Assignment 2 Answers

(Note: I skipped some questions, particularly those concerning generalizability of empirical contexts since I addressed it in class.)

Paper 1: Paruchuri, S., Nerkar, A., Hambrick, D.C., 2006. acquisition integration and productivity losses in the technical core: Disruption of inventors in acquired companies. Organization Science 17, 545-562.

Q: In that the main negative effect of acquisition integration inventor productivity goes away, even disappears entirely when the interaction of inventors' characteristics and integration are jointly taken into consideration, what should the acquiring company specifically do to make it before and after acquisition?
A: When regressions include interaction terms, you cannot interpret the coefficient of a direct effect alone ("integration" in this case). See p.58 on the slide.

Q: When an acquisition occurs, who experience disruption more as well both from the acquiring and acquired companies apart from those inventors?
A: I believe all types of employees are affected by M&As. Theories suggest various kinds of impact on employees (see p.48).

Q: How does acquisition integration affect employees in acquiring firms?
A: I suppose that impact on acquiring firms should be modest compared to that on acquired firms. This is because acquirers are usually larger than acquired firms and have authority.

Q: As for Table 2 , the variable Technological dissimilarity shows a curvilinearl relation (U-shape) to productivity in modle 1 to 3 , does that mean that the larger the difference is, the greater the productivity will be?
A: You can say so. The interpretation is unclear, though.

Q: Can we go deeper in the good practices in the integration of companies following their acquisition? I understand that the creation of conglomerates is not the optimum in the chosen examples. Is there any new methods we could study on the topic of integration?
A: Given that previous studies focused mostly on aggregated levels of observation (financial performance, R&D output, etc.), I suppose we need deeper understanding at more micro-(individual) levels, which includes leadership, management styles, etc.

Paper 2: Prabhu, J.C., Chandy, R.K., Ellis, M.E., 2005. The Impact of Acquisitions on Innovation Poison Pill, Placebo, or Tonic. Journal of Marketing 69, 114-130.

Q: Since that for some firms, innovation is Poison Pills, whether it means that these firms must be weeded out as the time goes. Isn't any methods for these firms to survive.
A: It's not that they have to rely on M&As. The result suggests that firms with little knowledge base would not benefit from acquisition, for example. This implies that they

should first develop their knowledge base and it is only after that M&As become their effective strategic option.

Q: Inside the pharmaceutical industry, we can still find many small branches, for companies in different branches, can we compare them directly? And for firms in different scales, how can we compared their behavior in innovation and other aspects? Will a relevant ratio of number of phase1 drugs over the firm's scale be a more convincing measurement?
A: Since the study draws on patent data, it mainly looks at the research function, effectively ignoring other functions. There might be some difference between sub-functions inside the research function might be less problematic. Your idea of controlling for size is a good one. The study includes a size factor in the regression, which has the same effect as your suggestion.

Q: Can we draw a conclusion simply by comparing the mean number of products in phase 1? And should we take the possibility of change in deviation into concern? For example, is there any possibility that with the depth go deeper one may get 2 possible result: higher innovation level or lower innovation level?
A: That is possible. Some studies use the standard deviation of some outcome measurements as dependent variable, when they have hypotheses similar to yours.

Q: The innovation process is assessed by the number of patents. But not all the knowledge can be quantified in this way. For example, the customers' preference. It's important for a company to clearly know what the customers need. But it cannot be measured by patents anyway. So is it inaccurate to occupy the number of patents as the only measurement for innovation?
A: You are right. In the pharmaceutical industry, the problem may be justified to the extent that success of clinical trials is independent of market needs.

Q: Even if we assume the number of patents can be a measurement of innovation process, the value and usefulness of each patent can vary greatly from the others. For example, pharmaceutical company A has 10 patents on a medicine that has a poor effect, while company B has only 5 patents on its medicine that has an awesome effect. Should we conclude that A has better innovation ability than B?
A: In this study, patents are used mainly as an indicator of technological areas. So, the quality of patents may be less relevant. When patents are used as "innovation" or "product", the quality needs to be considered. We often use the citation count (how many times patents are cited by other patents?) to this end.

Q: Parameter / variable 9 (Target technical knowledge) may account for this. However, is it not relevant to know if the combined innovation output post-acquisition is larger than the combined innovation output pre-acquisition? I.e. are there positive synergies, or rather cannibalism for the innovation output in total?
A: I agree. In this study, I guess that the authors ignored target firms because they are probably far smaller than acquiring firms.

