,683	285,366,347	0.8006	1.0369	0.0013
1988	389,240,500	64.4%	250,561,895	354,792,510	0.7062	0.9147	0.0079
1989	453,685,090	64.6%	293,272,502	381,609,365	0.7685	0.9954	0.0000
1990	437,795,706	72.9%	318,953,543	400,409,757	0.7966	1.0317	0.0010
1991	420,210,734	74.2%	311,814,224	325,316,985	0.9585	1.2415	0.0468
Unwtd Avg					0.7721	1.0000	0.0101

Maximum Likelihood Estimator (S^2) = 0.0100

PLR= 0.700

Indicated Contingency Loading = 0.71%
$(\exp(S^2)-1)$*PLR

EXHIBIT 1

PART 2

CALCULATION OF CONTINGENCY LOADING
STATE B

(1) Policy Year	(2) Standard Premium	(3) Projected Loss Ratio	(4) (2)*(3) Projected Losses	(5) Incurred Losses	(6) (4)/(5) Initial *X* Estimate	(7) (6)/avg(6) Balanced *X* Estimate	(8) $(\ln(7))^2$ MLE Summand
1984	140,918,339	63.0%	88,827,393	102,565,294	0.8661	0.7438	0.0876
1985	141,994,308	63.5%	90,166,386	100,536,644	0.8969	0.7702	0.0682
1986	136,240,676	62.9%	85,682,919	86,646,787	0.9889	0.8493	0.0267
1987	157,438,852	63.8%	100,415,130	83,836,649	1.1977	1.0286	0.0008
1988	192,055,479	62.7%	120,418,785	78,084,105	1.5422	1.3244	0.0789
1989	224,943,549	62.7%	141,039,605	100,022,404	1.4101	1.2110	0.0366
1990	217,048,436	64.4%	139,779,193	113,539,367	1.2311	1.0573	0.0031
1991	228,893,562	64.5%	147,636,347	124,865,150	1.1824	1.0154	0.0002
Unwtd Avg					1.1644	1.0000	0.0378

Maximum Likelihood Estimator (S^2) = 0.0374

PLR= 0.700

Indicated Contingency Loading = 2.67%
$(\exp(S^2)-1)$*PLR

EXHIBIT 1

PART 3

CALCULATION OF CONTINGENCY LOADING
STATE C

(1) Policy Year	(2) Standard Premium	(3) Projected Loss Ratio	(4) (2)*(3) Projected Losses	(5) Incurred Losses	(6) (4)/(5) Initial *X* Estimate	(7) (6)/avg(6) Balanced *X* Estimate	(8) $(\ln(7))^2$ MLE Summand
1984	261,040,400	62.5%	163,150,250	219,855,325	0.7421	0.7623	0.0737
1985	369,646,569	62.4%	230,659,459	234,716,774	0.9827	1.0095	0.0001
1986	462,582,740	61.8%	285,876,133	270,424,555	1.0571	1.0859	0.0068
1987	515,074,069	60.8%	313,409,179	308,069,073	1.0173	1.0450	0.0019
1988	566,185,080	59.6%	337,409,506	357,625,450	0.9435	0.9692	0.0010
1989	606,576,835	61.9%	375,471,061	374,780,756	1.0018	1.0291	0.0008
1990	657,397,693	62.6%	411,530,956	413,304,435	0.9957	1.0228	0.0005
1991	705,333,080	64.1%	452,280,026	431,686,665	1.0477	1.0762	0.0054
Unwtd Avg					0.9735	1.0000	0.0113

