

“So, how many Actuaries does India need?”

Lesley Traverso

Abstract

In 2005 a survey and report was carried out by D W Simpson jointly with Actuarial Society of India (ASI), amongst the membership of the ASI in order to find out if the current student numbers would be sufficient to cope with the rising demand for Actuaries as the insurance market in and around India expands into the future. The results of which were presented at the East Asian Actuarial Conference in Bali in September 2005.

Following on from that report which looked at the supply side of the Indian Actuarial market, it was appropriate to now consider the demand side of the equation. In order to put this into a context it was decided to also look at another similarly sized growing and developing actuarial market (China) by way of comparison.

The paper commences with an overview of each of the insurance markets and how the profession within each has developed, and it incorporates some of the findings of the original survey for ease of reference (the full report can be found on the ASI website).

It progresses into an overview of some of the factors that influence demand for Actuaries with a table at the end from which a more robust mathematical model could be developed.

Key words:

Actuary, India, China, insurance, profession

Introduction

India and China are regularly compared to each other in the popular press as each has large populations, have relatively newly re-established insurance markets, and hold a fascination to many commercial organisations seeking a new source of profit outside of the saturated markets of the US and Europe.

This paper seeks to consider some of the issues connected with rapid growth of the insurance market and the need to develop a robust Actuarial profession. There appears to be a correlation between the proportion of Actuaries in a location and the development and sophistication of its insurance market which will be discussed in the following pages.

Actuarial science is used to help solve many of the challenges facing transition economies. As examples: corporate governance, the establishment of pension and health provision for large populations, general risk management, pricing of covers to ensure profitability for newly established companies, facilitating the development of a robust capital market, etc.

In comparison to more developed market places, India and China possess very few Actuaries and the conclusion of this paper seeks to suggest some of the major influences on the growth of insurance markets in China and India and in turn, the profession within it.

Sections One and Two will describe the Insurance markets of India and China, Section three the Actuarial market before moving to Section Four which will provide a comparative discussion of the key development factors.

The summary and conclusion will provide the author's views on each of the influencing factors previously discussed and provide a table which could be used as a basis for further mathematical analysis and the possible construction of a model to predict the demand for Actuaries in China and India.

Section One -The insurance market in India

Insurance started in the nineteenth century and was dominated by a few British insurance companies mainly in the large urban centres. Oriental Life Insurance Company was the first life entrant in 1818. However, they did not insure the lives of Indians, just those of the Europeans living in India. Later on, when insurance for Indians was introduced, they paid extra premiums of some 20%. This was only changed in 1871 by the Bombay Mutual who introduced "fair value" policies for Indians.

Property and Casualty (P&C) insurance or General Insurance (as is called in India) arrived in 1850 with Triton Insurance Ltd., owned and operated by the British. The first indigenous P & C insurance company was set up in 1907.

The market grew quickly and by 1938, there were 176 companies operating, 154 Indian companies, 16 non-Indian companies and 75 provident societies.

After 1947, the year India became an independent nation (from British control) the market was dramatically changed by national resurgence and the subsequent era of socialistic philosophy of governance. Life companies were first to be nationalised in 1956 and then P & C insurance in 1972. Foreign insurers were not allowed back into the market until 1999 and then only as Joint ventures with local companies and were allowed a maximum ownership of 26%.

Nationalisation was justified by the government at the time for three reasons:

- The perception that private companies would not promote insurance in rural areas
- The government would be in a better position to channel resources for saving and investment
- Bankruptcies of life insurance companies was a big problem at the time

In December, 1999 the Insurance Regulatory and Development Authority (IRDA) Act was passed. The main features of this and the Regulations brought out by IRDA are:

- Separate licences for life, general (non-life) and reinsurance business
- Capital requirements for each line – US\$24m (Rs. 100/- crores) for life & non-life; US\$48m (Rs. 200/- crores) for reinsurance
- The "Appointed Actuary" mandated by IRDA regulations for life as well as non-life has to be a Fellow of the Actuarial Society of India (ASI)
- The Appointed Actuary responsible for reporting to the IRDA
- Insurance agents should have high school diploma plus 100 hours of training
- Strict guidelines issued for asset and liability management and solvency margin requirements.
- Increase in disclosure requirements
- All insurers are mandated to provide specified minimum coverage for the rural and social sector.

Size and Structure of the India Insurance market

As noted above, the Life Insurance Corporation of India and its P&C counterparts, the four general insurance companies, are still owned by the Government and dominate the market. The General Insurance Corporation of India, earlier the holding company of the four general insurers, has now been made a national reinsurer, with all general insurers mandated to cede at least 20% premium to it.

The annual premium income figures for the past three years are shown below, and clearly demonstrate the dominance of the LIC. Between 2001 and 2004 the total premium income written increased from RS50, 094.46 Crore to RS66, 287.93 Crore, an increase of 132% overall, with private insurers increasing over 11 times. However, they still only take 4.66% of a market place which is dominated by the Life Insurance Corporation of India (LIC).

| Life Insurer | 2001-2002 | 2002-2003 | 2003-2004 |
|-----------------------------|------------------|------------------|------------------|
| LIC | 49821.91 | 54628.49 | 63167.6 |
| ING Vysya | 4.19 | 21.16 | 88.51 |
| HDFC Std. Life | 33.46 | 148.83 | 297.76 |
| Birla Sun Life | 28.26 | 143.92 | 537.64 |
| ICICI Prudential | 116.38 | 417.62 | 989.28 |
| OM Kotak | 7.58 | 40.32 | 150.72 |
| Tata AIG | 21.14 | 71.77 | 253.53 |
| SBI Life | 14.69 | 72.39 | 225.67 |
| Allianz Bajaj | 7.14 | 69.17 | 220.8 |
| Max New York Life | 38.95 | 96.59 | 215.25 |
| Met Life | 0.48 | 7.91 | 28.73 |
| AMP Sanmar | 0.28 | 6.47 | 31.06 |
| Aviva | 0 | 13.47 | 81.5 |
| Private total | 272.55 | 1109.62 | 3120.33 |
| Grand total | 50094.46 | 55738.11 | 66287.93 |
| Private as % of Grand total | 0.54% | 1.99% | 4.66% |

Source: www.irdaindia.com

Regulatory Regime

This commenced with the Indian Life Assurance Act of 1912 (for life only) and followed with the Insurance Act of 1938 (for all classes of insurance) which created a supervisory and regulatory authority, the Controller of Insurance, who carried out a statutory function. However the Controller of Insurance functioned as part of Ministry of Finance, the relevant ministry in the Central Government for the insurance industry.

The Malhotra Committee set up by the Government in 1993 to examine the subject of opening the insurance industry to private sector participation, came out with a recommendation to set up an independent Insurance Regulatory Authority concurrent with the opening of the insurance industry to the private sector. With the enactment of the IRDA Act, 1999, the IRDA as an independent insurance regulator (as against a Department of the Ministry of Finance) was established. The IRDA Act also withdrew the monopoly of the LIC and GIC (and its subsidiaries) and thereby opened up the insurance sector for private sector participation.

The functions and duties of the regulator are laid out on pages 358 – 360 of Palende (Palende, Shah et al. 2003). The Regulator in India has included provision for adequate insurance products to be available to the rural market, thereby partially fulfilling its social responsibilities.

There is now a shift by the regulator from the creation of rules and regulations to the compliance of them, and this has led to a discussion of “self-regulation”. Banerjee (Banerjee 2004) notes that ineffective market discipline needs to be effectively tackled for the healthy growth of the insurance market. Informed and educated consumers are an effective means of enforcing commercial discipline.

Section Two - The Insurance market in China

Insurance was first sold in China when two British insurance companies entered the Shanghai market in 1846. In 1875, the Merchants Shipping Bureau of the Qing Government established China's first insurance institution, the Merchants Insurance Bureau, and for the following 150 years, foreign companies monopolized the market. Then, with the founding of the People's Republic of China in 1949, China established its own government-controlled insurance company, the People's Insurance Company of China (PICC), and all foreign companies' ceased operations.

The PICC's own monopoly came to an end in April 1988 with the establishment of Ping An Insurance Co. Ltd. in the Shenzhen special economic zone. When the China Pacific Insurance Co. Ltd. was established in Shanghai in 1991, a true insurance market began to take shape.

Size and Structure

The development of the insurance industry in the People's Republic of China can be divided into three stages. From 1949 to March 1988, the People's Insurance Company of China (PICC) monopolized the market. Then, with the establishment of Ping An in 1988 and China Pacific in 1991, PICC's monopoly was broken and the market was characterized as a “tripartite confrontation.” Since September 1992, more domestic companies, as well as foreign ones, have entered the market foreshadowing an era of increased competition and the need for companies to improve their performance.

In 2001 there were 52 insurance companies in China including 5 state-owned companies, 15 limited companies, 22 joint ventures and branch offices of foreign funded companies. However, domestic companies dominate, with just 3.81% market share by companies outside of the ‘big four’ – PICC, China Life, Ping An and China Pacific, with the first two controlling 70% between them of Life business, and PICC controlling 77% by itself of general insurance business.(Yuan, F et al. 2002)

The main life companies and the geographic areas in which they are permitted to operate are shown below:

| EXHIBIT 2 Life Insurance Companies in China | | |
|--|--|--|
| DOMESTIC | Number of Branches Nationwide | Outside Owners |
| China Life Insurance Limited | 35 | Public Investors |
| China Pacific | 32 | Currently none |
| Minsheng Life | Beijing, Hangzhou, Nanjing, Shijiazhaung | Currently none |
| NCL | 29 | Meiji Life, Zurich Financial |
| Ping An | 35 | Dai-ichi Life, Goldman Sachs, HSBC, Morgan Stanley |
| Sino Life | Shanghai Planned: Beijing, Nanjing, Hangzhou | Millea Group |
| Taikang Life | 23 | Winterthur |
| Taiping Life | 15 | Fortis |
| FOREIGN (Joint Venture) | Operating Currently | Operation Planned |
| AIG (wholly owned) | Beijing, Guangzhou, Shanghai, Shenzhen, Suzhou Sub-branches: Foshan, Dongguan, JIangmen | |
| Aegon-CNOOC | Shanghai | |
| Allianz Dazhong | Shanghai | Beijing, Guangzhou |
| AVIVA-COFCO | Guangzhou | Beijing, Chengdu |
| AXA-Minmetals | Guangzhou, Shanghai | |
| China Life CMG | Shanghai | |
| CIGNA & CMC | Shenzhen | |
| CITIC Prudential | Beijing, Guangzhou | |
| Citi (Travelers) | Shanghai | |
| CNP | None yet | |
| Generali China | Beijing, Guangzhou | |
| Haler New York Life | Shanghai | |
| Heng An Standard | Tianjin | |
| ING Capital | Dalian | |
| John Hancock Tianan | Shanghai | |
| Manulife-Sinochem | Beijing, Guangzhou, Shanghai | |
| Nissay-SVA | Shanghai | |
| Pacific-Aetna (ING) | Beijing, Shanghai | |
| Sino-US Metlife | Beijing | |
| Skandia-BSAM | Beijing | |
| Sun Life Everbright | Beijing, Tianjin | |

Source:

http://www.towersperrin.com/tillinghast/publicatoins/publications/emphasis/Emphasis_2004_2/saunderslu.pdf

There are now a number of Joint Venture companies which have been formed from the big Chinese state owned enterprises and foreign insurers who sell group policies to Chinese shareholders. One of these, the joint venture between the Chinese Petroleum Corporation and the Italian company Generali has moved into 4th place, overtaking AIG in premium incomes (Lu 2005)¹

There is only one domestic reinsurance company in China (China Re) which in 2004 became China Re holdings and under that holding company is China Life Re, China P&C Re, Da Pi P&C Insurance Company and China insurance news agency. However, foreign insurers also carry on business in mainland China, e.g. Swiss Re, Munich Re, General Re and Hannover Re.

