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Serving the Cause of Public Interest

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Institute of Actuaries of India



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Waves of Reforms... Oceans of Opportunities

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VISION & MISSION VALUE



THE VISION

IAI to be globally well recognised professional organisation, developing enduring thought leadership to manage uncertainty of future financial outcomes.

THE MISSION /OBJECTIVES

- To educate/train risk professionals
- To enhance and maintain high professional standards
- To shape Public Policy and Awareness
- To engage with other professional / regulatory / government bodies
- To promote/build IAI as a respected Brand of risk management globally
- To promote Research, to advance actuarial science/application

THE VALUES

- Integrity
- Respect for others' views
- Accountability
- Continuing learning/Research oriented learning
- Transparency
- Be responsive/sensitive

VISION, MISSION AND VALUE STATEMENT

(Excerpts from the book: Bootstrap leadership – 50 ways to break out, take charge, and move up by Steve Arneson)

Vision & Mission provides purpose and direction to an organization and paves way for road to success

VISION – Vision is the dream – the future state, where you want to go. Think of it as **the why** – as in, “Why does our group exist?” The vision should be aspirational and motivational; something the team can rally around. Aim high and make it aspirational. A great vision can unify a team and give its members a reason to come to work every morning.

MISSION - Mission is the goal: the objective in front of you. Think of it as **the what** – as in: “What are we trying to accomplish?” The mission should be challenging and should describe the business you’re in and the customers you are trying to serve (whether internal or external). The mission should be connected to the vision; that is, by accomplishing the mission, you move closer towards making the vision a reality.

DEVELOP STRATEGY – Think of Strategy as **the how** – as in “how are we going to complete the vision?”. Strategy describes the specific plans taken to meet the objective, and should be clear and measurable. Good strategy includes detail about how the work will be accomplished, and includes resources, responsibilities, budget, metrics, and milestones.

VALUES - Value statements are often referred to as “guiding principles”. A value statement is an expression of a company’s or individual’s core beliefs. It allows for the company’s staff to be aware of the priorities and goals of the company.

The value statement, along with a mission and vision statement forms the corporate culture and climate.

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CONTENTS

4 FROM CHIEF EDITOR

Nick Taket discusses about Actuarial Education & Skills required to be developed

5 FACE TO FACE WITH

Offshored Actuarial Work in India - Success Story **AMIT GUPTA**

7 COMPANY PROFILE

XL Group

8 REPORTAGE

- 1st capacity Building Seminar in Health Insurance by Shivali Chopra
- 2nd IAI Connect by Aditi Sodhi

12 COUNTRY REPORT

New Zealand - Update on licensing in New Zealand By John smith

13 ANNOUNCEMENT

- Institute of Actuaries of India Calling for expression of Interest for Research projects
- Editorial Policy Actuary India

14 KNOW YOUR PRESIDENT

M. Karunanidhi

16 STUDENTS COLUMN

Mathematical Intimidation: Driven by the Data: John Ewing

21 FROM THE PRESS

- **IANS:** Cabinet proposes far-reaching insurance reforms: By Indo Asian News Service
- **HT:** Pension bill passage will clear investors' doubts: PFRDA
- **IANS:** Nod to FDI hike in insurance will turn market sentiments: Experts
- **The Charlotte Observer:** Consumers plan to delay retirement, Bank of America survey shows
- **IANS:** Actuaries institute to increase professionals

24 BOOK REVIEW

Stochastic Modelling – Theory and Reality from an Actuarial Perspective
Reviewed by V Rajagopalan

25 SHILPA'S PUZZLE

27 CAREER OPPORTUNITY

Research Department of the Institute of Actuaries of India, Mumbai

WELCOME

10 Khushnum Rao

11 Nitin Makharia

21 Akshata Damre

24 Divya Bavishi

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FROM THE CHIEF EDITOR

First of all, I would like to extend my congratulations to Mr. M Karunanidhi on his election as the new President of the Institute of Actuaries of India.

The role of the President is always very difficult, there will be many challenges ahead and he will need our wholehearted support to take our profession forward. I am sure that he can rely on all of us for that backing and I wish him every success.



The new President will of course bring his own particular flavour to the objectives that the profession has set out for itself. I was very happy to see that he was quoted in the media as putting a special emphasis on education and that he plans to increase special coaching classes and subject counselling sessions for students. I am all for this, as we need to ensure a continued supply of young actuaries for the future. After all, being actuaries it is only prudent for us to set aside actuarial reserves for the future! (OK, I admit that was a very bad pun, but there have to be some privileges to being editor.)

I hope the greater priority given to education will not be limited to those members studying for examinations. As each of us rises up through our particular organisations the nature of the work we undertake will naturally change, and we need to develop new skills to be able to successfully perform these new roles.

Some of these skills are generic and we would look to our own organisations to help us develop the necessary competencies. However, some of the skills are particular, or even unique, to our profession, and here the Institute has a role to play.

There are many examples of the particular skills that senior actuaries need to develop, but perhaps the most obvious example is the position of the appointed actuary. In addition to the normal duties to employer and profession, this role places on the actuary additional duties to the IRDA, to policyholders, and to the industry. This leaves the appointed actuary simultaneously trying to balance duties to many different parties, with possibly competing interests. The appointed actuary can be placed in very difficult circumstances, as has been amply demonstrated by a number of recent events.

The system of certificates of practice ensures that appointed actuaries have the right mix of technical knowledge and experience to take on the role of the appointed actuary. However, I believe this system needs to be supplemented with on-going development to enable appointed actuaries to face the ever changing challenges they face.

It has often been said that the day we stop learning is the day we die, and I believe the Institute's education strategy should cater to the education needs of all its members, no matter how many years young they may be.

Nick Taket

Heartiest Congratulations

15th GCA Theme Contest Winner - Ajai Kumar Tripathi

Waves of Reforms... Oceans of Opportunities.



atri_actuary@rediffmail.com

Ajai is an Associate member of **Institute of Actuaries of India**. He is currently working as an Asst Chief Manager with Sahara India Life Insurance Co Ltd and responsible for the entire gamut of activities being carried out in the Actuarial Department. He has an experience of around 12 years in the insurance sector which includes exposure with LIC of India in IT and Actuarial dept and Hewitt Associates in valuation of employee benefits.

OFFSHORED ACUTRIAL WORK IN INDIA - SUCCESS STORY



AMIT KUMAR GUPTA, FCAS, MAAA, VICE PRESIDENT, ACTUARY, XL INDIA BUSINESS SERVICES PVT. LTD.

amit.kumar@xlgroup.com



Amit Kumar Gupta is a Fellow of the Casualty Actuarial Society (USA), a member of the American Academy of Actuaries and an Affiliate member of the Institute of Actuaries of India (IAI). He is currently Vice President, Actuary at XL Group at their office in Gurgaon.

After completing his masters degree in Economics from the Delhi School of Economics in 2001, Amit was involved in Economic research with the Federation of Indian Chambers of Commerce and Industry (FICCI) and thereafter joined XL Group. In the last 10+ years that he has spent at XL, he has been involved in reserving for various Property and Casualty lines of business ranging from first party Property coverage to more complicated products like Excess Casualty for the US, Professional Liability including Directors and Officers, Errors and Omissions and some other unique lines like Satellite launches. Amit has worked in London for a little over two years where he handled individual account pricing for British and other European companies. He is based in XL's Gurgaon office and manages a team of 40 actuarial professionals.

PERSONAL

What jobs and experiences have led you to your present position?

I did some Economics research with FICCI for about 6 months and then joined XL. At XL, I have worked on various actuarial projects including a Sale purchase agreement; reserving for various lines of business ranging from short tailed Property, Marine and Offshore Energy, Aviation and Satellite risks to very long tailed lines like US Excess Casualty and Professional Directors and Officers, Errors and Omissions and Employers Practices Liability business in the US, Europe and Asia Pacific. I was in the UK working on pricing Primary Casualty individual account pricing for 2 years and then moved to my current role as the head of the actuarial function at XL India in 2009.

Describe your current roles and responsibilities?

I lead a team of around 40 actuarial staff. We work on the various actuarial aspects of Insurance (and Reinsurance) such as Reserving and Pricing. My team is very actively involved in the implementation of the Solvency-II technical provisions for the company. Recently, we have also started a new team that uses predictive modeling to drive analytics in various underwriting and claims functions besides using predictive modeling to assist actuaries in coming up with pricing tools.

What are the key qualities required in your position?

The most important quality is communication. You can do the best and the most sophisticated actuarial analysis possible, but if you can't communicate what you've done to your various stakeholders like Senior Management, Underwriting, Claims and Finance, then your work is only half done. I also believe that effective communication, both inside and outside the department is the key to successful people management.

Challenges that you faced on the route to becoming an Actuary?

Just like any actuarial student, the biggest challenge I faced was

balancing work, studies and personal life (and one has to make time for some sleep in between all of those priorities).

How did you balance your job, studying for exams, and personal time?

Prioritizing was important. I wanted to complete my exams as quickly as possible, but at the same time, I enjoyed my work and wanted to do more variety of work. Since I had decided very early in my career that I wanted to work in General Insurance, I decided to write the CAS exams. The exams are very relevant and highly correlated with work, which made them quite enjoyable.

PROFESSION

Please describe a typical day at work?

Working in a global setup, there are a lot of developments and emails that one wakes up to every morning, so my day typically starts with emails. Usually, first half of my day involves meetings with my team and updates on various projects, my own work/ assignments and company management matters. The second half of the day is about calls/ video conferences with our teams in Europe and the US.

What can you tell me about the employment outlook in your occupational field?

The employment outlook in the Property and Casualty world is very positive. This profession is a global one and international boundaries are disappearing at a faster pace. Actuaries have been getting greater recognition and importance for their work all over the world and this has placed a greater demand on the scarce supply of actuaries around the world including India. Some recent changes in regulation, both insurance and financial, have made the role of actuaries very critical.

How much demand is there for people in this occupation? How rapidly is the field growing?

Worldwide, the demand for actuarial skills is said to be greater than the supply and this trend is even stronger in the general insurance world. Climate change, technological advancements

and rapid globalization are placing greater demands and challenges for general insurance actuaries. An earthquake in Japan impacts insurance companies around the world, Chinese companies are now being sued by shareholders in the US and the outsourcing industry in India has increased demand for professional insurance for companies outsourcing from India. The challenges for general insurance actuaries are very different and changing very rapidly causing us to reinvent our strategies and require us to identify and insure these new risks around the world.

What do you consider to be the key areas where actuaries add value to the business?

Actuaries are specialized professionals trained in the evaluation of risk and uncertainty. The rapidly evolving technologies, new business practices and models and our lifestyle create new risks every year that need to be understood and assessed. There are also great advancements being made in the analytics world and the rest of the industry outside insurance and banking is also fast catching up with the use of analytical models. (Consumer goods companies like Amazon and some online movie rental sites, have big analytics teams that use analytical models to predict consumer behavior). As a result of the changing business dynamics, actuaries are now at the forefront of various businesses and playing very important roles in organizations.

What impact do actuaries have on consumers and society? What should they do to connect with the society?

As change accelerates and risks multiply, the world looks to insurance solutions for its most complex risks. The actuarial profession has the people, the drive and the technology to deliver bold new solutions to the most complex risks, thereby unleashing the world's capacity to advance. Our role and recognition will gradually increase as we continue to play a bigger role in this advancement.