Q: pp. 118: The knowledge in the firm is here defined as two-dimensional (e.g. vertical and horizontal, or by its breadth and depth). However, can it not just be so that it is rather the

aggregate knowledge that is most important? E.g. in the case of the breadth, measured as number of patent subclasses approved, could it not just be that this is a decent indicator of how big the overall/total knowledge is within the firm? Or putting it more general: How can you ensure that a defined measurement for a variable is not more relevant as a measurement for something else (i.e. another variable)?

A: Yes, the total patent count can be an alternative measure. I suppose 2-D measures in this study effectively decompose the total count into two independent aspects. That is, if we replaced the 2-D measures with a single "total count" measure, we probably would get similar results, but we could not tell if the effect is attributed to breadth or depth.

Q: pp. 119: You can here read the reason why the subclasses are chosen as measurement, rather than the other levels in the hierarchy of patent classification. How well do you generally need to motivate a choice of specificity in a situation like this?

A: You are right. In general, we should also try other levels to see the results do not change substantially.

Q: pp. 121: How true is it arguing that model 2 and 3 respectively gives "an [accuracy] increase of 22 % and 15 % respectively"? For example, if the first model would be 1% true and the second would be 2% true, this would correspond to an accuracy increase of 100% - this does however not tell us much of "how true" each model is(?). Or is this just being caught up with a technical detail, since it [this measurement] really does give us some insight into the validity?

A: It's just because 56/49=1.14 (i.e., 14% increase). I don't think this interpretation is really meaningful, though.

Q: pp. 123 [first paragraph of this page]: Here the authors dig deeper down in the breadth*acquisition coefficient, and try to find answers to why this result is not satisfactory (related to their reasoning and theory). Although they don't argue for this being true because of some specific reason, e.g. multicollinearity, how ok is it to search / find alternative answers for unsatisfactory results, but not do the same for the results that are found that are satisfactory? (Or is it rather a more technical reason for this that I've missed?)

A: I also felt this paragraph was weird. I would drop it entirely.

Q: pp. 123: Regarding H5, I find it hard to understand how this is measured. The regression study is linear (they use the Pearson coefficient), but here they hypothesise and measure a non-linear relation, so how can this method then work? (I suppose the answer may be in in the measurement of the coeff. and the square of the coeff. but how does this then work?)

A: As you noticed, the regression has a quadratic term of "similarity" as well as a linear term. The estimated curve (Fig 1) is produced on the basis of the coefficients of the two terms. Suppose we have b1 and b2 as coefficients of x (independent variable) and x-squared. Then, the dependent variable is simply predicted by the formula: $b1 * x + b2 * x^2$.

Q: In the paper listed last week an author states the importance and superiority of survey data while this author has a tendency to exclude survey data while both of them focus on the depth and breadth of knowledge. When researching innovations, I am wondering whether it is proper to use survey data. How should we decide the data resource?

A: Both methods have pros and cons. Questionnaire can identify detailed information that researchers personally want to know, but the response may be biased. Secondary data, in particular, fact-based data like patents, are less biased, but researchers may not be able to find best measures from available data.

Q: Since there is little to none causations analysis made, this model and results are not possible to expand to a general context?
A: Generally speaking, proving causality is really difficult in social sciences, though there are some ways. But, at least, the empirical evidence shows that the reality is NOT contradictory to the theory. The important thing is that the theory itself is general.

Q: The article focuses on patents as a measurement of technical knowledge in a firm. All the knowledge in the people: the workers, researchers, managers etc, and in the network is transferred to the buying company in the event of an acquisition, but the paper ignores that. Doesn't this mean that this paper in fact shows the impact of acquisitions of patents, rather then firms, on innovation?
A: You can say so. This paper is interested in technological basis, ignoring all other aspects of organizational assets. It is not that they are irrelevant, but this paper decided to ignored them in order to specifically discuss the effect of technological basis. Certainly there are other paper looking into other aspects of organizational assets or capabilities. Note that it is not always wise to include many things altogether because it can confound the analysis and makes its interpretation difficult.