The following illustrates the growth of foreign firms' participation in the Property and Casualty market in China:

| Table 2: Market Share in the Chinese Insurance Market | | | | |
|---|-----------------|--|-----------------|--|
| Panel A: Foreign and Domestic Firms in the Chinese PC Insurance Industry | | | | |
| Year | Foreign Firms | | Domestic Firms | |
| | Number of Firms | Market Share (%) (Total Premiums Written) | Number of Firms | Market Share (%) (Total Premiums Written) |
| 1995 | 3 | 1.39 | 5 | 98.61 |
| 1996 | 2 | 0.78 | 6 | 99.22 |
| 1997 | 4 | 2.32 | 9 | 97.68 |
| 1998 | 5 | 0.65 | 9 | 99.35 |
| 1999 | 6 | 0.67 | 9 | 99.33 |
| 2000 | 7 | 0.84 | 10 | 99.16 |
| 2001 | 9 | 0.72 | 10 | 99.28 |
| 2002 | 10 | 0.80 | 11 | 99.20 |

Source: (Leverty, Lin et al. 2004)

Similarly (from the same source) the following illustrates the growth of foreign firms within the Life Insurance market in China:

| Panel B: Foreign, Joint Venture, and Domestic Firms in the Chinese Life Insurance Industry | | | | | | |
|---|---------------------|--|-----------------|--|-----------------|--|
| Year | Joint Venture Firms | | Foreign Firms | | Domestic Firms | |
| | Number of Firms | Market Share (%) (Total Premiums Written) | Number of Firms | Market Share (%) (Total Premiums Written) | Number of Firms | Market Share (%) (Total Premiums Written) |
| 1999 | 3 | 0.11 | 2 | 1.50 | 7 | 98.38 |
| 2000 | 3 | 0.21 | 3 | 1.70 | 7 | 98.08 |
| 2001 | 5 | 0.46 | 3 | 1.35 | 8 | 98.19 |
| 2002 | 7 | 0.40 | 4 | 1.14 | 9 | 98.46 |

Chen and Shih produced the figures below (Chen and Shih 2004) and also predicted a 12% average annual growth rate going forward, which would mean around RMB280bn premium

¹ From a presentation by Wilfred Lu, signing Actuary at Taiping Life insurance company at the 23rd April meeting of the Chicago Chinese Actuarial club. Mr Lu was approached to discuss his information in preparation of this report, but was not available.

income by 2005. The table shows the annual premium income and growth rate of China's Life insurance market (RMB millions).

| Year | Premium income | Growth rate % |
|-------------|-----------------------|----------------------|
| 1991 | 8.31 | 38.96 |
| 1992 | 10.87 | 30.81 |
| 1993 | 14.41 | 32.57 |
| 1994 | 16.35 | 13.46 |
| 1995 | 20.42 | 24.89 |
| 1996 | 32.46 | 58.96 |
| 1997 | 60.2 | 85.46 |
| 1998 | 68.27 | 13.41 |
| 1999 | 87.21 | 27.74 |
| 2000 | 99.75 | 14.38 |
| 2001 | 142.4 | 42.76 |
| 2002 | 202.88 | 65.15 |

Leverty, Lin and Zhou (Leverty, Lin et al. 2004) consider the Chinese insurance market in more depth and propose some evidence as to the performance of domestic and overseas insurers within the market. Their findings suggest that domestic insurers have benefited from the establishment of foreign firms by gaining technical and scale efficiencies, growth in productivity and quality improvements. They did also note the difficulty of being able to produce accurate analysis due to the scarcity of data. However, citing 'unique access' (page 4) they propose figures of 15.8% productivity growth in the General Insurance market and 24.7% in the life market between 1995 and 2002. Data monitor explore some other figures to predict the future of the Chinese insurance market:

Market Value Forecast

In 2008, the Chinese insurance industry is forecast to have a value of \$119.6 billion, an increase of 152.6% since 2003.

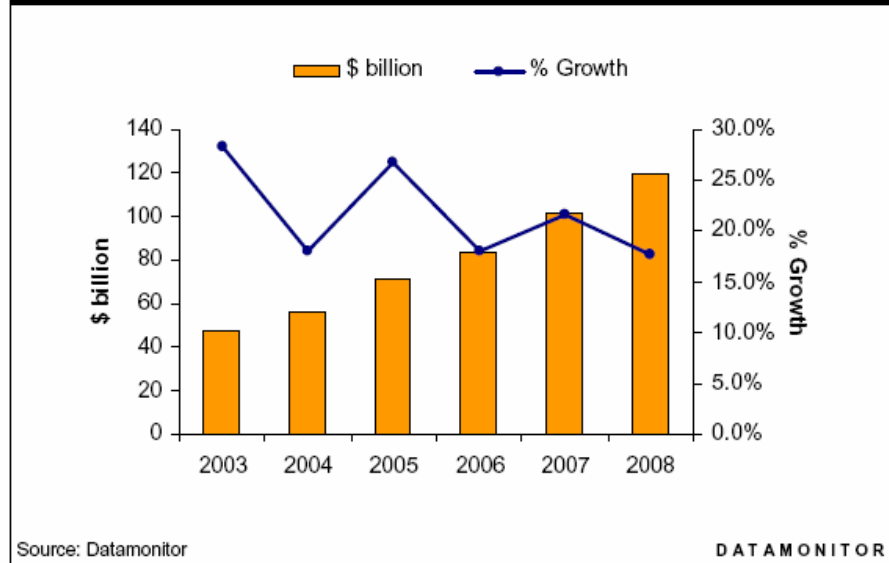
In the 2003-2008 period the compound annual growth rate of the industry value is predicted to be 20.4%.

Table 4: China Insurance Industry Value Forecast: \$ billion, 2003-2008

| Year | \$ billion | RMB yuan billion | % Growth |
|-------------------------|------------|------------------|--------------|
| 2003 | 47.3 | 392.3 | 28.40% |
| 2004 | 55.9 | 463.0 | 18.00% |
| 2005 | 70.8 | 586.8 | 26.70% |
| 2006 | 83.6 | 692.7 | 18.10% |
| 2007 | 101.6 | 841.9 | 21.50% |
| 2008 | 119.6 | 991.0 | 17.70% |
| CAGR, 2003-2008: | | | 20.4% |

Source: Datamonitor DATAMONITOR

Figure 4: China Insurance Industry Value Forecast: \$ billion, 2003-2008



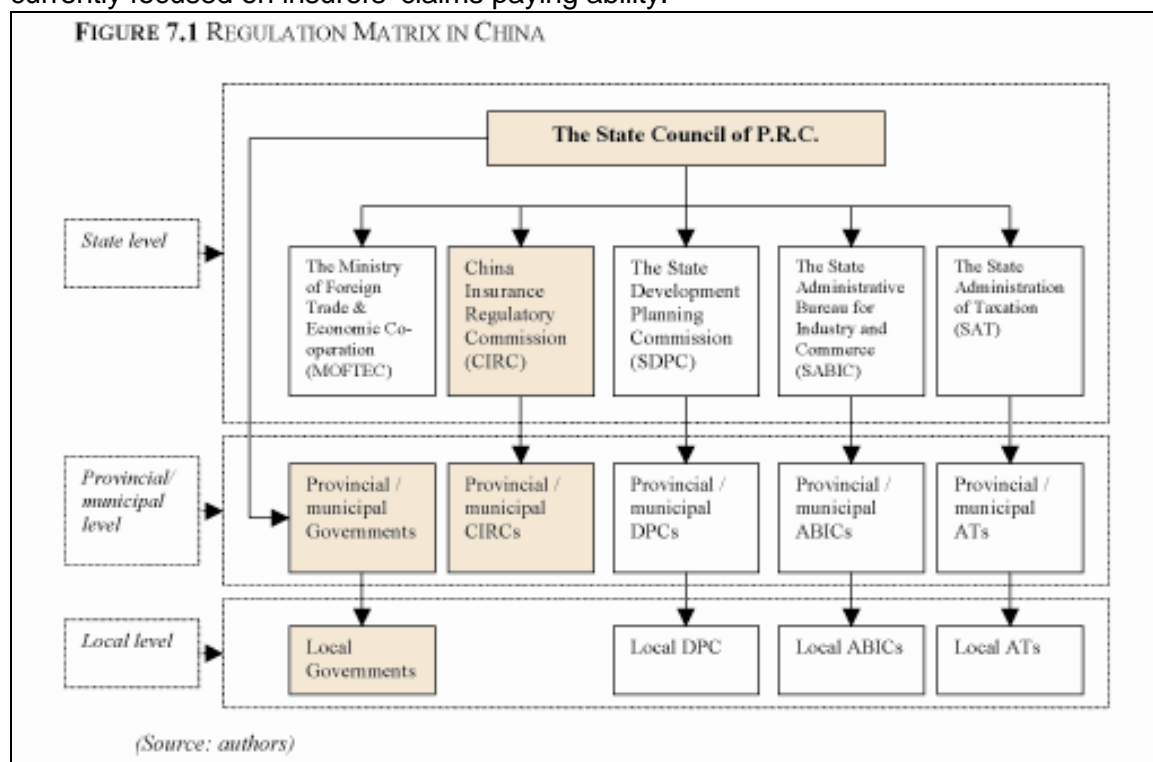
To give an indication of the current statistics, a news report² of 30th October 2005 noted that there were 130 foreign insurance institutions in China with assets accounting for 12.77% of the total of China's insurance industry, compared with 2.6% a year previously.