How do you think IAI can support better its members?

IAI is already doing a great job at supporting its members and the profession in India. The one area where I think we could do better is by encouraging greater diversity in thinking and analytics. We could have greater coordination with other specialized actuarial bodies like the Casualty Actuarial Society (CAS) to share new concepts and ideas with the general insurance actuaries in India. The research department set up by the IAI is a positive step in the right direction.

You being a fellow member of CAS as well as an affiliate member of IAI, what do you see commonality of approach amongst these two organizations?

The ultimate goal of the two organizations is the same – to prepare students and members to meet the challenges of our jobs.

INSURANCE INDUSTRY IN INDIA

What trends do you see for this industry in the next 3 to 5 years?

I am very optimistic about the general insurance industry in India over the medium term – next 8-10 years. As India grows and

our industry becomes more global and competitive, we'll see a big increase in the demand for commercial P&C insurance. Thinking will evolve and the corporate and people will gradually see the need for general insurance. The next 3 to 5 years would see us move in this direction.

Are there things that the IRDA or the Government should have or should not have done to assist the industry?

To maintain and build on the impressive growth that we have had over the last decade is a challenge for the government, IRDA and all of us. There are some positive reform measures that the government has taken recently which are steps in the right direction. Increased focus on public infrastructure, labor laws and legal system could be a huge catalyst for further growth of domestic industry. Given the size of our market, our geographical location and the burgeoning middle class and corporate sector, we could have been a major insurance hub in Asia along with Hong Kong and Singapore. The government and IRDA should take steps to make India an Asian hub and this will then help propel the growth of insurance in India.

What market share do you see the private sector players having in ten years time?

A lot depends on the latest reform measures announced by the government. If the FDI in insurance goes up to 49%, we could see a lot more competition in the market and more private/multinational firms enter our market. It is hard to see how the market will play out but the developments will be interesting.

What are the top three issues facing the Insurance sector in India.

From a general insurance perspective, the top three issues would be the FDI cap, profitability concerns of insurers and need to spread consumer awareness for general insurance.

What do you believe are the inefficiencies in the insurance industry? How do you think such inefficiencies can be overcome? What are its strengths?

The Indian motor third party pool created a lot of burden for general insurers due to inadequate pricing. However, this problem is being addressed. India is a developing country and faces similar issues that many other developing countries are facing or have faced in the past. However, what is important is that we are able to address the issues and move forward.

OFFSHORED ACTUARIAL WORK IN INDIA

Your current area of responsibility is managing actuarial work that belongs to Insurance Entity of the US and the UK. Can you expand on this?

XL Group is an SEC listed company that writes commercial P&C business all over the world with the two biggest insurance markets being the US and the UK. The team in India supports the reserving analysis for the entire Insurance Segment all over the world. The team also supports individual account pricing for our UK based casualty book of business and provides pricing support to our US team. And as stated earlier, implementation of Solvency-II technical provisions and non-core actuarial areas like predictive modeling are also areas where my team is involved.

What is your view on such work being carried out within India: its volume, spread over countries, its challenges etc?

I look at offshoring as a platform where we train people to handle problems of tomorrow. We work on developed markets and the challenges they face today. We work with experienced actuaries and learn from them. We are dealing with issues of changing regulatory requirements and implementation of solvency-II framework. When the insurance sector in India expands in the near future, we would already have a big workforce that is well trained to handle a lot of the global challenges. The scope of such work being performed in India has been growing and volume will continue to grow in the time to come. The main bottleneck to fast growth today is the supply of experienced general insurance actuarial professionals. Difference in time

zone is a challenge but good planning, communication and coordination help overcome this challenge.

Any specific challenges facing actuarial workers in this area of employment within India?

Lack of general insurance experience is the major challenge that we face today. At XL, we try to overcome this challenge by providing our actuarial staff with a lot of interaction with our experienced actuaries in India as well as actuaries around the world.

Suggestions for the IAI which can support better such work in India?

IAI could help immensely by organizing more general insurance seminars. We could look at tie up with the CAS for knowledge sharing sessions on various general insurance topics.

OFFSHORED ACTUARIAL WORK IN INDIA - COMPANY PROFILE

India has a fast growing actuarial talent pool and a matured outsourcing industry, and is thus increasingly recognized as a force to reckon in the actuarial outsourcing arena. With regulatory environments changing, and greater focus on driving costs down around the world, India can emerge a preferred destination for actuarial services off-shoring besides location of Actuarial Consulting in Hong Kong and Singapore. This month we present company profile of XL Group.

XL Group plc, through its subsidiaries, is a global insurance and reinsurance company providing property, casualty and specialty products to industrial, commercial and professional firms, insurance companies and other enterprises throughout the world. XL is the company, clients look to for answers to their most complex risks and to help move their world forward. Its principal offices are located at No.1 Hatch Street Upper, 4th Floor, Dublin 2, Ireland.

XL's core operating subsidiaries hold a Financial Strength Rating of

- 'A' from A. M. Best • 'A' from Fitch, 'A2' from Moody's • 'A' from S&P

Stats

- 60 offices • 21 countries • 4,000 employees • \$11.1 billion in consolidated shareholders equity as of March 31, 2012



From warehouse to warehouse, we're with you

At XL Group, we cover risk. From the everyday, to the most complex. For medium-sized companies and large global corporates. Across more than 100 countries. Right now we're part of almost 2,000 global programs and leading more than 70 % of them.

We're the perfect size. Big enough to protect you and small enough to stay flexible.

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MAKE YOUR WORLD GO

1ST CAPACITY BUILDING SEMINAR IN HEALTH INSURANCE

By Shivali Chopra

Organized by : Institute of Actuaries of India

Venue : Hotel Sea Princess

Date : 3rd September 2012

The Institute of Actuaries of India held the 1st capacity building seminar in health Insurance on 3rd of September, 2012 in **Hotel Sea Princess, Juhu, Mumbai**. The seminar commenced with an introductory note by Jagbir Sodhi, a member of the Advisory Group and Director-Life & Health, Swiss Re UK.



Liyaquat Khan

Mr **Liyaquat Khan**, President, IAI inaugurated the seminar and talked about great future of health insurance in India. The seminar progressed with various speakers presenting about experience and other technical aspects of health insurance in the sessions that followed.

Session 1: Analysis of Experience in Health Insurance by Anurag Rastogi, Vice President & Head – Actuarial, Bajaj Allianz General Insurance Co. Ltd.



Anurag Rastogi & Biresh Giri

Anurag shared the experience analysis of individual and group health insurance portfolio. He presented various trends in health insurance portfolio relating to age, gender, geography, sum insured, family size in terms of both one way

and GLM analysis. GLM effect of some of these factors may completely change the perception gathered from one way analysis. The analysis revealed that one of the problematic situations that has emerged from experience analysis is increase in claims frequency and severity with increase in duration of policyholders since entry. He proposed that creating deferred benefit reserve could be one of the solutions to this. He also discussed about the challenges in performing this analysis. Poor data quality, lack of industry wide data, difficulty in implementation of findings of experience analysis due to sales pressure and competition are some of the challenges currently faced by insurance companies.

Session 2: Rate revision consideration in retail health products by Smita Tibrewala, Chief Manager – Actuarial, Reliance General Insurance Co. Ltd.



Smita Tibrewala

Smita's presentation covered different aspects while considering rate revision in retail health insurance products. She emphasized that regular monitoring of portfolio is a key to understand and identify loss making buckets in the portfolio and taking corrective actions on time. Continuous monitoring also enables insurance company to identify any new variable which was not considered in pricing but which is causing major impact on portfolio. She focused on the fact that insurance company needs to build a pricing model based on risk involved and check whether pain areas in the portfolio can be taken care by the existing pricing

About the Author



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Shivali Chopra works as a Manager in the Actuarial department of Max Bupa Health Insurance Co Ltd. She is involved in Products pricing and Reporting.

grid and changing the underwriting guidelines.

She mentioned that rate revision should be approached by properly studying the claims distribution and classifying and analyzing the data by different parameters like underwriting year, sum insured, age band, business type, geography, gender, vintage etc. She briefly touched upon the method of calculating burning cost from an experience data using tweedie distribution and analyzing different trends in risk premium with respect to different parameters and comparing it with an existing premium.

She emphasized that there should be strict underwriting guidelines to reduce anti selection and portfolio should be well diversified to reduce risk. She stressed upon the fact that rate revision should neither be too frequent and nor be too harsh as policyholder may feel betrayed if price changes too early and by large amount.

Session 3: Reinsurance for Healthcare Programmes by Manalur Sandilya, Consulting Actuary



Vishwanath Mahendra & Manalur Sandilya

Manalur's presentation talked about the role of reinsurance in health insurance and analyzed different types of reinsurance available.

He stated that health insurance book is priced at an expected value of cost

plus loading for risk. This expected value of cost is an estimate and company may face good and bad experience. Reinsurance will enable smoothing of income stream of an insurance company during bad years. There is also a regulatory requirement to hold minimum required capital for insurance companies. Reinsurance can be used to provide an additional capital to an insurance company. It is also one of the typical reasons for taking proportional treaties. Reinsurers also provide an added advantage to insurance company by helping better analytics for the class of business concerned based on their wide experience in other similar portfolios.

He mentioned that risk transfer to reinsurance company is not free as reinsurance also incurs operating cost and include its profit margin. Therefore, it is very essential for an insurance company to define its risk tolerance which is mostly driven by size of exposure of the company and evaluate risk return tradeoff to decide whether or not to take reinsurance.

Presentation briefly covered exposure accumulation of an insurance company by different variables like geography, peril, limits, deductibles etc and briefly compared proportional and non proportional treaties by citing an example.

Session 4: Pricing of Family Floater Health Insurance Products by Biresh Giri, Appointed Actuary, Max Bupa Health Insurance Co. Ltd.

Biresh presented pricing of family floater products. He focused on the discount that should be given to family floater health insurance products over premium rates of individual products. He highlighted that the level of discount depends on various factors like age, sum insured, number of members in the family, type of product, and other prudent assumptions. He elaborated on various sources of discount in family floater plans like positive selection which results in lower incidence rates in family floater plans. Sum insured capping could be another source of discount as there is higher chance of burning out the sum insured in family floater because same sum insured is shared by all the members in the family. Lower expense

loading and better persistency of portfolio can also contribute to discount in family floater plans.

He also briefly discussed about the approaches used to calculate this discount. Stochastic modelling using simulation is one solution approach to calculate discount in pure claim cost. Presentation also highlighted other reasons of offering discount. These included better persistency, lesser fraud, discretionary discounts to make family floater better proposition for customers and difference in margin for operating expenses and claims handling expense etc.

Session 5: Deferred Benefit Reserve by Vishwanath Mahendra, Appointed Actuary, Apollo Munich Health Insurance Co. Ltd.

Vishwanath's presentation highlighted the importance of deferred benefit reserve in health insurance. Deferred benefits are those benefits (with waiting period applicable for a certain number of years) for which policyholder become eligible if he continues policy for a specified number of years. Examples include Pre existing conditions covered after certain years, maternity covered after X number of years and other benefits with waiting period like health checkup, dental cover, outpatient treatment etc. He stated that the purpose of waiting period is to control anti selection and keep premium low. Since premium is received for these benefits and earned throughout (even when policyholder is not eligible for the benefits due to waiting period applicability), so there is need to build up reserves for such benefits during waiting period and utilized it over eligible period. This will result in smooth portfolio performance over year. He highlighted that deferred benefits are becoming popular due to product innovations.

