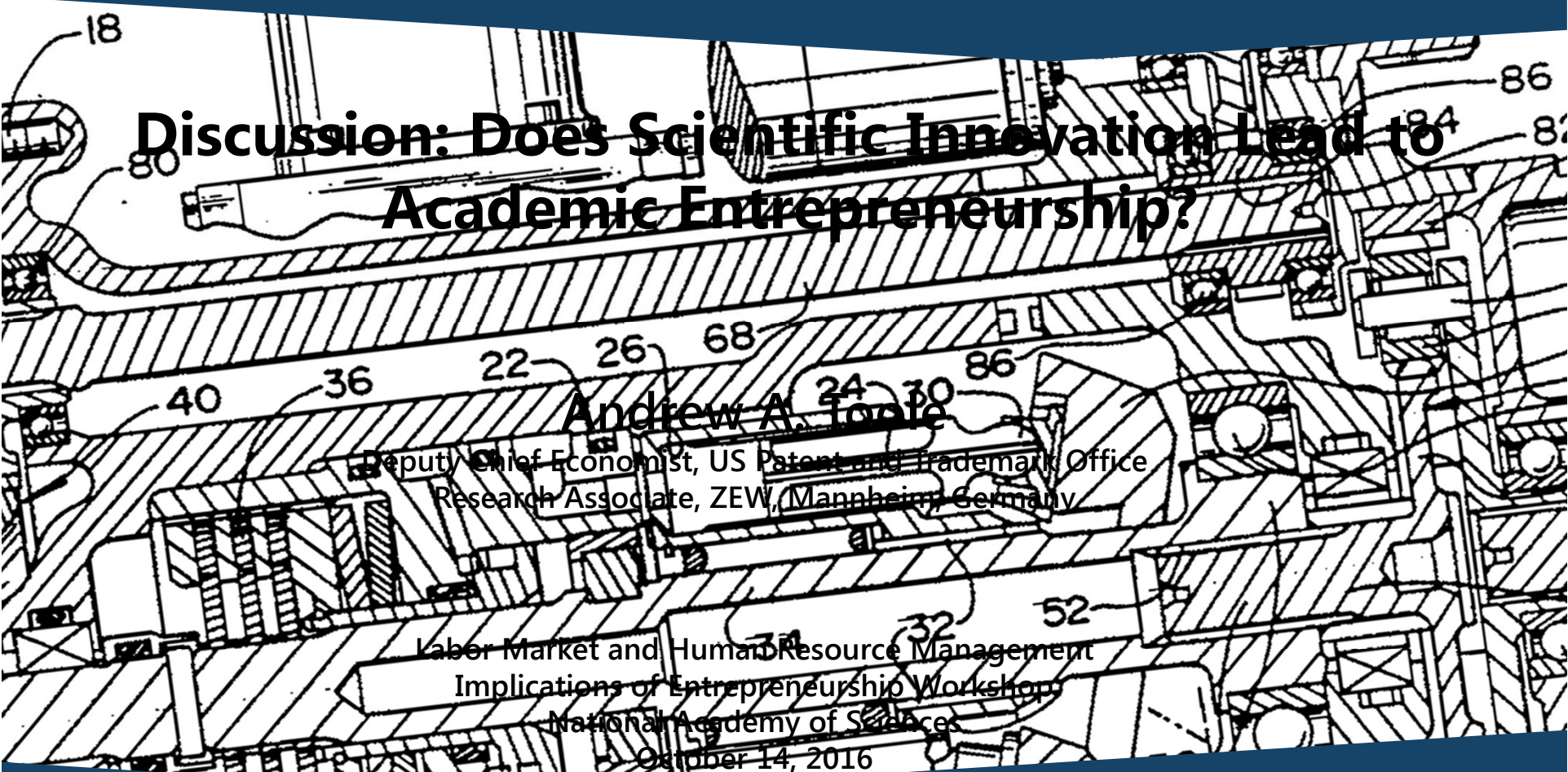




Discussion: Does Scientific Innovation Lead to Academic Entrepreneurship?