Regulatory Regime

The China Insurance Regulatory Commission was set up in 1998 to take over from the Peoples' Bank of China, formerly the insurance industry regulator since 1949. It has put in place regulations governing the establishment of new Insurance companies, with minimum capital and experience levels. It has designated the geographic locations in which foreign owned Joint Venture insurers are currently allowed to operate and put in place minimum qualification standards for senior management personnel.

Currently, the market is heavily regulated, containing a framework which was codified in the "Insurance Law of China" in 1995. However, like other PRC laws, the Insurance law allows for a fairly broad interpretation and flexible application.

The Chinese insurance regulators with access to up to date regulatory mechanisms from overseas are able to implement new regulations within a very short period of time. They are currently focused on insurers' claims paying ability.



Source: (Ba and Teng 2000)

² http://english.people.com.cn/200510/30/eng20051030_217721.html

Section Three - Actuarial profession³

Globally there are approximately 40,000 Actuaries represented by 74 member associations of the International Association of Actuaries. The Actuarial Society of India has been admitted as a member, the Chinese Actuarial Society is yet to be accepted.

Background to the Actuarial profession in India

The Actuarial society of India was established in Bombay (now Mumbai) in 1944. IRDA regulations require that the Appointed Actuary has to be a Fellow of the Actuarial Society of India.

The ASI was initially started as a non-examining body when Actuaries used to get qualified from Institute of Actuaries or Faculty of Actuaries of UK. The Actuarial profession in India saw a downward trend in the early years of nationalization of the Indian insurance industry. This led to a reduction in actuarial involvement in both Life Insurance and General Insurance management and insignificant input in other areas like Pensions, Insurance Regulations, Academics, etc. The downward trend resulted in a reduction of number of students taking actuarial exams during this time, a trend that is now beginning to reverse.

The Actuarial Society of India started conducting Entrance Examinations in India for students of Institute of Actuaries, UK, in 1975. In 1989, it started conducting examinations for its Indian qualification up to Associateship level, and in 1992, it started conducting Fellowship level exams. The year 2000 saw a complete re-vamping of the Indian actuarial education system with a close alignment to that of the UK and yet retaining the Indian flavour.

ASI is a full Member Association of the International Actuarial Association (IAA). The IAA brought out an education policy in 1998 mandating it to be followed by its full member Associations and be compliant with it by year 2005. ASI took advantage of it and has brought out a comprehensive Education Policy document reflecting its global approach and international standards.

The membership growth trajectory and demographics can be seen below:

| Class of Membership | As at 31.3.99 | As at 31.3.00 | As at 31.3.01 | As at 31.3.02 | As at 31.3.03 | As at 31.3.04 | As at 31.08.04 | As at 31.05.05 |
|--------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|
| Fellows | 146 | 143 | 218 | 204 | 200 | 204 | 205 | 203 |
| Affiliates | - | - | 4 | 19 | 23 | 24 | 22 | 18 |
| Associates | 87 | 106 | 122 | 122 | 118 | 120 | 124 | 136 |
| Students other than Associates | 442 | 471 | 604 | 1,494 | 1,905 | 2815 | 3412 | 3615 |
| Total | 675 | 720 | 948 | 1,839 | 2,246 | 3163 | 3763 | 3972 |
| Hon. Fellows | 0 | 0 | 5 | 6 | 6 | 6 | 6 | 6 |
| Grand Total | 675 | 720 | 953 | 1,845 | 2,252 | 3169 | 3769 | 3978 |

³ See also the History of the Actuarial profession in Encyclopedia of Actuarial Science, John Wiley and Sons, 2004

Current statistics of the Actuarial Society of India – total membership⁴

| Age Group | Fellows | Affiliates | Associates | Students other than Associates | Total |
|------------------|----------------|-------------------|-------------------|---------------------------------------|--------------|
| 20 & less | 0 | 0 | 0 | 269 | 269 |
| 21 – 25 | 0 | 0 | 0 | 1044 | 1044 |
| 26 - 30 | 4 | 6 | 8 | 710 | 726 |
| 31 – 35 | 20 | 7 | 64 | 805 | 893 |
| 36 – 40 | 24 | 3 | 20 | 419 | 466 |
| 41 - 45 | 16 | 4 | 10 | 100 | 130 |
| 46 - 50 | 11 | 1 | 6 | 28 | 46 |
| 51 – 55 | 21 | 0 | 11 | 24 | 56 |
| 56 – 60 | 10 | 1 | 2 | 7 | 20 |
| 61 – 65 | 25 | 0 | 0 | 4 | 29 |
| 66 – 70 | 28 | 0 | 2 | 0 | 30 |
| 71 – 75 | 23 | 0 | 0 | 2 | 25 |
| 76 – 80 | 14 | 0 | 1 | 0 | 15 |
| 81 – 85 | 2 | 0 | 0 | 0 | 2 |
| 86 – 90 | 4 | 0 | 0 | 0 | 4 |
| 91 – 95 | 3 | 0 | 0 | 0 | 3 |
| 96 & above | 0 | 0 | 0 | 0 | 0 |
| Total | 205 | 22 | 124 | 3412 | 3763 |

Sex demographic

| Class of Members | Male | Female |
|-------------------------|-------------|---------------|
| Fellows | 192 | 11 |
| Associates | 89 | 47 |
| Students | 2440 | 1175 |
| Honorary Fellows | 6 | 0 |
| Affiliates | 15 | 3 |
| Total | 2742 | 1236 |

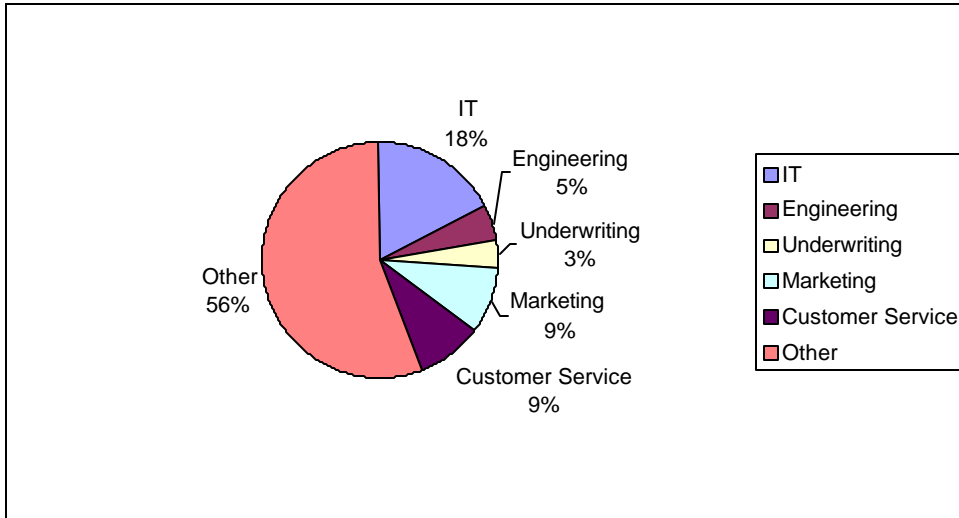
Geographic location

| Class of Members | Resident in India | Resident in Rest of the World | Total |
|-------------------------|--------------------------|--------------------------------------|--------------|
| Fellows | 137 | 66 | 203 |
| Associates | 128 | 8 | 136 |
| Students | 3566 | 39 | 3615 |
| Honorary Fellows | 3 | 3 | 6 |
| Affiliates | 5 | 13 | 18 |
| Total | 3839 | 129 | 3968 |

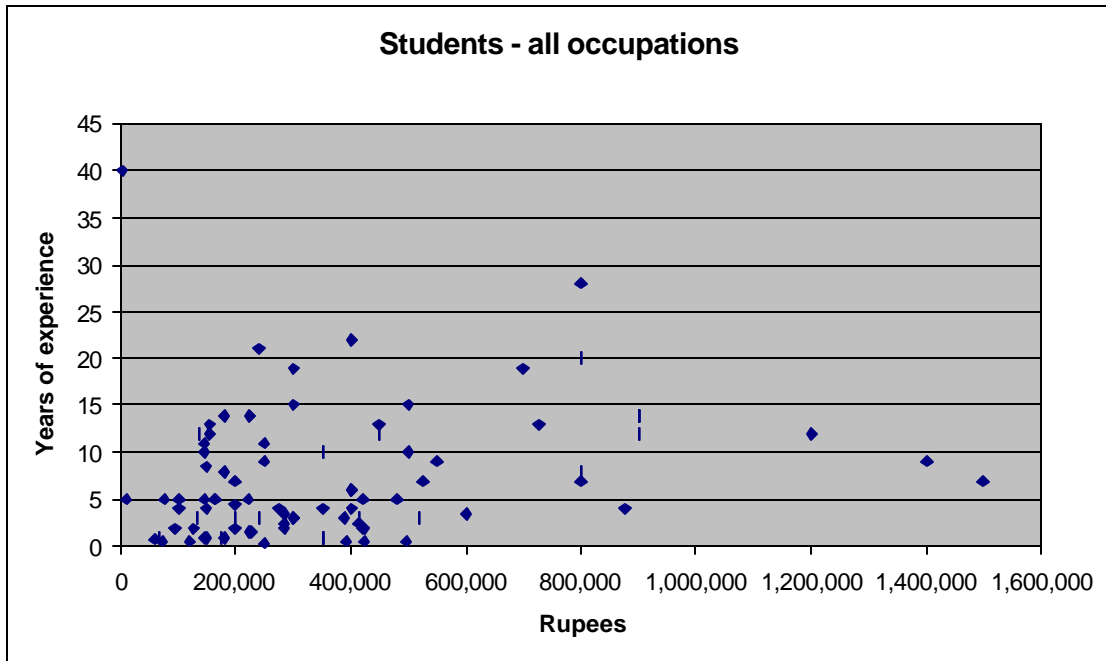
⁴ Source: Actuarial Society of India www.actariesindia.org

Indicative salary survey

It was established in the earlier paper that 62% of current students were not working in an Actuarial role and the range of employment options is shown below:

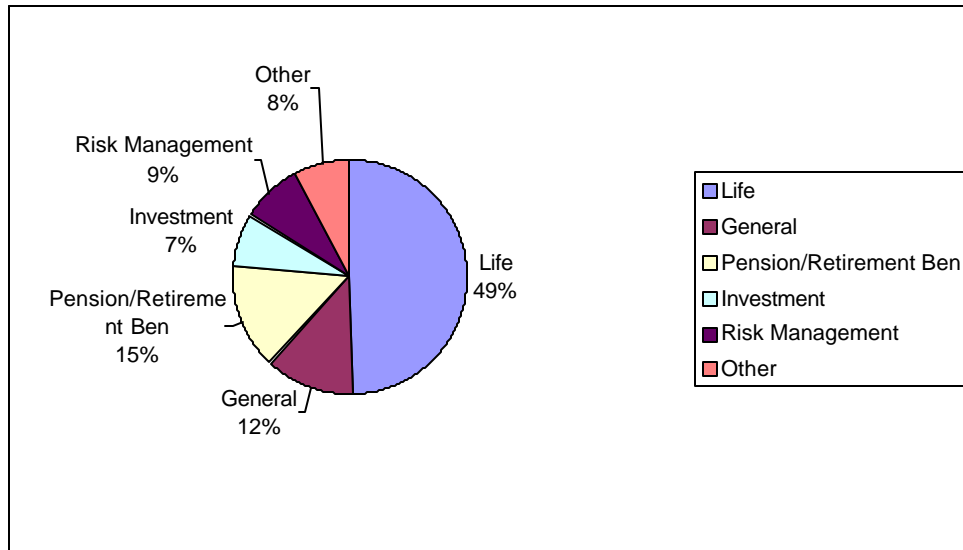


Therefore the indicated current salary levels enjoyed by students of the Actuarial Society of India may more accurately reflect their current occupation rather than the fact that they are studying to become a Fellow.