He stated that deferred benefit reserve can be determined retrospectively or prospectively as done in case of life insurance but there are some additional considerations to it such as no separate risk premium available for these benefits, incidence rate and average claim costs need to be estimated separately for such benefits. It can be part of URR (Unexpired risk reserve) in overall framework.

He further mentioned that assumptions used in pricing these benefits and analysis of claims including claims rejected due to waiting period applicability could be possible sources of data for such benefits. He also shared an example to calculate reserves for Maternity benefits claims. He stated that availability of adequate and quality data, consumption of lot of resources due to its complexity and adverse affect on profitability in initial years are some of the challenges in establishing these reserves.

He stressed upon the fact that data should be collected in proper formats and in sufficient detail and highlighted the need to appreciate these kinds of benefits and start measuring it. He concluded that disciplined approach in this regard will help in monitoring the performance of portfolio and risk adequate pricing.

Session 6: Pricing in Health Insurance including Multi- Variate Analysis by Raunak Jha, Senior Consultant, Towers Watson



Raunak Jha

Raunak started the presentation with the overview of health insurance market. Health insurance has contributed nearly 24% of total GI industry turnover. It has been the fastest growing class of business.

She talked about current market practice for pricing health insurance. She mentioned that for companies having own data, data analysis is often limited by quantity and quality of available data. Univariate analysis performed at aggregate level is being used for pricing, mostly considering rate making for different segments. For new entrants who have no data, pricing is based on market range with some margins for uncertainty of future experience. This is followed by periodic reviews in pricing based on one's own experience emerges.

She also gave overview of univariate

techniques used in pricing which follows two basic approaches. – Pure Premium approach and loss ratio Method.

She briefly explained the process of segmental ratemaking which categorizes and group risks with similar loss potential and charges different rates to reflect differences in loss potential among the various groups. She cited various examples of classification rate making by pure premium approach, loss ratio method, and minimum bias approach. She also talked about multivariate methods used for pricing and their

benefits. Multivariate methods consider all the rating variables simultaneously and automatically adjust for exposure correlations between rating variables. It allows consideration of the interaction between two or more rating variables. Examples of multivariate classification methods include linear models, generalized linear models (GLM), cluster analysis etc. She briefly explained GLM method and gave comparison between three techniques - univariate techniques, minimum bias procedure, generalized linear models. She highlighted that better

pricing helps an insurance company in each and every aspect like maintaining profitability levels, building brand value, customer value management, appropriate risk selection, and increasing volume and growth etc.

The seminar ended with vote of thanks by Biresh Giri, Appointed Actuary of Max Bupa Health Insurance Co. Ltd. He thanked the institute for organizing such an informative seminar and the participants for their valuable time and inputs.



Welcome...

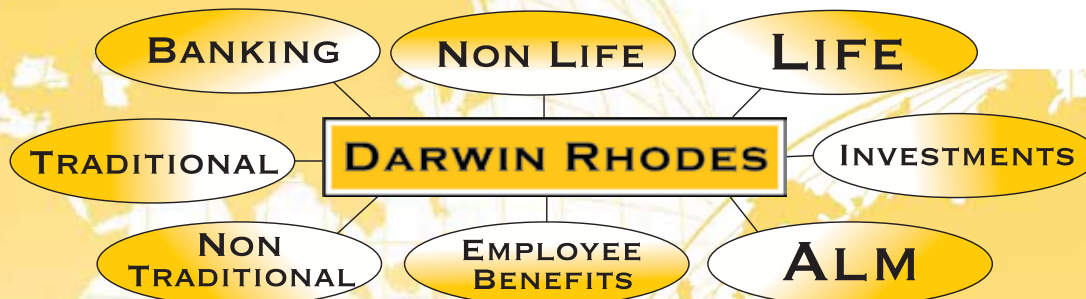


Ms. Khushnum. S. Rao has joined on 2nd November 2011 as Senior Executive. She is a B.Com, LLB and carries 10 years of experience. She is working on ACET Marketing and technical support. She will continue to hold responsibility for the same. Her hobbies include reading and meeting people.

We welcome Khushnum to the family of **Institute of Actuaries of India**. She can be reached at acet@actuariesindia.org, Phone: 022-67843355

It's a small world...

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FANTASTIC ANSWER BY ABDUL KALAM TO A QUESTION ASKED BY BBC:

DEFINE BIRTHDAY:

KALAM : THE ONLY DAY IN YOUR LIFE.. YOUR MOTHER SMILED WHEN YOU CRIED...

Organized by : Social, Cultural and Youth Affairs (SC&YA) Advisory Group

Venue : Hotel Double Tree by Hilton, Gurgaon

Date : 25th August, 2012

The IAI Connect, a seminar organized by the Social, Cultural and Youth Affairs (SC&YA) advisory group, was held on 25 August 2012 in Gurgaon. This event has been designed to bridge the gap that exists between new students and the industry while focusing on addressing key problem areas for budding actuaries. After a successful launch in Mumbai, it was held in a Delhi, a city which houses most students, with a panel of eminent speakers and sessions designed to promote interaction and impart knowledge.



Inaugural address

The session kick started with Secretary of the SC&YA – Mr. Nidhir Gupta, giving a brief overview of what to expect out of the event and encouraging students to make the best use of the forum.

Post this we had Mr. Liyaquat Khan's inaugural address during which he spoken about the latest developments in the Institute, the purpose of forming the SC & YA advisory group and the qualities one must aspire to imbibe towards being a recognized professional. Focusing on our institute's vision, mission and values, Mr. Khan very simply explained the importance of integrity through a simple example of not giving into unfair means to clear exams and correlated it to not signing an actuarial report with

liabilities that are questionable.

Insurance industry and beyond

The first session of the day was on the Indian insurance industry. Two eminent speakers came out to support us for the same – Vikas Newatia and Sanchit Maini. An overview of the history of the life insurance industry along with latest developments was shared by Mr. Maini and many questions were answered as to where the industry is headed. Despite his bad health, Mr. Newatia came out to support the event and selflessly helped answer several questions regarding the non life insurance industry through an interpersonal dialogue with the students during the tea break.

Careers in the actuarial industry

Next on the list was a presentation by Vivek Jalan, representing one of the event's sponsors - Towers Watson. The session focused on what to expect when once working in the actuarial industry and various ways in which one progresses even post qualification. Using a perfect blend of humor and wisdom, Mr. Jalan addressed concerns about qualifications as well as specialization. This session so invigorating that the interaction did not attend with the session and the popular speaker found himself having a mini seminar during his lunch with more than half the audience.

Actuarial examinations

The final two sessions, undoubtedly the most sought after topic for students, was kept till the very end. Yogita Arora, a recently qualified actuary, joined forces with the chairperson of the Education Advisory Group – Varun Gupta, to clarify the examination process and get many facts in order with stress upon required level of preparation when sitting for exams.

About the Author



sodhi.aditi@gmail.com

Aditi Sodhi is a student member of Institute of Actuaries of India.

Ms. Arora took the young students through a few best practices on how to study and attempt actuarial exams while managing work simultaneously. Sharing her own experience of tackling studies



Varun Gupta

alongside a career, she stressed the importance of hard and sincere work that paves the way for future success.

Mr. Gupta's session was more of a Q&A interaction where questions were primarily regarding exemptions, paper evaluation processes, latest developments in the profession and what is expected of students when appearing for exams. Had we not run out of time the flow of this session would have not ended!

Overall, the event was truly informative and inspirational. Our esteemed panel of speakers came out to support us as genuine professionals and the young students made an all out effort to attend despite the distance and stormy weather conditions. A prime example of what effective communication can do. When the day ended, much knowledge was gained and many myths dispelled!



Welcome...

Nitin A. Makharria has joined on 10th September, 2012 as IT-Executive, he is MCA qualified and carries 1.6 years of experience. Nitin was working in IT Department since last 1 year. His hobbies include listening to music, watching cricket.

We welcome Nitin to the family of **Institute of Actuaries of India**. He can be reached at nitin@actuariesindia.org, Phone: 9769555454



UPDATE ON LICENSING IN NEW ZEALAND

By John Smith

On 31st July 2012, Reserve Bank of New Zealand (RBNZ) issued a full license to 5 insurers. 104 companies with a provisional license have until 7th September, 2013 to get their full license. Companies need to have a majority of independent directors, demonstrate their risk management framework is embedded in the business and ring-fence a statutory fund for policyholders. Other requirements are already being met by most companies.

Appointed Actuaries must be a Fellow of the New Zealand Society of Actuaries (NZSA) or equivalent. Our rules require prospective Fellows to be resident in New Zealand or Australia and be a Fellow of the actuarial association in Australia, Canada, India, South Africa, UK or US (Society). Membership of another full member of the International Actuarial Association enables one to be an Associate of our body and thus ineligible to be an Appointed Actuary. The eligible associations set rigorous post-degree exams and have comprehensive professional standards.

Currently, one consulting actuary acts as Appointed Actuary for 24 different companies. In Australia, the regulator queried why one person was Appointed Actuary for 17 companies before their tally of appointments fell to 7. NZSA professional standards committee is considering guidance in this area.

NZSA general insurance committee is discussing catastrophe risk capital charges with RBNZ. Insurers must have capital or reinsurance capacity to handle a major earthquake within a 50km radius of the parliament building in Wellington. The solvency standard requires capacity to survive a 1 in 250 year event with

transition to a 1 in 1,000 year event by 8 September 2015. The regulator is being quite cautious after the bail-out of a mutual general insurer following the Christchurch earthquake last February.

RBNZ has split its policy division into operational and financial policy. This may be a prelude to setting target solvency ratios and guidance on norms for certain calculations. RBNZ relies

on credit rating agencies to undertake the primary assessments of financial strength. RBNZ has requires Financial Condition Reports to discuss inter alia all material risks and identify assumptions to which the solvency margin is most sensitive.

Council changes

Ian Pereira stepped down as NZSA President after moving to Sydney. The NZSA Council appointed Paul Rhodes to take over as President and co-opted Andrea Gluyas onto Council as a general member. NZSA wishes Ian all the very best in his new appointment.

Conference

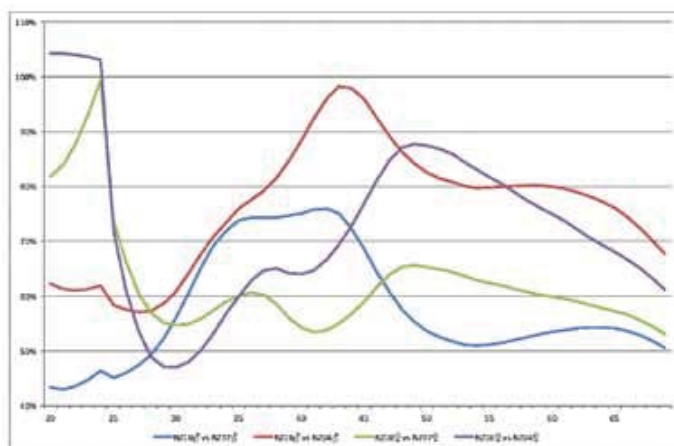
The biennial conference will be held in the Bay of Islands from 18 to 21 November. Outside speakers include: Leonard Cook (National Statistician); Bernard Hickey (Business Editor); Nathalie Jackson

(Demography Professor); and Shane Jones (MP).

