

Faculty Sabbaticals at Government/Industry Institutions

By Boris Iglewicz, Department of Statistics, Temple University

The Statistics Partnerships among Academe, Industry, and Government (SPAIG) is an ASA committee which aims to help foster successful partnerships between academe, industry, and government statisticians. The purpose of this note is to highlight and encourage one such activity dealing with sabbaticals taken by academic statisticians. Typically, faculty members at research universities take sabbaticals by working on a research project at their institution or spending at least part of their sabbatical at another university either in their home country or at a foreign institution. Here we discuss an alternative option, namely spending at least part of the sabbatical at an industrial or government organization. One aim of this note is to make statisticians aware that such arrangements do exist and can be quite successful. The other aim is to help encourage the creation of such arrangements inside government and industry branches that employ a sizeable number of statisticians and to help start the process of publicizing such arrangements.

There are a number of advantages to such arrangements. Gaining knowledge of and experience in an entirely different practical environment which may lead to research projects that are both interesting and of practical value is one such advantage. The possibility of a longer term consulting relationship also exists. Further, many academic institutions will only compensate for a semester leave. Hence, working with a government or industrial institution that is willing to provide compensation for the remainder of the year makes it financially feasible to take a complete year of leave. Such

a lengthened sabbatical can provide a far more rewarding intellectual experience than one lasting for a single semester.

We will illustrate several successful sabbaticals taken by research statistics faculty members at biopharmaceutical companies. One of these companies, Merck, has a well established program for this purpose, while the other considered institution, GlaxoSmithKline (GSK), offers such sabbaticals on an individual basis as the need and opportunity arises. These cases were chosen because the author is familiar with the local individuals and institutions involved, and are exclusively used for illustrative purposes. It is very likely that there are many such arrangements, which may be highlighted in future articles.

The first illustrated company is Merck, which has a formal structure, The Stanley Schor Scholar Program, for such faculty study leave arrangements. Stan, a Fellow of ASA, was the first Executive Director and Head of the Biostatistics Department at Merck and is credited with raising the scientific level of biostatistical support in clinical trials broadly and in the pharmaceutical industry. Consistent with the theme of scientific excellence and statistical innovation, the Schor Scholar Program was instituted upon his retirement from Merck in 1992. The goal of the program is to bring in experienced faculty for a period of six months to one year to interact on a daily basis with the Merck statisticians. The Schor scholars are available to consult on project related issues, give seminars on current statistical topics, and collaborate with Merck statisticians on research questions. Some of the statisticians who have participated in the program include Myron Chang, Jack Lee, Dan Heitjan, Robert Stine, Seymour Geisser, and Anastasia Ivanova. Scholars in epidemiology and health economics have also been a part of the program.

This program has stayed active with Jacqueline Dekker, EMGO Institute, the Netherlands, serving as this year's scholar.

The program is considered a success from all accounts. In addition to the valuable training and consulting, the research collaborations have resulted in many published papers. Myron Chang, University of Florida, was the first Schor Fellow and he worked primarily in areas of group sequential testing (Chang, Gould, and Snapinn, 1995) and missing data (Shih, Quan, and Chang, 1994). As an example of the impact of his visit, a burden of illness method (Chang, Guess, and Heyse, 1994) combining incidence and severity of disease was developed for a vaccine clinical trial for herpes zoster (Oxman et al., 2005). Dan Heitjan, currently at University of Pennsylvania, was another very active fellow. Dan taught courses on longitudinal analysis with missing data and provided consultation on longitudinal trials and missing data. His primary collaboration was on a program involved with analyzing intra-ocular pressure data from glaucoma clinical trials using repeated-series longitudinal models (Heitjan and Sharma, 1997). Dan also worked on causal models with non-compliance leading to Heitjan (1999A) and Heitjan (1999B). As an added benefit of the scholar program, Dan noted his enjoyment of being able to take some time each day to read statistical books and papers on more general topics. Robert Stine's (University of Pennsylvania) experiences as a Schor Fellow are similar but with different areas of emphasis. Bob worked on a prediction model of osteoporosis that led to statistical methods for measuring overlap in distributions (Stine and Heyse, 2001). Bob's consulting and teaching was primarily in preclinical animal studies of blood pressure in a longitudinal setting, and he used his

background in business statistics to help the marketing department with a promotion-response study using a mixture model with excess zeros.

These are but a few examples demonstrating the clear advantages to participation in an academic-industry partnership, not only to academic but to the industrial partner as well. The examples taken from Merck illustrate that important problems in pharmaceutical statistics have been addressed by developing, applying, and publishing novel statistical methods in actual drug and vaccine research settings. These programs provide academic statisticians experience in solving real world industrial problems, while allowing industry statisticians to maintain their theoretical foundation.

The second illustrative institution is GlaxoSmithKline, where Richard M. Heiberger, Professor of Statistics at Temple University, held a sabbatical year research leave at their Research Statistics Unit during the academic year 2003--2004. GlaxoSmithKline does not have a formalized sabbatical program, but makes a variety of arrangements with faculty as the need arises. Richard participated in a company-wide investigation into the use of graphics in clinical trial reports and submissions, culminating in a paper published in *Pharmaceutical Statistics* (Amit, Heiberger, and Lane, 2008). During that time Richard gave two short courses based on his book with Burt Holland (2004), as well other seminars. Beginning in January 2009, Richard entered into a research contract with GlaxoSmithKline through Temple University for a one-day-a-week collaboration. He began his current collaboration with a seminar on the RExcel interface, the topic of his new book (2009). Richard has built upon his experience gained in the design of clinical trials simulation experiments by designing Excel-based user

interfaces, which allow clinical staff direct access to the underlying simulation software written in R. There are at least two journal articles in preparation based on this work.

In summary, these two cases highlight the existence, success, and benefits of faculty sabbatical arrangements with industry partners. Such partnerships can lead not only to publications resulting from statistical solutions to industry problems, but also to longer term relationships between academia and industry. It is hoped that this short note will help encourage additional sabbatical arrangements between academia and industry.

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