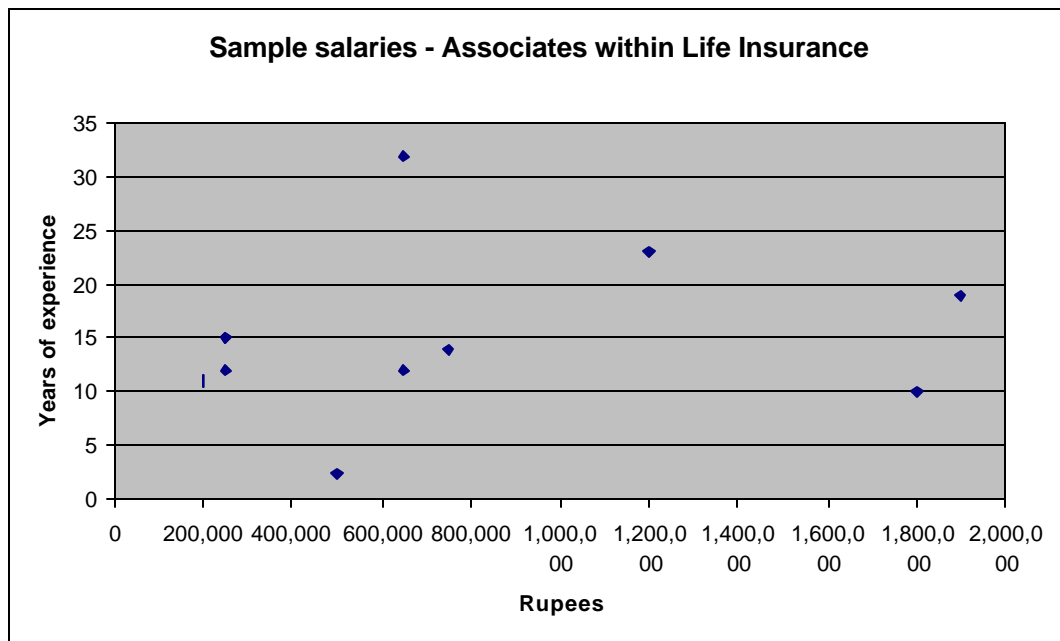


(Sample size – 90)

For those working in Actuarial roles, the current demographic split by practice area is as follows:



The Associates who provided salary information all worked within Life Insurance (10 responses) and the distribution is illustrated below:



The Actuarial profession in China

Currently there are 50 qualified Chinese Fellows, 164 Chinese Associates and 70 Fellows of the US Society of Actuaries and 200 Associates of the SOA.

In 1988 Nankai University began actuarial education in China and in 1996 the first China Life mortality table (1990-1993) was issued. In 1997 the People's Bank of China (PBOC), which is the regulatory body of all insurance business in China, constructed actuarial guidelines for Chinese life companies.

In 1998 the China Insurance regulatory commission (CIRC) was founded in Beijing and replaced the PBOC as the regulatory body of the insurance industry and the actuaries who work within it.

Actuarial education was established and by 1999, 43 candidates had passed the required exams to become qualified Chinese Fellow Actuaries. By 2002 a new insurance law was issued that required Property and Casualty companies and Re-insurers to have at least one qualified Chinese Fellow as a signing actuary, as was already the case with Life companies.

In 2003 actuarial regulations for the reporting and pricing of new types of products (including participating policies, universal life and unit linked products) were issued. In 2004, foreign insurers were granted permission to extend their product offerings to include group, health and annuities to Chinese citizens.

There are a number of issues facing Actuaries working in the Chinese market now, which include the liberalisation of premiums, the construction of a new Actuarial reporting system including the provision of an 'Approved Actuary' or 'signing Actuary' position. New life mortality tables will be issued in 2006, and other concerns are around solvency regulations and embedded value reporting methodology. The regulators are moving away from a formula driven approach to first principles which is more in line with the Canadian and UK systems.

The Associate exams form 9 parts as follows:

ASAC courses

| 科目名称 | 科目代码 | 科目名称 | 科目代码 |
|------|------|----------|------|
| 精算基础 | 01 | 生命表基础 | 06 |
| 精算基础 | 02 | 精算数学 | 07 |
| 复利数学 | 03 | 非精算数学与基础 | 08 |
| 精算数学 | 04 | 统计基础 | 09 |
| 风险论 | 05 | — | — |

Source: Kin Chung Chang talk to the Actuarial society of Hong Kong 22 Mar 2003

Section Four –Comparative discussion of the Indian and Chinese Insurance markets

Each of the countries within what is broadly defined as “Asia” has a different type of insurance market. Each is at a different stage of growth, sophistication and development, and each has its own unique culture, political economy, demographic and history that has influenced how it has developed. There is evidence (described later) to suggest that there is a relationship between the insurance market and the ‘wealth’ or GDP of a country. Our basis for discussion in this section is to look at the changing insurance markets of China and India and how each are influenced by factors on a macro/country level, and in order to provide a practical example have taken the profession of Actuary as a focal point.

Foreign Direct Investment is an important contributor to growth rates and improvements in productivity for developing markets. Henley’s (Henley 2004) research demonstrates a positive association between the two. Particularly appropriate for the discussion on insurance, are his comments on the reasons that FDI is sought after by governments –

“... Technology transfers, employment generation, access to managerial expertise, global capital ...markets, and to marketing and distribution networks”

In the same paper, Henley goes on to discuss why India and China have performed very differently in their ability to attract FDI. He cites Albuquerque and others on page 1040 whose research concluded that

“capital market liberalization and integration [is the]... key driver [of FDI decisions]”.

Henley noted that Kearney’s survey (pg. 1041) revealed that China was ranked number one most attractive investment destination in the world (outside the US) and India was ranked 15th. It is important to consider when looking at comparative figures of the two countries, that there is a difference between the proportion of FDI for each country that is derived from each of the service and manufacturing sectors. China has a greater manufacturing focus, with India more involved in services. Henley notes that in China 60% of FDI went into the manufacturing sector whereas in India it was only 12%.

Srinivasan (Srinivasan 2004) echoes this view

“successful use of brain power by India, with service exports as the engine of growth, would be in sharp contrast to China, whose growth acceleration was driven by manufactured exports that exploited its cheap labour”.

The political structure of the countries influences the nature of FDI, for example in India the private sector is more developed and politically active, and the majority of the most valuable domestic companies are family business groups (Bardhan 1998). In contrast, representation of Chinese domestic industrial interests in the political system manifests via the State. However, unlike in India, local government officials in China are incentivised by the central government to expand FDI at provincial and state level. For example, currently foreign owned insurance companies are only able to operate in a small number of cities, so provincial governors are campaigning hard behind the scenes to gain licenses in anticipation of the full liberalization under China’s WTO commitments in 2007.

Significant regional variations in the distribution of FDI are apparent in both countries; with the coastal provinces plus Beijing accounting for 64% of GDP in China and 45% in India going to the four southern states of Maharashtra, Tamil Nadu, Karnataka and Andhra Pradesh, and Gujarat on the West coast, with a further 12.2% to Delhi. In India there is no central government control (as in China) to focus FDI generation efforts, each state has its own powers.

Skipper (Skipper 1997) noted that linkages between insurance and economic development are poorly understood as little research has been done in this area (he was writing in 1997). However, he did set out seven ways in which insurance does aid economic development:

- Promotes financial stability and reduces anxiety
- Can substitute for government security programs
- Facilitates trade and commerce via specialization
- Mobilises national savings, particularly long term
- Enable risk to be managed more efficiently, e.g. via competitive pricing, risk transformation, increased capacity
- Incentive to encourage loss mitigation services
- Fosters a more efficient allocation of a country's capital
- Foreign insurers can bring innovative means of gathering and using information

The connection between insurance markets and levels of economic development has also been explored by Pearson (Pearson 2002) and on page 498 he draws attention to research by Swiss Re who found an "S curve" relationship between insurance spending as a share of GDP and per capita income. He also notes that in countries such as India and China with low incomes and low levels of per capita insurance spending, the income elasticity of demand for insurance remains close to one. He also goes on to note that as an economy moves into the area of medium disposable incomes then

"expenditure on insurance increases at a rate disproportionately greater than the growth of per capita income".

He does however also indicate some scepticism as to whether this holds true.

Other research indicates that "income, social structure, the one-child policy, education and economic development are key determinants of life insurance consumption" (Hwang and Greenford 2005), writing about China Hong Kong and Taiwan. They also agree that "political, demographic and economic changes...may determine how life insurance consumption grows in the future".

Chu (writing in 2001) believes that "the demand for insurance grows significantly faster than wealth in transitional markets" (and she quotes Korea Taiwan Singapore and Hong Kong as belonging to this category), whereas where GDP is low (India and China), there is only sufficient wealth for basic needs.

Others also hold the view of the validity of a connection between the GDP growth and insurance penetration; see Mathur (Mathur 2001) who cites socio-economic conditions of a country, and the way business is carried out as indicators of the connection. He argues that although monopolies and oligopolies are generally viewed as negative impacts on a market, in the case of the developing markets of China and India, this could be a positive influence as this market

structure may prevent the appearance and then failure of small insurers in a highly competitive market.

Wu (Wu 2005) notes that the

“Compound annual growth rate of the overall insurance premiums during 1990 – 2001 [in China] was over 27%, more than twice the rate of GDP growth. Total premiums have expanded from RMB 300m in 1980 to RMB 301.7 bn in 2002. In 2002, total premiums grew 45% with life premiums up 60%, making China one of the world’s fastest growing insurance markets.”

