**Econ 6511 Homework 5**

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1. Preliminary stuff

(a) What is a patent? What are the requirements for patentability of an invention in the U.S.?

A Patent is a government authority or license conferring a right or title for a set period, especially the sole right to exclude others from making, using, or selling an invention. requirements for patentability of an invention in the U.S. are:

* The invention must [be statutory](https://www.bitlaw.com/patent/requirements.html#statutory)
* The invention must [be new](https://www.bitlaw.com/patent/requirements.html#new)
* The invention must [be useful](https://www.bitlaw.com/patent/requirements.html#useful)
* The invention must [be non-obvious](https://www.bitlaw.com/patent/requirements.html#nonobvious)

2. Based on the Introduction (pages 101-105):

(a) What is the paper’s main question or inquiry? (1-2 sentences) (b) What do the authors contend the answer to this question is? (2+ sentences)

Main topic: Effect of stronger patent rights on innovative activities of the semiconductor firm. The authors found the primary reason for intensified patenting among their sample of semiconductor firms was more aggressive patenting by capital-intensive firms and evidence of managerial improvements during the period of the study, but primarily in how semiconductor firms manage their intellectual property rather than in the management of their R&D labs per se.

3. Based on Sections 2-3 (pages 105-108):

(a) What institutional change occurred in the early 1980s?

The 1982 creation of the Court of Appeals for the Federal Circuit

(b) How did this affect the behavior of firms? Which firms in particular? (4+ sentences)

It transformed the legal environment from one that was generally skeptical of patents to one that promoted the broad, exclusive rights of patent owners (Adelman, 1987; Merges, 1997).

Firms affected in particular are:

Lanjouw and Lerner, 1996

Kortum and Lerner, 1998

,Bessen and Maskin (2000)

Jaffe, 2000

4. Based on Section 4 (pages 111-115):

(a)  The authors are using panel data. What makes it a panel data set? Be specific. (1-2 sentences)

The authors examine the patenting behavior of a larger sample of semiconductor firms over a period that spans the pro-patent shift in the U.S. So the same firms are being followed over time. Hence, Panel data

(b)  What is the left-hand side variable, pit, on the bottom of page 112? Be specific. (1 sentence)1

It is number of successful patent applications made by a firm in a given year. i indexes the firm and t indexes year

(c)  What (right-hand side) variables are contained in Xit? List them.

Xit is past history of R&D spending, along with other firm characteristics such as size.

(d)  The authors are most interested in the coefficients attached to which variables? For each variable, explain in one sentence what a statistically significant variable in Table 1 (Column 4) would imply?

(e)  What does the coefficient on Log P&E (per employee) in Table 1, Column 4 mean? Be specific. (1 sentence)

(f) How do the results in Table 2 support the authors’ argument(s)? (3+ sentences)

5. Based on Section 5 (pages 121-124):

(a) How and why do the authors control for patent quality? What do Figures 5 and 6 indicate about changes in patent quality? (3+ sentences)

Author controls for patent quality because hypothesis suggested by the interviewees, says that the quality of average patent has fallen. Authors examine the citations and claims for the semiconductor patent.

Figure 5 shows that although semiconductor patents in general receive more citations than the average patent in manufacturing, the relative ratio fell from 1.5 to 1.4 during the 1980s however, Figure 6 shows relative citation-per-patent measure with and without self-citations and increase in patent quality