Life experience study

10 life offices contributed to the 2008-10 assured mortality investigation. The results were compiled for the New Zealand Society of Actuaries by Gen Re. There were 12,000 deaths out of 54,00,000 records. There were significant differences between companies. On average, assured mortality was 54% of male population mortality and 57% for females. Guaranteed acceptance mortality was 230% of underwritten business. Smoker mortality was just under twice non-smoker mortality across most ages.

Mortality improvements vary by age and gender as follows:



Professional skills course

Former UK Government Actuary Chris Dakin will run a professionalism course in Wellington on Wednesday 13 February 2013. This will meet both the UK and Australian Institute requirements.

About the Author



John.Smith@Fidelitylife.co.nz

John Smith is Secretary of New Zealand Society of Actuaries and Appointed Actuary of the largest New Zealand owned life insurer. John previously worked in Zambia, UK and Zimbabwe before migrating to Auckland in 2000.

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Head-Research at **+91 22 6784 3319** to start with.

Last date to submit the proposal: **31st October, 2012.**

Tania Chakrabarti, Chair Person,

Advisory Group on Research & Publications, Institute of Actuaries of India.

THE ACTUARY INDIA – EDITORIAL POLICY (VER. 2.00/23RD JAN 2011)

Version history;

Ver. 1.00/31 01 2004

Ver. 2.00/23rd Jan. 2011

- A: "the Actuary India" published monthly as a magazine since October, 2002, aims to be a forum for members of the Institute of Actuaries of India (the Institute) for;
- disseminating information,
 - communicating developments affecting the Institute members in particular and the actuarial profession in general,
 - articulating issues of contemporary concern to the members of the profession.
 - cementing and developing relationships across membership by promoting discussion and dialogue on professional issues.
 - Discussing and debating issues particularly of public interest, which could be served by the actuarial profession,
 - student members of the profession to share their views on matters of professional interest by way of articles and write-ups.
- B: The Institute recognizes the fact that;
- there is a growing emphasis on the globalization of the actuarial profession;
 - there is an imminent need to position the profession in a business context which transcends the traditional and specific actuarial applications.
 - The Institute members increasingly will work across the globe and in global context.
- C: Given this background the Institute strongly encourages contributions from the following groups of professionals:
- Members of other international actuarial associations across the globe
 - Regulators and government officials
 - Professionals from allied professions such as banking and other financial services
 - Academia
 - Professionals from other disciplines whose views are of interest to the actuarial profession
 - Business leaders in financial services.
- D: The magazine also seeks to keep members updated on the activities of the Institute including events on the various practice areas and the various professional development programmes on the anvil.
- E: The Institute while encouraging stakeholders as in section C to contribute to the Magazine, it makes it clear that responsibility for authenticity of the contents or opinions expressed in any material published in the Magazine is solely of its author and the Institute, any of its editors, the staff working on it or "the Actuary India" is in no way holds responsibility there for. In respect of the advertisements, the advertisers are solely responsible for contents of such advertisements and implications of the same.
- F: Finally and most importantly the Institute strongly believes that the magazine must play its part in motivating students to grow fast as actuaries of tomorrow to be capable of serving the financial services within ever demanding customer expectations.



Know your President - M. Karunanidhi

M. KARUNANIDHI

BSc; PGDAS; PGDCA; AIA; FIAI

Director – Actuarial Services, RGA Services India Pvt. Ltd.

mkarunanidhi@rgare.com

Mr. Karunanidhi, a Fellow of the Institute of Actuaries of India, has 18 years of work experience spanning across insurance, reinsurance, retirement benefits consulting and actuarial education. He currently heads the life and health pricing function for RGA India. In his last role at Mercer, he was responsible for building a large actuarial back office set up in India that carry out actuarial valuation of pension and post-retirement medical schemes. Karunanidhi graduated from the Bharathidasan University in Mathematics and completed postgraduate diploma courses in Actuarial Science and Computer Science and applications.

Area of specialization – Life and Health reinsurance

Karunanidhi was Chairman Education Strategy Working Group & member of Advisory Group on Communication, & Advisory Group on Peer, Stakeholder, and International Relations.

Karuna at the age 39 took over as President of Institute on 22nd September, 2012 on Expiry of Presidential term of Mr. Liyaquat Khan.

What others are saying...

SAKTHIKUMAR JAGANNATHAN

Chief Manager, Actuarial Services; RGA Services India Private Ltd.

Karunanidhi is a very dynamic and self driven individual with great attitude. If I look back now, the days we worked together as Lecturers at Bishop Heber College, Thiruchirapalli for about 2 years (1998-1999), are one of the most memorable times of my life. He was passionate about teaching actuarial subjects and looking things from different viewpoints comes to him naturally. During those days he handled many difficult situations with ease. Apart from teaching, we have also been together as resident wardens for one of the hostels in those days which we always talk about whenever we meet.

I have watched him growing steadily from those days to his present position that exhibits his strong leadership qualities. As his colleague and a friend, I admire his dedication, drive and persistence. I wish him all success in the role of President of Institute of Actuaries of India !!

VENKATESH CHAKRAVARTY

Director- Client Markets, Swiss Re Services India Private Limited

..... Says Karunanidhi worked with me in Swiss Re for less than 2 years as Actuarial Consultant. He was new to reinsurance business and had to learn about the reinsurance business. He was working in the Middle East before he joined Swiss Re. He is a sincere and dedicated person who was reliable, eager to learn and apply his experience and knowledge.

P. D. POULOSE

Executive Secretary to CEO - National Life & General Insurance Co., Muscat, Sultanate of Oman.

Mr. Muthuswamy Karunanidhi had joined (March 2001 – July 2004) National Life as an Actuarial Officer. At the time of leaving the Company he was holding the position of Actuarial Manager.

...During his tenure with us we have found him to be cheerful and an honest employee, as well as diligent in all the work that he undertook. His rapport with his colleagues and his ability to be an active part of the Management were his greatest strength from a professional perspective. Being the youngest President of the Institute we wish him all success in his future endeavors. eager to learn and apply his experience and knowledge.



Mercer



Mercer



Bishop Heber College, Thiruchirapalli

R. ARUNACHALAM

Consultant, Chennai, India.

Karuna worked in LIC of India from Dec 1999 to mid 2001. He was AAO (Actuarial) and was stationed in the PC Room for Actuarial Valuations. I was working in Investment department from Dec 1999 to Sep 2000, hence did not work with him closely.

..... Karuna was extremely passionate and dedicated to the work that he did. He had discussed various changes that might be required in the calculation routines for finer reserve calculations during the evenings with us. He used to go to office early and during off days at times of valuation reporting. I used to admire him for this commitment.

He was also associated with students in teaching capacity at Bishop Heber College. He was managing the PGDAS classes.

SURESH SINDHI

Associate Director, RGA Services India Private Ltd

I got opportunity to interact with Karunanidhi first time twelve years back when we both worked together in the same office. I remember, he guided and motivated me and my other colleagues for writing actuarial exams. He used to come forward to help us and taught the actuarial concepts in a simple and understandable way. Truly, he has commanded personal and professional respect in our heart. He is an unassuming personality with self determination, discipline, good mentor and focus on the assigned tasks.

NEIL NARALE

Leader of India Retirement Service Centre at Mercer

It is great to hear at his age, Karunanidhi has accomplished such a milestone. He should be very proud of himself, and this is a good example for the Indian actuarial profession to look up to.

Karuna worked with Mercer from May 2006 to Feb 2011. He was the leader of the Actuarial team during his entire period at Mercer. His achievements include: Growing the team from 20 heads to 120 heads during his tenure; and training the team. Successfully delivery actuarial support to the US offices at Mercer Introducing Canadian actuarial support Implementing and converting to Mercer's new proprietary software Assistance and support with respect to standard operating procedures with respect to off shored actuarial support "During Karuna's time with Mercer, he was an instrumental leader, colleague and actuary. He had a unique mix of leadership and technical actuarial skills that allowed him to successfully grow the business to what it is today. His ability to understand the complex actuarial services that were off shored to our India center, and train and develop the staff created a platform for the team to build and become sustainable. He was a role model to all, but most of all, a friend and mentor."



Muscat



Mercer

MATHEMATICAL INTIMIDATION: DRIVEN BY THE DATA

by John Ewing

Mathematicians occasionally worry about the misuse of their subject. G. H. Hardy famously wrote about mathematics used for war in his autobiography, *A Mathematician's*

Apology (and solidified his reputation as a foe of applied mathematics in doing so). More recently, groups of mathematicians tried to organize a boycott of the Star Wars project on the grounds that it was an abuse of mathematics. And even more recently some fretted about the role of mathematics in the financial meltdown.

But the most common misuse of mathematics is simpler, more pervasive, and (alas) more insidious: mathematics employed as a rhetorical weapon—an intellectual credential to convince the public that an idea or a process is “objective” and hence better than other competing ideas or processes. This is mathematical intimidation. It is especially persuasive because so many people are awed by mathematics and yet do not understand it—a dangerous combination.

The latest instance of the phenomenon is value-added modeling (VAM), used to interpret test data. Value-added modeling pops up everywhere today, from newspapers to television to political campaigns. VAM is heavily promoted with unbridled and uncritical enthusiasm by the press, by politicians, and even by (some) educational experts, and it is touted as the modern, “scientific” way to measure educational success in everything from charter schools to individual teachers.

Yet most of those promoting value-added modeling are ill-equipped to judge either its effectiveness or its limitations. Some of those who are equipped make extravagant claims without much detail, reassuring us that someone has checked into our concerns and we shouldn't worry. Value-added modeling is promoted because it has the right pedigree—because it is based on “sophisticated mathematics”. As a consequence, mathematics that ought

to be used to illuminate ends up being used to intimidate. When that happens, mathematicians have a responsibility to speak out.

Background

Value-added models are all about tests—standardized tests that have become ubiquitous in K–12 education in the past few decades. These tests have been around for many years, but their scale, scope, and potential utility have changed dramatically. Fifty years ago, at a few key points in their education, schoolchildren would bring home a piece of paper that showed academic achievement, usually with a percentile score showing where they landed among a large group. Parents could take pride in their child's progress (or fret over its lack); teachers could sort students into those who excelled and those who needed remediation; students could make plans for higher education.

Today, tests have more consequences. “No Child Left Behind” mandated that tests in reading and mathematics be administered in grades 3–8. Often more tests are given in high school, including high-stakes tests for graduation. With all that accumulating data, it was inevitable that people would want to use tests to evaluate everything educational—not merely teachers, schools, and entire states but also new curricula, teacher training programs, or teacher selection criteria. Are the new standards better than the old? Are experienced teachers better than novice? Do teachers need to know the content they teach? Using data from tests to answer such questions is part of the current “student achievement” ethos—the belief that the goal of education is to produce high test scores. But it is also part of a broader trend in modern society to place a higher value on numerical (objective) measurements than verbal (subjective) evidence. But using tests to evaluate teachers, schools, or programs has many problems. (For a readable and comprehensive account, see [Koretz 2008].) Here are four of the most important problems, taken from a much longer list.