It is important to note however that macroeconomic data, particularly that relating to savings and investment rates are prone to inaccuracies. For example, Srinivasan (Srinivasan 2004) notes that China is still not a market economy, so prices may not have the same meaning as they do elsewhere, and that there is also evidence to suggest that the Indian statistical system does not cover all output. There is therefore the conjecture that Chinese figures are overstated, and Indian figures understated, putting their comparative performance somewhat closer together.

The question of the sustainability of growth rates in to the future is an important factor to include here, particularly when we are using projections to assess a future market. Srinivasan (Srinivasan 2004) believes that growth rates will decline, as consumption increases and savings decrease. However, it is also true that as consumption of goods increases so does the consumption of insurance for those goods, so it could be inferred that the growth of insurance is more linked to consumption indicators than pure GDP indicators.

Srinivasan (Srinivasan 2004) concludes that with the domestic reform process gathering momentum in India, that target growth of 8% could well be exceeded. His caveat at the time of writing was the hope that a reforming government with strong economic than political ambitions would be elected in 2004.

An efficient financial system is also a requirement for the development of a robust insurance market. In the McKinsey Quarterly article (Farrell 2005) “Reforming India’s Financial System” it notes that

“India’s financial system is more effective than China’s, largely because the market share of more efficient foreign and privately owned banks in India has crept up to 25%”

Both countries have historically had a problem with non-performing loans, however India has made progress to deal with this issue, and its level is now down to 9% of all lending according to Fitch Ratings in April 2005, whereas China’s is still around 40%.

The “chicken and egg” (Shan, Morris et al. 2001) question is still being debated as to the causal relationship between financial development and economic growth. These particular findings would indicate that far from a common causality, it is time and country specific. Their findings show that in China (and they didn’t look at India for this paper), the indication is that economic growth causes financial development rather than the converse, and that this relationship is one-way.

From a theoretical economic perspective, well developed financial systems may facilitate investment and mobilise savings. In turn, this rate of savings will stimulate demand in the (life

and investment) insurance market and generate more interest in protecting assets by the use of general insurance.

The McKinsey article (Farrell 2005) demonstrates the current composition of the financial stock of China and India (and compares with more developed countries), and the predictor that China's stock will reach \$9 trillion by 2010 and India's \$1.9 trillion by the same time, see illustration (1) below.

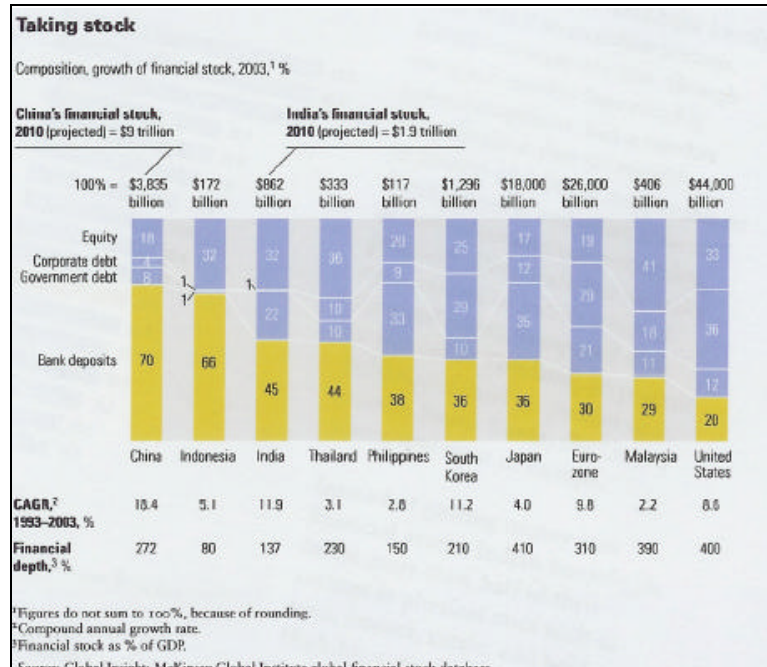


Illustration 1 - Source: Global Insight; McKinsey Global Institute global financial stock database

As for the savings rates, the illustration (2) below shows that India's gross national savings rate (22.5%) is half of China's (47.6%) but fair in the international arena. However, despite the comparative sophistication of offerings on the Indian capital markets, and 5000 companies listed on the stock market, Indian households invest more than half of their savings into physical assets such as land, houses, cattle and gold. It is the re-distribution of savings that is required in India to enable greater efficiency of capital allocation.

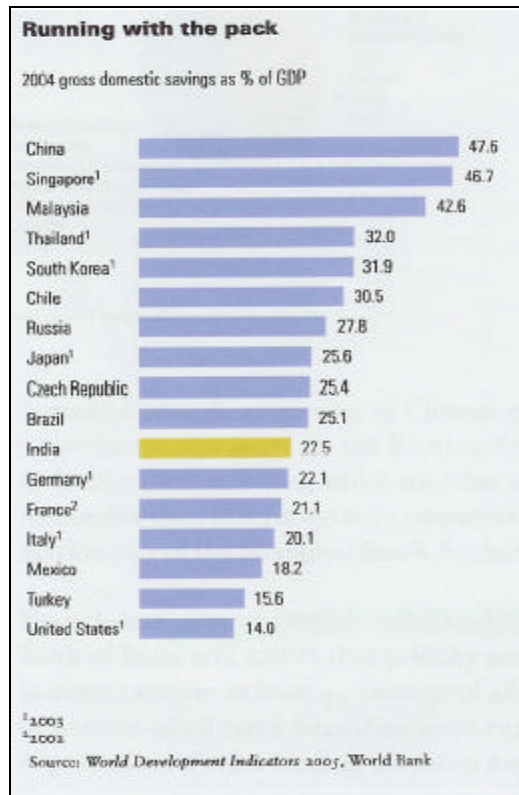


Illustration 2 - Source: Global Insight; McKinsey Global Institute global financial stock database

The underdeveloped nature of the capital market, the lack of long-term investment instruments and the constraints put on companies' investment opportunities by the regulators has made it difficult for Chinese insurers to match their liabilities with appropriate assets and earn suitable returns (Wu 2005). Investors too, have found China's capital markets (and thus savings related insurance products) unattractive.

All of the Asian "tiger" economies enjoyed a surge in savings and investment during their period of rapid economic growth (Bloom and Canning 2004) and studies do find a strong link between demographic structure and national savings rates (Fry and Mason 1982).

There are two major measures which may be used to determine the relationship between the insurance market and the wealth of a country, that is by "insurance penetration" which is premium income as a percentage of GDP and the other is "insurance density" which is the amount that is spent per capita on insurance.

The following table shows some comparisons for a sample of countries.

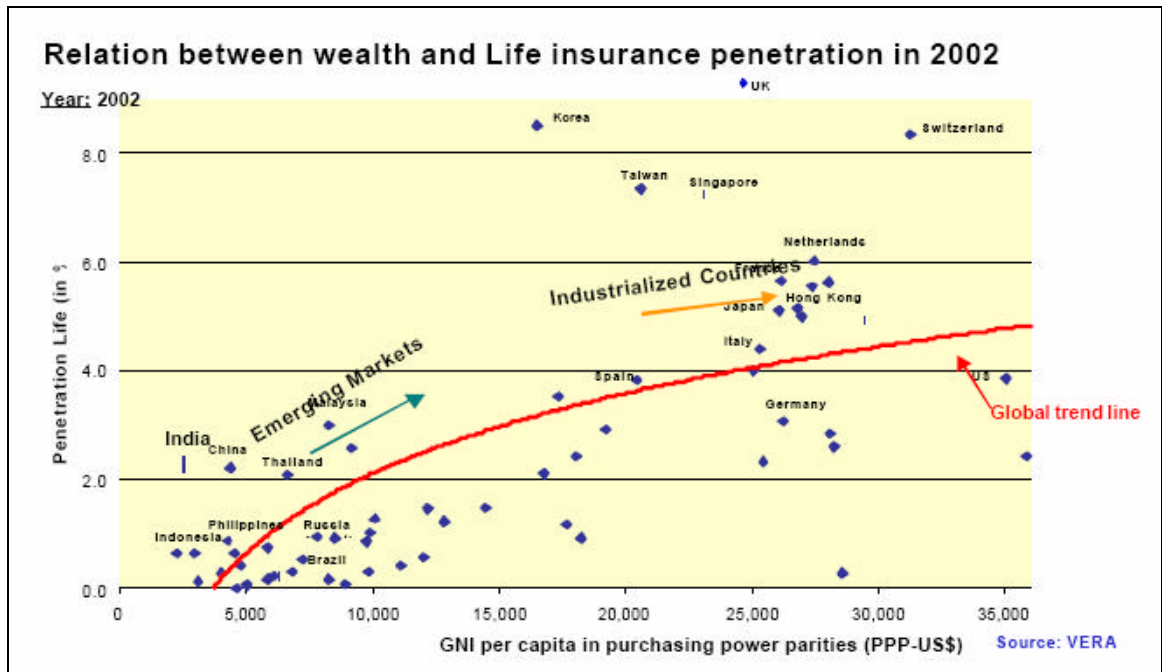
| Country | Population (m) | GDP (US\$m) | Penetration (Premiums/GDP) Non life % | Penetration Life % | Density (Prem per capita) Non Life (US\$) | Density Life (US\$) |
|----------------|-----------------------|--------------------|--|---------------------------|--|----------------------------|
| US | 270 | \$9,225,000 | 3.04 | 3.87 | 1037.00 | 35.06 |
| Japan | 126 | \$2,950,000 | 3.43 | 5.12 | 803.80 | 26.07 |
| Korea | 47 | \$625,700 | 2.23 | 8.52 | 297.00 | 16.48 |
| Taiwan | 22 | \$357,000 | 1.34 | 7.36 | 217.70 | 20.60 |
| Hong Kong | 7 | \$158,200 | 1.23 | 6.38 | 285.70 | 14.83 |
| Singapore | 4 | \$98,000 | 1.29 | 7.25 | 361.40 | 23.09 |
| China | 1247 | \$4,800,000 | 0.12 | 2.22 | 4.70 | 4.39 |
| India | 1001 | \$1,805,000 | 0.11 | 2.28 | 2.10 | 2.57 |

Sources: (Reiche 2004) and (Narvell 2002)