Maximum Likelihood Estimator (S^2) = 0.0112

PLR= 0.700

Indicated Contingency Loading = 0.79%
$(\exp(S^2)-1)$*PLR

EXHIBIT 2

PART 1

CALCULATION OF CONTINGENCY LOADING
X ESTIMATES NORMALIZED OVER POLICY YEARS

PY:	STATE: A	B	C	D	E	F	G	H	I	J	K	L	M	N
1984	0.9216	0.7438	0.7623	0.8869	1.1806	0.7664	1.4200	0.8322	0.9226	0.9722	0.8613	1.1411	0.6027	1.0160
1985	0.8798	0.7702	1.0095	0.9513	0.9815	0.8680	1.2845	0.9056	0.9161	1.0247	0.9098	1.1479	0.5983	0.9881
1986	0.9784	0.8493	1.0859	0.8172	1.0833	0.8730	1.2605	0.9424	0.9955	1.0087	1.0210	1.1354	1.0118	0.8783
1987	1.0369	1.0286	1.0450	0.8849	0.8982	0.8634	0.9954	0.9954	1.0571	0.9676	0.9597	1.0579	1.0574	1.0181
1988	0.9147	1.3244	0.9692	0.9625	0.9313	0.7993	0.8353	1.0103	1.0232	0.9505	1.0292	0.9920	1.1030	1.0210
1989	0.9954	1.2110	1.0291	0.9730	1.0480	1.0232	0.7771	0.9817	0.9701	0.9216	0.9735	0.8123	0.8974	0.9185
1990	1.0317	1.0573	1.0228	1.1688	0.9560	1.4859	0.7071	1.0957	1.0436	1.1045	1.0576	0.8292	1.2197	1.0141
1991	1.2415	1.0154	1.0762	1.3553	0.9211	1.3210	0.7202	1.2365	1.0718	1.0503	1.1879	0.8843	1.5097	1.1460
AVG	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
STAT	0.0100	0.0374	0.0112	0.0238	0.0077	0.0513	0.0692	0.0126	0.0032	0.0030	0.0084	0.0186	0.0921	0.0055
LOAD	**0.71%**	**2.67%**	**0.79%**	**1.69%**	**0.54%**	**3.69%**	**5.01%**	**0.89%**	**0.22%**	**0.21%**	**0.59%**	**1.31%**	**6.75%**	**0.39%**

EXHIBIT 2

PART 2

CALCULATION OF CONTINGENCY LOADING
X ESTIMATES NORMALIZED OVER POLICY YEARS

PY:	O	P	Q	R	S	T	U	V	W	X	Y	Z	AVG	STAT	LOAD
1984	0.9809	0.5008	1.1290	0.8613	0.7806	1.0722	0.9866	0.8531	0.8014	1.0465	1.1154	0.8316	0.9227	0.0548	**3.95%**
1985	1.0587	0.6958	1.0928	0.9824	0.8379	1.0204	1.0191	0.9484	0.8930	1.0676	1.0567	0.9315	0.9554	0.0261	**1.85%**
1986	1.1376	0.8750	0.9567	1.0829	0.9834	1.0978	1.0655	1.1633	0.9229	1.0762	0.9499	0.9778	1.0088	0.0109	**0.77%**
1987	1.0165	0.9860	0.9544	1.0698	0.8961	1.0076	0.9961	1.0409	0.9292	0.9866	1.0377	1.0100	0.9922	0.0036	**0.25%**
1988	0.9948	1.1099	0.8732	0.9456	0.9773	0.9932	0.9468	1.1639	1.0071	0.9506	0.9715	1.0465	0.9941	0.0098	**0.69%**
1989	0.9289	1.2173	0.9347	1.0622	1.1424	0.8449	0.9907	1.0233	1.1748	0.9290	1.0408	1.0599	0.9954	0.0119	**0.84%**
1990	0.9104	1.2317	0.9868	0.9622	1.0440	0.9301	0.9480	0.9738	1.0940	1.0094	0.9830	1.0677	1.0360	0.0185	**1.31%**
1991	0.9722	1.3837	1.0724	1.0336	1.3384	1.0336	1.0472	0.8333	1.1777	0.9342	0.8451	1.0751	1.0955	0.0351	**2.50%**
AVG	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000		
STAT	0.0044	0.1008	0.0068	0.0053	0.0261	0.0061	0.0016	0.0137	0.0167	0.0031	0.0062	0.0068		0.0214	
LOAD	**0.31%**	**7.42%**	**0.48%**	**0.38%**	**1.85%**	**0.43%**	**0.11%**	**0.97%**	**1.18%**	**0.22%**	**0.44%**	**0.48%**			**1.51%**

