

## *An Argument Falling on Deaf Ears*

### **The Ph.D Factory: Training and Employment of Science and Engineering Doctorates in the United States**

by Charles A. Goldman and William F. Massy, Anker Publishing Company, Inc., Boston, MA, 2001.

*Reviewed by Mark Benvenuto*

**T**he *Ph.D Factory* is one of those slim volumes that appears every few years with well-thought-out, intelligent arguments illustrating how the nation's universities are producing too many people educated in a certain field or fields—in this case, science and engineering terminal degree holders.

The authors examine the costs involved in training a Ph.D., both for the person being trained and for the taxpaying public. They do a thorough job of building their case of an impending glut of Ph.D.s in science and engineering fields, yet are smart enough to state right at the beginning that many consider this aspect of education to be “the key to our nation's long-term growth.”

Unfortunately, the problems usually inherent in previous such volumes are present here as well: The authors invariably are not in the field where they suggest too many degrees are being granted; the authors suggest no concrete way to change the opinions of people going into such fields of study, nor do they offer any intelligent alternatives to those fields for such people; and, such predictions never seem to cause noticeable problems

that would be seen and felt throughout the country.

The first problem is out-of-field authors: Dr. Goldman is an economist. Dr. Massy does have an impressive career in academia, but apparently comes to it through the Stanford School of Business. Since neither author has a background in science or engineering, one wonders how much science and engineering faculty will give credence to the predictions of the book.

To reverse the situation, how much importance would the academic business community give to a volume about the trend in economics and business graduates if it were written by a biologist and a civil engineer, both of whom had gone on to become university administrators?

This is not to say that the book makes bad predictions. It is very thoughtfully written, with a detailed set of conditions from which its predictive models are constructed. But including a third author who was an active professional within one of the fields being examined would have gone a long way in helping this work.

As it is, the entire work may become nothing more than music falling on deaf ears.

The second problem is a disappointment that is crystallized at the end of Chapter 7, "Conclusions About the Academic System."

The authors make such bland conclusions as "...the academy must find a way to respect the interests of the participants in the system: undergraduate students, graduate students, postdocs, faculty," and "...we believe that the public and certainly the student participants in the system would be well served by some restructuring of graduate education."

Ironically, such inconclusive mush comes only a page after the statement, "We also believe it is appropriate to place some restrictions on the number of foreign graduate students admitted to science departments." After 77 pages of a seven chapter section titled, "Part I: Results and Conclusions," the intelligent reader expects more than simply a recognized need for change coupled with a jab at our immigration policy.

The third problem—that the nation as a whole will probably feel no effect at all from a predicted over supply of science and engineering Ph.D.s, makes this book a yawn for anyone out of the academic fields which it studies.

This is not to say that the volume is worth any less because of its specificity. On the contrary, this work has numerous supports for its arguments, and anyone in higher education in the science and engineering fields would do well to examine it.

Part II of the book: "Details of the Modeling," lays out in exacting detail the data that was used to support the authors conclusions.

Concerned persons will probably note the numbers for their own discipline, in order to determine how bad an oversupply is predicted in their specific field.

The supporting math for the model is pretty arcane reading for many, even in academia, but is explained in good detail. Overall, though, many readers may choose to look at this volume only for the first part, the conclusions that Ph.D.s will be overproduced in the coming years.

As a whole, this book makes the relevant point that the nation's universities are producing too many science and engineering Ph.D.s. Unfortunately, after all the work of modeling and writing required for a book, the authors make no worthwhile suggestions for positive change. ■

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