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To Whom It May Concern:

I am writing to apply for a Postdoctoral Fellowship in Innovation Policy with the NBER. I am currently a Ph.D. candidate in economics at The Ohio State University with research interests in the economics of science and innovation, labor economics, and urban economics. I am delighted to see this job posting as I believe my research interests match the fellowship requirements well.

Though primarily a labor economist, I strive to take a multidisciplinary approach to research. Indeed, my dissertation incorporates ideas and methods from sociology, public policy, computer science, and library and information sciences. My research is particularly concerned with examining how scientists collaborate to produce research and advance the frontiers of the scientific enterprise. My job market paper uses a rich sample of biomedical scientists to identify plausibly exogenous changes in author productivity and then examines how these changes impact the productivity and collaboration patterns of coauthors. This work is important because understanding peer effects and productivity spillovers among scientists is crucial for clarifying the determinants of scientific progress, prying open the black box of technological advancement, and deepening our understanding of economic growth. In other work, I examine how scientific activity within a metro impacts wages and real estate prices in that metro, how per-article cash bonuses impact researcher productivity, and how open access mandates impact the academic journal market.

I am also one of six core members of a National Institutes of Health funded multidisciplinary research group that is constructing novel measures of high impact and transformative science (HITS). Part of my role has involved using text from millions of scientific articles to examine which articles, researchers, or fields are producing innovative or important scientific concepts. This has required me to integrate the tools of natural language processing with the standard tools of applied microeconometrics to analyze billions of scientific concepts and shed new insights into how science progresses.

If granted this fellowship, I will pursue four main projects during the 2016-2017 academic year. First, I will finish my job market paper early in the year and submit it for publication to either a high quality general interest journal such as RESTAT or a top labor field journal such as JOLE. Second, I will continue my collaborative work developing measures of HITS and using these measures to analyze, among other topics, the implications of an aging scientific workforce on scientific output.

My third project will analyze how hospital-level patient outcomes vary with the amount and type of research conducted at that hospital. I will obtain detailed hospital-level control variables and hospital-level patient outcomes from the Centers for Medicare and Medicaid Services Hospital Compare data. I will obtain hospital-level measures of the amount and type of research from our HITS measures. My basic strategy will be to use a rich set of time-varying control variables, a set of hospital fixed effects, and a share shift index that exploits historic variation in the mix of research at hospitals interacted with trends in federal funding for specific fields as an instrument. The intuition behind the IV is that, as federal priorities

shift, hospitals with initial research expertise in different subfields of biomedicine will be differentially impacted by these shifts. For instance, during the 1980s, federal funding for HIV increased dramatically. This increase will tend to favor hospitals that specialize in HIV-related research relative to hospitals that specialize in other subfields of biomedicine.

Finally, the fourth project I will pursue will build upon my work analyzing the impacts of cash bonus policies on researcher productivity. My focus will be on the cash bonus policies implemented by Chinese universities which can be very large—as much as $70,000—for publications in top journals such as *Science* or *Nature*. Though bonuses can be very large for publications in top journals, most university policies also provide smaller bonuses for very low ranked journals. My current work uses country-level policy and publication data and suggests that these policies significantly increase the number of publications in low ranked journals, but have no impact on publications in high ranked journals. Thus, they seem to increase the quantity but not the quality of researcher output. In order to get more reliable estimates of the impacts of these policies, I have already begun to collect university-level data from Chinese universities. One strategy to obtain these estimates will depend on the fact that the nominal levels of bonuses are fixed for several years. Thus, inflation will mechanically decrease the real value of the bonuses. This will allow me to use IV methods obtain causal estimates of the impacts of cash bonuses on researcher productivity. I will also exploit discrete jumps in bonus values when policy changes are implemented.

I will be attending the January ASSA meetings in San Francisco, and would appreciate an opportunity to meet with you during the conference.

Thank you for your consideration of my application.

Sincerely,

Joseph Staudt

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