About the Author



jewling@mathforamerica.org

John Ewing is president of Math for America.

1. **Influences.** Test scores are affected by many factors, including the incoming levels of achievement, the influence of previous teachers, the attitudes of peers, and parental support. One cannot immediately separate the influence of a particular teacher or program among all those variables.
2. **Polls.** Like polls, tests are only samples. They cover only a small selection of material from a larger domain. A student's score is meant to represent how much has been learned on all material, but tests (like polls) can be misleading.
3. **Intangibles.** Tests (especially multiple-choice tests) measure the learning of facts and procedures rather than the many other goals of teaching. Attitude, engagement, and the ability to learn further on one's own are difficult to measure with tests. In some cases, these “intangible” goals may be more important than those measured by tests. (The father of modern standardized testing, E. F. Lindquist, wrote eloquently about this [Lindquist 1951]; a synopsis of his comments can be found in [Koretz 2008, 37].)
4. **Inflation.** Test scores can be increased without increasing student learning. This assertion has been convincingly demonstrated, but it is widely ignored by many in the education establishment [Koretz 2008, chap. 10]. In fact, the assertion should not be surprising. Every teacher knows that providing

strategies for test-taking can improve student performance and that narrowing the curriculum to conform precisely to the test (“teaching to the test”) can have an even greater effect. The evidence shows that these effects can be substantial: One can dramatically increase test scores while at the same time actually *decreasing* student learning. “Test scores” are not the same as “student achievement”.

This last problem plays a larger role as the stakes increase. This is often referred to as Campbell’s Law: “The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to measure” [Campbell 1976]. In its simplest form, this can mean that high-stakes tests are likely to induce some people (students, teachers, or administrators) to cheat...and they do [Gabriel 2010]. But the more common consequence of Campbell’s Law is a distortion of the education experience, ignoring things that are not tested (for example, student engagement and attitude) and concentrating on precisely those things that are.

Value-Added

Models

In the past two decades, a group of statisticians has focused on addressing the first of these four problems. This was natural. Mathematicians routinely create models for complicated systems that are similar to a large collection of students and teachers with many factors affecting individual outcomes over time.

Here’s a typical, although simplified, example, called the “split-plot design”. You want to test fertilizer on a number of different varieties of some crop. You have many plots, each divided into subplots. After assigning particular varieties to each subplot and randomly assigning levels of fertilizer to each whole plot, you can then sit back and watch how the plants grow as you apply the fertilizer. The task is to determine the effect of the fertilizer on growth, distinguishing it from the effects from the different varieties. Statisticians have developed standard mathematical tools (mixed models) to do this.

Does this situation sound familiar? Varieties, plots, fertilizer...students, classrooms, teachers? Dozens of similar situations arise in many areas, from agriculture to MRI analysis, always with the same basic ingredients—a mixture of fixed and random effects—and it is therefore not surprising that statisticians suggested using mixed models to analyze test data and determine “teacher effects”.

This is often explained to the public by analogy. One cannot accurately measure the quality of a teacher merely by looking at the scores on a single test at the end of a school year. If one teacher starts with all poorly prepared students, while another starts with all excellent, we would be misled by scores from a single test given to each class. To account for such differences, we might use two tests, comparing scores from the end of one year to the next. The focus is on how much the scores increase rather than the scores themselves. That’s the basic idea behind “value-added”.

But value-added models (VAMs) are much more than merely comparing successive test scores. Given many scores (say, grades 3–8) for many students with many teachers at many schools, one creates a mixed model for this complicated situation. The model is supposed to take into account all the factors that might influence test results—past history of the student, socioeconomic status, and so forth. The aim is to predict, based on all these past factors, the growth in test scores for students taught by a particular teacher. The *actual* change represents this more sophisticated “value-added”—good when it’s larger than expected; bad when it’s smaller.

The best-known VAM, devised by William Sanders, is a mixed model (actually, several models), which is based on Henderson’s mixed-model equations, although mixed models originate much earlier [Sanders 1997]. One calculates (a huge computational effort!) the best linear unbiased predictors for the effects of teachers on scores. The precise details are unimportant here, but the process is similar to all mathematical modeling, with underlying assumptions and a number of choices in the model’s construction.

History

When value-added models were first conceived, even their most ardent supporters cautioned about their use [Sanders 1995, abstract]. They were a new tool that allowed us to make sense of mountains of data, using mathematics in the same way it was used to understand the growth of crops or the effects of a drug. But that tool was based on a statistical model, and inferences about individual teachers might not be valid, either because of faulty assumptions or because of normal (and expected) variation.

Such cautions were qualified, however, and one can see the roots of the modern embrace of VAMs in two juxtaposed quotes from William Sanders, the father of the value-added movement, which appeared in an article in *Teacher Magazine* in the year 2000. The article’s author reiterates the familiar cautions about VAMs, yet in the next paragraph seems to forget them:

Sanders has always said that scores for individual teachers should not be released publicly. “That would be totally inappropriate,” he says. “This is about trying to improve our schools, not embarrassing teachers. If their scores were made available, it would create chaos because most parents would be trying to get their kids into the same classroom.”

Still, Sanders says, it’s critical that ineffective teachers be identified. “The evidence is overwhelming,” he says, “that if any child catches two very weak teachers in a row, unless there is a major intervention, that kid never recovers from it. And that’s something that as a society we can’t ignore” [Hill 2000].

Over the past decade, such cautions about VAM slowly evaporated, especially in the popular press. A 2004 article in *The School Administrator* complains that there have not been ways to evaluate teachers in the past but excitedly touts value-added as a solution:

Fortunately, significant help is available in the form of a relatively new tool known as value-added assessment. Because value-added isolates the impact of instruction on student learning, it provides detailed

information at the classroom level. Its rich diagnostic data can be used to improve teaching and student learning. It can be the basis for a needed improvement in the calculation of adequate yearly progress. In time, once teachers and administrators grow comfortable with its fairness, value-added also may serve as the foundation for an accountability system at the level of individual educators [Hershberg 2004, 1].

And newspapers such as *The Los Angeles Times* get their hands on seven years of test scores for students in the L.A. schools and then publish a series of exposés about teachers, based on a value-added analysis of test data, which was performed under contract [Felch 2010]. The article explains its methodology:

The Times used a statistical approach known as value-added analysis, which rates teachers based on their students' progress on standardized tests from year to year. Each student's performance is compared with his or her own in past years, which largely controls for outside influences often blamed for academic failure: poverty, prior learning and other factors.

Though controversial among teachers and others, the method has been increasingly embraced by education leaders and policymakers across the country, including the Obama administration.

It goes on to draw many conclusions, including:

Many of the factors commonly assumed to be important to teachers' effectiveness were not. Although teachers are paid more for experience, education and training, none of this had much bearing on whether they improved their students' performance.

The writer adds the now-common dismissal of any concerns:

No one suggests using value-added analysis as the sole measure of a teacher. Many experts recommend that it count for half or less of a teacher's overall evaluation.

Nevertheless, value-added analysis offers the closest thing available to an objective assessment of teachers.

And it might help in resolving the greater mystery of what makes for effective teaching, and whether such skills can be taught.

The article goes on to do exactly what it says "no one suggests"—it measures teachers solely on the basis of their value-added scores.

What Might Be Wrong with VAM?

As the popular press promoted value-added models with ever-increasing zeal, there was a parallel, much less visible scholarly conversation about the limitations of value-added models. In 2003 a book with the title *Evaluating Value-Added Models for Teacher Accountability* laid out some of the problems and concluded:

The research base is currently insufficient to support the use of VAM for high-stakes decisions. We have identified numerous possible sources of error in teacher effects and any attempt to use VAM estimates for high-stakes decisions must be informed by an understanding of these potential errors [McCaffrey 2003, xx].

In the next few years, a number of scholarly papers and reports raising concerns were published, including papers with such titles as "The Promise and Peril of Using Valued-Added Modeling to Measure Teacher Effectiveness" [RAND, 2004], "Re-Examining the Role of Teacher Quality in the Educational Production Function" [Koedel 2007], and "Methodological Concerns about the Education Value-Added Assessment System" [Amrein-Beardsley 2008].

What were the concerns in these papers? Here is a sample that hints at the complexity of issues.

- In the real world of schools, data is frequently missing or corrupt. What if students are missing past test data? What if past data was recorded incorrectly (not rare in schools)? What if students transferred into the school from outside the system?

- The modern classroom is more variable than people imagine. What if students are team-taught? How do you apportion credit or blame among various teachers? Do teachers in one class (say mathematics) affect the learning in another (say science)?

- Every mathematical model in sociology has to make rules, and they sometimes seem arbitrary. For example, what if students move into a class during the year? (Rule: Include them if they are in class for 150 or more days.) What if we only have a couple years of test data, or possibly more than five years? (Rule: The range three to five years is fixed for all models.) What's the rationale for these kinds of rules?

- Class sizes differ in modern schools, and the nature of the model means there will be more variability for small classes. (Think of a class of one student.) Adjusting for this will necessarily drive teacher effects for small classes toward the mean. How does one adjust sensibly?

- While the basic idea underlying value-added models is the same, there are in fact many models. Do different models applied to the same data sets produce the same results? Are value-added models "robust"?

- Since models are applied to longitudinal data sequentially, it is essential to ask whether the results are consistent year to year. Are the computed teacher effects comparable over successive years for individual teachers? Are value-added models "consistent"?

These last two points were raised in a research paper [Lockwood 2007] and a recent policy brief from the Economic Policy Institute, "Problems with the Use of Student Test Scores to Evaluate Teachers", which summarizes many of the open questions about VAM.

For a variety of reasons, analyses of VAM results have led researchers to doubt whether the methodology can accurately identify more and less effective teachers. VAM estimates have proven to be unstable across statistical models, years, and classes that teachers teach. One study found that across five large urban districts, among teachers who were ranked in the top 20% of effectiveness in the first year, fewer than a third were in that top group the next year, and another third moved all the way down to the bottom 40%. Another found that teachers' effectiveness ratings in one year could only predict from 4% to 16% of the variation in such

ratings in the following year. Thus, a teacher who appears to be very ineffective in one year might have a dramatically different result the following year. The same dramatic fluctuations were found for teachers ranked at the bottom in the first year of analysis. This runs counter to most people's notions that the true quality of a teacher is likely to change very little over time and raises questions about whether what is measured is largely a "teacher effect" or the effect of a wide variety of other factors [Baker 2010, 1].

In addition to checking robustness and stability of a mathematical model, one needs to check validity. Are those teachers identified as superior (or inferior) by value-added models actually superior (or inferior)? This is perhaps the shakiest part of VAM. There has been surprisingly little effort to compare valued-added rankings to other measures of teacher quality, and to the extent that informal comparisons are made (as in the *LA Times* article), they sometimes don't agree with common sense.

None of this means that value-added models are worthless—they are not. But like all mathematical models, they need to be used with care and a full understanding of their limitations.

How Is VAM Used?

Many studies by reputable scholarly groups call for caution in using VAMs for high-stakes decisions about teachers.

A RAND research report: The estimates from VAM modeling of achievement will often be too imprecise to support some of the desired inferences [McCaffrey 2004, 96].