Q: Noting that this work focused exclusively on the acquiring firm perspective, how can start ups design themselves to be better acquisition targets? Is this something that could be taught in a start up incubator?
A: This paper is not very informative about this aspect, but it is certainly important research question. For example, venture capitals may want to know the answer. From the paper, we can only tell what knowledge base your acquires should possess (namely, deep, broad, and having some similarity). But, literature suggest other aspects (e.g., cultural match) as factors that decide success/failure of M&As. They should be taken into consideration if you are in a position to choose by whom to be acquired.

Q: To the degree that a start up can choose who acquires them, what should they look for (aside from money) in the acquiring firm that will make for a more synergistic partnership? (The paper may indirectly answer this because it talked about the similarities of knowledge.) How can a start up self evaluate to pick a good acquirer, if they have options? What "simple rules" could be followed here for start up or acquiring companies that may not have access to this methodology?
A: The matching with acquires is difficult to quantify. Practically speaking, firms usually employ consultants to evaluate their potential partners to evaluate if the combination is likely to work out.

Q: Does the focus on Phase 1 trials vs the more traditional comparison, patents, indicate an innovative approach or a distraction? What else could have been studied in this industry? Others?

A: I believe that using P1 trials as an innovation measure is creative, in that more conventional measures (e.g., patents) have a less clear link with "innovation". The study could have used "approved drugs" for example. I guess it didn't do so because the result would be confounded by noise.

Q: The research is only based on U.S. entrepreneurs (perhaps the authors are familiar with the U.S. situation), however, they are using patent information from the World Intellectual Property Organization instead of using database from National IP office in the U.S. This research method seems to imply readers that the authors are interested in drugs sold around the world or that they think patents applied through the international agency are valuable and can avoid the patent repeat problem though underestimating companies' innovation activity.
A: I suppose your understanding is correct.

Q: In page 7, as stated, "Our distributed-lag specification enables us to represent parsimoniously the effects of prior internal and external knowledge on innovation", and what is the term "parsimoniously" meaning in this context?
A: "parsimonious" means "being not costly." They mean that they should have included lagged variables of all the independent variables (IV). Instead of doing so, they included the lagged dependent variable (DV). This is more or less the same as including all IVs because all IVs are represented by the lagged DV.

Q: Finally, in Appendix A, the authors demonstrate the advantages of using data on "Phase I", but they nerve mention the reason why data, for example, in pre-clinical stage, Phase II or III is improper, which seems a defect in this research.
A: They could have done so (perhaps they did). I suppose using P2 or P3 can confound the results because the result of clinical trials can be affected by factors that have nothing to do with M&As.

Paper 3: Kacperczyk, A.J., 2012. Opportunity Structures in Established Firms: Entrepreneurship versus Intrapreneurship in Mutual Funds. Administrative Science Quarterly 57, 484-521.
Q: According to the author, it has been difficult to isolate individual rates of intrapreneurship and entrepreneurship. However, the author implemented the research indeed and the method is not so complicated. What is the most highly regarded point to enable him to do this research?
A: Yes, the method is rather straightforward. This study is appreciated by its creativity to use the mutual fund industry in order to measure intrapreneurship. In addition, the study provides a few robustness checks, including natural experiment, which also adds some value.

Q: Is it really that important to realize all this studies of company's behavior and different cases of success and failures from big and small companies? From my point of view is quite difficult to the data may not be relevant in the sense that there are always exceptions to the rule, even following the success cases is not a warranty of success in innovation or the opposite, there can be success in unexpected areas.

A: Your point of how we should use these kinds of statistical results is interesting. Your point is relevant particularly when by "innovation" we want to mean something unexpected or unpredictable. Then, whatever results may be meaningless because next innovation is very different from previous innovations.

But, the "innovation" is usually used for less singular cases, so that we can learn something from previous findings. In particular, this paper is interested simply in whether employees start new business or not, regardless of innovativeness. Thus, your concern is less serious here. Presenting this kind of results can be important for policymakers, for example, because they want to know how the society can be more productive (assuming that having entrepreneurs or intrapreneurs are the source of productivity).

By the way, this paper is not about the success/failure of entrepreneurship. It does not tell you under what circumstances entrepreneurs can succeed. This paper tells instead under what circumstances (namely, size and age) firms produce more entrepreneurs / intrapreneurs. The dependent variable of the study is whether an employee started new mutual fund, but not whether the fund was successful or not.