EXHIBIT 2

PART 3

CALCULATION OF CONTINGENCY LOADING
X ESTIMATES NOT NORMALIZED

PY:	STATE: A	B	C	D	E	F	G	H	I	J	K	L	M	N
1984	0.7115	0.8661	0.7421	0.6565	1.2141	0.6309	1.6881	0.7869	0.8411	0.8375	0.7333	0.9617	0.4897	0.8604
1985	0.6793	0.8969	0.9827	0.7042	1.0093	0.7146	1.5270	0.8563	0.8352	0.8828	0.7745	0.9675	0.4862	0.8368
1986	0.7554	0.9889	1.0571	0.6049	1.1141	0.7187	1.4986	0.8911	0.9076	0.8690	0.8692	0.9569	0.8221	0.7438
1987	0.8006	1.1977	1.0173	0.6550	0.9237	0.7108	1.1834	0.9412	0.9638	0.8336	0.8170	0.8916	0.8592	0.8622
1988	0.7062	1.5422	0.9435	0.7124	0.9577	0.6580	0.9931	0.9553	0.9328	0.8189	0.8761	0.8360	0.8962	0.8646
1989	0.7685	1.4101	1.0018	0.7202	1.0777	0.8423	0.9239	0.9283	0.8844	0.7940	0.8288	0.6846	0.7292	0.7778
1990	0.7966	1.2311	0.9957	0.8652	0.9832	1.2233	0.8406	1.0361	0.9515	0.9515	0.9004	0.6989	0.9911	0.8588
1991	0.9585	1.1824	1.0477	1.0032	0.9472	1.0875	0.8562	1.1692	0.9772	0.9048	1.0113	0.7453	1.2267	0.9705
AVG	0.7721	1.1644	0.9735	0.7402	1.0284	0.8233	1.1889	0.9456	0.9117	0.8615	0.8513	0.8428	0.8126	0.8469
STAT	0.0781	0.0545	0.0122	0.1184	0.0083	0.0980	0.0864	0.0164	0.0120	0.0255	0.0354	0.0504	0.1500	0.0338
LOAD	5.69%	3.92%	0.86%	8.80%	0.58%	7.21%	6.32%	1.16%	0.84%	1.81%	2.52%	3.62%	11.33%	2.40%

EXHIBIT 2

PART 4

CALCULATION OF CONTINGENCY LOADING
X ESTIMATES NOT NORMALIZED

STATE:

PY:	O	P	Q	R	S	T	U	V	W	X	Y	Z	AVG	STAT	LOAD
1984	0.7844	0.5219	0.9306	0.7761	0.6743	0.8179	0.7382	0.9271	0.6185	0.8300	0.9338	0.9228	0.8268	0.1048	7.74%
1985	0.8466	0.7252	0.9007	0.8851	0.7238	0.7784	0.7625	1.0307	0.6892	0.8467	0.8846	1.0336	0.8562	0.0699	5.07%
1986	0.9097	0.9119	0.7885	0.9757	0.8495	0.8375	0.7972	1.2643	0.7122	0.8535	0.7952	1.0850	0.9068	0.0474	3.40%
1987	0.8129	1.0276	0.7866	0.9639	0.7741	0.7687	0.7453	1.1313	0.7171	0.7825	0.8687	1.1208	0.8906	0.0416	2.97%
1988	0.7955	1.1568	0.7197	0.8520	0.8443	0.7576	0.7084	1.2649	0.7773	0.7540	0.8132	1.1613	0.8961	0.0542	3.90%
1989	0.7429	1.2687	0.7704	0.9570	0.9868	0.6445	0.7412	1.1121	0.9067	0.7369	0.8712	1.1762	0.8956	0.0535	3.85%
1990	0.7280	1.2837	0.8133	0.8669	0.9019	0.7095	0.7093	1.0584	0.8443	0.8006	0.8229	1.1848	0.9249	0.0372	2.65%
1991	0.7775	1.4421	0.8839	0.9313	1.1562	0.7884	0.7835	0.9056	0.9089	0.7410	0.7075	1.1930	0.9733	0.0322	2.29%
AVG	0.7997	1.0423	0.8242	0.9010	0.8639	0.7628	0.7482	1.0868	0.7718	0.7931	0.8371	1.1097	0.8963		
STAT	0.0547	0.0988	0.0450	0.0167	0.0509	0.0794	0.0844	0.0195	0.0864	0.0567	0.0386	0.0169		0.0552	
LOAD	**3.93%**	**7.27%**	**3.22%**	**1.18%**	**3.66%**	**5.79%**	**6.17%**	**1.38%**	**6.32%**	**4.08%**	**2.75%**	**1.19%**			3.97%