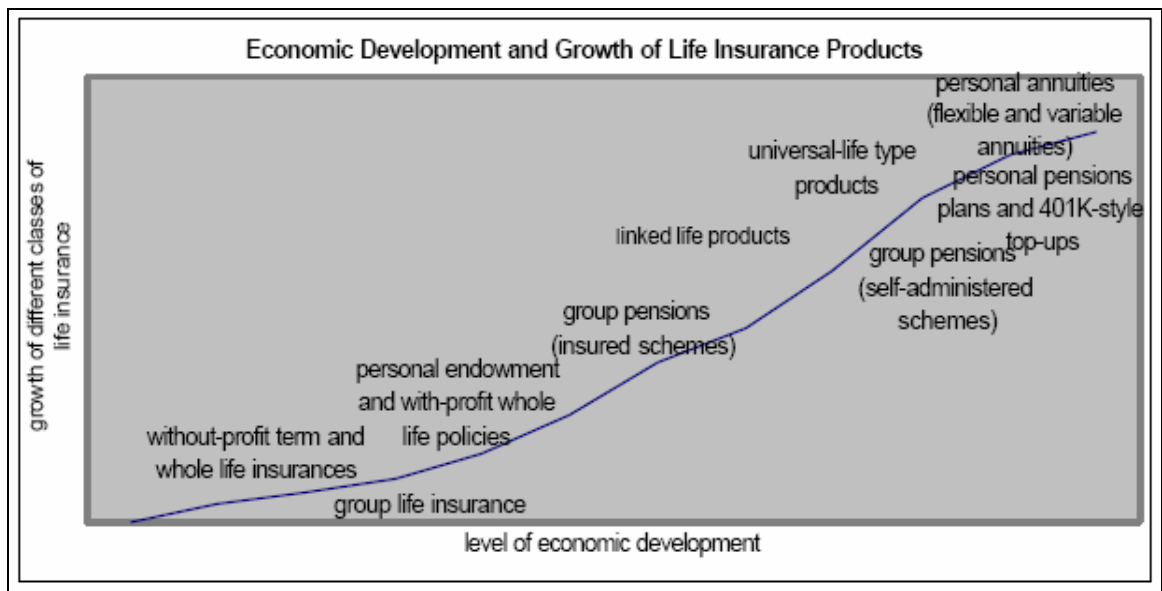
The saturation point for non-life insurance penetration is around 5%. (Pearson 2002)⁵

To put China and India into context, one can look at the illustration below which shows the relationship between Wealth and Life insurance penetration in 2002 (Reiche 2004)

⁵ Page 499



Another way this can be measured is by the sophistication of products sold. As the financial awareness of a population increases, insurance companies respond with more complex products to fill this demand. This is illustrated below. Source: (Reiche 2004)



Another influencer of demand for life insurance products is the individuals' own life cycle. For example, there is a clear change in needs as the individual moves from being single, to married, to having a family and through into retirement (Asher 2005).

Pearson (Pearson 2002) provides a more detailed discussion of the relationship between income elasticity of demand, economic development and insurance markets.

Although in many of the papers written on the comparison between India and China and the relative size of future economic growth and development, China is viewed as the 'leader' in the growth race, there is evidence that within the insurance market it is likely that India will grow more quickly and develop more strongly than China.

A consideration of the changing demographics of India and China is important to this discussion, not only on the micro level in terms of the numbers and type of purchasers of insurance, and the workforce within it, but also at a macro level, the links that run between demographics and economics.

Desai (Desai 2003) provides an analysis of the history of the growth of India and China in relation to their percentage of world population and world GDP as follows:

| | GDP% | | POPULATION% | |
|------|-------|-------|-------------|-------|
| | China | India | China | India |
| 1913 | 8.9 | 7.5 | 26.4 | 17.0 |
| 1950 | 4.5 | 4.2 | 21.7 | 14.2 |
| 1998 | 11.5 | 7.7 | 21.0 | 16.5 |

[Maddison (2001)]

There is considerable change going on world wide in the demographics of all nations, and Bloom and Canning (Bloom and Canning 2004) note that age structure matters to economic growth, with East Asia benefiting from a 'demographic dividend'. Clearly it is not just the demographic change that results in economic growth, it is the way the governments and the population themselves maximise the potential of this dividend.

Wu (Wu 2005) page 183 notes that by 2025 13% of the Chinese population will be aged 65 or above and by 2030 the absolute size of the labour force will begin to decline with a dependency ratio rising to 31% from 9.4% in 1995.

Swiss Re's Sigma (2004) report of 2004 provides the following statistics:

| | | |
|----------------------------------|------------|------------|
| | China | India |
| Population Size (2003) | 1.292.6m | 1.049.7 |
| Population growth (1993-03) | 0.9% | 1.8% |
| Share of world popn (2003) | 20.6% | 16.9% |
| Age Distribution (2003 estimate) | | |
| 0-14 years | 25.3% | 32.2% |
| 15-64 years | 67.6% | 63% |
| Over 65 | 7.2% | 4.8% |
| Life expectancy (2003 estimates) | | |
| Female | 74.3 years | 64.4 years |
| Male | 70.3 years | 62.9 years |

As far as India is concerned, if we consider the potential for growth in new insurance purchasers, firstly the change in households:

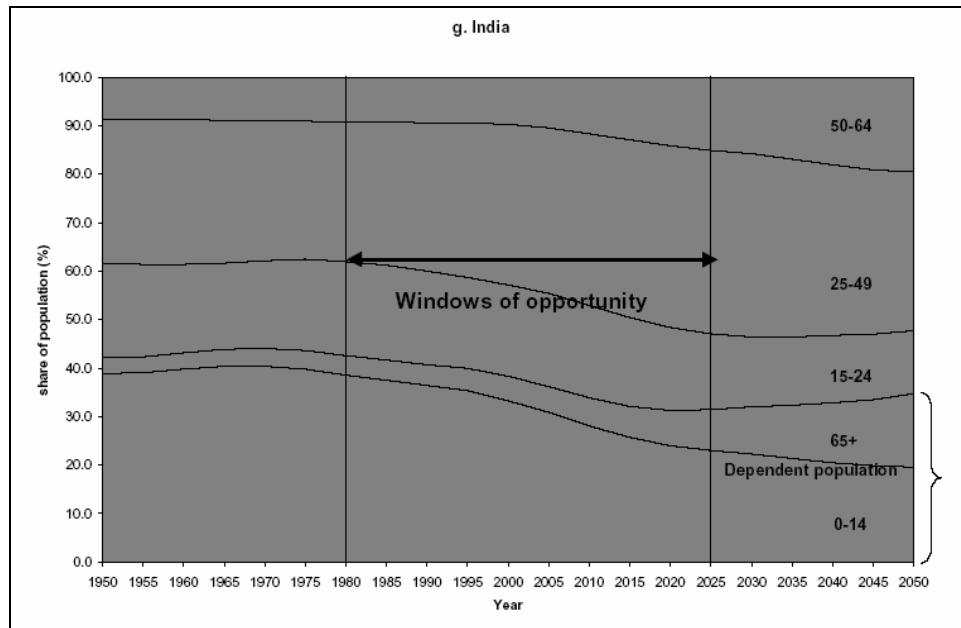
| <i>(Million households)</i> | | |
|-----------------------------|------------------|-------------|
| Categories: | 1994–1995 | 2006 |
| Consuming class | 29 | 91 |
| Climbers | 48 | 74 |
| Aspirants | 48 | 15 |
| Destitutes | 35 | 13 |

Secondly, the type of households and average incomes:

| <i>The urban Milieu, 2012:</i> | | | | |
|--------------------------------|------------------|---|-----------------------|-------------|
| Category | SEC | Characteristics | Households (m) | |
| | | | 1997 | 2012 |
| Super haves | A1 + | Small group, easy to reach, can pay dollar prices. | 1 | 4 |
| Haves | A1, A2 | Large number, will balance benefit and price and buy what is typically labelled as premium or high-end popular. | 5 | 19 |
| Strivers | B1, B2 part of C | Definite ceiling on how much they can spend; are looking for the best available benefits at that price. | 19 | 39 |
| Beginning consumers | Part C, D+ | Just entering the arena of consumption; benchmark of quality and price is what they were doing earlier. | 10 | 17 |
| Strugglers | D, E | Unskilled worker, petty trader, subsistence-level wages. | 14 | 18 |
| Total | | | 49 | 97 |

Both these tables were sourced from Gupta (Gupta 2000)

The age structure of a population is a significant factor for an insurance company, not just because of the ability to attract a workforce, but also because of a factor referred to earlier, i.e. that of the lifecycle of an individual and therefore his propensity to save and buy life insurance. A breakdown of the age structure of India is provided below (Navaneetham). Navaneetham's paper goes on to note that the share of the middle aged working population will go up after 2005 which will mean that the savings rate will increase as well as being conducive to economic growth.



As a country becomes wealthier it is better placed to demand the provision of a robust health and pensions system. China's population is moving towards and increasing dependency structure. It is "getting old before it gets rich", and with the effects of the one child policy now reaching adult hood, there will be less people to provide for their elderly relatives. This is going to cause a major problem for the government and insurers in the future. India's population too is changing, but also its demography is much younger and therefore not only will it have more people of earning age able to provide for its elderly, from a macro perspective it will have more tax revenue into the government to be able to fund social support programmes.

In India, on October 9th 2005, the IRDA noted that

"the health insurance business has the potential to generate Rs1 lakh crore as premium and this calls for specialist health insurance companies"⁶

In the US pension products account for 49% of the total insurance policies sold, while in India it is hardly 0.25%.

It appears likely that demand for insurance will grow faster than the economy in both locations (Wu 2005) but there is still a complex supply question. There are similarities between the current development of the two nascent markets with the historic development of the now more sophisticated markets of the UK, Australia, etc. For example in each of these locations there have been times during the past 50 – 100 years when there were numerous small and medium sized insurers, however more recently, there has been extensive consolidation into a smaller number of stronger players. With the increasing globalisation of insurance, it is not just the influx of foreign insurers into these markets that warrants consideration, but also the effect of overseas expansion by the domestic insurers. For example, the Life Insurance Corporation of India has already announced grand plans to globalise its business with initial offerings now available in the

⁶ The Hindu Business line – online edition:
<http://www.thehindubusinessline.com/2005/10/10/stories/2005101001041400.htm>
 Accessed 15.10.05

Middle East. India has made positive steps to protect its rural populations with a condition that all insurance companies sell a certain percentage of its products to people in rural areas. This puts a strain on companies to be able to provide this type of cover and still make profits (or at least not make a loss), due to the difficulty in premium collection, accurate underwriting, and robust claims controls. China does not have such a restriction currently.

The examples above were some indicators of macro influences on the growth of the insurance market itself; the following considers other aspects which influence the growth of the Actuarial profession within the insurance market.