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Labor Market and Human Resource Management
Implications of Entrepreneurship Workshop
National Academy of Sciences

October 14, 2016

UNITED STATES
PATENT AND TRADEMARK OFFICE



The views presented are those of the author and do not necessarily represent the position of USPTO.



Main Objectives in the Paper

**To shed new light on the innovation-
entrepreneurship nexus among academic
faculty and to investigate the implications
of academic entrepreneurship**

Unique Aspect of the Paper

- **The Survey of Doctorate Recipients**
 - 1993 to 2008 (biennial survey)
 - Detailed information on individuals with a research doctoral degree in a science, engineering, or health (SEH) field from a U.S. academic institution.
- **Merged in AUTM data for TTO information**
- **Merged in patent data with university assignees**

Main Finding (1)

- **Descriptively patenting and entrepreneurship are largely separate undertakings**
 - o 75% of AEs do not have any patent activity
 - o 27% of those with patenting activity are AEs
- **Run separate Probit models (yes/no) for patent app and AE**
 - o Academic performance (articles, presentation, etc.) is associated with patent apps
 - o But only presentations for becoming an AE



Main Finding (2)

- **Descriptively innovation and entrepreneurship are largely separate undertakings**
 - o 87% of AEs do not have commercialized patents
 - o 37% of those with commercialized patents are AEs
- **Run separate Probit models (yes/no) for commercialized patent**
 - o Articles and presentations are associated with comm
 - o Being an AE very strong and significant

Main Finding (3)

- **Logit models (control for individual effects)**
 - o For patent app, grant, comm. (yes/no): Articles and presentations associated with an increase prob, but no AE effect
 - o For AE (yes/no): patent apps, gov't support, # employer AEs increase probability
- **Cox hazard models (explore timing)**
 - o For patent app, grant, comm.: Presentations, AE, and lagged employer patents increase hazard (but not articles)
 - o For AE: lags of patent apps, grants, comm. increased hazard, articles and presentations were marginal # employer AEs increased hazard

Main Finding (4)

- **Being an AE:**
 - Increases the probability of leaving academia permanently
 - Reduces hours worked per week on academic job, and salary
 - Increases earnings
 - No effect on articles, gov't support
- **Patent apps:**
 - Increases prob of leaving, articles, and salary
 - Reduces hours worked per week
 - No effect on gov't support or earnings
- **Patent commercialized:**
 - Decreases earnings and government support
 - No effect on leaving, articles, hours, or salary



Suggestions 1

1. Offer a conceptual model to help clarify relationships

- Who are the decision makers across these different dependent variables?
- Faculty is an inventor, but the decisions to apply and commercialize are undertaken by universities, firms, others?

2. More background and discussion of the measures used for innovation and entrepreneurship

- Patenting is invention, not innovation. Is the focus on how the inventive process by faculty is impacting university labor or effort? Or is the focus on engagement by faculty in the private sector?
- Definition of entrepreneurship needs further explanation

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Entrepreneurship Definition

- Broad def. may not be an advantage: *During the week of October 1...working for pay (or profit) at a second job (or business), including part-time, evening, or weekend work*
 - Is this the type of entrepreneurship that is fueling debates in the literature?
 - Who (which faculty) are working the 2nd jobs?
 - What is the nature (title, duty, category related) and trend in these jobs?

Suggestions 2

3. **More interpretation of findings (as opposed to reporting)**
 - Why are "presentations" so important across multiple models and dependent variables? What does this mean?
 - Are the magnitudes of the coefficients economically meaningful?
4. **A deeper discussion of the sample constructed from the SDR.**
 - Why are the SDR population weights appropriately applied to subpopulations? How representative is the actual sample in hand of these subpopulations?

Suggestions 3

5. More explanation and justification of econometric issues

- Strict exogeneity is unlikely to hold for the conditional logit and Cox models (e.g. unobserved determinants of patenting will influence future values of explanatory variables such as becoming an AE, publishing articles, etc.)
- More robustness tests (imputations effects?, etc.)

6. Establish the labor market implications more explicitly in the paper.

- Toole and Czarnitzki (2010a, 2010b), *Management Science and EINT*, faculty entrepreneurship involves a potentially costly tradeoff. Time and effort are diverted away from academic knowledge production and teaching.

Thank you