A policy paper from the Educational Testing Service's Policy Information Center: VAM results should not serve as the sole or principal basis for making consequential decisions about teachers. There are many pitfalls to making causal attributions of teacher effectiveness on the basis of the kinds of data available from typical school districts. We still lack sufficient understanding of how seriously the different technical problems threaten the validity of such interpretations [Braun 2005, 17].

A report from a workshop of the Na-

tional Academy of Education: Value-added methods involve complex statistical models applied to test data of varying quality. Accordingly, there are many technical challenges to ascertaining the degree to which the output of these models provides the desired estimates [Braun 2010].

And yet here is the *LA Times*, publishing value-added scores for individual teachers by name and bragging that even teachers who were considered first-rate turn out to be "at the bottom". In an episode reminiscent of the Cultural Revolution, the *LA Times* reporters confront a teacher who "was surprised and disappointed by her [value-added] results, adding that her students did well on periodic assessments and that parents seemed well-satisfied" [Felch 2010]. The teacher is made to think about why she did poorly and eventually, with the reporter's help, she understands that she fails to challenge her students sufficiently. In spite of parents describing her as "amazing" and the principal calling her one of the "most effective" teachers in the school, she will have to change. She recants: "If my student test scores show I'm an ineffective teacher, I'd like to know what contributes to it. What do I need to do to bring my average up?" Making policy decisions on the basis of value-added models has the potential to do even more harm than browbeating teachers. If we decide whether alternative certification is better than regular certification, whether nationally board certified teachers are better than randomly selected ones, whether small schools are better than large, or whether a new curriculum is better than an old by using a flawed measure of success, we almost surely will end up making bad decisions that affect education for decades to come.

This is insidious because, while people debate the use of value-added scores to judge teachers, almost no one questions the use of test scores and value-added models to judge policy. Even people who point out the limitations of VAM appear to be willing to use "student achievement" in the form of value-added scores to make such judgments. People recognize that tests are an imperfect measure of educational success, but when sophisticated mathematics is applied, they believe the imperfections go

away by some mathematical magic. But this is not magic. What really happens is that the mathematics is used to disguise the problems and intimidate people into ignoring them—a modern, mathematical version of the Emperor's New Clothes.

What Should Mathematicians Do?

The concerns raised about value-added models ought to give everyone pause, and ordinarily they would lead to a thoughtful conversation about the proper use of VAM. Unfortunately, VAM proponents and politicians have framed the discussion as a battle between teacher unions and the public. Shouldn't teachers be accountable? Shouldn't we rid ourselves of those who are incompetent? Shouldn't we put our students first and stop worrying about teacher sensibilities? And most importantly, shouldn't we be driven by the data?

This line of reasoning is illustrated by a recent fatuous report from the Brookings Institute, "Evaluating Teachers: The Important Role of Value-Added" [Glazerman 2010], which dismisses the many cautions found in all the papers mentioned above, not by refuting them but by asserting their unimportance. The authors of the Brookings paper agree that value-added scores of teachers are unstable (that is, not highly correlated year to year) but go on to assert:

The use of imprecise measures to make high-stakes decisions that place societal or institutional interests above those of individuals is widespread and accepted in fields outside of teaching [Glazerman 2010, 7].

To illustrate this point, they use examples such as the correlation of SAT scores with college success or the year-by-year correlation of leaders in real estate sales. They conclude that "a performance measure needs to be good, not perfect". (And as usual, on page 11 they caution not to use value-added measures alone when making decisions, while on page 9 they advocate doing precisely that.) Why must we use value-added even with its imperfections? Aside from making the unsupported claim (in the very last sentence) that "it predicts more about what students will learn...than any other source of information", the only apparent reason for its superiority

is that value-added is based on data. Here is mathematical intimidation in its purest form—in this case, in the hands of economists, sociologists, and education policy experts.

Of course we should hold teachers accountable, but this does not mean we have to pretend that mathematical models can do something they cannot. Of course we should rid our schools of incompetent teachers, but value-added models are an exceedingly blunt tool for this purpose. In any case, we ought to expect more from our teachers than what value-added attempts to measure.

A number of people and organizations are seeking better ways to evaluate teacher performance in new ways that

focus on measuring much more than test scores. (See, for example, the Measures of Effective Teaching project run by the Gates Foundation.) Shouldn't we try to measure long-term student achievement, not merely short-term gains? Shouldn't we focus on how well students are prepared to learn in the future, not merely what they learned in the past year? Shouldn't we try to distinguish teachers who inspire their students, not merely the ones who are competent? When we accept value-added as an "imperfect" substitute for all these things because it is conveniently at hand, we are not raising our expectations of teachers, we are lowering them.

And if we drive away the best teachers

by using a flawed process, are we really putting our students first?

Whether naïfs or experts, mathematicians need to confront people who misuse their subject to intimidate others into accepting conclusions simply because they are based on some mathematics. Unlike many policy makers, mathematicians are not

bamboozled by the theory behind VAM, and they need to speak out forcefully. Mathematical models have limitations. They do not by themselves convey authority for their conclusions. They are tools, not magic. And using the mathematics to intimidate—to preempt debate about the goals of education and measures of success—is harmful not only to education but to mathematics itself.

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CABINET PROPOSES FAR-REACHING INSURANCE REFORMS

IANS; 4 Oct, 2012

PRESS

FROM THE

Nissan unveils all-electric TeRRA SUV Chennai, Oct 4 (IANS) Increase in FDI - allowing foreign reinsurers to open branches in India, reducing the minimum capital for health insurer and allowing Lloyd's of Britain to operate are some of the major decisions taken by the union cabinet Thursday to deepen the reform process in the sector.

The cabinet also cleared proposals for enacting a separate law governing the obligatory third party insurance on motor vehicles and allowing public sector general insurers to go public.

The meeting of the cabinet, presided over by Prime Minister Manmohan Singh also gave its nod to enable insurer or insurance intermediary aggrieved by an order of the Insurance Regulatory Development Authority (IRDA) to prefer an appeal to the Securities Appellate Tribunal.

The cabinet approved necessary official amendments to the Insurance Laws (Amendment) Bill 2008, pending in the Rajya Sabha, to remove archaic and redundant provisions in the existing laws and also to provide IRDA flexibility to discharge its functions.

Welcoming, the cabinet decision to retain the 49 percent foreign equity cap provided in the bill, P. Nandagopal, managing director and chief executive officer, IndiaFirst Life Insurance Company, told IANS: "More than rationality, it is sentiments that play a major part in the market. The cabinet decision will turn the market sentiments positive and rekindle animal spirits."

"The sector will get more money which is currently needed and improve market sentiments," Nandagopal said.

Life insurance companies' officials were of the view that foreign partners of the bottom 10 players in the 24-company industry will actually bring in fresh funds. For the top industry players, it will be

more of stake sale -- Indian partner diluting his stakes in favour of foreign partner -- or a mere book adjustment.

"The bottom 10 companies will need additional capital to scale up their business. Further, the move may make Indian market more attractive for other foreign insurance companies. Recently, the Japanese are showing interest in the Indian life insurance market," Vibha Padalkar, executive director and chief financial officer, HDFC Standard Life Insurance Company, told IANS over the phone from Mumbai.

She agreed with the view that in larger companies, it will be more of transfer of shares between promoters.

"Initial public offerings (IPO) by life insurers will depend on whether government allows foreign institutional investors (FII) to invest," Padalkar said.

Speaking on the increase in FDI and its impact on the non-life insurance industry, S.S. Gopalarathnam, managing director, Cholamandalam M.S. General Insurance Company, told IANS: "The sector is not in need of huge capital like the life insurance industry. Here, reinsurance plays a major role in minimising capital needs."

He said the government's move would only result in changes in the equity holding structure.

According to him, the hike in FDI limits may attract newer players.

The cabinet in order to encourage health insurance in India and to reduce the entry barrier for new players - the minimum capital requirement for a health insurance company has been reduced to Rs.50 crore from Rs.100 crore.

The government also decided to allow foreign re-insurers to open branches only for reinsurance business and also allow Lloyd's to operate in India by amending the definition of foreign company for the purpose of insurance and re-insurance

would mean: a company or body established under a law of any country outside India and includes Lloyd's established under the Lloyd's Act, 1871 (United Kingdom).

"It is a welcome move as it would increase the reinsurance retention within India and also result in development of resinsurance skill in the country," Gopalarathnam said.

In a policyholder friendly measure the cabinet decided that an insurer cannot reject a claim on the grounds of misstatement of facts three years after of taking the policy.

The cabinet also decided to allow government owned non-life insurers and also the General Insurance Corporation of India (GIC)-the national reinsurer- to tap the public for future capital requirements. However the government would retain 51 percent holding in these companies.

"Instead of having four different companies operating in the same space it is high time the government merge them into one entity," K.K.Srinivasan, former member of IRDA told IANS.

The other decisions taken by cabinet relating to insurance industry are allowing the insurers to appoint agents and taking away the powers of agent licensing from IRDA, specify the penalties on insurers and intermediaries and deterring multilevel marketing of policies.

The cabinet also decided that the agents commission structure and their code of conduct to be specified by regulations by the IRDA.

The ceilings on commission in the has been removed and insurers along with the agents are made liable for any violation of the regulations and stiff penalties would be provided for mis-selling, rebating and marketing of products through multi level marketing schemes.



Welcome...



Akshata Damre has joined on 11th September, 2012 as Librarian. She is MLISC pursuing PGDLIM and carries 2.6 years of experience. Her hobbies include Netsurfing, Listening to music.

We welcome Akshata to the family of **Institute of Actuaries of India**. She can be reached at library@actuariesindia.org, Phone: 022 - 67843325

PENSION BILL PASSAGE WILL CLEAR INVESTORS' DOUBTS: PFRDA

HT; 5th October, 2012

Chennai: Welcoming the union cabinet's nod to allow FDI of 26 percent or higher for pension, a sector regulator said passing of the relevant bill by parliament will clear doubts of potential investors. "The impact of parliament passing the pension bill will be that the authority will get statutory backing. This would enable the regulator to monitor the players more effectively and clear doubts in minds of potential players and investors," Yogesh Agarwal, chairperson, Pension Fund Regulatory and Development Authority (PFRDA), said. The cabinet Thursday cleared proposals to amend the legislations governing insurance industry to hike foreign equity from 26 percent to 49 percent. In pension sector, the cabinet decided to allow 26 percent or such percentage as may be approved for the insurance sector, whichever is higher, may be incorporated in the Pension Fund Regulatory and

Development Authority Bill, 2011. Amendments to the bill will be moved in the next session of parliament. Agarwal said the move would bring in more players into the pension sector while agreeing that in terms of foreign direct investment (FDI), the sums would not be huge as in the case of the life insurance sector. For pension fund managers, the minimum capital required is Rs.25 crore where as in the case of life insurers, it is Rs.100 crore. Further, majority of the life insurers are suffering from expense overrun needing fresh capital infusion. According to Agarwal, the New Pension Scheme (NPS) is doing well in the government sector while in the private sector, issues of distributor remuneration and their reach are being addressed. "The NPS corpus now is around Rs.21,000 crore (USD 4 billion)," Agarwal said. The union cabinet also accepted following recommendations of a Standing Committee

on Finance:

(a) Allowing a subscriber seeking minimum assured returns to opt for investing funds in schemes providing minimum assured returns as notified by PFRDA.