One of the functions of an Actuary is to ensure that each Insurance Company complies with statutory regulatory requirements. In many countries, the capital and solvency requirements are based on simplistic premium and claim formulae without regard to the specific circumstances of each insurer. India and China still carry out the traditional premium/claim method whilst Australia, Singapore and Indonesia have a risk based capital system. Malaysia and Taiwan have committed to a risk based capital system within the next year or so. However, this methodology is a requirement under the new and developing International Accounting Standards and therefore companies operating in China and India will need to draw on Actuarial expertise in order to develop a Risk Based capital framework. Robust risk management is proven to go towards reducing company solvency risks.

Both India and China are trying to enforce an appropriate form of insurance regulation to fulfil not only the needs of the global marketplace and international standards, but also that which will fit their distinctly different political regimes. Booth (Booth 1998) introduces his paper with the quote:

“One of the most important influences on the development of an insurance market and on the development of the professions, such as the actuarial profession, is the nature of regulation.”

And he proceeds to indicate four different economic models of regulation. The discussion on the interplay between regulation and the development of the professions is a useful one for the purposes of this paper. He also draws some subtle differences in the way that regulation is enacted in different regimes, e.g. the Market Socialist view that the government should control the insurance markets and thus its regulation, versus the Austrian theory that a lightly regulated market will satisfy consumer preferences better and will assist rather than hinder competitive and diverse institutions.

This latter view was endorsed by Mathur (Mathur 2001) and his observations on the negative impact of a weak regulatory regime in the early years of China's insurance market development. Mathur's view is that in India the dividing line between the political apparatus and the regulatory executive has become thinner, and therefore difficult to maintain distance between political and economic interests.

The requirement for the monitoring of policy liability reserves differs between India and China. India requires mandatory actuarial sign off; China is yet to introduce such a system.

A review of an insurance market and particularly one that seeks to look at projecting its future structure and size will also need to consider the propensity for the companies within that market to fail. This is particularly relevant in an analysis of the Actuarial profession, as the work that

they do and the regulations under which they report and carry out their work are designed to assist with the prevention of insolvency, development of the regulatory framework, and so protect the market and the consumer.

Chen and Wong (Chen and Wong 2004) looked particularly at the Asian market place, and also draw firm differentiating factors between life insurance companies (described as “financial Intermediaries”) and general insurers (“risk takers”). When considering the markets of India and China, and the above discussion on the speed of market growth, it is important to consider whether rapid growth in premium income is more likely to cause a company to fail. Although researching Malaysia and Singapore, both more developed than India and China, it was interesting to note that they saw the general insurers’ liquidity ratio as the most direct measure of financial health and for life/health insurers, firm size and change in asset mix. However they did also note that there were many limitations to their study, not least of which was the differences in the key influencing factors encountered in different countries⁷.

In a further study into Insurance Company failure within the general insurance market by a working party of the UK Institute of Actuaries⁸ it was noted that there were several common themes in insurance company collapse all of which have a relevance to the markets of India and China.

Outside of catastrophes, these themes fall broadly into two types, those caused by rapid expansion and those caused by lack of expertise. It is in his latter category, which includes under-reserving, under-pricing, claims mis-management, and plain incompetence, that the lack of Actuarial expertise within India and China makes insurers particularly vulnerable to collapse.

The other major area of the use of Actuarial expertise in the non-life product area in developing countries is for technical/statistical premium rating processes. As yet, these tend to be quite rare in Asia and are generally used by foreign insurers (Tucci and Baker 2005). As we have seen, India restricts the participation of foreign companies in non-life industries; China does not per se (subject to the geographic restrictions currently). In India approximately 70% of non-life insurance business is subject to strict tariff currently, although there is a proposal to liberalise this in the next few years, in China tariffs have been removed on all classes but motor premiums. There would appear therefore to be more opportunity for Actuaries to use their technical premium rate processes within the foreign insurers in China. The most profitable lines of business in recent years in China have been Commercial Property and Cargo which are precisely the lines that are focused on by foreign insurers. In India motor business represents 40% of total industry premium, Property and Fire is approximately 23%, Health is 10% and Marine is 10% (Hull is still under tariff, Cargo is not). Motor is generally unprofitable in India, Fire is profitable. It is predicted that once tariffs are removed, performance will deteriorate in the short term.

There is clearly an urgent need to develop quality of management and technical personnel. There is a lack of insurance experience and other technical expertise “particularly in the area of actuarial, underwriting and claims management” (Tucci and Baker 2005), what is missing is the “vital element of experience”.

Tucci and Baker go onto provide some indication of future demand for Actuaries in China:

⁷ Page 495

⁸ <http://www.actuaries.org.uk/files/pdf/giro2002/Massey.pdf>

“...the use of actuarial expertise in pricing products is very low in China although the regulator is keen for the industry to embrace such practices. One problem that the industry will face in this regard is in establishing a reliable data base of relevant historical claims and policy information to enable sound actuarial pricing techniques to be employed. To date the level and quality of data collection has been low both at the company and industry level. The regulator has recently announced the requirement for general insurance companies to appoint Actuaries for reserving and solvency evaluation. Foreign companies are likely to have an advantage over domestic companies (particularly in pricing) as the use of actuarial and technical analysis is likely to be a standard feature of their business”

In India there is an absence of risk management culture and in the non-life market tariffs do not encourage thorough underwriting of pricing and policy terms.

In any discussion on the topic of ‘insurance’ it is important to ensure that ‘life insurance’ and ‘non-life insurance’ are viewed separately as the growth of the use of actuaries in non-life has historically followed a different path than within life insurance. There are also direct influencing factors within the market as we have noted above, e.g. whether actuaries are used for pricing, whether there is a strong need for Risk Based Capital expertise.

In addition to the market penetration and growth directly, there is also the concept of outsourcing to be considered. Some major international firms are now outsourcing their back office and routine Actuarial work for their US and European clients to India creating an excess of demand for Actuaries which is not correlated with the insurance market within India. There is no evidence that this is happening in China as yet.

There has been very little work carried out to establish the nature of the numerical relationship between the numbers of Actuaries and the market place in which they work. This could for example, be a relationship with the numbers of insurance companies, or the amount of premium income, or the percentage of insurance penetration, or the lifecycle of the market place and therefore the sophistication of products within it.

One previous work on this subject, just on India, (Narvell 2002) chose to compare three measures – Actuaries per non-life company, actuaries per GDP, Actuaries per million of population, and actuaries per million cars. This produced wildly ranging figures for the required number of Actuaries from 14 to 12,575!⁹

There is less need for actuarial input into the non-life insurance marketplace in many developing countries because it is still under a tariffed regime, and so pricing expertise is set centrally, or the market does not yet require formal regulatory ‘sign off’ by an Actuary. As a regulatory regime gets more complex, so the need for Actuaries increases.

The above factors indicate that the numbers of actuaries within a market is an indicator of marketplace’s sophistication. However, there does not appear to be a robust measure currently in use that allows such a calculation to take place. One method could be to look at the relationship between the numbers of actuaries and the insurance penetration figure. Insurance

⁹ In a covering email to me from the author of that work he did comment that his extrapolations were “simplistic”.

penetration is the amount of premium income as a percentage of GDP. As GDP represents the aggregate of production of the population, then insurance penetration is the amount of insurance bought as a percentage of the production of the population. Each member of the population could therefore be described as an average production producing unit of the country as a whole. So, by applying the penetration percentage to the population figure, you have the number of average insurance buying units.

The figures that this theory produces for the Life insurance market are as follows:

| | Fellows % per insurance purchasing unit | Mean fellows as % insurance purchasing units | Resultant fellows if applies mean | Actual number ¹⁰ |
|-------------|---|---|--|--------------------------------|
| China | 0.0001 | 0.0079 | 2291 | 43 |
| India | 0.0008 | 0.0079 | 1946 | 203 |
| Indonesia | 0.0080 | 0.0079 | 126 | 127 |
| Japan | 0.0156 | 0.0079 | 515 | 1456 |
| Korea | 0.0064 | 0.0079 | 466 | 379 |
| Malaysia | 0.0063 | 0.0079 | 57 | 48 |
| Philippines | 0.0079 | 0.0079 | 61 | 61 |
| Singapore | 0.0184 | 0.0079 | 25 | 50 |
| Taiwan | 0.0078 | 0.0079 | 133 | 820 |
| Sum | 0.0712 | | | |
| Mean | 0.0079 | | | |
| UK | 0.1252 | 0.0079 | 2009 | 2500 |
| US | 0.087 | 0.0079 | 8359 | 10,000 |

Note: For each country the numbers of actuaries have been compiled using statistics from the relevant Actuarial Institute to be closer to the representative number of those involved in Life insurance. General insurance (P&C) is analysed separately. When precise figures of the numbers of Actuaries in each practice area were not available then an educated estimate was used.

It is interesting to see that the most developed markets of those analysed, Japan, Singapore and Taiwan show an actual number above the mean, which seems to support the view that the more sophisticated markets employ more Actuaries.

Because of the current small numbers of Actuaries working in the Property and Casualty market within China and India it is more difficult to produce accurate extrapolations.

¹⁰ It is interesting to see that the most developed markets of those analysed, Japan, Singapore and Taiwan show an actual number above the mean, which will be discussed in more depth later.

The following excel diagram provides a summary for the general insurance market.

| | Fellows as % Insurance Purchasing Unit | Mean as % insurance purchasing units | Resultant fellow number if applies non-us mean | Actual number of Fellows in GI | no. GI fellows accurate/guess |
|-------------|--|--------------------------------------|--|--------------------------------|-------------------------------|
| US | 0.0042 | | 1157 | 3455 | Accurate |
| | | | | | |
| China | 0.0007 | 0.016% | 235 | 10 | Guess |
| India | 0.00004 | 0.016% | 172 | 5 | Accurate |
| Korea | 0.0038 | 0.016% | 165 | 120 | Guess |
| Taiwan | 0.0356 | 0.016% | 46 | 105 | Accurate |
| Hong Kong | 0.0348 | 0.016% | 13 | 20 | Guess |
| Singapore | 0.0194 | 0.016% | 8 | 10 | Accurate |
| | | | | | |
| sum | 0.09854 | | | | |
| Mean | 0.024635 | | | | |
| mean exl US | 0.018868 | | | | |

The last column reflects whether the numbers of fellows currently in GI was found on the relevant actuarial society website, or whether it was an educated guess because accurate information could not be found.

If we refer back to John Narvell's work on the profession in India (Narvell 2002) when he considered the numbers of actuaries per million cars, he came up to a figure of 389 and his 'actuaries per GDP \$billions' figure was 150.

