



SOCIETY OF ACTUARIES

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Coincidence?

by Robert L. Brown

Recently I bought my teenage son a T-shirt at a souvenir shop. The front said: “Hours in the day — 24; Beers in a case — 24; Coincidence?”

It turns out that many occurrences in our daily lives which at first appear to be coincidental turn out not to be. Let me add to the list.

While you may not have noticed it, the ratio of male births to female births is dropping. Where it used to be 105 boys to every 100 girls, a measurable decline in the ratio has occurred over the past 20 years (a loss of 2.2 male births for every 1,000 live births in the period 1970 to 1990; the U.S. decline in male births in the same period was 1.0 per 1,000.). The “experts” are looking for an explanation of why this ratio, which used to be extremely stable, has changed. They cite older ages of parents, environmental pollution, fertility drugs, and other factors. But maybe the explanation is more subtle, and yet more profound.

We know that in nature, the ecosystem maintains a remarkable stability. It is well documented that when certain species become overpopulated, the size of their litters declines, and when their population is sparse, the size of their



litters increases. This can be quite remarkable, with the difference being two to three times the number of live births in one cycle — whatever is needed to maintain the species.

For the human race, the ratio of 105 male births to every 100 female births was remarkable. Given higher male mortality, this ratio created virtually equal numbers of males and females at the ages of reproduction.

However, things have changed. Mortality in general has improved, especially at the younger ages. The difference between male and female mortality, which until 1970 had always improved in favor of females, has actually narrowed (much of this can be explained by smoking habits). Deaths from accidental causes are down, especially, again, among young males.

Thus, were the natural world to continue to produce 105 male births

for every 100 female births, we would have an oversupply of males in the reproductive ages, rather than an equilibrium. What was needed was a decrease in the ratio of male to female live births. And guess what? That’s exactly what has happened.

Coincidence? I don’t know. However, I do know that not everything in demography has an easy actuarial explanation, which is what makes the discipline so fascinating. Robert L. Brown is a member of the SOA Board Task Force on Education. He is a professor in the Department of Statistics and Actuarial Science, University of Waterloo, Waterloo, Ontario, and the author of the textbook *Introduction to the Mathematics of Demography*, which is used in SOA Course 161. His e-mail address is rbrown@jeeves.uwaterloo.ca.

SOA Fellows invited to join Japanese Institute

Fellows of the Society of Actuaries can now participate in the Institute of Actuaries of Japan (IAJ) activities and receive their literature. To do this, an FSA should apply to become a “Kenkyu-Kaiin.” This Japanese term translates approximately to “research member,” but the IAJ uses the term to cover various situations, from honorary members elected by their Board to exam-taking students.

Fellows who apply for this membership status with the IAJ should realize that, as members of the Institute, they will be subject to its Code of Professional Conduct, Standards of Practice, and disciplinary procedures. SOA members are already subject to Japanese standards of practice for any professional work done in Japan or for Japanese clients, whether or not the SOA member is also a member

of the IAJ (see Annotation 4-1 of Precept 4 in the SOA’s Code of Professional Conduct).

Reasonable fluency in Japanese will be necessary for SOA members to take advantage of the Japanese Institute’s publications and meetings, just as it is necessary for an Institute member who becomes an SOA correspondent to be reasonably fluent in English to benefit from Society publications and events.

Anyone interested in applying to become a Kenkyu-Kaiin should contact Mr. Hideyuki Yoshida, FIAJ, FSA, General Secretary; The Institute of Actuaries of Japan; Nihon Seimei Koishikawa Bldg., 3F; 1-12-14 Koishikawa, Bunkyo-ku; Tokyo 112, Japan. The IAJ also may be contacted by fax (81-3-3816-4559) or e-mail (iaj96@lib.bekkoame.or.jp).