(b) Withdrawals not exceeding 25 percent of the contribution made by subscriber will be permitted from individual pension account, subject to conditions.

(c) Setting up of Pension Advisory Committee with representation from all major stakeholders to advise PFRDA on framing of regulations.

(d) PFRDA membership will be confined to experts in economics, finance or law. However, the government did not accept the following recommendations:

(a) Compulsory insurance of funds of subscribers by pension fund managers. A provision has already been made in PFRDA bill to protect subscribers by ensuring safety of contribution and keeping operational costs in check.

(b) Selection of fund managers in such a manner that one third of them are from the public sector. IANS



NOD TO FDI HIKE IN INSURANCE WILL TURN MARKET SENTIMENTS: EXPERTS

IANIS; 5th October, 2012

Chennai: Agreeing that not all foreign partners of domestic insurers will pump in capital when allowed to increase stakes to 49 percent, insurance sector experts said Thursday the union cabinet nod will rekindle investors' animal spirits. "More than rationality, it is sentiments that plays a major part in the market. The cabinet decision will turn the market sentiments positive and rekindle animal spirits," P. Nandagopal, managing director and chief executive officer, IndiaFirst Life Insurance Company, told said. The country's federal cabinet Thursday cleared proposals to amend the legislations governing insurance industry to hike foreign equity from 26 percent to 49 percent and on pension to allow up to 26 percent stake to overseas investors. All these proposals, however, need parliament's approval to take effect. "The sector will get more money which is currently needed and improve market sentiment," Nandagopal said. Life insurance officials are of the view that foreign partners of the bottom 10 players in the 24-company industry will actually bring in fresh funds. For the top industry players, it will be more of stake sale -- Indian partner

diluting his stakes in favour of foreign partner -- or a mere book adjustment. "The bottom 10 companies will need additional capital to scale up their business. Further, the more may make Indian market more attractive for other foreign insurance companies. Recently, the Japanese are showing interest in the Indian life insurance market," Vibha Padalkar, executive director and chief financial officer, HDFC Standard Life Insurance Company, said. She agreed with the view that in larger companies, it will be more of transfer of shares between promoters. "Initial public offerings (IPO) by life insurers will depend on whether government allows foreign institutional investors (FII) to invest," Padalkar said. She said as on March 31, the capital deployed by the life insurance industry was Rs.33,633 crore or around USD 6 billion. Last year, the life industry booked a fresh premium of Rs.114,232.72 crore (around USD 21 billion). On the possibility of fresh infusion of equity or stake change between partners HDFC and Standard Life (of Britain), Padalkar said foreign partner had openly declared that it would increase its holdings to 49 percent when permitted by law.

She said HDFC Standard Life's embedded value (present value of future profits in the current policies) will be around Rs.5,000 crore and going by the recent deals that happened in the sector (Nippon buying into Reliance Life and Mitsui Sumitomo investing in Max New York Life -- now Max Life Insurance), the overall enterprise value will be around Rs.16,000 crore. Life and non-life insurance officials say there would be various kinds of changes -- transfer of stakes, fresh infusion and board-level representation -- happening if the parliament approves the increase in foreign direct investment (FDI). Speaking on the increase in FDI and its impact on the non-life insurance industry, S.S. Gopalathnam, managing director, Cholamandalam MS General Insurance Company, told IANS: "The sector is not in need of huge capital like the life insurance industry. Here, reinsurance plays a major role in minimising capital needs." He said the government's move would only result in changes in the equity holding structure. According to him, the hike in FDI limits may attract newer players. Last year, the non-life insurance industry logged a premium of Rs.58,344 crore (USD 11 billion).

CONSUMERS PLAN TO DELAY RETIREMENT, BANK OF AMERICA SURVEY SHOWS

The Charlotte Observer; 27th April, 2012;

Americans are working harder to get their finances back on track, but many still expect to retire later than they planned, a new survey from Bank of America Corp. found.

The latest Merrill Edge Report, a semi-annual study of consumers with \$50,000 to \$250,000 in investable assets, found 57 percent expect to retire later than they planned a year ago. That's up from 47 percent in November, when the Charlotte-based bank conducted its last survey.

Balancing short- and long-term financial needs continues to be one of the greatest challenges for those "mass affluent" customers, the study found. About a third acknowledged tapping into their long-term savings to meet short-term needs, more than in the last report.

Yet long-term issues pose the greatest concern: Consumers said they were most worried about the rising cost of health care, followed by saving enough to last them through retirement and being able to afford the lifestyle they want

during retirement.

"It's no surprise that we see this group delaying retirement and pushing it back further and further," Dean Athanasia, preferred and small business executive at Bank of America, said during a conference call Thursday.

Workers are changing their habits as a result of their concerns, cutting back on entertainment and personal luxuries, trimming everyday expenses and keeping their cars longer than planned, the report found. But those measures are being offset, in part, by other pressures: More than half of respondents said they paid or expect to pay more to send their children to college than anticipated, for instance.

As a result, consumers are working harder these days to get back on track, stepping up efforts to budget, balance short-term and long-term expenses and save for retirement, the report found. Workers nearing retirement aren't the only ones worried, either: The survey found 18- to 34-year-olds in the mass

affluent consumer segment are more worried about their financial future than older generations.

Merrill Edge offers investment guidance and investing platforms for small businesses and mass affluent customers. The bank uses data from its semi-annual reports to help shape its products and services, Merrill Edge executive Alok Prasad said.

The bank has seen a significant jump in the number of younger consumers investing and seeking advice, for instance, a trend reflected in the latest Merrill Edge report, he said. Customers are looking for more educational resources and better access to mobile applications. And for many, their priorities are changing in the post-recession era, Prasad said.

"Clients are not worried about returns; they are worried about how to reach their goals," he said. "Investment returns are a mechanism to close the gap."

Read more here: http://www.charlotteobserver.com/2012/04/27/3201453/consumers-plan-to-delay-retirement.html?goback=%2Egde_158790_member_152192491#storylink=cpy



ACTUARIES INSTITUTE TO INCREASE PROFESSIONALS

IANS; Sep 23, 2012

Chennai- With the demand for actuaries exceeding their supply, the Institute of Actuaries of India (IAI) plans to increase special coaching classes for students who are about to pass the course.

The IAI also plans to increase subject counselling sessions to hike the number of actuaries in the market, said a top official.

"We will increase the number of special classes for students who are on the last lap of the actuarial course. We also looking at increasing the number of counselling sessions for students to clear the exams," M. Karunanidhi, the new president of IAI, told IANS over phone from Mumbai.

Actuaries are experts in assessing the financial impact of future events, which is of prime importance in the insurance business. They analyze the past and forecast the future and place the results in financial terms to help in decision-making.

Karunanidhi, 39, Saturday was elected the new president of the IAI, the governing body for the actuarial profession in India. He was a unanimous choice at the IAI's executive council meeting held in Mumbai Saturday.

Karunanidhi is the youngest president of IAI.

"My approach will be a consultative one. I will look up to senior actuaries for

views and suggestions to take the IAI's vision and mission forward. The primary focus will be on getting more students a qualified actuary," Karunanidhi said.

He said India is a good destination for actuarial back office work for overseas companies.

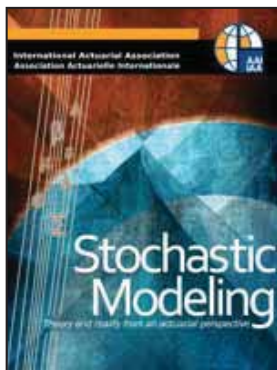
IAI has over 8,260 members, out of which over 7,860 are students. Against this, there are just 246 qualified actuaries/fellows who are members of IAI. Currently, there are 27 non-life insurance companies in India and 24 life insurers in India.

The other new office bearers of IAI are K.S. Gopalakrishnan, vice president, and Rajesh Dalmia, honorary secretary.



**WHEN SOME THING BAD HAPPENES. YOU HAVE THREE CHOICES.
YOU CAN EITHER LET IT DEFINE YOU. LET IT DESTROY YOU. OR YOU CAN LET IT STRENGTHEN YOU.**

- Erika Elizondo



STOCHASTIC MODELLING – THEORY AND REALITY FROM AN ACTUARIAL PERSPECTIVE

Book Number : B13114

Status : Available at IAI Library

Reviewed by V Rajagopalan

The book has been published by the International Actuarial Association (IAA) and is intended for actuaries, actuarial students and others involved in actuarial modelling in both the life and non life (including health) insurance sectors.

The concept of stochastic modelling has had a rich diversity of applications in the sciences and stock markets, among other fields, but has only recently been used as a technique for evaluating the risks embedded in an insurer's asset and liability structures. Stochastic modelling is rapidly replacing traditional methods of carrying out analysis and the book provides information on how it is changing regulation, pricing, financial reporting and enterprise risk management. The expected outcome of the use of stochastic methods is to help actuaries and financial planners to gain deeper insight into the risks an enterprise faces, allowing for better allocation of resources.

This book attempts to provide comprehensive guidance on stochastic methods – the mathematical and statistical framework necessary to develop models in insurance and non insurance settings, details on current methods and their advantages and disadvantages. Also, the illustrations of the methods will remove much of the black box mystique that surrounds the models.

The book does not promote any one method or technique over any other but illustrates commonly used methods in risk assessment. The material is covered in five major chapters as follows:

- general methodology, discussion on how to determine whether it is appropriate to use a stochastic model, projection techniques (Monte Carlo, lattice methods, regime switching models etc.), which risk factors to be modelled stochastically, risk neutral versus real world scenarios, distributions, fitting, determination of the number of scenarios, random number generation and risk measures (VaR, CTE etc.).
- Current applications covering economic scenarios (e.g. interest rates, exchange rates, equity returns, credit risks, inflation), life (catastrophic mortality, dynamic policyholder behaviour), health (morbidity and claims experience) and non life insurance models (claim models, financial models) and country and region specific issues (EEV principles, Solvency II, IFRS, liability valuation requirements in USA and Japan etc.)
- Evaluation of results covering calibration, validation, audit, peer review and communication
- Seven case studies showing application development in situations

as below:

- Development and management of an individual variable annuity product
- Economic capital for a multi line life insurance company
- Embedded value for a multi national multi line life insurance company
- Unpaid claim variability for a multi line non life insurance company
- Stochastic liability and capital calculations – life business
- Economic capital for a multi line non life insurance company
- Combining economic capital results for a composite company transacting both life and non life business
- References and additional resources

Additional material is provided in the Appendices on the following subjects – A: CFO Forum principles, B: Country practice (covering many countries across the world (including India on non life – contribution by our Biresch Giri), C: Illustrative market consistent assumptions, D: Bootstrap Model, E: Correlation and F: Maximum Likelihood Estimation

The book will provide the reader with a good understanding of stochastic modelling concepts, methods, steps involved in implementation and the issues to be considered. As suggested by the publishers, it will also serve as an on going resource even while stochastic methods continue to evolve.

In publishing this book, Milliman Inc. has collaborated with the IAA. Financial support and technical guidance have been provided by actuarial organizations from six countries. Contributing authors consisted of an international group of actuaries and economists from different countries.



Welcome...