In reality the relationship is much more complex than can be solved by just the one simple measure used above. There are many variables that will influence the demand for Actuaries and could be included in a more mathematically robust analysis. Some of these are now explored.

Historically in India and China the politics of the country have a major influence on the development of the professions. Both countries had periods in their history where the Actuarial profession was non-existent, and although a complete elimination in the future is now unlikely, there are potentially major effects on the development of the insurance market which are entirely in the hands of the government of the day. For example, the insurance market in India has been waiting for an increase in the level of foreign ownership of insurance companies from 26% (set in 1999), and there is disappointment that this has not happen quickly enough. In October 2005, it was reported that

"Failure to raise insurance FDI cap a breach of faith: Mulford"(2005)

And the New York Life Insurance chairman, Garry G Benananv said that the

“hike in FDI would help in the overall increase of the insurance industry in India, which in turn would create long term capital”

China is due to removed restrictions by 2007 as already agreed for its WTO commitments.

Legal structures also affect the development of professions (Pomerleano)¹¹. There is a negative correlation between the civil law tradition and lack of professions and a beneficial impact of professions on the rule of law (La Porta, Lopez-de-silanes et al. 1998). In this context, it is likely that India with its English Law based structure could be more readily able to develop a robust and stable profession, rather than China whose legal system has a different basis. The nature of a legal system has a great influence on the development of an insurance market not just in a macro sense, but also because insurance is based on the historic notion of “utmost good faith” which now requires an effective legal system to enforce it.

Section Five –Summary and Conclusion

As a result of this analysis therefore, we have been able to produce a final diagram (see end of this section) which shows 14 features that are likely to influence the growth of the insurance market in India and China. The following are the author’s views as to how India and China compare under each of the 14 headings.

Insurance market development

There are various factors that influence insurance market development and sophistication. “Development’ in this context means the types of products sold, the distribution channels used, the lack of corruption and the effectiveness of the law, the types of investment media, the development of the capital markets and sophistication of consumers. The more developed a market becomes, the more likely that foreign insurers will invest into it and so it will become even more developed. For many reasons explored above, this author’s judgement would be that that the Insurance market in India will develop more quickly than that of China.

GDP

There are a multitude of economic forecasts of GDP growth for the much observed markets of India and China, but in the context of the insurance market, one needs also to consider the role of services within the GDP figures. The Economist of 27th October 2005¹² noted India’s GDP growth has been around 7% and China’s 9.6% for the immediate past. Other news articles differ and have to rely on data which may not be reliable. There is also the view (Wu 2005) that “demand for insurance will grow faster than the economy”. In a recent news item¹³ there was a forecast that China’s insurance industry would grow in momentum since “China’s per capita GDP has broken the level of 1,000 dollars”. India’s GDP had grown by 8.1% in the three months ended June 2005 compared with a year earlier¹⁴ according to Bloomberg October 2005.

Politics

In many ways, being a democracy holds India back from the speed of reform that has happened in China. The Economist of 27th October 2005 again -

¹¹ No publication date was provided on this paper

¹² http://www.economist.com/opinion/displayStory.cfm?story_id=5084621

¹³ http://english.people.com.cn/200510/30/print20051030_217721.html

¹⁴ <http://www.bloomberg.com/apps/news?pid=10000080&sid=aRz3BaNHtRBY&refer=asia>

“Yet just at the moment, democracy is proving far from helpful to Mr Singh as he struggles to move India's economic reforms on to the next stage”.

There is also the political influence on the development of the Industry itself, as referred to above; the raising of the limit of foreign insurers' share in India has been postponed much to the annoyance of the US. If China is determined to develop its insurance industry, it does not have an opposition party to question its economic policies.

The view that India's choice of putting political freedom ahead of economic liberalization has inhibited its pace of development is commonly held (Konana 2004). China is less constrained than India in the context of balancing long term growth needs and short term social benefits, particularly in the decisions around agricultural subsidies. The sustained and methodical growth of China has been as a result of its placing of economic freedom above political freedom.

Demographics

India's population has a much younger age demographic, which means that over the next 20 years there will be far more people of insurance buying age and capability as a proportion of elderly who need supporting than there will in China. This means that it is likely that insurance penetration as a percentage will grow more quickly than in China.

Insurance market penetration

As noted above, this has a significant relationship to demographics as well as GDP so India from a demographic perspective one may predict that India's Insurance penetration figure will be higher. However, China has a much higher savings culture than India, and therefore the average person is more likely to save a greater proportion of their family income in the form of investments.

Regulatory compliance

India already has a compliance regime based on UK legislation and is quickly introducing global regulatory standards. China has some way to go before the importance of Actuarial sign off is recognised.

Development of Capital markets

India's capital market system and stock exchange function has been developed over many years, unlike China who has had to re-introduce a system following its economic liberalisation decision. It is therefore more likely that India's capital market will be more 'user friendly' and facilitate more sophisticated product development than China's.

Product development and pricing

Once a tariff on a line of business is removed the market often responds irrationally, resulting in uneconomic premium rates and de-stabilising behaviour (Tucci and Baker 2005). Companies need therefore to ensure that they have the necessary actuarial pricing expertise on hand to manage this market behaviour. As 75% of the non-life market in India is currently tariffed but only the motor market in China, it is likely that a more stable transition will follow in the latter.

New market entrants

Both markets currently have restrictions on foreign insurer activity. However China is removing restrictions by 2007 under its WTO obligations. Political debate is still continuing in India as to whether to raise the 26% limit on foreign ownership. However, that has not stopped a number of new entrants recently. India dictates to insurers as to their market mix and forces a percentage

of sales in rural areas which may dilute profits and pose extra risks. China does not have this restriction. The lack of a Risk culture may mean that the numbers of insolvencies will increase, and some previous information provided in this paper showing capital injections required for a number of new entrants provides some indication as to the risks for investors.

Comparative prospects for profitability for a new entrant in the non-life market are –

| | China | India |
|----------------------------------|--------------|--------------|
| Profitability after commencement | 5 years | 3-4 years |
| Positive cumulative profits | 8 years | 5-6 years |
| Long term ROE | 12-15% | 12-15% |

Source: (Tucci and Baker 2005)

For a foreign insurance company looking at the two markets as prospects for expansion, the question may be asked as to which one offers the best return.

Distribution Channels

Apocryphal evidence and personal discussion by the author with leading figures in each country indicates that both countries are experiencing similar challenges and decisions in the context of distribution channel efficiencies.

Outsourcing of overseas Actuarial work

Currently this is happening only in India, where the possibility of finding staff with good English and mathematical skills is more likely than in China. As can be seen from the research presented earlier, there are several thousand students currently studying through the Actuarial Society of India who have (at least) rudimentary actuarial knowledge. In China the lack of a critical mass of students, and less developed English language skills have resulted in China as being a less favourable destination than India for Actuarial outsourcing.

Actuarial Education

The Actuarial Society of India has developed an education system which has achieved mutual recognition with the UK and Australian Institutes. By basing their education structure on other English speaking systems, they are allowing students to have access to a world wide source of textbooks, papers and educational assistance. The Chinese exams are conducted in Chinese and therefore potentially limit their student's ability to gain overseas experience.

In summary, I believe it can be seen that there are a considerable number of factors that will contribute to the development of the insurance markets in India and China and consequently influence the demands of a profession as small and specialised as Actuarial Science. It would be possible to produce a scientific model to predict this demand and suggested parameters are shown in the table below.

| Feature | Factors | Influence on Model |
|---|---|--|
| Insurance Market development | The more sophisticated the market the more actuaries required (e.g. Japan has 2x the mean) | Create numerical “increasing sophistication factor” |
| GDP | 1. As a country gets richer insurance sales increase. 2. Will insurance demand grow faster than the economy? | Create a numerical predictor of GDP growth |
| Politics | How influential is the political regime on the insurance market? | Consider length of time to make legislative changes, the likely nature of those changes whether insurance market is favoured or not. |
| Demographics | Insurance is bought in relation to lifecycle position | Create a numerical predictor of change of insurance buying demographic and use to influence penetration figure |
| Insurance Market penetration | Proposal that this directly influences the numbers of actuaries | Create a numerical predictor of insurance market penetration |
| Savings culture | Gross savings as % GDP influences Insurance market penetration | Create a numerical predictor of the changes in the rate of savings |
| Increasing need for regulatory compliance | e.g. if new legislation requires actuarial sign off of reserves in China | Incorporate a numerical predictor of legislative changes |
| Development of Capital markets | Is it easy, secure and attractive for people to invest? | Factor in development of the market from a systemic, legal and governance perspective |
| Product development require more robust pricing | 1. Changes in Tariff. 2. Availability of data currently poor in many instances will gradually improve | Factor in when tariff changes are likely to occur and how that will affect demand for pricing expertise |
| Changes in product requirements | 1. Demand for Health insurance 2. New demand for actuarial involvement in pensions | Factor in the trajectory of these developments |
| New market entrants | 1. How will the market structure change? 2. Each new company is likely to need its own Chief Actuary and team. 3. Consider the incidence rate of insolvency of an insurer | Factor in lifting of restrictions on new market entrants also consider saturation of market, and how much new business will be available to new entrants versus existing local providers. Factor in likelihood of insolvency |
| Distribution channels | 1. How prone are they to corruption? 2. How does the | |

| | | |
|--|--|---|
| | choice of distribution channel affect profitability, pricing, compliance, staff requirements? | |
| Outsourcing of overseas Actuarial work | 1. Is this a current feature of the market? 2. What is its likely growth trajectory? | Create a numerical predictor of growth of this feature |
| Actuarial Education | How is this provided? Does it comply with global standards? Consider whether this will inhibit or accelerate demand e.g. the more people know what actuaries do the more they see a 'use' for them | Create a numerical predictor of the affect of education on demand |

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About the Author:

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Lesley entered the financial services market in the early 1980's working for a major life insurance company in the UK. She carried out a variety of roles initially in life insurance sales then moved into management. Her career at the 'sharp end' of Life and Pensions sales continued until the early 1990s when she made a career change into Executive recruitment focusing initially on the Insurance market, but quickly learning that to focus on the interesting market niche of Actuarial recruitment was where her future lay.

Working in the UK in that capacity until 2000, she moved with her husband to Australia where after learning about the market place in Australia and Asia, she established a joint venture business with DW Simpson of Chicago to serve the growing markets outside of the US and facilitate a true global recruitment network. Lesley now has responsibility for a team of specialist Actuarial recruitment consultants who cover territory between Europe, India, East Asia and Australia.

Lesley holds a degree in Business Studies from London Guildhall University, post-graduate qualifications in Human Resources and has recently completed a Masters degree in Asian Studies from the University of New South Wales, Australia, where her specialisation was the insurance markets of India and China.