**George Mason University**

**Econ 637, Spring 2016**

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**Revised Proposal: “Innovation and Entrepreneurship”**

**Due: April 5, 2016**

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The specific question I would like to investigate is “In 2014 in the US, did IT professionals engage in a higher rate of entrepreneurship compared to individuals in other industries?”

A reader might find this paper interesting for numerous reasons. Many readers would consider the health of the information technology industry to be proxy of innovation in the economy. As such, this paper could provide interesting evidence towards a possible relationship between innovation and entrepreneurship.

The testable null hypothesis is that IT professionals in the US did not engage in a rate of entrepreneurship which is significantly different compared to other individuals in the year 2014. The source data used to address this question is the 2014 ACS PUMS data set provided by the US Census Bureau. The reason for choosing 2014 ACS PUMS data as opposed to another year is simply that such data is the most recent available.

The variable of explanation is the rate at which individuals are self-employed. The variable of interest is whether or not an individual works in the information industry.

I expect that working in the IT industry will actually make a person less likely to be an entrepreneur. That is, I expect the coefficient of the variable of interest to be negative.

This is a working expectation and it stands in contrast to my original prediction that low barriers to entry in the IT sector would cause higher rates of self-employment. After a cursory look at the data, my working hypothesis is that the incentive from costs of entry is dominated by the opportunity cost of employment in the IT sector. It is possible that correction variables might result in a finding opposite this current expectation.

Three papers which have addressed related questions include:

1. Thurik, Roy, and Wennekers, Sander. “Linking Entrepreneurship and Economic Growth.” *Small Business Economics* (1999): 27-56. Web.
   1. This article was more a literature review than a well-defined model. Even so, it generally concluded that entrepreneurship is a factor of economic growth, and one way entrepreneurs grow the economy is through technological progress.
2. Miller, Danny. “The Correlates of Entrepreneurship in Three Types of Firms.” *Management Science* (1983): 770-791. Web.
   1. This article occurred earlier in the literature on entrepreneurship. The paper focused on the determinants of entrepreneurship. The paper distinguished three types of firms and anticipated important behavioral differences in the propensity to engage in entrepreneurship. For example, entrepreneurship in simple firms was more potently influenced by the traits of firm leadership.
3. Covin, Jeffrey G., and Dennis P. Slevin. "Corporate Entrepeneurship in High and Low Technology Industries." *Journal of Euromarketing* (1994): 99-127. Web.
   1. This article noted that entrepreneurship has an importantly different relationship with firm performance in the context of a high technology industry when compared to a low technology industry. The article also argued that technological sophistication has a moderating effect on the relationship between certain other factors and firm performance.

**Preliminary Results**

As earlier discussed, a cursory look at the data has already reversed my original expectation. My working hypothesis is individuals working in the IT sector will be less likely to be self-employed compared to individuals in other industries.

Individuals employed in the IT sector often enjoy high-pay, low-risk employment. It could be that the opportunity cost of an individual in this position is very high when considering self-employment.

Statistically, the long regression under investigation includes 29 independent variables, many of which are categorical variables which will be further split into dummy variables for a total of over 200 variables.

I have not yet fully examined the long regression, but the short regressions I have examined include the variable of interest and several correction variables. The variable of interest is a dummy variable indicating whether an individual works in the IT sector. The dependent variable is a dummy variable indicating whether the individual is self-employed, which is interpreted as a probability.

The independent variable is significant at the 1% level in all short models tested so far. A wide variety of correction variables have been tested with significant results. Age, gender, race, marital status, state of residence, educational attainment, and even body weight have been identified as statistically important.

Despite the high significance of the variable of interest, the result may be unimportant. After correction, the coefficient has been small and the adjusted R^2 has not exceeded .1.

One of a few key variables which I have yet to test is a proxy for counterfactual income. There is good reason to think that inclusion of an opportunity cost proxy would raise the adjusted R^2 significantly, however, it is does not seem likely that the variable of interest will constitute a large portion of the overall model.