Divya Bavishi has joined on 18th September, 2012 as Sr.Executive Examination. She is B.com, pursuing MBA in E-business and carries 5 years of experience. Her hobbies include Dancing & reading Philosophy.

We welcome Divya to the family of **Institute of Actuaries of India**. She can be reached at divya@actuariesindia.org, Phone: 022 - 67843326

Shilpa's Puzzle

Puzzle No 177:

What word, expression, or name is depicted below?

EYEBEYEBEYEB
EYEBEYEBEYEB
EYEBEYEBEYEB



Puzzle No 178:

In an international soccer tournament, the scores in a certain round were as follows:

Argentina	0	N. Ireland	0
Belgium	1	Wales	4
England	0	Scotland	1
France	1	Spain	2
Germany	1	Brazil	1
Italy	3	Denmark	1
Peru	2	Cameroon	0
Poland	?	Portugal	?

What was the score in the final match?

SOLUTIONS TO PUZZLES

Puzzle No 173:

LEANING TOWER OF PISA

Puzzle No 174:

Zero

The code is zero for prime one for composite.

Puzzle No 175:

Even.

C, which equals 100, is one of those numbers. Of the remaining 12 numbers, six start with C and six are these same numbers with C removed. But adding any such pair of numbers (one with a C in front and one with the C removed) will give an even sum. Therefore the sum of all six pairs plus 100 (=C) must also be even. For the record, the 13 numbers are given below. They sum to 836.

C	= 100		
CI	= 101	I	= 1
CII	= 102	II	= 2
CIV	= 104	IV	= 4
CV	= 105	V	= 5
CVI	= 106	VI	= 6
CL	= 150	L	= 50

Puzzle No 176:

Twenty one thousand

Correct solutions were received from:

Puzzle No 173:

1. Manoj Patil
2. Graham Lyons
3. Sreelakshmi

Puzzle No 174:

1. Manoj Patil

Puzzle No 175:

1. Gyanesh Jain
2. Arif Hussain
3. V.V.N. Kiran Sarma
4. Shilpi Goyal
5. Titiksha Jain
6. Vibha Agarwal



Puzzle No 176:

1. Arif Hussain
2. V.V.N. Kiran Sarma
3. R. Elanchezhian
4. Titiksha Jain
5. Shilpi Jain
6. Vibha Agarwal



shilpa_vm@hotmail.com



A MAN ASKED
LORD BUDDHA
" I WANT HAPPINESS."
LORD BUDDHA SAID
FIRST REMOVE
"I"
THAT'S EGO.
THEN REMOVE
'WANT'
THAT'S DESIRE.
SEE NOW YOU ARE LEFT WITH
ONLY
"HAPPINESS"
- LeonBasin

Life is an echo.
What you send out - comes back,
What you sow - you reap.
What you give - you get.
What you see in others - exists in you.
Remember, Life is an echo.
It always gets back to you.

- Pravs J

SUDOKU



puzzle No. 4 for the month of October 2012

HOW TO PLAY

Fill in the grid so that every horizontal row, every vertical column and every 3x3 box contains the digits 1-9, without repeating the numbers in the same row, column or box. You can't change the digits already given in the grid.

- Sudoku Puzzle by Vinod Kumar

Medium

			2		5	4		
	6			4	7	1		
	2				3	9		
		5		1				
	6	3						
		4		2				
		9	4				7	
		5	6	7			2	
		3	8		1			

Hard

3		5	1	8			2	
8			3		2	4		
6				5				8
1				2				7
9				7				3
		8	9		7			2
	2			3	4	6		1

Solution
of
Sudoku
Puzzle
No. 3
published
in the
Month of
Aug. 2012

Medium

4	1	6	9	5	3	7	2	8
7	2	5	6	1	8	4	3	9
3	9	8	7	4	2	5	1	6
5	7	4	3	6	1	8	9	2
8	6	9	2	7	4	1	5	3
1	3	2	8	9	5	6	7	4
9	4	3	1	8	7	2	6	5
6	5	7	4	2	9	3	8	1
2	8	1	5	3	6	9	4	7



MANY HAPPY RETURNS OF THE DAY

the Actuary India wishes many more years of healthy life to the following fellow members whose Birthday fall in **September & October 2012**

September 2012

R. K. Chandak

Rusi K. Daruwalla

N. C. Das

V. K. Vydianathan

G. N. Agarwal

Asha J. Joshi

October 2012

V. Govindan

D.K. Pandit

J. R. Joshi

R. Ramakrishnan

N. Lakshmanan

N. K. Shinkar

S. R. Mehta

M. L. Sodhi

K. P. Narasimhan

Laxmanrao Cuddalore Samarao

A child asked God : If everything is already written in our destiny, then why pray ?

God smiled & said : May be in few places I have written "As u wish" !!

- Ritesh Kushwaha



CAREER OPPORTUNITY

IN THE RESEARCH DEPARTMENT OF THE INSTITUTE OF ACTUARIES OF INDIA

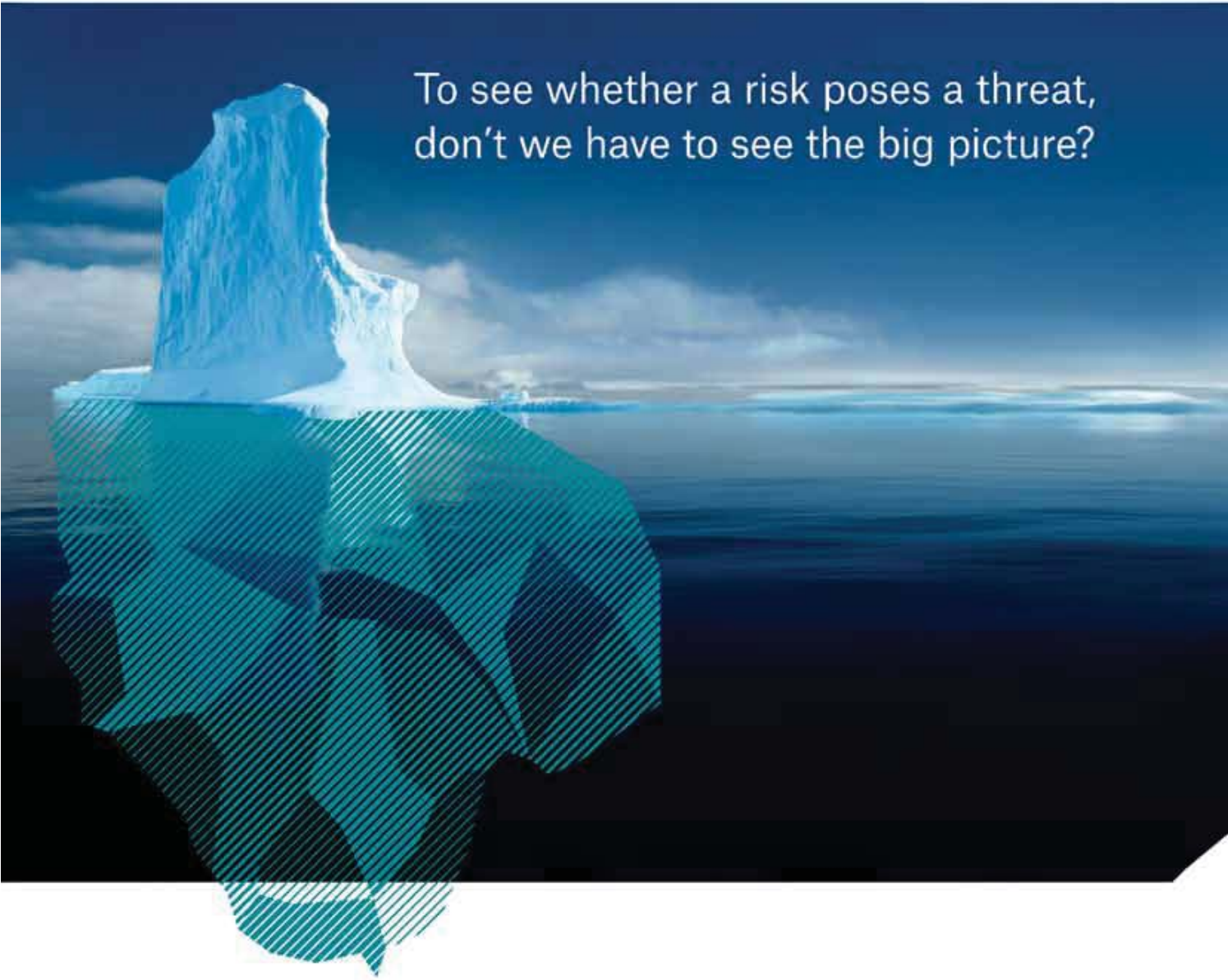
- I. **POSITION** : ACTUARIAL RESEARCH EXECUTIVE
- II. **TERMS OF SERVICE** : Full time employment
- III. **NUMBER OF VACANCIES** : 3 (Three)
- IV. **PROCESS OF SELECTION** : Written test and Interview
- V. **LOCATION** : Mumbai
- VI. **REMUNERATION** : Competitive
- VII. **REPORTS TO** : Head- Research
- VIII. **POSITION SUMMARY** : Assisting Head-Research in Managing Research Projects Undertaken / announced by the Research team
- IX. **QUALIFICATIONS AND SKILL SETS:**
1. Graduate/ Post graduate in Statistics/ Mathematics/ Actuarial Science/Economics
 2. A minimum passing of 3 subjects of Actuarial examinations.
 3. Good verbal and written communication skills
 4. Powerful modelling skills
 5. Good in writing reports, articles
 6. Good understanding of Insurance market and actuarial functions
 7. Good creative skills
 8. Proficiency in Microsoft applications, viz., MS Excel, MS Word & MS Powerpoint
 9. Experience in actuarial functions in Insurance companies, Actuarial Consultancies, KPO/BPOs desirable
- X. **RESPONSIBILITIES:**
1. To prepare concept documents on Research projects undertaken by the team
 2. To co-ordinate with members of the profession who undertake research projects
 3. To prepare the evaluation document for proposals received.
 4. To undertake short-term research projects within the Research team
 5. To received draft research reports from members and prepare first-cut research papers for review by the authority
 6. Preparation of final draft reports of Research Projects undertaken by members of the Profession.
 7. Preparation of newsletter/s to be published from the Research Team
 8. To organise seminars/ conferences in connection with research activities
 9. To prepare write ups, simple models and presentations as required by the authority.
- XI. **HOW TO APPLY**
- Submit your resume by e-mail to: vinod@actuariesindia.org Latest by **31st October, 2012**

NB: (a) Candidates who have applied earlier for the above position need not apply now.
(b) The Institute offers an actuarial study incentive scheme to all members of the research team.



Institute of Actuaries of India

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Visit us at www.actuariesindia.org



To see whether a risk poses a threat,
don't we have to see the big picture?

The future is like an iceberg. Most of the time what we can see before our eyes is only half the story. So how do we know the unknowable? Only those with relentless drive, expertise and foresight can see the whole picture — the risk that lies beyond. At Munich Re, seeing more is what we do. We work in interdisciplinary teams, each pair of eyes viewing something from a different perspective, all focusing on the best solution. With our worldwide network we can pinpoint complex global patterns when they arise. When it comes to grasping our future, we are never satisfied with half the story.

To find out more about what lies beyond,
check out our website at www.munichre.com